

**A GENDER SENSITIVE FISCAL INCIDENCE ANALYSIS  
FOR LATIN AMERICA:  
BRAZIL, COLOMBIA, THE DOMINICAN REPUBLIC,  
MEXICO, AND URUGUAY**

**AN ABSTRACT**

**SUBMITTED ON THE NINTH DAY OF DECEMBER 2019**

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**BY**

  
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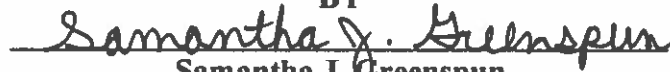
## **ABSTRACT**

This dissertation examines how fiscal policy affects gender inequality using a comparable and comprehensive framework and data from Brazil, Colombia, the Dominican Republic, Mexico, and Uruguay. Using the harmonized household microdata provided by the Commitment to Equity (CEQ) Institute at Tulane University, this study assesses how fiscal policy in these countries affects households and beneficiaries with gender equity as the focus. This is the first cross-country comprehensive gendered fiscal incidence analysis evaluating the impact of direct and indirect taxes (including consumption taxes and subsidies), direct and indirect subsidies (e.g., cash transfers), and in-kind education and health transfers combined. The study reveals that male breadwinner households are more disadvantaged pre and post government intervention as compared to female breadwinner households. However, female headed households are more disadvantaged than male headed households. In fact, female headed households are the most severely disadvantaged group compared to any other gender variable. In all countries analyzed in this study, fiscal policy as a whole does improve the wellbeing of those who are more disadvantaged pre fisc (i.e., the poor, defined as those who earn less than US\$5.50 PPP per day) regardless of their gender. Further research is needed to determine why female breadwinners are better off than male breadwinners, but female headed households are more disadvantaged than any other type of gender household classification. Additionally, more research should be done to determine the most effective gender variables necessary to assess fiscal policy.

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## **Introduction**

Why should one be concerned with gender inequality in Latin America? Women have higher life expectancies and oftentimes better health than their male counterparts, yet they earn less money, which lowers their overall wellbeing and increases their inequality levels (UNDP, 2018 and World Bank, 2019a and 2019b). Women also have lower labor market participation and higher rates of underemployment and unemployment than males. In particular, the proportion of women that earn wages below the minimum established per country is much higher than that of men (ECLAC, 2019a). On the other hand, males in Latin America have lower average years of education than females, including target population rates and the incidence of poverty is higher among those who do not complete basic education (CEQ Data Center, 2019 and ECLAC, 2019a). Females often require more healthcare than males, especially during childbearing years and in old age (Demery, 2009). Furthermore, when poverty is measured at the household level, gender differences play a significant role in inequality and the incidence of poverty in the region (ECLAC, 2019a). Based on the data, there are many important reasons that gender inequality in Latin America should be studied today.

Despite poverty remaining steady and inequality falling notably in the historically unequal region since 2000, these data show that there are many instances in which gender inequality and inequity remain prevalent today (ECLAC, 2019). Fiscal policy is one of the mechanisms by which the state can change such gender inequalities. In fact, as the region that was the innovator of the conditional cash transfer (CCT), Latin America has

experience in not only using policy to change gender inequalities but also developing effective programs. Additionally, Latin America is a region with diverse, innovative, and comprehensive welfare states. Therefore, the region has many opportunities to use its fiscal policy to combat gender inequality, particularly if the effects of existing fiscal policy on gender are well understood.

In this dissertation, I examine how fiscal policy affects gender inequality using a comprehensive framework in Brazil, Colombia, the Dominican Republic, Mexico, and Uruguay. These countries were chosen for several reasons. First, it was an opportunity to use the unique, recently released, Commitment to Equity Harmonized Microdata. This harmonized microdata on fiscal incidence is produced by the Commitment to Equity (CEQ) Institute at Tulane University. The harmonized microdata sets that were available for Latin America at the time that this dissertation research took place included these five countries. Second, the datasets of these countries include certain variables that comprise the gender variables, which are used to examine how fiscal policy affects gender. Third, each country is located in a different region of Latin America, and therefore the combination provides a unique regional diversity to explore gender equity. Fourth, the countries are diverse in the types of welfare states, and as such possess large welfare states with multiple, robust programs for an in-depth analysis on gender equity. For example, several of the countries in this study had more than one health insurance programs – some contributory, some non-contributory. This allows us to compare the different types of programs within country and cross-country. Finally, the harmonized microdata sets are comprised from the original CEQ Assessment that was completed based on household surveys. Each country included in this study had conducted its household survey within a five year span, making a cross-country

analysis possible and more generalizable. The years are as follows: Brazil 2009, Colombia 2010, the Dominican Republic 2013<sup>1</sup>, Mexico 2012, and Uruguay 2009.

To evaluate the effects of fiscal policy on gender in Latin America, a gendered fiscal incidence analysis can be used. This tool allows researchers to answer key questions related to inequality including how fiscal policy affects female and male beneficiaries; whether fiscal policy has an effect on households according to whether there is a male or female head of household; if households with higher female employment earners are treated equal to households with where a male earns the most money through employment; and whether fiscal policies effectively improve the status of the gender that is more disadvantaged before paying taxes and receiving transfers from the government.

Given the unquestionable usefulness and importance of gendered fiscal incidence analyses, how pervasive, timely, and methodologically robust are the existing studies? Can the results inform policy discussions in specific settings? What additional information should gendered fiscal incidence studies include to enhance their usefulness? To address these questions, 16 studies were reviewed that included a gendered fiscal incidence analysis. While not exhaustive, the review covered the leading studies available in English language. The full review can be found in Chapter 1.

The review revealed an important fact: there is no comprehensive gendered fiscal incidence study available. In particular, there are none that look at the impact of direct and indirect taxes (including consumption taxes and subsidies), cash transfers, indirect taxes

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<sup>1</sup> The household survey for the Dominican Republic was actually for 2007. However, many fiscal reforms had been made in 2013. The original CEQ Assessment for the Dominican Republic was to study the impact of these reforms (Aristy-Escuder, et al. 2016). Therefore, they imputed estimates for the fiscal reforms of 2013. As such, the dataset for this dissertation is being referred to as 2013.



and in-kind transfers combined. This is a serious limitation since what matters in the end is the net effect of the fiscal interventions on people's incomes and consumption. As shown in the studies by Lustig et al. (2014) and Lustig (2018), direct cash transfers can offset the negative effects on purchasing power induced by consumption taxes on low-income households; but sometimes they do not. Thus, in some countries, poverty rates (after cash transfers and direct and consumption taxes) will be higher than market income poverty, while in others poverty will be lower.

Therefore, these types of shortcomings accentuate the need for a comprehensive gendered fiscal incidence analysis. By studying the effects of taxes and transfers working together, as part of the fiscal system, we can learn whether or not the welfare state is improving the wellbeing of the gender, or gender-type household, that is the most disadvantaged pre government intervention. (Which is not always female.)

The focus of the research is to examine the impact of taxes and transfers on gender inequalities in Latin America in the cases in which it is possible to identify the impact by gender directly. In particular, the cases in which it is possible are 1) to classify households by taking gender into account, or 2) to identify the gender of the beneficiary directly (e.g., spending on education or health). No attempt will be made to allocate the burden of taxes or the benefits of transfers within the household. In order to estimate the impacts of fiscal policy on gender inequality, the systematic literature review helped to frame a set of three main research questions that can be answered through a gender sensitive fiscal incidence analysis. This literature review and Lustig (2015) guided the creation of a framework of indicators that can be used to assess gendered outcomes and gendered dimensions of the fiscal system. This framework will be discussed in Chapter 2.

The three main questions that the dissertation aims to answer are 1) *What is the impact of taxes and government transfers on gender income inequality and poverty between genders in Latin America?* 2) *Are there noticeable differences between females and males in Latin America in terms of who bears the burden of taxation and who receives the benefits from government spending in transfers?*, and 3) *Taking gender into account, how equitable is spending on in-kind transfers such as public education and health in Latin America?* In order to answer these questions, as previously mentioned, the CEQ Harmonized Microdata is used for five countries in the region. The harmonized microdata was constructed from an original CEQ Assessment, for each respective country. A CEQ Assessment is a comprehensive framework that allows researchers to estimate the combined impact of taxes and transfers. There are also many other measurements that can be made with the tool, like the marginal contribution of intervention. Because many country studies have been completed using the common CEQ methodology, the results are therefore comparable cross-country (Lustig, 2018, p. xix – lxiv). From these studies, harmonized microdata was constructed, which allows researchers to easily manipulate the datasets that have similar variables assessing the parallel fiscal systems in the region.

To gain answers to the aforementioned research questions, the CEQ Harmonized Microdata will be applied to the CEQ Assessment methodology to get results to the main outcomes and indicators that were developed in the systematic literature review. The results of the study will be the first comprehensive fiscal incidence analysis, meaning that taxes and transfers will be assessed simultaneously. This study will also be one of the few gendered fiscal incidence analyses that exists regarding Latin America. The results will be discussed in depth in Chapter 3 and summarized in Chapter 4.

## **Contributions to the Field**

This dissertation provides contributions to two fields. The first field is that of gendered fiscal incidence analyses. The second field is poverty and inequality in Latin America. The two fields are related as the methodology from the first field was used to contribute to the second field. But the general contributions to each field are as follows.

The development of the framework to assess gendered fiscal incidence analysis, which will be discussed in Chapter 2, to be applied to the CEQ methodology adds to the body of understanding the field. The field of gendered fiscal incidence analyses has seemed to have stalled out a bit. The comprehensive, cross country study that was completed for the dissertation shows that it is possible to measure the net effects of the fiscal system on gender. Furthermore, creating the gender framework based on the systematic literature review, allowed me to develop a robust tool that could be used by others in the future. Additionally, some researchers have seemed to think that assessing gender using fiscal incidence analysis is not worthwhile given the nuances that are involved in studying the topic. This study will show that although the results might seem clear at first glance, they are more complex and interesting when using the gendered framework to carefully dissect the results.

Using the gendered framework to complete a comprehensive gendered fiscal incidence analysis on a cross country sample has provided results that will contribute to the field of gender inequality and poverty in Latin America. As a result of this study, a set of CEQ Harmonized Microdata by Gender was created for the first time for the five countries analyzed here. This study was completed using the CEQ Institute's Harmonized

Microdata. Once the gender variables were defined and added, the data essentially became harmonized by gender, and as such created the CEQ Harmonized Microdata by Gender. Once the microdata was applied to the CEQ Assessment methodology, a multitude of results was generated. For each country in this study anywhere from 149 to 267 spreadsheets of indicators were produced using the CEQ Assessment methodology. Although many of the results were pared down into summary tables for this dissertation, there are many more results available in the CEQ Harmonized Microdata by Gender (Appendix 2).

This data is beneficial to the field for several reasons. First, of the gender based indices and datasets of various international organization such as the World Bank and the United Nations Development Programme (UNDP), fiscal policy is not assessed in any of them. There are many datasets that include gender based statistics. For example, life expectancy by gender, school enrollment by gender, even decision making capacity by gender. But none have shown the effect of fiscal policy on gender despite that fiscal policy is oftentimes behind these summary statistics that affect wellbeing. There are also datasets that create indices about gender inequality. Usually these indices combine several indicators to create a composite index. As a point of comparison, they often generate a number almost like a Gini coefficient that can then be compared from country-to-country to discern the level of gender inequality. These indices are interesting and informative. However, if a policymaker wants to know more specific information about fiscal policy, they would not be able to find this data in a condensed dataset. The CEQ Harmonized Microdata by Gender that results from this dissertation will allow researchers and policymakers alike to undertake further research and address questions that go beyond the

scope of this dissertation including how reforming pensions system, for example, may affect different gender groups in Latin America. There are two ways in which the CEQ Harmonized Microdata by Gender can be used. The first is to use the datasets. In this instance, a researcher or policymaker can use the dataset to run their own results of fiscal incidence analysis. The second is to use the prepopulated results. If a researcher or policymaker is interested in the results, but does not want to run their own code, they can use the results that have been prepopulated for this dissertation. This repository of data can be found in Appendix 2.

Second, given that there have been so few gendered fiscal incidence analyses in Latin America, this dissertation has generated answers to questions such as, “Which programs contribute to the decline in poverty and inequality?,” “Who bears the burden of taxation and who received the benefits of government spending on transfers, by gender?” and “How equitable is in-kind government spending according to gender?” Latin America hosts expansive, diverse, and effective welfare states. Being able to assess the effectiveness of the welfare state from a gender perspective provides research that had not yet been thoroughly examined.

### **Organization of the Dissertation**

The remainder of this dissertation is organized as follows. The next chapter, Chapter 1, is the systematic literature review of gender sensitive fiscal incidence analyses. This chapter was previously completed and published as CEQ Working Paper 76 with co-author Professor Nora Lustig<sup>2</sup>. However, it was determined that rather than pairing it down,

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<sup>2</sup> CEQ Working Paper 76 can be accessed here: <http://repec.tulane.edu/RePEc/ceq/ceq76.pdf>

this dissertation benefitted from its comprehensiveness and therefore the paper was generally kept intact. Chapter 2 discusses the methodology, data, and CEQ Harmonized Microdata by Gender. The results are discussed in Chapter 3. Finally, Chapter 4 will discuss the conclusions, limitations of the study, implications on gender inequality, and future research ideas.

Appendix 1 is a literature review of the fiscal systems for each country that was included in this study. This includes very detailed descriptions of the programs and taxes that were assessed here. Appendix 2 is available by request and/or online. It is a repository of the CEQ Harmonized Microdata by Gender. The prepopulated results that were prepared for this dissertation can also be found in this appendix in spreadsheet form. Finally, Appendix 3 provides comprehensive summaries of each paper that was included in the systematic literature review.

**Chapter 1:**  
**Gendered Fiscal Incidence Analysis**  
**A Review of the Literature<sup>3</sup>**

**Introduction**

This chapter presents a review of the scope, methodologies and main findings of sixteen gendered fiscal incidence studies. This review was prepared as a systematic literature review. The methodology is described well by Armstrong et al. (2011) who explain, “Systematic reviews use a transparent and systematic process to define a research question, search for studies, assess their quality and synthesize findings qualitatively or quantitatively” (p. 147). The subsequent steps are generally followed when completing a systematic literature review. First, the research questions are identified. In this case the questions surround gender sensitive fiscal incidence analysis and were purposefully chosen as a modified and more overarching version of the main research questions of this dissertation. (In other words, the research questions of this literature review were not specific to a region as there are very few gendered fiscal incidence analyses, especially in

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<sup>3</sup> This chapter was previously completed and published as a CEQ Working Paper with co-author Professor Nora Lustig. However, it was determined that rather than pairing it down, this dissertation benefitted from its comprehensiveness and therefore the paper was kept intact. CEQ Working Paper 76 can be accessed here: <http://repec.tulane.edu/RePEc/ceq/ceq76.pdf> Also, the paper was originally prepared for the World Bank Poverty Reduction and Economic Management Network (PREM) Gender and Development Group (PRMGE). Elisa Gamberoni, Lucia Hanmer and Erwin Tiongson gave extremely helpful suggestions in the preparation of this review.

Latin America.) Second, relevant studies are identified. For this review, a thorough and comprehensive search of electronic databases in English was completed. To be sure that imperative studies in the field were not missed, an initial bibliography was reviewed by several experts who helped identify gaps in the studies that had been collected. Also, papers were included/excluding according to their importance and whether or not they were original studies. For example, if an author wrote several papers following the same methodology, not all of them were included. This process was conferred with the experts in the field. Third, the papers are reviewed and studied. Fourth, the data is charted, which involves very detailed data extraction. In this study, much of the data was charted in an Appendix that is a multi-sheet Excel workbook, which is available upon request. It was charted both quantitatively and qualitatively. Fifth, the data is collated, summarized, and the results are reported. The collated data for this chapter can be found in the tables included within this chapter. Although summaries are included within this chapter, short summaries of each paper that was reviewed can be found in an immediate appendix at the end of this chapter. Long summaries can be found in Appendix 3 of this dissertation. The results are reported in this chapter following a formal assessment of the quality of studies. Conclusions related to the research questions were also made. Finally, this methodology often includes optional consultation. A version of this paper that was previously published was reviewed by World Bank Poverty Reduction and Economic Management Network (PREM) Gender and Development Group (PRMGE). The comments of the reviewers were taken into consideration and the chapter adjusted accordingly (Armstrong et al., 2011, p. 147-150).



The 16 studies reviewed for this chapter provide useful insights regarding the presence or absence of gender equity implied by the tax system and government spending patterns. One main conclusion is that there is no comprehensive study that looks at the incidence of the tax and spending system combined. This is a serious limitation since what matters in the end is the net effect of the fiscal system on people's incomes and consumption.

Fiscal incidence analysis is used to assess the distributional impacts of a country's taxes and transfers.<sup>4</sup> Essentially, fiscal incidence analysis consists of allocating taxes and public spending (social spending in particular) to households or individuals so that one can compare the "pre fisc" incomes with the "post fisc" incomes, including in the latter the monetized value or consumption of free public services.<sup>5</sup> These comparisons allow one to address the following main questions: What is the impact of taxes and government transfers on inequality and poverty? Who bears the burden of taxation and receives the benefits from government spending? How equitable is access to public education, health, and other government services?

In addition to assessing the impact of fiscal policy on the distribution of income, one may be interested in how taxes and transfers affect the welfare of different social groups such as groups of individuals differentiated along ethno-racial lines or gender.<sup>6</sup>

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<sup>4</sup> Unless specified otherwise, in this dissertation the term fiscal incidence analysis is used interchangeably with fiscal policy, fiscal interventions, and taxes and benefits incidence analysis. Also, benefits and government transfers shall be used interchangeably. For expositional ease, government transfers shall be called transfers. The monetized value of free (or quasi free) public services shall be called transfers in kind.

<sup>5</sup> Some studies use consumption instead of income.

<sup>6</sup> Other relevant social groups may be, for example, residence (rural vs. urban), and race, ethnicity, and religion.

Adding the gender dimension to fiscal incidence can shed light on how the fiscal system may exacerbate inequality between genders or not do enough to correct it. Hence the importance of gendered fiscal incidence analysis as a diagnostic tool: the results can be used to inform decision-makers as to which areas of fiscal policy are in need of reform in order to reduce gender inequality.<sup>7</sup>

Given the unquestionable usefulness and importance of gendered fiscal incidence analyses, how comprehensive, timely, and methodologically robust are the existing studies? Can the results inform policy discussions in specific settings? What additional information should gendered fiscal incidence studies include to enhance their usefulness? To address these questions, a review of 16 studies that included a gendered fiscal incidence analysis will be presented in this chapter. Also, as a result of the systematic review, additional elements to include in a gendered incidence analysis to improve its informational content and to help identify areas in fiscal policy that deserve further scrutiny from the gender equity perspective will be discussed.

The chapter is organized as follows. Section 2 describes the definition of gendered fiscal incidence analysis as well as the objectives and main characteristics of the selected studies. Section 3 summarizes the methods (and their limitations) and main findings. Section 4 suggests directions in which gendered fiscal incidence should go, including new indicators not present in existing studies. The Appendix of this chapter includes short summaries of the studies. There are also two additional appendices associated with this paper. The first appendix is titled Appendix 3 for the purposes of this dissertation and it

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<sup>7</sup> In this review and dissertation, the terms “gendered,” “gender-aware,” and “gender-sensitive” are used interchangeably.

can be found at the end of this dissertation. It includes a detailed summary of all the studies that were reviewed. The second appendix is available upon request. It is a multi-sheet Excel workbook that describes the characteristics of each study following the analytical framework of our review.

### **Gendered Fiscal Incidence Analysis: Review of the Literature**

Any literature review must start by describing how the studies included in the review were selected, which will be done immediately below. Next, an analytical literature review needs to organize the discussion following a particular framework. The studies will be classified by their objectives first. The objectives of each study, however, were not necessarily based on their explicit intentions. Rather, the type of gendered indicators that were reported on were used according to how they could be mapped into the three main questions that a standard gendered fiscal incidence analysis is meant to address: What is the impact of taxes and government transfers on gendered inequality and poverty? Are the burden of taxation and the benefits from government direct transfers and indirect subsidies different by gender? How equitable is spending on/usage of public education, health and other government services by gender? Using the standard taxonomy in fiscal incidence analysis, the methodological frameworks will then be reviewed.<sup>8</sup> Syntheses of results are presented according to the objectives.

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<sup>8</sup> For example, see Martinez-Vazquez (2001).

### ***Definition of Gendered Fiscal Incidence Analysis***

A gendered fiscal incidence analysis here means that the indicators used to measure the effect of taxes and transfers are reported by gender, as in males or females, or in a gender-aware manner, which could mean households classifications such as female headed households, male headed households, households composed with a male or female majority, or classification according to which genders earn the most money. The typical indicators of a standard incidence analysis are inequality and poverty measures as well as incidence and concentration shares by decile or quintile (Table 1). The gendering of these indicators can be done in two main ways. These indicators can be calculated after classifying households into types based on gender or they can be generated after classifying individuals by gender. The problem with the latter is that for some indicators (e.g., the incidence of consumption taxes) this cannot be done properly without taking into account the intra-household distributional dynamics between genders, data that is very hard to obtain. Furthermore, gendered indicators may require additional information not necessarily captured in the standard fiscal incidence studies. This will be addressed in the last section.

Finally, it should be noted that the understanding of gender for fiscal incidence studies is binary, as in male or female, as opposed to other contemporary approaches that treat gender more fluidly. The duration of this dissertation will treat gender as binary. It is understood that this could present challenges from equity perspectives as there is no light shed on non-gender-conforming members of the household. In order to complete a fiscal incidence analysis while treating gender more fluidly, it would be necessary to collect data at the household survey level to include the gender fluid population. Another alternative

would be to impute the gender fluid population. But this would pose additional challenges because imputing something like this becomes a bit of guess work and then the households might not be assessed properly. For example, it would be hard to know to which households to assign a gender fluid member. Getting this assignment as correct as possible is important when it comes to gendered fiscal incidence analyses. In the future, if this data was collected in a household survey, the gender categories of a fiscal incidence analysis could be modified to include gender fluidly.

**Table 1: Fiscal Incidence Indicators**

Name		Definition
<b>Inequality</b>		Standard measures such as Gini, Theil, Atkinson, Kuznetz ratios, Lorenz curves, distribution by deciles, etc., before and after fiscal interventions. Typical gendered inequality indicators could be the ratio of per capita income between female-type and male-type households and per capita public spending on education on boys vs. girls.
		Standard measures such as Headcount Ratio, Poverty Gap Index, Squared Poverty Gap Index with absolute (national, international, urban and rural) and/or relative poverty lines.
<b>Poverty</b>		A typical gendered poverty indicator could be any of the poverty measures for male-dominant vs. female-dominant household types before and after fiscal interventions.
	<b>Incidence</b>	The change in income with respect to base income (usually pre fisc income) in percent associated with a particular fiscal intervention for entire population, gender, location, deciles, quintiles, or income groups. If population was ranked in ascending order by per capita income, the incidence of progressive (regressive) taxes rises (declines) with income and the incidence of progressive (regressive) transfers declines (rises) with income.
<b>Progressivity</b>	<b>Concentration Shares and Curves</b>	The distribution of taxes or transfers with population ranked in ascending order by per capita income. Usually presented by deciles or quintiles but it can also be presented by gender, location or income groups. When presented by quantiles in a graph, if the concentration curve lies everywhere above the diagonal, the transfer is said to be progressive in absolute terms: the per capita transfer rises with income. If the concentration curve coincides with the diagonal, the transfer is said to be neutral in absolute terms. If the concentration curve lies between the diagonal but above the Lorenz curve of the baseline income, the transfer is said to be progressive in relative terms. If the concentration curve lies below the Lorenz curve of the baseline income, the transfer is said to be regressive (unequalizing). <sup>9</sup> In the case of taxes, if the concentration curve lies below (above) the Lorenz curve, the tax is said to be progressive (regressive). Concentration shares are also used to calculate 'leakages' to the nonpoor, for example.
	<b>Concentration Coefficients</b>	Concentration coefficients are calculated in the same manner as the Gini except that the variable plotted in the vertical axis is not total income (or expenditures) but taxes or transfers.
	<b>Kakwani</b>	Kakwani index is defined for taxes as the tax concentration coefficient minus the base income Gini; it will be positive (negative) if a tax is progressive (regressive). Defined for transfers as the market income Gini minus the transfer's concentration coefficient; it is positive and higher (lower) than the market income Gini when the transfer is progressive in absolute (relative) terms; it is negative when the transfer is regressive.
	<b>Reynolds-Smolensky</b>	Reynolds-Smolensky is defined as the base income Gini minus the concentration coefficient of post fiscal income when the population is ranked by the base income.
<b>Horizontal Equity</b>	<b>Classical</b>	Unequal treatment of pre tax/transfers equals by the fiscal system.
	<b>Reranking</b>	If fiscal policy results in that a poorer individual becomes richer than another individual who was above him/or her before taxes and transfers.

<sup>9</sup> When concentration curves cross the Lorenz curve or each other, the ordering is no longer unambiguous.

### *Selection of Studies*

The selection of studies reviewed here was based on a thorough search of the English-language academic literature and publications by international organizations on gendered fiscal incidence analysis as well as consultations with experts. From an initial 31 studies that were identified on gendered incidence and gendered budgeting analysis, the list was pared down to 16. These were selected based on the fact that they included a fiscal incidence analysis whether based on hypothetical prototype households or an actual microdata-based incidence analysis.<sup>10</sup> Additionally, to ensure that no key studies were missed as well as to pare down the list to the most influential studies, the original bibliography was reviewed by several experts in the field.

The studies are described in Table 2 and a summary is presented in Table 3. Of the 16, four were published in a peer-reviewed journal, five were subject to (what academic circles call) light refereeing (i.e., edited volumes and reports), and seven were at first glance not subject to a formal peer review process (including working papers). Three were published in the 1990s, five in the 2000s, and eight in 2010 or later. All in all, the studies cover 32 countries, of which 10 are high income OECD, five upper-middle income, 10 lower-middle income, and seven low-income countries. A caveat is in order. Although our review includes a diverse set of gendered fiscal incidence studies, the list should not be viewed as exhaustive.<sup>11</sup>

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<sup>10</sup> The initial list included several papers on gender budgeting, some qualitative studies and a couple of papers on general methodological issues but that were not of a technical nature. Although the gender budgeting literature helps to frame how gender-aware incidence analysis can be an important part of creating a gender aware budget, these studies were not included because their content is beyond the scope of this survey. However, for the interested reader summaries of these studies can be found in Appendix 3.

<sup>11</sup> For example, we did not include here all computable general equilibrium (CGE)-based studies focused on gendered-analysis of trade liberalization

### ***Objectives and Main Characteristics***

Whether explicitly mentioned or implicit in the indicators that were reported, studies were classified according to which of the following three main questions were addressed by them:

1. Objective 1: What is the impact of taxes and government transfers on gendered inequality and poverty indicators?
2. Objective 2: Are the burden of taxation and the benefits from government direct transfers and indirect subsidies different by gender?
3. Objective 3: How equitable is spending on/usage of public education, health and other government services by gender? <sup>12</sup>

The objective of the study was determined by the reported indicators. For example, if the study reported the impact of a tax or a transfer on a gendered poverty or inequality indicator, it was classified under Objective 1. A typical gendered poverty indicator is the headcount ratio, poverty gap, or squared poverty gap by gender of the household head before and after the “fisc.” A typical gendered inequality indicator would be the distribution of the per capita income, consumption or wealth of adult men and women in coupled households before and after the “fisc.” If the study reported the incidence,<sup>13</sup>

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<sup>12</sup> In this chapter we will use benefit incidence and incidence of public spending on in-kind transfers such as education and health interchangeably.



concentration shares, concentration coefficients, progressivity indicators of taxes and/or direct transfers and/or indirect subsidies by gender, it was classified under Objective 2. Finally, if the study reported concentration shares, concentration coefficients, progressivity for or the distribution of use of public education and health (or other government services) by gender, it was classified under Objective 3.<sup>14</sup>

### **Methodology and Main Findings**

Put simply, fiscal incidence analysis consists of starting from a pre fisc income and, depending on the fiscal intervention under study, allocating the proper amount of a tax or a transfer to each household or individual. If the fiscal intervention is a direct tax (transfer) and one starts the analysis from pre tax (pre transfer) income, the post tax income is calculated by subtracting (adding) the tax paid (transfer received). In other words, the before taxes and transfers income of unit  $h$  can be defined as  $I_h$  and net taxes of type  $i$  as  $T_i$ . The “allocator” of tax  $i$  to unit  $h$  can be defined as  $S_{ih}$  (or the share of net tax  $i$  borne

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<sup>13</sup> Note that the word incidence in the literature is used in more than one way. Musgrave (1959) called “expenditure incidence” the effect that government taxes and spending has on relative factor and product prices and the distribution of earnings. In Demery et al. (1995 and 1996), the word “incidence” refers to the exercise of allocating benefits from public spending to individuals and households. The word “incidence” can also refer to a specific indicator used in incidence analysis: i.e., incidence is the ratio of the effect on the relevant income category. For example, effective tax paid divided by the pre tax income by decile.

<sup>14</sup> Inequality and poverty indicators are always calculated with households (or, rather, individuals), ranked by the per capita income of the relevant income concept. That is, the gendered headcount ratio after the “fisc,” for example, is calculated by ranking individuals based on their post “fisc” income regardless of what their ranking was in the pre “fisc” situation. In contrast, the indicators related to Objectives 2 and 3 keep individuals ranked by their pre “fisc” situation. For example, we may want to know if poor female-headed households on average receive more or less in cash transfers than equally poor male-headed households or if public spending on education is equally distributed between boys and girls in the bottom quintile. In these cases, the classification of households into poor and nonpoor or quintiles is based on their pre “fisc” income.

by unit  $h$ ).<sup>15</sup> Then, post tax income of unit  $h$  can be defined as:  $Y_h = I_h - \sum_i T_i S_{ih}$ . Although the theory is quite straightforward, its application can be fraught with complications. Most of the complications arise because actual incidence can be quite different from statutory incidence (for example, due to tax evasion) and the data to calculate the actual incidence is incomplete or absent.<sup>16</sup>

From a methodological point of view, the most common fiscal incidence analysis just looks at what is paid and what is received without assessing the behavioral responses that taxes and public spending may trigger on individuals or households. This is often referred to as the “accounting” approach.<sup>17</sup> An alternative approach is to include behavioral responses in the incidence analysis. Fiscal incidence analysis with behavioral responses, in turn, can be done within a partial or a general equilibrium framework. The analysis can be partial or comprehensive. Partial fiscal incidence analysis assesses the impact of one or several fiscal policy interventions: for example, income taxes or use of public education and health services. Comprehensive fiscal incidence analysis assesses the impact of the revenue and spending sides simultaneously: namely, the impact of direct and indirect taxes, cash and in-kind transfers, and indirect subsidies. Regarding the analysis of the effects of

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<sup>15</sup> Based on presentation by Jim Alm, Department of Economics, Tulane University, on May 2010, World Bank, Washington, DC.

<sup>16</sup> For more details on the approaches to fiscal incidence analysis see, for example, Adema & Ladaique (2005), Alleyne et al. (2004), Atkinson (1983), Barr (2004), Bergh (2005), Birdsall et al. (2008), Bourguignon & Pereira da Silva (2003), Breceda et al. (2008), Coady (2006), Demery (2000), Dilnot et al. (1990), Ferreira and Robalino (2010), Fiszbein et al. (2009), Goñi et al. (2011), Grosh et al. (2008), Kakwani (1977), Lambert (2002), Lora (2006), Lustig (2018), Martinez Vazquez (2001), McIntyre & Ataguba (2010), Moreno-Dodson and Wodon (2008), Morra et al. (2009), O’Donnell et al. (2008), Shah (2003), Suits (1977), van de Walle and Nead (1995), and World Bank (2000/2001, 2006, 2009).

<sup>17</sup> See Bourguignon and Pereira da Silva (2003). Note that the “accounting” approach does incorporate some behavioral responses since actual incidence usually differs from statutory incidence because, for example, people evade taxes.

indirect taxes and subsidies, some focus on consumption taxes and subsidies only while others include the effects of indirect production taxes and subsidies, including their indirect effect (using, for example, input-output matrices). Furthermore, incidence analysis can use income or consumption (per capita or equivalized) to measure household welfare. Additionally, there is point-in-time vs. lifetime fiscal incidence analysis. The analysis can assess a current system or estimate the potential or actual effects of particular reforms. It can use the statutory incidence or the actual one (include tax evasion or less than full take-up of a cash transfer, for example). It can make different tax shifting assumptions and about the value of in-kind benefits. The analysis can assess the average incidence of a tax or benefit or it can assess the incidence on the margin: e.g., the distribution of an increase in the spending of public education.

In terms of data, incidence analysis can use micro-data from household surveys or use incidence indicators from secondary sources. Since, in practice, surveys will not include information on every tax paid or transfer received (or the information even if it exists may be inaccurate), that information must be generated in a consistent and convincing way. Frequently, the information will have to be generated using more than one method to check the sensitivity of the results to assumptions that one cannot externally validate.<sup>18</sup>

Finally, from the gender perspective, the analysis can define gender using household types (headship, main breadwinner, number of adults by gender, for example) or directly use the gender of the individuals as the unit of reference.

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<sup>18</sup> For a detailed description on ways to deal with the absence or unreliability of information in household surveys see Lustig (2018).

### *Methodology in Reviewed Studies*

Of the 16 studies, behavioral responses are only modeled in Siddiqui (2011) who uses a computable general equilibrium (CGE) and in Austen et al. (2013) and Glick et al. (2004) who estimate demand responses. The rest apply the so-called accounting approach. Browne (2011) and Figari et al. (2011) also examine the incentives to work applying a standard formula to calculate Participation Tax Rates (PTRs). The most frequently analyzed policy interventions were education and health expenditures (seven studies) and direct (personal income tax and contributions) and indirect (consumption or VAT) taxes (seven studies). Direct transfers are part of only three studies. None include corporate income tax. None of the studies were comprehensive, meaning that they did not assess the incidence of all taxes and transfers combined. Six studies looked at the impact of actual or potential reforms (of which four also looked at the existing system) and the rest assessed the existing system. Eight studies do average incidence analysis only, one does marginal, and six do both average and marginal. More details can be found in Tables 2 and 3.

Concerning data sources, all studies reviewed here (except for Akram-Lohdi and van Staveren, 2003) relied on micro-data from household surveys and most complemented their analysis with data from secondary sources. Most of the findings come from information that by now could be considered dated. Of the 48 “data points”—each consisting of a country and a survey year-- included in the 16 studies, only 14 are for the 2000s decade.<sup>19</sup>

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<sup>19</sup> The total number of data years is greater than the 16 studies because some studies examined data from more than one point in time. In the case of the benefit incidence analysis studies, this is because they examined two points in time using different data sets. However, in the case of Chakraborty et al. (2010) a sub-sample of combined estimates based on all rounds of the National Sample Survey (1950-2005) was used to estimate the incidence of indirect taxes. Also, in the case of Siddiqui (2007) data from several sources that spanned from 1990-2006 were used in the CGE model.

Gendered fiscal incidence analysis requires a mechanism to distinguish how fiscal interventions affect different genders and, because typically different genders coexist in the same consumption unit (e.g., the household), this can be challenging. In the literature on gendered fiscal incidence analysis, authors tend to equate gender with household type. The simplest distinction of household type is by the gender of the head of household. However, tax incidence analysis frequently uses more nuanced categories. For example, Browne's analysis of the gendered potential impact on net incomes of United Kingdom (UK) fiscal reform identifies more than 40 (!) household types. Grown and Valodia (2010) and Casale (2012) use headship, employment categories (male breadwinner, female breadwinner, dual earner and none employed), and household sex composition (adult male majority or adult female majority).<sup>20</sup> Another approach is to classify the population directly by the gender of the individual. This is applied in the education and health benefit incidence studies, for example, as those pioneered by Demery et al. (1995, 1996, 2009). It is also applied in studies that examine the distribution of income between genders in the household such as Figari et al., for example. (Table 4)

Another important methodological topic to consider is the different types of gender inequities that can occur in fiscal systems. As discussed by Stotsky (1997), gender inequities in the fiscal system can arise due to explicit provisions in the tax and transfers system or can be implicit. Explicit provisions that are biased against the gender that tends to have lower earnings and less power (i.e., women) are not that common. Absence of a gender inequity in the statutory design of a tax or a transfer, however, can give a false sense of comfort since most of the inequities result from implicit biases. The latter occur when

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<sup>20</sup> Adult here is someone 18 years old and older.

taxes and transfers "...have a differential impact on women and men due to gendered social or economic behavior..."<sup>21</sup> even though the tax law or the transfers system contains no explicit bias. Examples of an implicit bias would be a personal income tax system that has "...joint filing requirements that tax secondary earner income (primarily women's) at a higher marginal tax rate than primary earner income, thus affecting women's labour supply and other decisions."<sup>22</sup> In some societies, girls are not sent to school by their parents for a variety of reasons; the incidence of education benefits will be lower for women because of societal roles and not a bias in the provision of education by the state.

Distinguishing between explicit and implicit biases is important for the interpretation of results and the policy implications. For example, if girls receive less education transfers because household dynamics make them drop out of school at earlier ages, spending more on education will not necessarily correct this inequity. Conditional cash transfers that give higher scholarships to girls than boys, however, is likely to increase school attendance by girls. The majority of the reviewed studies demonstrated that implicit gender bias exists in some form, which was in most cases against women (in particular, due to their disproportionate presence as second-earners and single parents and as workers in the informal sector), but in some cases it was bias against men.

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<sup>21</sup> Casale, 2009, p. 3. Casale actually cites Stotsky (1997) who was among the first to classify gender bias in the forms of implicit and explicit.

<sup>22</sup> Grown and Valodia, 2010, p. 6

### ***Main Findings***

Table 2 shows the studies' objectives following the taxonomy proposed above. Only two studies analyzed the impact of taxes and government transfers on gendered inequality and poverty indicators (Objective 1). Siddiqui analyzed the impact on poverty by gender of household head and Figari et al. examined the distribution of income by gender in coupled households before and after the 'fisc.' Six examined gendered indicators of who bears the burden and receives benefits of taxes and transfers (Objective 2). Eight looked at gendered indicators of access to/use of public services (Objective 3).

Siddiqui is the first study (to my knowledge) that applies a CGE (computable general equilibrium model) using a gendered SAM (social accounting matrix) that looks at the gender-specific consumption effects of reducing trade tariffs and government spending. The results of the study showed that trade liberalization would reduce the gender wage gap and the reduction of government expenditures would have more negative impacts on women's market employment than on men's and it would be biased against the poor.

Figari et al. is the only study of the ones reviewed here that looks at the incidence of taxes and transfers on men and women individually rather than by household types. This is interesting because one can estimate the distribution of income between men and women within couples before and after fiscal interventions. In particular, the authors analyze the incidence of direct personal income taxes, contributions to social security and cash transfers on the income shares by gender. They found that in the nine European Union (EU) countries that they examined, the pre tax and benefit incomes were more equally distributed and the countries that achieve the most equalization were Austria, Finland, the UK, and the Netherlands. In these countries, the income tax system, which was an individual tax system

in each case, contributed particularly to within couple equalization. In the joint tax countries--France, Germany, and Portugal-- there was a disadvantage through the tax-benefit system to women who work compared to their male partners who also work (and were the main breadwinner).

One of the most frequent strains of gendered incidence analysis has looked at objective 2: that is, the burden of both direct and consumption taxes and the benefits of transfers by gender. This requires making assumptions in terms of the allocation of welfare within the household, a difficult matter because there are no generalizable patterns across cultures and across time. As mentioned above, one way this has been dealt with is by classifying households into “types” that can subsequently be identified with a particular gender: for example, to assume that households with a majority of adult women (males) are “female-type” (“male-type”) of households; or, to distinguish households by the gender of the breadwinner.

Grown and Valodia’s edited volume includes among the first gendered personal and consumption tax incidence analysis that uses this approach. The book includes studies in eight developing and advanced countries that apply the same methodological framework, three of which were assessed for this chapter: Aryeetey et al. examine Ghana, Chakraborty et al. examine India, and Ssewanyana et al. examine Uganda. A similar framework is used by Casale (2012) to estimate the incidence of consumption taxes in “female-type” and “male-type” South African households. In an otherwise pathbreaking book, one important limitation of the studies in Grown and Valodia, especially those for



developing countries, is that they tend to ignore tax avoidance especially via the presence of informal markets (and especially in rural areas).<sup>23</sup>

Aryeetey et al. found that personal income taxes in Ghana do not explicitly disadvantage any gender. However, men end up paying more because they earn more. In regard to indirect taxes, the burden of VAT falls more on male-type households because of the composition of consumption, where they consume more alcohol and tobacco than women. Chakraborty et al. discerned that in India, personal income taxes provided preferential treatment to women. The aggregate indirect tax was highest in households with more males and was lowest for female dominated households. In rural areas, female-headed households bore the largest share of the burden of indirect taxes. Ssewanyana et al. found that in Uganda the personal income tax system was progressive but there was horizontal inequality. Men were not explicitly disadvantaged but ended up paying more because they earn more. Indirect taxes were slightly progressive overall and the burden was higher for male-type than female-type households. Casale found that the indirect tax system in South Africa did not show implicit bias against female-type households, those in the lowest quintiles, or those with children. There was however, implicit bias against male-type households and those without children. But this was mainly income driven. When incidence was examined by consumption category, female-type households bore a higher burden on food, utilities, children's clothing, etc.

Each of the chapters in the Grown and Valodia edited volume implemented simulations to zero-rate, reduce, or increase taxes on certain consumption items. Aryeetey

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<sup>23</sup> Grown and Valodia, 2010, p. 36

et al. found that zero-rating children's clothes and footwear and reducing kerosene taxes would have little impact on gender differences. Chakraborty et al. found that if tobacco tax rates were doubled, the indirect tax incidence in male-headed households would become higher than female-headed households. Ssewanyana et al. found that although removing the sales tax would have little impact on progressivity overall, the greatest beneficiaries would be the poorest households with female heads because VAT declines as a percentage of consumption expenditure more in female-headed than male-headed households. Casale also analyzed the effect of VAT rating basic food and paraffin and zero-rating non-confectionary food items, children's clothing and footwear, a basket of personal care items, baby food, and household fuels in South Africa. The results show that zero-rating baby food, household fuel sources, and children's clothing would be the most beneficial in terms of gender and income equity.

Browne simulates the impact of upcoming reforms in the tax and benefit system on men and women in the UK using a detailed classification of households by headship, marital status, employment status and number of children. He also estimates the potential effects on incentives to work. He found that in the UK there was little difference in the distributional effect of reforms between single-earner couple households whether the man or woman was the earner. Similarly, there was little difference in the effects of the reforms between two earner couple households whether the man or woman was the higher earner. The reforms, however, would bring a larger loss for female single-adult households because more lone parents are female. The loss would be about the same for the poorest and fourth quintiles, but there would be a higher loss for the second and third quintiles. At

the richest quintile lone fathers would fare the worse. Also, the reforms would slightly decrease incentives for men and women to do paid work and increase earnings.

Save from Akram-Lodhi and van Staveren—a qualitative assessment of differences in tax burdens born by men and women—as entrepreneurs, there were no studies that look at the incidence of taxes on women as entrepreneurs and what it means for incentives to be an entrepreneur. Akram-Lodhi and van Staveren argued that the VAT system in Vietnam contributed to implicit gender biases on women-owned small and medium enterprises (SMEs). For example, women benefited less from VAT exemption because they were disproportionately represented in the informal sector.

One of the first and also most frequent types of fiscal incidence analysis has looked at objective 3: i.e., the incidence of education and health benefits by gender. Among the first available, are those by Demery and others (1995 and 1996) on the incidence of public spending on education and health by gender in Ghana and Cote d'Ivoire.<sup>24</sup> Another one of the first studies to assess the incidence education spending by gender was that of Castro-Leal (1996). Rashid et al. (2001) also assessed the incidence of public education spending in Albania (outside of the Tirana region). In the same vein, Glick et al. present a benefit incidence analysis of public spending on education and health and public employment by gender and quintiles in nine countries. Theirs was among the first gendered differentiated demand-response analysis associated with a reduction in the cost of education and health services. More recently, Austen et al. analyze incidence of education spending between

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<sup>24</sup> Demery et al. used the methodological approach for expenditure incidence analysis applied by Meerman (1979), and Selowsky (1979). Although Bird and Miller (1989) on Jamaica was among the first gendered fiscal incidence studies, we did not include it here because it was based on a very small sample of households and thus unclear if it was statistically representative.

boys and girls in rural and urban areas in Timor-Leste and illustrates how this information could be used for gender-responsive budgeting.<sup>25</sup>

The Demery et al. and Glick et al. studies use among the most robust methodologies to do this type of benefit incidence analysis, even if quality differences are not captured. Demery et al. (1995) found that in Ghana gender inequality on education expenditures was apparent at every level and did not change over time from 1989 to 1999. In regard to healthcare, women received more of the overall public spending on health, but the poorest women were not as likely to benefit from health services. Demery et al. (1996) discerned that in Côte d'Ivoire females only received about one-third of the total education subsidies and the average per capita subsidy of boys was almost twice that of girls. On the other hand, the per capita health subsidy was slightly higher for females than males. In a more recent study, Demery and Gaddis (2009) found that in Kenya the per capita spending on education at the primary level was distributionally progressive and boys only had a slight advantage over girls. The secondary and tertiary education level spending was regressive and boys received more subsidies than girls. The marginal incidence showed that if spending were increased for primary schooling, poor girls would benefit the most. In regard to health care, females received more health care spending than males, but poor women did not fare well compared to richer women. The marginal incidence showed that poor females could benefit from increased primary healthcare level spending, but not from increased hospital-based care spending. Glick et al. found that of the nine countries that they assessed in their study, there were no consistent correlations between gender gaps and

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<sup>25</sup> The studies mentioned in this paragraph are not to be an exhaustive list. However, they illustrate well the diversity in scope and methods among the studies that exist.

per capita expenditures. Of the gaps that did exist, the largest were found in secondary education, public employment, and time spent collecting water.

Castro-Leal determined that in Malawi gender disparities in gross education enrollment rates rose for all income groups from 1990/91 to 1994/95, but girls in the poorest quintile had the lowest enrollment rates in both years. Castro-Leal, however, uses a method to predict enrollment in the second period that could be problematic: it appears that she assumed the same rate of increase in enrollment for all quintiles and males and females within the same region (there are three regions) and, thus, her results may be driven by assumption. Austen et al. found that in Timor-Leste total public expenditure on education favored boys as well as expenditure in each education level, which was also more pronounced for rural areas; however, the authors do not analyze incidence across different quintiles or income groups. Rashid et al. showed that government spending on basic education in Albania (outside the Tirana region) was pro-poor for both females and males in the lowest quintile. However, public spending on secondary and tertiary levels favored the third and top quintiles as well as favored richer males.

All the benefit incidence analyses are subject to the same standard criticism: most do not take into account differences in the quality of education and health services. Glick et al. was the only study of those reviewed here to examine quality by introducing quality indicators into their gender differential demand analysis of education and health services in Madagascar and Uganda. Their assessment did not show gender differences in either country in the impact of quality related indicators or provider cost indicators. However, in general, dealing with such a limitation has proven very difficult.

Mogues et al. (2011) is the only study that analyzes the impact of a comprehensive program of support to agriculture and rural areas in a poor country. They found that women in rural Ethiopia received half the amount of agricultural extension services as men, male headed households were favored by the public works components of the FSP but female headed households were favored by the direct support component, and female headed households were more likely to travel further to their main source of water and were more likely to access safe water than male headed households.

## **Conclusions**

The preceding review reveals an important fact: there is no comprehensive gendered fiscal incidence study available. In particular, there are none that look at the impact of direct and indirect taxes (including consumption and production indirect taxes and subsidies), cash transfers, indirect taxes and in-kind transfers combined. This is a serious limitation since what matters in the end is the net effect of the fiscal interventions on people's incomes and consumption. As shown in the studies by Lustig et al. (2014) and Lustig (2018), direct cash transfers sometimes offset the negative effects on purchasing power induced by consumption taxes on low-income households; but sometimes they do not. Thus, in some countries, poverty rates (after cash transfers and direct and consumption taxes) will be higher than market income poverty, while in others poverty will be lower. Focusing on the tax side only can lead to the wrong diagnostics and the wrong policy recommendations. For example, if only the tax side was assessed, as a result a recommendation might be to increase the number of exemptions of consumption taxes and goods and services primarily consumed by women, which would lower their tax burden.

But this might be a less effective way to help women improve their wellbeing than, for example, using the same amount of resources for cash transfers programs that are targeted to poor women, education for girls and subsidized childcare.

One of the main contributions of this dissertation is precisely to address the limitation mentioned above by carrying out a gendered fiscal incidence analysis that incorporates both the tax and spending side of the fiscal equation. It is important to point out that the analysis, though comprehensive, will be circumscribed to the cases in which it is possible to 1) classify households taking gender into account or 2) to identify the gender of the beneficiary directly (e.g., spending on education). No attempt will be made to allocate the burden of taxes or the benefits of transfers within the household. The studies reviewed in this chapter relied on equating the distribution of the burden of taxes to the distribution (budget shares) of gendered adult-specific goods. For instance, these studies disaggregate adult-specific goods by gender (e.g., male vs. female clothing, sanitary napkins, alcohol consumption, etc.) and assign the statutory incidence of consumption taxes to the females and males according to the budget shares of these gendered adult-specific goods. Such an approach ignores the significant dynamics that may occur within the households due to the unequal distribution of decision power. For instance, an increase in excise taxes on alcohol may not result in the male member drinking less alcohol but in a lower consumption of food for his children as the male transfers the burden of the tax to the powerless children (Chaloupka et al., 2019, p. 187-201). An exactly opposite situation may occur with a transfer or pensions to retirees: grandparents may share the benefit with their grandchildren. Ignoring these behavioral dynamics within the household could lead to very wrong conclusions. Modeling these dynamics and estimating their orders of

magnitude is a daunting task and requires access to a special type of surveys and, thus, it is beyond the scope of this dissertation.

Following this systematic literature review, Chapter 2 will explain the gendered fiscal incidence analysis that was developed based on the results of this study. This will include a discussion of the application of the framework to the CEQ Assessment. The data used for each study will also be described in the next chapter. Finally, I will explain how the application of the methodology resulted in a construction of a CEQ Harmonized Microdata by Gender.



**Table 2: Gendered Fiscal Incidence Studies: Policy Intervention, Objective, Indicators, Methodology, and Main Findings**

Study & Country & Survey Data <sup>a</sup> and Year	Peer Reviewed <sup>b</sup>	Policy Intervention	Objective <sup>c</sup> & Gendered Indicator <sup>d</sup>	Method	Main Findings
<p><b>1. Akram-Lodhi &amp; van Staveren (2003)</b></p> <p>Vietnam</p> <p>VLSS 1998</p>	No	<p><i>Indirect Taxes:</i> VAT system</p>	<p><i>Objective 2</i> <i>Indicators:</i> Although no quantitative estimates, emphasis on differences in the incidence of VAT between male and female-owned SMEs</p>	Qualitative gendered tax incidence for owners of SME.	Found that VAT system contributed to implicit gender biases on women-owned SMEs: for ex. women benefit less from VAT exemption because they are disproportionately represented in the informal sector.
<p><b>2. Aryeetey et al. in Grown &amp; Valodia (2010)</b></p> <p>Ghana</p> <p>GLSS 2005-2006</p>	Light	<p><i>Direct and Indirect Taxes:</i> PIT and indirect taxes (VAT, excise, fuel) incidence analysis; actual and simulations of potential indirect tax policies</p>	<p><i>Objective 2</i> <i>Indicators:</i> Incidence of analyzed taxes by type of household (gendered headship, employment category and hh (household) composition) and by expenditure quintile</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Consumption per capita</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Current and potential effects of reform</li> <li>• Burden of indirect taxes shifted to consumers</li> <li>• Statutory tax rates</li> <li>• Average incidence</li> </ul>	<p>PIT does not explicitly disadvantage any gender but men end up paying more because they earn more.</p> <p>The burden of VAT falls more on male-type hh because of the composition of consumption (more alcohol and tobacco).</p>
<p><b>3. Austen et al. (2013)</b></p> <p>Timor-Leste</p> <p>TLLSS 2006-2007</p>	Yes	<p><i>Education Expenditures:</i> incidence of public spending on education at all levels</p>	<p><i>Objective 3</i> <i>Indicators:</i> Concentration shares for public spending on education by level, by gender and by location (rural-urban)</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Welfare indicator used to rank hh not clear</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Valuation of education at government cost by level of education (excluding capital exp. on new schools)</li> <li>• Enrollment based on survey and not administrative accounts</li> <li>• Average incidence</li> </ul>	<p>Total education expenditure favored boys as well as expenditure in each education level, and the result was more pronounced for rural areas.</p> <p>Probit analysis suggests that girls are more likely to attend school if there were more adults in the hh who attended school and if they spoke <i>tetum</i> (national language); they were less likely to attend school as they got older and if the hh was poor.</p>

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Study & Country & Survey Data <sup>a</sup> and Year	Peer Reviewed <sup>b</sup>	Policy Intervention	Objective <sup>c</sup> & Gendered Indicator <sup>d</sup>	Method	Main Findings
<p><b>4. Browne (2011)</b></p> <p>UK</p> <p>Family Resources Survey 2008-2009, Expenditure and Food Survey 2008</p>	No	<p><i>Direct and Indirect Taxes &amp; Direct Transfers:</i> tax, tax credit, and transfer incidence analysis of forthcoming reforms</p>	<p><i>Objective 2</i></p> <p><i>Indicators:</i> Gendered income loss (as a percent of pre reform net income) for population as a whole and by household type and quintile</p>	<ul style="list-style-type: none"> <li>• Accounting approach and potential effect on work incentives</li> <li>• Income (per capita?)</li> <li>• Partial but more components than other studies</li> <li>• Point-in-time</li> <li>• Potential effects of approved reforms</li> <li>• No mention of tax shifting assumptions</li> <li>• Statutory rates</li> <li>• Marginal incidence</li> </ul>	<p>Little difference in distributional effect of reforms between single-earner couple hh whether man or woman is the earner; or, between two earner couple hh whether man or woman is the higher earner. Larger loss for female single-adult hh (more lone parents are female); about the same for poorest and 4<sup>th</sup> quintile but a higher loss for the 2<sup>nd</sup> and 3<sup>rd</sup>; at the richest quintile, lone fathers fare worse. Reforms slightly decrease incentives for men and women to do paid work and increase earnings.</p>
<p><b>5. Casale (2012)</b></p> <p>South Africa</p> <p>IES 2000</p>	Yes	<p><i>Indirect Taxes:</i> indirect taxes (VAT, excise, fuel) incidence analysis; potential effects of adding items with zero VAT and zero rating new items</p>	<p><i>Objective 2</i></p> <p><i>Indicators:</i> Gendered incidence of indirect taxes by household type, rural/urban, race and quintile</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Consumption per capita</li> <li>• Partial; includes indirect effect of fuel taxes on public transportation but not based on actual estimates</li> <li>• Point-in-time</li> <li>• Actual and potential effects of hypothetical reforms</li> <li>• Taxes are shifted to consumers</li> <li>• Statutory rates</li> <li>• Average incidence</li> </ul>	<p>No implicit bias against female-type hh, those in lowest quintiles, or those with children. Implicit bias against male-type hh and those without children but mainly income driven. When incidence was examined by consumption category, female-type hh bore a higher burden on food, utilities, children's clothing, etc. Largest gender and income equity gains would be attained by zero-rating children's clothing.</p>
<p><b>6. Castro-Leal (1996)</b></p> <p>Malawi</p> <p>HESSEA 1990-1991; MOE 1994-1995</p>	No	<p><i>Education Expenditures:</i> incidence of public spending on education at all levels</p>	<p><i>Objective 3</i></p> <p><i>Indicators:</i> Concentration shares and gross and net enrollment rates (coverage) by expenditure quintile and gender</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Expenditure per adult equivalent</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Valuation of education at government cost by level of education</li> <li>• Enrollment based on survey in first year but enrollment on second period</li> <li>• Average and marginal</li> </ul>	<p>Gender disparities in gross enrollment rates rose for all income groups; girls in the poorest quintile had the lowest enrollment rates in both years</p>

**Table 2: Gendered Fiscal Incidence Studies: Policy Intervention, Objective, Indicators, Methodology, and Main Findings**

Study & Country & Survey Data <sup>a</sup> and Year	Peer Reviewed <sup>b</sup>	Policy Intervention	Objective <sup>c</sup> & Gendered Indicator <sup>d</sup>	Method	Main Findings
<p><b>7. Chakraborty et al. in Grown &amp; Valodia (2010)</b></p> <p>India (PIT); West Bengal, India (indirect taxes)</p> <p>National Sample Survey 2005 (PIT); 1950-2005 (indirect taxes)</p>	Light	<p><i>Direct and Indirect Taxes:</i> PIT and indirect taxes (VAT, excise, fuel) incidence analysis; simulation of potential policy “Integrated Good and Services Tax” considered for 2010/11</p>	<p><i>Objective 2</i></p> <p><i>Indicators:</i> Gendered incidence of PIT tax by household type; incidence of VAT, excise and fuel taxes by household type and quintile</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Consumption per capita</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Current and potential effects of reform</li> <li>• Burden of indirect taxes shifted to consumers</li> <li>• Statutory tax rates</li> <li>• Average incidence</li> </ul>	<p>PIT provided preferential treatment to women; family size and number of dependents did not matter. Aggregate indirect tax was highest in households with more males and was lowest for female dominated households. In rural areas, female-headed households bore the largest share of the burden of indirect taxes.</p>
<p><b>8. Demery et al. (1995)</b></p> <p>Ghana</p> <p>GLSS 1989 and 1992</p>	No	<p><i>Education and Health Expenditures:</i> Incidence of public spending on education at all levels; incidence of public spending on health at all facility types</p>	<p><i>Objective 3</i></p> <p><i>Indicators:</i> Concentration shares, concentration curves and enrollment (coverage) by expenditure and equivalized expenditure quintile, location and gender</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Welfare indicator used to rank hh: expenditures per capita and equivalized</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Valuation of education and health at government cost by education level (excluding capital exp. on new schools) and by usage of health facility</li> <li>• School enrollment and health facility usage based on survey and not administrative accounts</li> <li>• Average and marginal incidence</li> </ul>	<p>Gender inequality apparent at every education level and did not change over time. Women received more of the overall health spending but the poorest women were not as likely to benefit from health services.</p>

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Study & Country & Survey Data <sup>a</sup> and Year	Peer Reviewed <sup>b</sup>	Policy Intervention	Objective <sup>c</sup> & Gendered Indicator <sup>d</sup>	Method	Main Findings
<p><b>9. Demery et al. (1996)</b></p> <p>Côte d'Ivoire</p> <p>Public-sector recurrent health disbursements 1986, 1995; LSMS 1986; PS 1995</p>	<p>No</p>	<p><i>Education and Health Expenditures:</i> Incidence of public spending on education at all levels; incidence of public spending on health at all facility types</p>	<p><i>Objective 3</i></p> <p><i>Indicators:</i> Concentration shares, concentration curves and enrollment (coverage) by expenditure quintile, location and gender</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Welfare indicator used to rank hh: expenditures per capita and equalized</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Valuation of education and health at government cost by level of education (excluding capital exp. on new schools) and by usage of facility for health</li> <li>• School enrollment and usage of health facility based on survey and not administrative accounts</li> </ul> <p>Average and marginal incidence</p>	<p>Females only received about one-third of the total education subsidies in 1995 and the average per capita subsidy of boys was almost twice that of girls. The per capita health subsidy was slightly higher for females than males.</p>
<p><b>10. Demery &amp; Gaddis (2009)</b></p> <p>Kenya</p> <p>KIHBS 2005-2006</p>	<p>Light</p>	<p><i>Education and Health Expenditures:</i> Incidence of public spending on education at all levels; incidence of public spending on health by level of care</p>	<p><i>Objective 2</i></p> <p><i>Indicators:</i> Concentration shares, concentration curves and enrollment (coverage) by equalized expenditure quintile, location and gender</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Welfare indicator used to rank hh: per capita expenditures</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Valuation of education and health at government cost by level of education (excluding capital exp. on new schools) and by usage of facility for health</li> <li>• School enrollment and usage of health facility based on survey and not administrative accounts</li> <li>• Average and marginal incidence</li> </ul>	<p>The per capita spending on education at the primary level was distributionally progressive and boys only had a slight advantage over girls. The secondary and tertiary education level spending was regressive and boys received more subsidies than girls. If spending were increased for primary schooling, poor girls would benefit the most. Females received more healthcare spending than males, but poor women did not fare well compared to richer women. Poor females could benefit from increased primary healthcare level spending.</p>

**Table 2: Gendered Fiscal Incidence Studies: Policy Intervention, Objective, Indicators, Methodology, and Main Findings**

Study & Country & Survey Data <sup>a</sup> and Year	Peer Reviewed <sup>b</sup>	Policy Intervention	Objective <sup>c</sup> & Gendered Indicator <sup>d</sup>	Method	Main Findings
<p><b>11. Figari et al. (2011)</b></p> <p>Austria, Finland, France, Germany, Greece, Italy, the Netherlands, Portugal, UK</p> <p><i>EUROMOD:</i> Austrian version of European Community Household Panel 1998; Finland: Income Distribution Survey 2001; France: Budget de Famille 1993/4; Germany: GSOEP 2000; Greece: European Community Household Panel 1994; Italy: SHIW 1995; Netherlands: SEP 1999; Portugal: European Community Household Panel 2000; UK: FES 2000/1</p>	Yes	<p><i>Direct Taxes &amp; Direct Transfers:</i> incidence of tax and benefit systems on differences in income and incentives to earn income between genders within couples</p>	<p><i>Objective 1</i> <i>Indicators:</i> inequality between men and women in couples</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Welfare indicator used to rank hh: income</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Current tax/benefit system in 9 EU countries</li> <li>• Statutory tax rates</li> <li>• Average</li> </ul>	<p>Austria, Finland, the UK, and France had tax-benefit systems that did the most to equalize couple incomes. In countries with joint tax filing, which were France, Germany, and Portugal, there was a disadvantage through the tax-benefit system to women compared to their male partners who also work.</p>

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Study & Country & Survey Data <sup>a</sup> and Year	Peer Reviewed <sup>b</sup>	Policy Intervention	Objective <sup>c</sup> & Gendered Indicator <sup>d</sup>	Method	Main Findings
<p><b>12. Glick et al. (2004)</b></p> <p>Bulgaria, Ghana, Jamaica, Madagascar, Mauritania, Pakistan, Peru, Uganda, Vietnam</p> <p>Bulgarian Integrated Household Survey 1995, 2001; Ghana Living Standards Survey 1987, 1992; Jamaica Survey of Living Conditions 1989, 1999; Madagascar: Enquete Permanente aupres des Menages 1993, Enquete Prioritaire Aupres des Menages 1999; Mauritania: Enquete Permanente sur les Conditions de Vie des Menages 1987, 1995; Pakistan Integrated Household Survey 1991, 1999; Peru: Encuesta Nacional de Hogares sobre Medicion de Niveles de Vida 1985, 1997; Uganda Integrated Household Survey 1992, Uganda National Household Survey 1999; Vietnam: VLSS 1993, 1998</p>	<p>Light</p>	<p><i>Education and Health Expenditures, and Infrastructure Access:</i> incidence of health and education use, public employment, and time spent collecting water; coverage rates of education and health services, and public employment</p>	<p><i>Objective 3</i> <i>Indicators:</i> concentration shares and coverage by per capita income/expenditure (depending on country) by gender</p>	<ul style="list-style-type: none"> <li>• Accounting approach; demand analysis</li> <li>• Welfare indicator used to rank hh: income/consumption (depending on country) per capita</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Education, health, public employment, and time spent collecting water based on usage</li> <li>• School enrollment, usage of health facility, public employment, and time spent collecting water based on survey and not administrative accounts</li> </ul> <p>Average and marginal incidence</p>	<p>No consistent correlations between gender gaps and per capita expenditures were found. Of the gaps that did exist, the largest were found in secondary education, public employment, and time spent collecting water. The gender differential demand analysis of education and health services in Madagascar and Uganda did not show gender differences in either country in the impact of quality related indicators or provider cost indicators.</p>

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Study & Country & Survey Data <sup>a</sup> and Year	Peer Reviewed <sup>b</sup>	Policy Intervention	Objective <sup>c</sup> & Gendered Indicator <sup>d</sup>	Method	Main Findings
<p><b>13. Mogues et al. (2011)</b></p> <p>Ethiopia (rural)</p> <p>EEPRI/IFPRI Gender and Rural Services surveys 2008-09</p>	No	<p><i>Direct Transfers and Education, Health, and Infrastructure Expenditures:</i> incidence of components of FSP, drinking water supply, and agricultural extension services</p>	<p><i>Objective 3</i>  <i>Indicators:</i> Concentration shares, concentration curve by gender, quintile, type of household</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Welfare indicator used to rank hh: income per capita</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Valuation of FSP and agricultural extension services at government cost; amount of time and distance to safe water supply</li> <li>• FSP, drinking water access, and agricultural extension services based on survey and not administrative accounts</li> <li>• Average and marginal incidence</li> </ul>	<p>Women received half the amount of agricultural extension services as men, male headed households were favored by the public works components of the FSP but female headed households were favored by the direct support component, and female headed households were more likely to travel further to their main source of water and were more likely to access safe water than male headed households.</p>
<p><b>14. Rashid et al. (2011)</b></p> <p>Albania (outside Tirana region)</p> <p>Albania LSMS 1996</p>	No	<p><i>Education Expenditures:</i> incidence of public spending on education at all levels</p>	<p><i>Objective 3</i>  <i>Indicators:</i> Concentration shares and enrollment (coverage) by gender and expenditure quintile.</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Welfare indicator used to rank hh: consumption per capita</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Valuation of education at government cost by level of education</li> <li>• School enrollment based on survey and not administrative accounts</li> <li>• Average incidence</li> </ul>	<p>Government spending on basic education was pro-poor for females and males in the lowest quintile. Spending on secondary and tertiary levels favored the third and top quintiles as well as favored richer males.</p>
<p><b>15. Siddiqui (2009)</b></p> <p>Pakistan</p> <p>Supply and Use Table 1990; SAM 1999; Agriculture census 1993; HIES 1991; LFS 1990-1991; GPN-Survey 2006; small rural household survey 2000</p>	Yes	<p><i>Indirect Taxes &amp; Education and Health Expenditures:</i> incidence of tariff reductions and retrenchment in government expenditures simulations</p>	<p><i>Objective 1</i>  <i>Indicators:</i> poverty measured assessed by gender, include: FGT indices: head count ratio, poverty gap, poverty severity; capability poverty: change in infant mortality (IMR) and literacy rate (LR); time poverty: change in female leisure time</p>	<ul style="list-style-type: none"> <li>• Behavioral responses: computable general equilibrium model</li> <li>• Welfare indicator used to rank hh: expenditures equalized</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Potential effects of tariff reductions and retrenchment in government expenditure simulations</li> <li>• Gender features based on survey and not administrative accounts</li> <li>• Average incidence</li> </ul>	<p>Trade liberalization would reduce the gender wage gap and reduction of government expenditures would have more negative impacts on women's market employment than on men's and it would be biased against the poor.</p>

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Study & Country & Survey Data <sup>a</sup> and Year	Peer Reviewed <sup>b</sup>	Policy Intervention	Objective <sup>c</sup> & Gendered Indicator <sup>d</sup>	Method	Main Findings
<p><b>16. Ssewanyana et al. in Grown &amp; Valodia (2010)</b></p> <p>Uganda</p> <p>UNHS III 2005-2006</p>	<p>Light</p>	<p><i>Direct and Indirect Taxes:</i> PIT and indirect taxes (VAT, excise, fuel) incidence analysis; simulations of potential indirect tax policies</p>	<p><i>Objective 2</i></p> <p><i>Indicators:</i> Gendered incidence of PIT by household type; incidence of VAT, excise and fuel taxes by household type and quintile</p>	<ul style="list-style-type: none"> <li>• Accounting approach</li> <li>• Consumption per capita</li> <li>• Partial</li> <li>• Point-in-time</li> <li>• Current and potential effects of reform</li> <li>• Burden of indirect taxes shifted to consumers</li> <li>• Statutory tax rates</li> <li>• Average incidence</li> </ul>	<p>PIT is progressive but there is horizontal inequality</p> <p>PIT does not explicitly disadvantage any gender but men end up paying more because they earn more. In the case of indirect taxes, they are slightly progressive overall. The burden was higher for male-type hh than female-type hh</p>

**Source:** Compiled by author based on studies included in the literature review.

**Notes:** **a** The last entry in the first column is the acronym of the household survey utilized in the corresponding study. See Glossary for full names of surveys. **b** The peer reviewed categories are as follows: “yes” indicates that the study was published in a peer reviewed journal; “light” indicates that the study was reviewed but not in the same rigorous fashion as a peer reviewed journal, studies in this category were typically included in an edited volume or published as a report by an institution; and “no” means that the study was not peer reviewed, such as working papers. **c** For definitions of fiscal incidence indicators see Table 1. **d** The three objectives are defined as follows: Objective 1: What is the impact of taxes and government transfers on gendered inequality and poverty indicators?; Objective 2: Are the burden of taxation and the benefits from government direct transfers and indirect subsidies different by gender?; Objective 3: How equitable is spending on/access to public education, health and other government services by gender?



**Table 3: Gendered Fiscal Incidence Studies: a Summary**

	# of Studies/ Countries	World Bank Regions <sup>a,g</sup>						World Bank Development Level <sup>b,h</sup>				Data Years <sup>i</sup>					Peer Review <sup>c</sup>		
		EAP	ECA	LAC	MENA	SA	SSA	LI	LMI	UMI	HI	1950-1979	1980-1989	1990-1999	2000-2009	2010-Present	Yes	Light	No
<b>Total</b>	16/32	3	2	2	0	3	12	7	10	5	10	1	7	26	14	0	4	5	7
Direct Taxes (PIT)	0																		
Direct Taxes (CIT)	0																		
Indirect Taxes <sup>d</sup>	2	1					1		1	1				1	1		1		1
Direct & Indirect Taxes	3					1	2	1	2			1	1	1	3			3	
Direct Transfers	0																		
Direct Taxes & Transfers	1										9			5	4		1		
Direct & Indirect Taxes & Direct Transfers	1										1			1					1
Indirect Subsidies <sup>e</sup>	0																		
Education, Health, & Infrastructure Expenditures	7	2	2	2		1	8	5	6	4			6	18	3		1	2	4
Direct Transfers & Education, Health & Infrastructure Expenditures	1						1	1							1				1
Indirect Taxes & Education, Health & Infrastructure Expenditures	1					1			1					1	1		1		
All Taxes and Spending <sup>f</sup> Combined	0																		

**Source:** Compiled by author based on studies included in the literature review.

**Table 3 Notes:**

**a** Regions were determined according to the World Bank's classifications, which includes developing countries only. The regions defined by the World Bank are defined by the following acronyms: EAP = East Asia & Pacific, ECA = Europe & Central Asia, LAC = Latin America & Caribbean, MENA = Middle East & North Africa, SA = South Asia, and SSA = Sub-Saharan Africa. For more information visit: <http://data.worldbank.org/about/country-classifications/country-and-lending-groups>. It should be noted that the World Bank's regions only include developing countries. Therefore, the studies with developed countries were not included in the regional classifications.

**b** Country Categories were determined according to the World Bank's classifications. The acronyms are defined as follows: LI = Low Income, LMI = Lower Middle Income, UMI = Upper Middle Income, HI = High Income: OECD. Please note the current country category was used. Therefore, the year of the data used for each study might have corresponded to placing these countries under different categories. For more information visit: <http://data.worldbank.org/about/country-classifications/country-and-lending-groups>.

**c** The peer reviewed categories are as follows: "yes" indicates that the study was published in a peer reviewed journal; "light" indicates that the study was reviewed but not in the same rigorous fashion as a peer reviewed journal, studies in this category were typically included in an edited volume or published as a report by an institution; and "no" means that the study was not peer reviewed, such as working papers.

**d** With and without indirect subsidies.

**e** Can include consumption and/or production subsidies.

**f** Direct transfers and public spending on education, health and infrastructure.

**g** The region classification will include a total of more than 16 studies, which is the total number of studies included in the literature review. This is because Glick et al. (2004) examined nine countries. Also, Browne (2011), which examined the UK and Figari et al. (2011), which examined nine countries from the European Union were not included in the regional classification because the countries were developed. Therefore, the total number of countries included in the regional classification is 22.

**h** The development level will include a total of more than 16 studies, which is the total number of studies included in the literature review. This is because Glick et al. (2004) and Figari et al. (2011) each examined nine countries in their study. Therefore, the total number of development levels is 32 because there were 32 countries included in the 16 studies reviewed for the literature review.

**i** The total number of data years is greater than the 16 studies because some studies examined data from more than one point in time. In the case of the benefit incidence analysis studies, this is because they examined two points in time using different data sets. However, in the case of Chakraborty et al. (2010) a subsample of combined estimates based on all rounds of the National Sample Survey (1950-2005) was used to estimate the incidence of indirect taxes. Also, in the case of Siddiqui (2009) data from several sources that spanned from 1990-2006 was used in the CGE model.

**Table 4: Gendered Unit of Analysis<sup>a</sup> by Policy Intervention**

	Presence of Adults			Employment Status				Headship			Gender of Recipient	
	Adult Male Majority	Adult Female Majority	Equal Number Adults	Male Breadwinner	Female Breadwinner	Dual Earner	No Employed	Male Headed	Female Headed	Couple Headed	Male	Female
<b>TAX</b>												
Direct and Indirect				4 <sup>b</sup>	4 <sup>b</sup>	4 <sup>b</sup>	4					
Direct Only: Personal and Corporate Income												
Indirect Only	5	5	5	1	1	1	1	1	1			
<b>BENEFIT</b>												
Direct Only												
Indirect Subsidies Only											7	7
In-Kind Only												
Other Combination of Benefits								1	1		1	1
<b>TAX &amp; BENEFIT</b>												
Direct and Indirect Taxes, & Direct Transfers												
Indirect Subsidies												
In-Kind Transfers												
Other Combination of Taxes & Benefits				3 <sup>c</sup>	3 <sup>c</sup>	2 <sup>c</sup>	2 <sup>c</sup>	2 <sup>d</sup>	2 <sup>d</sup>	1 <sup>d</sup>	1	1

**Source:** Compiled by author based on studies included in the literature review.

**Notes:**

a Gendered units of analysis were based on the categories used by many of the studies such as the Grown and Valodia (2010) edited volume and Casale (2012).

b Signifies with children.

c One study examined households with and without children. The same study examined male breadwinners who were in a couple where the spouse did not work, single household breadwinners for males and females, and dual earner couples where the spouses worked equal amounts of time and also accounting for spouses who worked part time.

d One study examined each gender indicator with and without children.

## Chapter 1 Appendix

### Short Summaries of Reviewed Studies

**Akram-Lodhi, A Haroon & van Staveren, Irene. (2003). *A Gender Analysis of the Impact of Indirect Taxes on Small and Medium Enterprises in Vietnam*. The Hague, the Netherlands: International Institute of Social Studies (ISS) of Erasmus University Rotterdam.**

Akram-Lodhi and van Staveren (2003) analyzed how the VAT system in Vietnam impacted women-owned versus male-owned SMEs. Data from the 1998 Vietnam Living Standards Survey (VLSS), which had a sample size of 5,994 households, was used to complete the study. However, quantitative incidence estimates were not made. The methodology of the study was more of a qualitative gendered tax incidence for owners of SMEs, where conjectural information was used rather than actual simulations. The study found that the VAT system contributed to implicit gender biases on women-owned SMEs. For example, women benefited less from VAT exemption because they were disproportionately represented in the informal sector. The limitation of this paper is that it was conjectural rather than implementing actual replications of prototypes or actual fiscal incidence analysis.

**Aryeetey, Ernest, Osei-Akoto, Isaac, Oduro, Abena D. & Osei, Robert Darko. (2010, December). An investigation into the gender dimensions of taxation in Ghana. Chapter 6 in Caren Grown & Imraan Valodia (Eds.), *Taxation and Gender Equity: A comparative analysis of direct and indirect taxes in developing and developed countries*. (pp. 151-178). New York, NY: Routledge.**

Aryeetey et al. (2010) analyzed personal income tax laws and gender equity as well as the burden of indirect taxes by gender in Ghana. To complete the study, micro-data from

the Ghana Living Standards Survey from 2005-2006 (GLSS 5) was used, which included a total of 8,687 households, of which 5,048 were rural and 3,589 urban. To assess the personal income taxes, the authors used a qualitative method of reviewing the laws as well as created a hypothetical situation for which the micro-data was used to compare the incidence of the burden of personal income taxes on male-breadwinner, single-parent, and dual-earner households. To assess indirect taxes, the authors used the standard, accounting approach incidence analysis method that compared households by different sex compositions of adults as well as households by male- versus female-breadwinners. The indicator used was the incidence of the taxes by type of household and by expenditure quintile. The study found that personal income taxes in Ghana did not explicitly disadvantage any gender but men ended up paying more because they earned more. Women were also more likely to qualify for marriage/responsibility relief for dependent children than men. Male-type households without children bore the indirect tax burden more so than female-type households. Also, male-breadwinner households bore a larger indirect tax burden more so than female-breadwinner households. This was because of the composition of consumption, where men consumed more alcohol and tobacco products. After completing simulations of potential policy reforms, Aryeetey et al. found that zero-rating children's clothes and footwear and reducing kerosene taxes would have little impact on gender differences. One limitation from this edited volume is that tax avoidance, especially via the presence of information markets (and particularly in rural areas), was not included in the methodology (Grown & Valodia, 2010, p. 36). However, the authors recognize this limitation and pointed out that in Ghana 61% of women and 58% of men

were self-employed in subsistence agriculture or other informal work, which made it difficult to assess the tax base (Aryeetey et al., 2010, p. 152).

**Austen, Siobhan, Castro, Monica, Sharp, Rhonda & Elson, Diane. (2013).  
“Expenditure Incidence Analysis: A Gender-Responsive Budgeting Tool for  
Educational Expenditure in Timor-Leste? *Feminist Economics*. doi  
10.1080/13545701.2013.830187**

Austen et al. (2013) analyzed how benefit incidence analysis could be used as a tool for assessing the gender responsiveness of budgets and policies through a case study example. The case study examined educational expenditure on boys and girls from urban and rural areas in Timor-Leste. The micro-data used was from the 2007 Timor-Leste Living Standards Survey (TLLSS), which represented 2% of the country’s total households at the time with a sample size of 4,500 households. The methods used for the benefit incidence analysis portion of the study were the accounting approach as well as a behavioral response model. For the qualitative portion, which aimed to determine how benefit incidence analysis could be used as a tool in gender responsive budgets, 29 semi-structured interviews and one focus group discussion were completed. The study found that total education expenditure shares favored boys. Also, shares per each education level typically favored boys. The behavioral response model, which applied the micro-data to a probit regression, showed that girls were more likely to go to school if there were adults in their household that had attended school and if they spoke Tetum. The qualitative interviews showed that stakeholders were unfamiliar with the benefit incidence methodology and that there was no buy-in to the method because non-governmental organizations were not involved. The qualitative portion of the study revealed that stakeholders had a negative

connotation towards benefit incidence analysis. However, the authors did not dismiss the use of incidence analysis as a tool and instead concluded that their study "demonstrates that gender analysis cannot stand alone, but must be supported by a strategy to be integrated into the budget decision-making processes so that it influences politics and their funding" (p. 17). One limitation is that the results of the incidence analysis were only shown for public spending on the total population, and not by quintiles.

**Browne, James. (2011). *The impact of tax and benefit reforms by sex: some simple analysis* (IFS Briefing Note 118). London: Institute for Fiscal Studies.**

Browne (2011) analyzed the burden of forthcoming tax and benefit reforms on men and women in the UK. The study compares single-adult households by the gender of the adult to couple households according to the gender of the higher earner, which also included whether the spouse worked and if so, part time, or full time. Each category also compared the presence of children. Overall, Browne assessed the impact of these forthcoming reforms on more than 40 household types. The micro-data used for the study included the Family Resources Survey, with a sample size of about 25,000 households, and the Expenditures and Food Survey, with 6,000 households. The method used was a partial incidence analysis using the accounting approach. Incidence was used as the indicator. The study found that the reforms would cause a larger loss for households with a single adult female than a single adult male. Single women with children would bear the largest burden of the reforms. Dual-earner couples would have a larger loss than single-earner couples. Also, the reforms would have little distributional difference according to whether the man or woman is the breadwinner. There would also be little distributional difference between

two-earner couples according to if the man or woman earns more. In regard to incentive to work, which Browne calculated by applying a standard formula to calculate Participation Tax Rates (PTRs), the reforms would slightly decrease the incentive for men and women to do paid work and increase their earnings. The biggest limitations of this paper, which is fully acknowledged by the author, is that it is not a full gender assessment because the microsimulation model that was used does not properly assign each benefit to a particular person of a couple. Also, although the model included all of the forthcoming tax and benefit reforms together, it would be interesting to see the impact of each individual reform.

**Casale, Daniela. (2012, July). Indirect Taxation and Gender Equity: Evidence from South Africa. *Feminist Economics*, 13(3), 25-54. Also published as: (2009, January). *Indirect Taxation and Gender Equity: Evidence from South Africa*. Durban, South Africa: School of Development Studies, University of KwaZulu-Natal.**

Casale (2012) assessed indirect taxes in South Africa to determine if explicit and implicit forms of gender bias exist in the tax system. The study classified households as being “male-type” or “female-type” based on three definitions: the presence of male and female adults 18 years and older in the household, employment status, and household headship. The micro-data used was from the Income and Expenditure Survey from 2000, which had a sample of 30,000 households. The methodology was a partial tax incidence analysis that used the accounting approach. Incidence was used as the indicator. Results of the study showed that there was no implicit bias against female-type households, those in the lowest quintiles, or those with children in South Africa. Rather, there was an implicit bias against male-type households and those without children. However, this was mainly income driven. When incidence was examined by consumption category, the study found



that female-type households bore a higher burden on food, utilities, children's clothing, etc. When simulations for potential policy reforms were completed, the author found that the largest gender and income equity gains would be attained by zero-rating children's clothing, which also seemed to impose no negative externalities. The author recognized that a limitation of the study was that even though the implicit bias is referred to as for or against male-type households, there are women who live in these households that will bear part of the tax burden. The study could easily be expanded by employing different methodologies, like comparing equivalized units to the male- and female-type households approach that was used, and introducing additional indicators to measure the impact of indirect taxes.

**Castro-Leal, Florencia. (1996, December). *Who Benefits from Public Education Spending in Malawi?* (World Bank Discussion Papers). Washington, DC: The World Bank.**

Castro-Leal (1996) analyzed how equitable spending on and access to public education was by gender in Malawi during 1990-1991 and 1994-1995. The 1990-1991 Household Expenditure and Small-Scale Economic Activities (HESSEA) survey and data from 1990-1991 and 1994-1995 from the Ministry of Education (MOE) was used to compute the per capita public education spending by income quintiles. The methodology used was the accounting approach and the indicators were concentration shares and concentration curves. The study found that gender disparities in gross enrollment rates for all income levels stayed the same over time and girls in the poorest quintile had the lowest enrollment rates in 1990-1991 and 1994-1995. One limitation of the study is that because the HESSEA survey was not available for both years, the author computed the enrollment

rate for 1990-1991, which assumed the same rate of increase in enrollment for all quintiles and males and females within the same region (North, Center, South). Therefore, the results may be driven by assumptions.

**Chakraborty, Pinaki, Chakraborty, Lekha, Karmakar, Krishanu & Kapila, Shashi M. (2010, December). Gender equality and taxation in India: An unequal burden? Chapter 4 in Caren Grown & Imraan Valodia (Eds.), *Taxation and Gender Equity: A comparative analysis of direct and indirect taxes in developing and developed countries*. (pp. 94-118). New York, NY: Routledge.**

Chakraborty et al. (2011) analyzed the burden of personal income taxes and indirect taxes on men and women in India. Micro-data from the 61<sup>st</sup> round of the National Sample Survey from 2004-2005 was used to complete the study, for which the sample size was not disclosed. For the indirect tax incidence analysis, Chakraborty et al. used a sample size of 7,877 rural and urban households from the state of West Bengal. To assess the personal income taxes, the authors used a qualitative method of reviewing the laws as well as created a hypothetical situation that used the micro-date to compare the incidence of the burden of personal income taxes on three types of households: one with a male and female earner and three dependents, another with a male earner and four dependents, and another with a female earner and four dependents. The accounting approach was used for the hypothetical situation and the indicator was incidence. To assess the indirect taxes, the authors used a standard tax incidence analysis that compared households by different sex compositions of adults as well as households by male- versus female-headship. The indicator used was incidence. The study found that personal income taxes in India provided preferential treatment to women, and that family size and the number of dependents did not matter. The aggregate indirect tax in the state of West Bengal was highest in households with more

males, followed by households with an equal number of males and females, and was the lowest for female-dominated households. In regard to headship, male-headed households in urban areas bore the largest burden of the indirect taxes more so than female-headed household, while in rural areas the opposite was true. Chakraborty et al. also completed simulations of potential policy reforms and found that if tobacco tax rates were doubled, the indirect tax incidence in male-headed households would become higher than female-headed households. One limitation of the study is that the indirect taxes were only assessed in the state of West Bengal. Therefore, the same burden of indirect taxes cannot be assumed for the entire country of India. Also, a limitation from this edited volume is that tax avoidance, especially via the presence of informal markets (and particularly in rural areas), was not included in the methodology (Grown & Valodia, 2010, p. 36). This is interesting especially in the case of India because about one-third of the total labor force are in the casual labor force and about half are self-employed. In regard to women, almost one-third are in the casual labor force and about 60% are self-employed (Chakraborty et al., 2010, p. 96). For this, it is not surprising that only 2.7% of the total population falls within the income tax net, and of this 2.7% women constitute less than 3% (p. 103).

**Demery, Lionel, Chao, Shiyun, Bernier, Rene & Mehra, Kalpana. (1995, November). *The Incidence of Social Spending in Ghana* (PSP Discussion Paper Series 19704). Washington, DC: Poverty and Social Policy Department, Human Capital Development and Operations Policy, The World Bank.**

Demery et al. (1995) analyzed how equitable public spending on and access to health and education was in Ghana during 1989 and 1992. The study compared men and women by quintile and in different regions using micro-data from the Ghana Living

Standards Survey (GLSS) 1989 and 1999, which had sample sizes of 3,200 and 4,565 households respectively. The accounting approach was the method used to measure the incidence. The indicators used were concentrations shares, concentration curves, and enrollment (coverage). The study found that in general, primary level education subsidies were well targeted to the poor but secondary and tertiary levels were not. However, gender inequality was apparent at every education level and did not change over time. In regard to health, the authors found that women received more of the overall health spending but the poorest women were not as likely to benefit from health services. Over time, the health spending was more unequal in 1992 than 1989. One limitation of this study is that there appeared to be small sample sizes in some of the quintiles. Also, same as for all expenditure incidence analyses based on government cost, the valuation for the consumer may have been different and the method did not consider differences in quality.

**Demery, Lionel, Dayton, Julia & Mehra, Kalpanna. (1996). *The Incidence of Social Spending in Côte d'Ivoire, 1986-95* (Working Paper 65701). Washington, DC: Poverty and Social Policy Department, The World Bank.**

Demery et al. (1996) analyzed how equitable spending on and access to public education and health services were by gender in Côte d'Ivoire in 1986 and 1995. Micro-data used was from the Living Standards Measurement Survey 1986, which had a sample size of 1,600 households and the Social Dimensions of Structural Adjustment Priority Survey (PS) 1995, for which a sample size was not disclosed. The accounting approach method was used to assess average and marginal incidence. The indicators used were concentrations shares, concentration curves, and enrollment (coverage). The study found that in 1995 the per capita health subsidy was slightly higher for females than males (p.

12). Also, females only received about one-third of the total education subsidies in 1995 and the average per capita subsidy of boys was almost twice that of girls (p. 25). One limitation of the study is that gender was not disaggregated for in 1986 so the change over time in regard to incidence of health and education spending on gender could not be assessed. Also, the same as for all expenditure incidence analyses based on government cost, the valuation may have been different for the customer and the differences in quality were not taken into account.

**Demery, Lionel & Gaddis, Isis. (2009). *Social spending, poverty and gender equality in Kenya: a benefit incidence analysis*. Nairobi, Kenya: Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH Support to Public Finance Management Reforms.**

Demery and Gaddis (2009) assessed how equitable spending on and access to public education and health services were by gender in Kenya. Education spending was assessed by comparing subsidies of females and males in primary, secondary, and tertiary education levels by quintiles as well as looking at enrollment levels. To assess health spending, the authors compared the shares of the referral hospital subsidy, the regional hospital subsidy, and the primary subsidy received by females and males by quintile in addition to examining the distribution of use of services. Micro-data from the 2005-2006 Kenya Integrated Household Budget Survey (KIHBS), for which over 13,000 households were sampled, was used to complete this study. The methodology implemented was a partial, standard benefit incidence analysis that examined the average and marginal benefit incidence for education and health spending. Concentration shares, concentration curves, and enrollment (coverage) were the indicators used. The authors found that education

spending at the primary level was distributionally progressive and boys only had a slight advantage over girls. However, at the secondary and tertiary levels, spending was regressive and boys received more subsidies than girls. The marginal incidence showed that if spending were increased for primary schooling, poor girls would benefit the most. Females received more health care than males, but poor women did not fare well compared to richer women. Poor females could benefit from increased primary healthcare spending, but not from increased hospital-based care spending. The methodology used for this paper was robust. One limitation, which is the same as for all expenditure incidence analyses based on government cost, is that the valuation for the consumer may have been different and the method did not take into account differences in quality.

**Figari, Francesco, Immervoll, Herwig, Levy, Horacio & Sutherland, Holly. (2011). Inequalities within Couples in Europe: Market Incomes and the Role of Taxes and Benefits. *Eastern Economic Journal*, 37, 344-366. Also published as: (2007, December). *Inequalities Within Couples: Market Incomes and the Role of Taxes and Benefits in Europe* (SOEPpapers on Multidisciplinary Panel Data Research 74). Berlin: German Institute for Economic Research and the German Socio-Economic Panel Study (SOEP).**

Figari et al. (2011) assessed how much the tax-benefit system in nine European Union (EU) countries contributed to the equalization of the distribution of resources between men and women and their incentives to work. The countries examined were: Austria, Finland, France, Germany, Greece, Italy, the Netherlands, Portugal, and the UK. The EUROMOD dataset, which is comprised of micro-data from 12 different sources for 15 countries, was used for the study. The authors examined the distribution of income by gender in coupled households before and after the “fisc,” as well as male breadwinner households, female breadwinner households, dual earner households, and households

without employed members. The methodology employed was a standard incidence analysis. The indicator used was inequality. The study found that Austria, Finland, the UK, and France had tax-benefit systems that did the most to equalize couple incomes. This was largely because of the individual filing tax system in these countries. In the joint tax countries, France, Germany, and Portugal, there was a disadvantage through the tax-benefit system for the lower earner, which was typically the woman. The fact that women earned less than men is what drove the within-couple work incentive differences. When this was viewed as a couple-decision about who should work more, there were clear advantages to the man working more. This study used a particularly robust method as it examined incidence of taxes and transfers on men and women individually rather than only by household types.

**Glick, Peter, Saha, Rumki & Younger, Stephen D. (2004, May). *Integrating Gender into Benefit Incidence and Demand Analysis*. (Food and Nutrition Policy Program Working Paper 167). Ithaca, NY: Cornell University. Retrieved from <http://www.cfnp.cornell.edu/images/wp167.pdf>**

Glick et al. (2004) assessed the extent to which public spending could mitigate or exacerbate gender inequalities and how existing allocations of public expenditure could be changed to improve gender inequalities. The study included three gendered incidence analyses. The first was a standard benefit incidence analysis that assessed health, education, public employment, and time spent collecting water in the following nine countries: Bulgaria, Ghana, Jamaica, Madagascar, Mauritania, Pakistan, Peru, Uganda, and Vietnam. The living standard household surveys were typically used to compare the benefits received by men to those received by women. The indicator used was concentration shares. The

authors found that there were not consistent correlations between gender gaps and per capita expenditures. However, of the gaps that were found, the largest were in secondary education, public employment, and time spent collecting water. The second incidence analysis was a gender differential demand analysis of education and health services in Madagascar and Uganda. The authors did not find gender differences in either country in the impact of quality related indicators or provider cost indicators. The third incidence analysis was to determine if water infrastructure improvements would reduce the work burden on women of water collection and work overall compared to men. The authors found that water infrastructure investments would only have limited impacts. The limitation of this study is that since it is a cross-country study that examined gender inequalities in several countries, gender inequalities in each individual country could potentially be overlooked while examining larger patterns. The benefits that were assessed were also very general in order to assess the same services in all countries. Glick et al., however, was one of the few benefit incidence analyses that takes into account differences in quality, which is an important contribution to the literature.

**Mogues, Tewodaj, Petracco, Carly & Randriamamonjy, Josee. (2011, December). *The Wealth and Gender Distribution of Rural Services in Ethiopia: A Public Expenditure Benefit Incidence Analysis* (Ethiopia Strategy Support Program II (ESSP II) ESSP II Working Paper 33). Addis Ababa, Ethiopia: Development Strategy and Governance Division, International Food Policy Research Institute (IFPRI)-Addis Ababa.**

Mogues et al. (2011) assessed components of the FSP, drinking water supply, and agricultural services in rural Ethiopia. The study compared male headed households to female headed households as well as compared benefits that men received to those received



by women. The micro-data used was from the 2008-2009 Ethiopian Economic Policy Research Institute (EEPRI) and International Food Policy Research Institute (IFPRI) Gender and Rural Services survey, for which 1,120 households were sampled, as well as the 2008 Wereda/City Benchmarking Survey. A standard benefit incidence methodology was used, which also examined the average and marginal benefits. The indicators used were incidence, concentration shares, and concentration curves. The study found that women received half the amount of agricultural extension services as men, male headed households were favored by the public works component of the FSP but female headed households were favored by the direct support component, and female headed households were more likely to travel further to their main source of water and were more likely to access safe water than male headed households. This study was very comprehensive in explaining the components of each program that were assessed, its methodologies, and its findings. Although the assessment of these particular programs and of only rural Ethiopia were intentional, it would be interesting to see a comparison of the results to the entire country and for all available benefits.

**Rashid, Mansoor, Dorabawila, Vajeera & Adams, Richard. (2001, May). *Household Welfare, the Labor Market, and Social Programs in Albania* (World Bank Technical Paper No. 503). Washington, DC: Human Development Unit, Europe and Central Asia Region, The World Bank.**

Rashid et al. (2001) is a comprehensive report that examined household welfare, described the labor market, and evaluated the equity and efficiency of social programs in Albania outside of the Tirana region during 1996. Since the study only used gendered incidence analysis to assess education, this is the only part of the paper that will be

summarized here. The authors used quantitative micro-data from the Albania Living Standard Measurement Survey 1996, which had a sample size of 1,500 households, to compare public education spending on males and females at all education levels. The standard, accounting method of incidence analysis was used. The indicators used were concentrations shares and enrollment (coverage). The study found that government spending on basic education was pro-poor for both females and males in the lowest quintile. However, spending on secondary and tertiary levels of education favored the third and top quintiles as well as favored richer males. The limitations of the study include that there was a lack of discussion of methodologies implemented since this was only a small section of a much larger paper. Also, the sample size per quintile was not disclosed. The household survey only had a sample size of 1,500 households so some quintiles could potentially have small sample sizes. Also, which is the same as for all expenditure incidence analyses based on government cost, the valuation for the consumer may have been different and the method did not take into account differences in quality.

**Siddiqui, Rizwana. (2007, July). Modeling Gender Effects of Pakistan's Trade Liberalization. *Feminist Economics*, 15(3), 287-321. Also published as: (2007, April). *Modelling Gender Dimensions of the Impact of Economic Reforms in Pakistan* (MPIA Working Paper 2007-13). Gender Challenge Fund, Poverty and Economic Policy (PEP) Research Network.**

Siddiqui (2007) analyzed how economic reforms like tariff and government expenditure reductions impact poverty in Pakistan. The author compared labor hours of men and women by education level; households in urban areas by education levels and households in rural areas by headship; and activities of men and women. The micro-data used to complete this study included the following: a supply and use Table from 1990, a

social accounting matrix from 1999, an agriculture census from 1993, the 1991 Household Integrated Economic Survey (HIES), the Labor Force Survey (LFS) from 1990-1991, the Gender Planning Network Survey (GPN-Survey) from 2006, a small rural household survey from 2000. The methodology implemented was a CGE that assessed the indicator of poverty. Poverty was defined in three categories: Foster Greer Thorbecke (FGT) indices, which included the head count ratio, poverty gap, and poverty severity; capability poverty, which included change in infant mortality (IMR) and the literacy rate (LR); and time poverty, which included change in female leisure time relative to the base period and relative to male leisure time. The study showed that trade liberalization would reduce the gender wage gap and that reduction of government expenditures would have more negative impacts on women's market employment than on men's and it would be biased against the poor. One limitation of the study is that it does seem not evaluate the change in poverty over the distribution of the entire population.

**Ssewanyana, Sarah, Bategeka, Lawrence, Guloba, Madina & Kiiza, Julius. (2010, December). Gender equality and taxation in Uganda. Chapter 9 in Caren Grown & Imraan Valodia (Eds.), *Taxation and Gender Equity: A comparative analysis of direct and indirect taxes in developing and developed countries*. (pp. 233-260). New York, NY: Routledge.**

Ssewanyana et al. (2010) analyzed the burden of taxation from a gender perspective in Uganda. Micro-data from the Uganda National Household Survey of 2005-2006 (UNHS III) was used, for which the sample size was 6,800 households<sup>26</sup>. To assess the Pay-As-You-Earn (PAYE) and Local Service Tax (LST), components of the direct tax system, the

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<sup>26</sup> For more information on the UNHS III please visit:  
<http://www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/UNHSReport20052006.pdf>

authors used a qualitative method of reviewing the laws as well as used the incidence analysis accounting method to compare the tax burden on male-breadwinner, single-parent, and dual-earner households. To assess indirect taxes, the tax incidence analysis accounting approach was used to compare households by different sex compositions of adults as well as households by male- versus female-breadwinners. The authors also examined the indirect tax incidence on consumption categories. The indicator used was incidence. The study found that the PAYE was a progressive direct tax, where the incidence on single-male-earner households was almost twice that of single-female-earners. The LST followed similar patterns. The personal income tax system did not explicitly disadvantage any gender but men end up paying more because they earn more. Also, implicit biases were found because no adjustments were made to compensate for inflations and children/dependents were not accounted for. In the case of indirect taxes, they were slightly progressive overall. The indirect tax burden was higher for male-type than female-type households and greater on male-headed than female-headed households. Ssewanyana et al. also completed simulations of potential policy reforms and found that although removing the sales tax would have little impact on progressivity overall, the greatest beneficiaries would be the poorest households with female heads because VAT declines as a percentage of consumption expenditure more in female-headed than male-headed households. One limitation from this edited volume is that tax avoidance, especially via the presence of information markets (and particularly in rural areas), was not included in the methodology (Grown & Valodia, 2010, p. 36). To this effect, the authors conclude that, “Uganda’s domestic tax revenue sources are still fairly limited, reflecting its limited industrial capacity and large informal sector” (Ssewanyana et al., 2010, p. 258).

## Chapter 2

### Towards a Comprehensive Gendered Fiscal Incidence Framework

#### Methodology, Constructing the CEQ Harmonized Microdata by Gender, and Data

##### Methodology

Following the literature review in Chapter 1, the three main research questions, which corresponded to the Objectives 1-3, were finetuned to be applied to this dissertation. They are as follows. *What is the impact of taxes and government transfers on gender income inequality and poverty between genders in Latin America? Are there noticeable differences between females and males in Latin America in terms of who bears the burden of taxation and who receives the benefits from government spending on transfers? Taking gender into account, how equitable is spending on in-kind transfers such as public education and health in Latin America?*

How can we answer the aforementioned questions? The literature review in Chapter 1 also revealed that the existing gendered fiscal incidence analyses are not comprehensive. Meaning that no existing literature review assesses both taxes and transfers, and therefore the net effect of fiscal policy. As a result, gendered indicators have not previously been developed that answer the questions of a comprehensive fiscal incidence analysis. A fiscal incidence analysis designed to assess how governments reduce the welfare gaps between genders needs to include indicators that can capture how inequalities across genders change

with fiscal interventions of taxes and transfers. Following Chapter 1 of this dissertation and Lustig (2015), a set of indicators have been developed to measure outcomes and fiscal system dimensions, that will ultimately help answer each research question. These indicators, which were developed as a gendered framework, will be listed below according to the corresponding research question. Prior to discussing this framework, I will first discuss what gendered variables will be measured and how to measure pre fisc and post fisc results using “income concepts.”

### ***Gender Variables***

The literature revealed that there has not been a comprehensive gendered fiscal incidence analysis to date. But there is oftentimes another shortcoming in terms of comprehensiveness of gender variables. Not all researchers examine gender from multiple dimensions. In other words, some researchers only assess how fiscal policies affect households, while others only assess how fiscal policy affects beneficiaries. This limits the interpretation and understanding of how fiscal policy affects gender inequality overall.

As such, this dissertation will assess three gender variables. Following the results of the systematic literature review, the most advantageous gender variables to assess are first, households grouped by gender, and second, female/male direct beneficiaries. It is important to assess both types of variables. Individuals typically live in households with other people. Therefore, resources, monetary and otherwise, are usually shared. This is especially important to consider when there are multiple generations living in the same household, particularly if any members receive pensions. On the other hand, it is helpful to assess some benefits especially in-kind transfers at the individual level. Accordingly, first,

two sets of household indicators were created. Followed by a set of individual level variables.

The first household category was *breadwinners*. This is an employment status indicator. This category has four sub-variables. Each sub-category was defined according to the person in the household who earns the highest labor income, the amount of income earned through employment. This is an important indicator in Latin America. According to ECLAC (2019b), “On average, around 40% of the employed population of Latin America earns wages below the minimum established per country and that proportion is much higher among women (48.7%) and younger people ages 15-24 (55.9%).” Furthermore, among young women, the proportion that earn below the minimum established amount per country is much higher, 60.3%. Women’s labor market participation is also lower as compared to males in the region. In 2017, 50.2% of women participated in the labor market as compared to 74.4% of males. Additionally, in 2017, female unemployment was 10.4%, while it was only 7.6% for men. Women are also more likely to be employed in low-productivity sectors and as of 2017 82.2% were not affiliated with or drawing from a pension system (ECLAC, 2019b). The Social Panorama 2018 (ECLAC, 2019b) also found that from 2012-2017, the greatest contributing factor to the largest reductions in poverty in Chile, El Salvador, and the Dominican Republic was increased wage income in poorer households. Along the same lines, Camou (2015, p. 2) found that most Latin American countries had already achieved gender equality in regard to education and life expectancy. But the remaining gender gap is due to the participation rate in the labor market and in differences in wages. Oxfam (2017) also confirm that there

are more poor women in the region than poor men and that women make up the majority of low-paid employees.

Given the data, it is clear that women are worse off than men in terms of levels of employment and earned income. It is also clear that money earned from employment can have an important effect in Latin America. For these reasons the breadwinner household variable set was included in this study. More specifically, the breadwinner household variables used in the study are defined as follows:

- *Female breadwinner households*: Households where a female has the highest amount of labor income.
- *Male breadwinner households*: Households where a male has the highest amount of labor income.
- *Multiple breadwinner households*: Households where there is a male and a female who have the same labor income.<sup>27</sup>
- *Zero breadwinner households*: Households where there are no labor income earners.<sup>28</sup>

Given that labor income was used to construct this variable, and no other forms of income, such as capital income, were included, the breadwinner households variables relate *only* to employment earnings. This is important to keep in mind when assessing some of the programs according to the country and program type. For example, there could be a health insurance program that is only for government workers. From this we could learn if

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<sup>27</sup> This variable comprised a very small amount of the population. However, the households were “diagnosed” and they were all realistic situations and therefore they were kept in the dataset.

<sup>28</sup> Zero breadwinner households were often unemployed people or pensioners.



the program provides more coverage for female breadwinner households or male breadwinner households, among answers to other questions.

Many gender sensitive fiscal incidence analysis studies have used the breadwinner categories, including Aryeetey et al. (2011), Browne (2011), Casale (2009), Chakraborty et al. (2011), De Henau et al. (2011), El Bouazzaoui et al. (2011), Figari et al. (2007), Ssewanyana et al. (2011), Siqqiqui (2007), Rodríguez Enríquez et al. (2007), Rossignolo (2018), and Pérez Frago and Cota González (2011). Authors have different takes on the breadwinner definition. For example, some define breadwinners if *only* the breadwinner earns labor income and the spouse does not earn anything, some control for the number of children in the households, and some do not include children at all. In the case of this dissertation such limitations were not applied. This is simply because it limited the sample size and oftentimes the poor population to make such exclusions. Therefore, the assumption was made that it was more realistic to not exclude households with more than two children, or with a spouse who has a part time job, for example.

When all four breadwinner categories are added together, they comprise the total country sample, which is why results were calculated for all four breadwinner categories. Only the results of the female and male breadwinner households will generally be discussed because gender is the most important variable being assessed in this dissertation. However, results for the multiple and zero breadwinner households are available in Appendix 2.

The second gender household variable is defined by *headship*. This is a variable that is reported on the household survey. The headship household type has two variables: a female headed household or a male headed household. No limitations were placed on the number of children, whether the person had a spouse, if the person had a job, etc. Like the

breadwinner household variable, the headship household variables are also commonly used in the literature, including by Aryeetey et al. (2011), Browne (2011), Casale (2009), Chakraborty et al. (2011), De Henau et al. (2011), El Bouazzaoui et al. (2011), Moguees et al. (2011), Ssewanyana et al. (2011), Siqqiqui (2007), Rodríguez Enríquez et al. (2007), Rossignolo (2018), and Pérez Fragoso and Cota González (2011). Some researchers do control for various family demographics when using the headship variables, such as limiting the number of children. For all countries that were included in this dissertation study, when both female and male headed households are added together, they comprise the total country sample size.

Although details of the application of the gendered fiscal incidence analysis and the framework that was used to assess the results are to come, it should be noted that in this study household variables were assessed on a comprehensive level. In other words, the net effect of the fiscal system was assessed as both taxes and transfers were included in the analysis. This is one benefit of using household level indicators to assess gender. The results allow the comprehensive fiscal system to be analyzed. This is particularly true because oftentimes data is only available at the household level. For example, the benefits of CCTs are provided to the household and therefore the amount that goes to each beneficiary is collected on a household level. The only country in this study that collected individual level beneficiary data on the CCT was Uruguay.

Finally, the individual level of gender variables included in this study was *male/female beneficiaries*. This was very straight forward. If a male beneficiary is someone who is defined as a male on the household survey and who receives the benefit of a program or in-kind transfer. A female beneficiary is someone who is defined as a female on the

household survey and who receives the benefit of a program or in-kind transfer. Male and female beneficiaries are also commonly used in the literature including Abras et al. (2012), Austen et al. (2013), Castro-Leal (1996), Demery and Gaddis (2009), Demery et al. (1995), Demery et al. (1996), Glick et al. (2004), Moguees et al. (2011), Rashid et al. (2011), the World Bank (2005), the World Bank (2008a), the World Bank (2008b), the World Bank (2009), and the World Bank (2010). The only limitation that might be applied to the male and female beneficiary variables in the literature is that of age. This could be helpful in the case of in-kind health transfers. But in general no limitations are made because of the definition of the variables. No limitations were applied for this dissertation.

The male and female beneficiary variables could only be assessed for programs and in-transfers that identified beneficiaries at the individual level. The construction of these variables was the most labor intensive part of the variable creation and the dataset creation. In a cross-country study of fiscal incidence, there are many programs, many of which have individual level data available. For each program, a variable for male beneficiaries and a variable for female beneficiaries had to be created. To assess each indicator for each program, the analysis had to be completed separately by gender and program. As will be discussed later, the results also had to be reviewed program-by-program, which essentially meant that for every program a full set of indicators has to be created to assess the results. This was a lot of additional results to be assessed and interpreted. The results are only valid for each individual program. For example, using the female beneficiary variable for primary education and applying it to a comprehensive fiscal incidence analysis assessing taxes and transfers would yield results that do not make sense and therefore are meaningless.

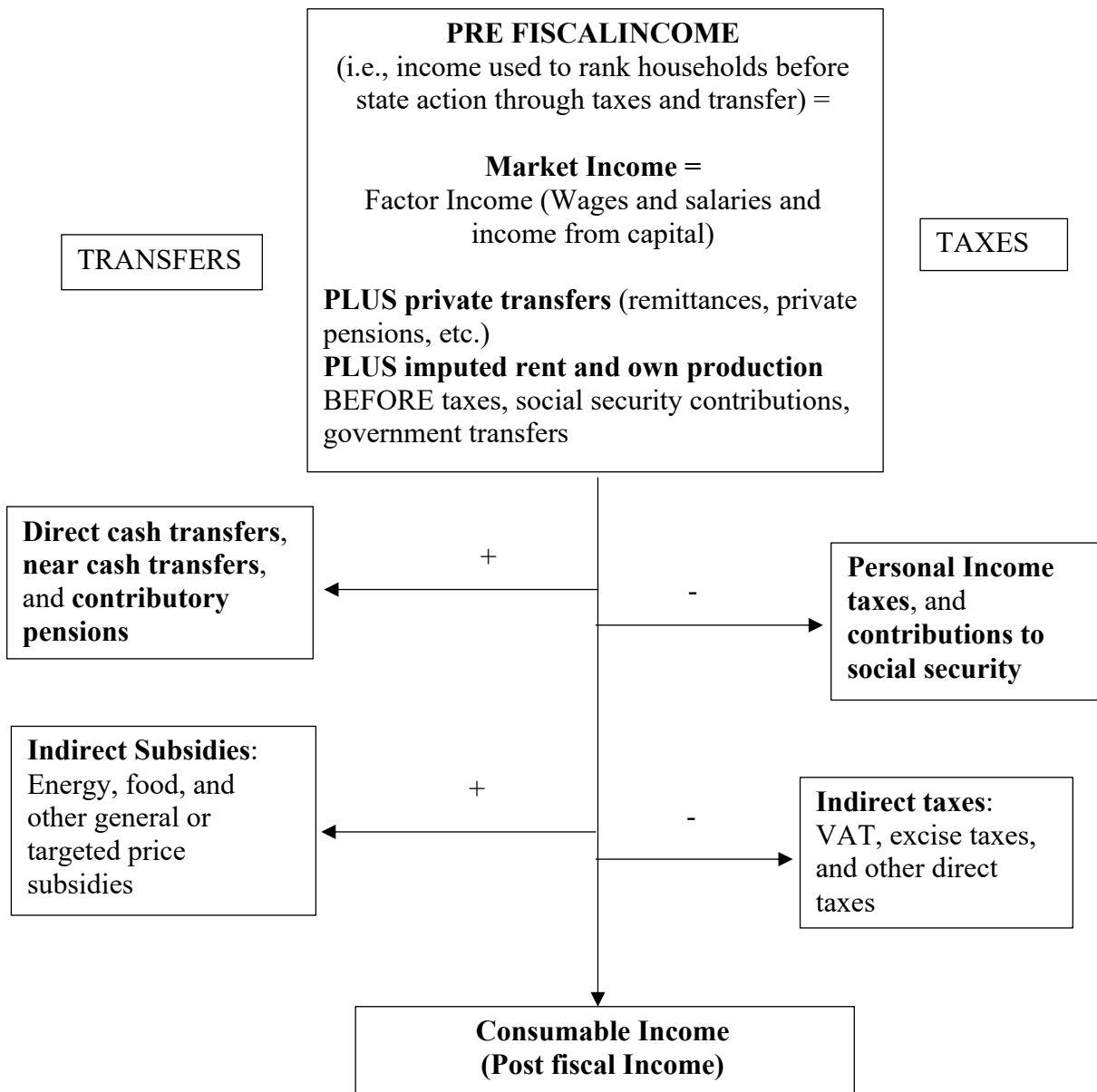
### *Income Concepts*

In order to assess whether or not government interventions will affect the aforementioned gender variables, it is necessary to understand the wellbeing of these household groups *prior* to any government interventions being accounted for. This is considered the “pre fisc” income concept. This study will use market income, which is constructed from earned income (wages and salaries from the formal and informal sector); income from capital, which includes rent collected, profits, dividends, interest, etc.; private pensions, private transfers (such as remittances or alimony), imputed rent for those who own their own homes, and the value of own production (Lustig, 2018, p. 233-234). Once market income is calculated, the outcome indicators of poverty and inequality, which will be discussed below, will be measured based on this pre government intervention income.

Post fisc, or, after taxes and transfers, will be measured by consumable income. Income concepts can be thought of linearly. After deciding what will comprise the initial income concept, which in this case is market income, various government interventions are added to construct the next income concept. For this dissertation, consumable income is constructed as follows. Starting at market income (which consists of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production), direct and near cash transfers are added and personal income taxes and contributions to social security are subtracted. Then, indirect subsidies are added, and indirect taxes are subtracted. This results in consumable income (Lustig, 2018, p. 17). The construction of both market income and consumable income can be seen graphically in Figure 1. To be overly clear, consumable income includes all of the necessary government interventions that are being studied in this cross-country analysis. Therefore,

to determine how the most disadvantaged group according to their pre intervention income (in this case market income) fared post intervention, consumable income will be used. It should be noted that the income concepts included in this dissertation were created using the CEQ methodology, which will be discussed in detail below.

**Figure 1:** Income Concepts under the Pensions as a Government Transfer



Source: Adapted from Lustig 2018, p. 17.

### ***Pre Government Intervention Indicators***

As explained above, to determine the extent to which government taxes and transfers impact breadwinner households, headship households, and male and female beneficiaries, it must first be determined which household groups and beneficiaries are more unequal and more disadvantaged *before* taxes and transfers, which will be measured using market income. The first step is to get acquainted with the populations that will be examined. Although the beneficiaries could be examined the same way as household variables, the populations for the beneficiaries will not be analyzed. This is simply because the population of each program is different because each program has a different number of beneficiaries. This does not tell a lot about the net effect of the fiscal system. If a researcher wanted to learn an in depth amount about a specific program, then it would be worthwhile to calculate the pre and post fisc populations for the male and female beneficiary variables.

The populations will be examined in three ways. The first calculation shows the percentages that each sub-gender variable comprises of the two household gender variables: breadwinner households and headship. The second population calculation will show the percent of households in each category as a share of the total country sample. Finally, I will assess the shares of each gender variable according to its income groups.

Throughout the study, the income group classifications that will be used are less than US\$3.20 purchasing power parity (PPP) per day, US\$3.20 to US\$5.50 PPP per day, and US\$5.50 PPP and greater per day.<sup>29</sup> These categories were chosen because each of the

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<sup>29</sup> Throughout this dissertation, the US\$3.20 PPP per day income group will at times be called the poor/poorest group, the US\$3.20 to US\$5.50 PPP per day group will at times be called the middle income group, and the US\$5.50 PPP and greater per day will at times be called the wealthy.

countries assessed is classified by the World Bank as an “upper middle income” country for the year of the survey from which the dataset was comprised (World Bank, 2019c). These are appropriate income groups to use for upper middle income countries.<sup>30</sup>

Next I will examine pre fisc inequality measures. The first is the Gini coefficient, which is the indicator of *within-household* category inequality. The Gini coefficient is a widely used measure of inequality. Zero represents perfect equality, while 1 represents perfect inequality (Haughton & Khandker, 2009, p. 104). The higher the Gini coefficient, the more unequal the country. In this case, the higher the Gini, the more unequal the households are within that gender category.

The second inequality measure that will be used pre fisc is to assess *between-household* inequality, which is the ratio of average female/male per capita market income by gender-type household. The ratio is calculated by simply dividing the average female per capita market income by the average male per capita market income for that household type (Lustig, 2015, p. 5). If the ratio is greater than one, female-type households will have a larger per capita market income. If the ratio is less than one, male-type households will have a larger per capita market income.

I will also assess three pre fisc poverty indicators. The first is the headcount ratio, which is the most widely used measure of poverty. It measures the proportion of the population that is counted as poor (Haughton & Khandker, 2009, p. 68). The second is the poverty gap index, which is a measure that adds the extent to which individuals on average fall below the selected poverty line and expresses it as a percentage of the poverty line.

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<sup>30</sup> As of 2019, all countries remained in the upper middle income category aside from Uruguay, which is now classified as “high income” (World Bank, 2019c).

This measure is helpful because it demonstrates the minimum cost of eliminating poverty by showing how much is necessary to transfer to the poor to bring their income (or expenditure) to the poverty line (Haughton & Khandker, 2009, p.70). The third indicator is the squared poverty gap, which is also called poverty severity. The squared poverty gap is a weighted sum of poverty gaps. It averages the squares of the poverty gaps for each individual/household relative to the selected poverty line, which in this case is US\$5.50 PPP per day. Therefore, it puts a greater emphasis on individuals/households that are farther from the poverty line than those who are closer. In other words, this indicator gives those who are very poor more weight (Haughton & Khandker, 2009, p.67, 71).

All three poverty indicators were calculated and are listed in various tables throughout this paper. Nevertheless, the most important indicator for the purposes of assessing gender poverty is the poverty gap squared. The poverty gap squared is the most appropriate poverty measurement for this study because in theory, the headcount ratio and the poverty gap squared can go in opposite directions. Moreover, if one is concerned about poverty, the headcount ratio can be misleading. A government could reduce poverty measured by the headcount ratio by transferring income to those close to the poverty line. This is a “low hanging fruit” from the fiscal resources point of view. This would leave the poorest of the poor equally poor. Using the poverty gap squared will allow us to see if this phenomenon is present with the cash transfer programs for example, and whether there is any difference between household by gender type. As such, that is generally the only indicator that will be discussed in the body of the results. The poverty line that was chosen to assess poverty outcomes is the US\$5.50 PPP per day poverty line. This is the appropriate poverty line to use given that every country is an “upper middle income” country.



The last pre fisc indicator that will be included is a summary statistic of the average years of schooling for adults over the age of 25 according to the gender variable. The age cut off of 25 is to purposefully exclude the majority of students who are currently in school (because we do not know how many years of schooling they will end up with, and because they are in school which could affect their employment status).

The population, poverty, and inequality indicators will also be assessed post fisc so that we can see the change *after* government interventions, as measured according to consumable income. However, there are more complex indicators that will measure the outcomes and fiscal system dimensions, as developed following the systematic literature review and Lustig (2015), which will be discussed immediately below.

## **The Impact of Taxes and Transfers:**

### ***How to measure outcomes and fiscal system dimensions***

Now that the gender variables and income concepts have been defined, the framework to assess gendered fiscal incidence analysis results will be explained. This framework was developed following the literature review in Chapter 1 and Lustig (2015). Although the indicators might seem as though they are common indicators that are frequently used to assess fiscal incidence analyses, the descriptions should be read carefully as the traditional definitions have been modified to appropriately assess gender. The framework will be explained according to how the indicators correspond to each research question.

The first research question is “*What is the impact of taxes and government transfers on gender income inequality and poverty between genders*” To answer this question, it is

necessary to assess how taxes and transfers affect the outcomes of poverty and inequality. To do so, the following indicators will be used.

**Inequality:**

- *Inequality within household types: Gini coefficient:* The Gini coefficient of market income will be compared to the Gini coefficient of consumable income, a pre and post measure of fiscal intervention.
- *Inequality between household types: Income Gap as measured by the Ratio of Female/Male-type households' average per capita Market Income vs. Consumable Income:* The ratio of the female/male average per capita market income (pre intervention measure) will be compared to the ratio of the female/male average per capita consumable income (post intervention measure). This will show how inequality changes from pre to post fiscal intervention. This is a simple ratio where the female per capita income is divided by the male per capita income. As such, if the ratio is over one, this indicates that the female-type households have higher per capita incomes as compared to male-type households. If the ratio is under one, male-type households have higher per capita incomes as compared to female-type households.

**Poverty:**

- *Ratios:* To measure the pre and post fiscal intervention of poverty, the poverty headcount ratio for the male-type households will be subtracted from the poverty headcount ratio of the female-type household for market income, consumable income, and final income. The results will show the likelihood of female-type households being poor at each income concept. If the result is a negative number,

this indicates that female-type households are less likely to be poor. The same measure will be completed for the poverty gap squared.

These indicators according to their outcome are summarized in Table 5.

**Table 5:** Gender Sensitive Fiscal Policy Outcome Indicators

Outcome	Indicator
Inequality	Ratio of Female/Male-type households' average per capita Market Income vs. Consumable Income.
	Gini coefficient for Market Income vs. Consumable Income for each gender variable.
Poverty	Headcount Ratio for the Female-type households minus the Headcount Ratio for Male-type Households for Market Income and Consumable Income.
	Squared Poverty Gap for the Female-type households minus the Squared Poverty Gap for Male-type Households for Market Income and Consumable Income.

According to Lustig (2015), poverty and inequality indicators are outcomes of dimensions of the fiscal system (p. 6). The second two main research questions, “*Are there noticeable differences between females and males in Latin America in terms of who bears the burden of taxation and who receives the benefits from government spending on transfers?*” and “*Taking gender into account, how equitable is spending on in-kind transfers such as public education and health in Latin America?*” concern dimensions of the fiscal system, which include progressivity and horizontal equity among the poor. To measure these dimensions, the following indicators will be used:

**Progressivity:**

- *Progressivity in Absolute Terms:* As adapted from Lustig (2015), a transfer (tax) will be progressive in **absolute** terms if it benefits more (burdens less) the household type with the lower per capita income. For example, the pre fisc results in Chapter 3, will show that female headed households have the lower per capita income. Therefore, we will want to see if transfers benefit or burden this group (as compared to male headed households). To be progressive (regressive) in absolute terms, the share of transfer (tax) has to be higher (lower) than the total **population** share. To illustrate this concept for ease of interpretation of results, an example from Brazil will be used, which can be found in Chapter 3. Female headed households receive 38.66% of the non-contributory pension. The share of the female household head population is 27.84%. Therefore, because female headed households receive more benefits from the non-contributory pension than their share of the population, this is considered a progressive program, in absolute terms. A transfer (tax) will be considered progressive/regressive in absolute terms if it is at least two percentage points greater (smaller) than the population share. If it is less than two percentage points greater (smaller), it will be considered neutral.
- *Progressivity in Relative Terms:* As adapted from Lustig (2015), a transfer (tax) will be progressive (regressive) in **relative** terms if it benefits more (burdens less) the household type with the lowest per capita income. To be progressive in relative terms, the share of transfer (tax) has to be higher (lower) than the total **market income** share. Again, using Brazil as an example. Female headed households receive 38.66% of the non-contributory pension. The share of market income going

to female headed households is 23.74%. Therefore, because the share of the total non-contributory pension that is going to the female headed households is larger than their share of the total market income, this is considered a progressive transfer in relative terms. A transfer (tax) will be considered progressive (regressive) in absolute terms if it is at least two percentage points greater (smaller) than the population share. If it is less than two percentage points greater (smaller), it will be considered neutral.

**Horizontal Equity among the Poor:** To measure horizontal equity, shares of transfers and taxes would be the same as the population shares of each gender variable within the poor. Brazil will be used as an example again to illustrate this concept. The poorest income group of female headed households receives 33.34% of spending of the flagship CCT. Their male counterparts receive 66.66%. To determine if both genders receive the same share, we will compare the shares to the shares of the population for the same income group. The poorest income group is comprised of 33.83% female headed households and 66.17% male headed households. If the CCT were perfectly horizontally equal, the female headed households would receive 33.83% of the CCT, which is the same as their share of the population, and the male headed households would receive 66.17% of the CCT. As we can see in the results, female headed households receive slightly less of the CCT than their share of the population. They receive 33.34% of the CCT, which is .48 percentage points less than their share of the population. The male headed households receive .48 percentage points more than their share of the population. Therefore, because the difference is miniscule, the poor

have horizontal equity in benefitting from the CCT. There will be horizontal equity if the two gender groups receive within two percentage points of each other.

In the case of progressivity and horizontal equity, only headship households and male and female beneficiaries will be assessed in the results chapter of this dissertation (Chapter 3). This is because in regard to the household variables, the results will show that the female headed households are truly the most disadvantaged group based on the poverty indicators. Therefore, it was decided that progressivity/regressivity will only be assessed for the categories classified by headship. As will be discussed in the conclusions in Chapter 4, it remains to be seen if the breadwinner household classification is really useful from the fiscal policy point of view. This is another area for further research. The male and female beneficiary variables will also be assessed because this will show whether specific programs are progressive for male or female beneficiaries. This is particularly helpful for in-kind transfers, like education and health.

**Coverage:** Two main coverage indicators will be used to determine whether or not a gender group is better covered by a program/tax. In the case of a transfer, the coverage simply reveals the rates of households receiving benefits from a program within a gendered income group. In the case of taxes, “coverage” is the rate of households that pay a tax within a gendered income group. These coverage indicators can be used in conjunction with the poverty and inequality indicators as well as the progressivity and horizontal equity to help tell the story of whether or not government interventions are assisting the groups that are worse off pre fisc. Here are the two coverage indicators that will be used:

- *Coverage Rate of **Total** Households*: This is calculated by taking the beneficiary households divided by the total number of households.
- *Coverage Rate of Total **Target** Households*: This is calculated by taking the households where at least one target direct beneficiary resides and dividing it by all households where at least one target individual resides.

In order to quickly interpret the coverage rates, a simple ratio was prepared to show whether female-type households or male-type households are better covered (or, which group has more taxpayers). To calculate this ratio the female-type household coverage rate is divided by the male-type household coverage rate. If the result is greater than one, the program/tax is better covered by female-type households. If the result is less than one, male-type households have more coverage. The important thing to keep in mind when reviewing these ratios is *not* whether or not females and/or males are benefitting. Instead, we want to look at the group that is more disadvantaged pre fisc to see if coverage can help explain their situation. For example, if the group that is more disadvantaged is not well covered by direct transfer programs, this could be a contribution to the explanation of the group's wellbeing.

These indicators are summarized in accordance to their dimensions of the fiscal system in Table 6, below.

**Table 6:** Gender Sensitive Indicators of Progressivity and Horizontal Equity

<b>Dimension of Fiscal System</b>	<b>Indicator</b>
Progressivity	Shares of transfers (taxes) received (paid) by each gender variable compared to the respective shares of market income and population.
	Differences of female/male breadwinner/headship households ratio of coverage.
Horizontal Equity among the Poor	Shares of transfers (taxes) receive (paid) is the same as the population shares of each gender variable within the poor.
	Differences of female/male breadwinner/headship households ratio of coverage.

One final concept must be mentioned before moving on to discuss how to apply the fiscal incidence analysis. That is the health expenditure allocation. When estimating the incidence of health spending, the analyst must determine the value that will be applied to account for the amount of the health benefit that each individual has received. The analyst generally has two options. The first is to apply the *usage* of services method, which is generally defined as the average cost of use of health services per person. The second option is the *insurance value* method, which is generally defined as the average cost of the health insurance coverage provided to each individual (Lustig, 2018, p. 295; Wagstaff, 2012; McIntyre & Ataguba, 2011, p. 175).

The biggest problem associated with using either one of these methods is potential data limitations. Ideally, the analyst would know the exact amount that each individual spent on health care and/or contributed to health insurance. This would be much better than using average amounts as it would answer not only vertical inequality questions, but also horizontal inequality questions.



However, realistically, the analyst ends up using a per capita average no matter if they use the usage method or the insurance value method. This is because, in the case of the usage method, the analyst will use data from the government accounts that shows how much on average was spent at each type of facility. The utilization of different types of health services will be estimated based on survey or program data. Then to determine the value of the cost of each type of health service, the unit rates of the cost of service will be multiplied by the usage (McIntyre & Ataguba 2011, p. 175). If the health insurance method is applied, the average rate that is spent on each group of people will be applied.

If data for both the usage and the insurance method were available, given that no matter the insurance method we will have to use the per capita average, the better method is the usage method. This is because there are certain nuances to the insurance use method that make the interpretation of the distribution of income difficult. This can be explained using an example in Wagstaff (2012). Wagstaff found that in Vietnam, factoring in insurance made little difference in the results of his study. However, this was because the concentration index for insurance was virtually zero (p. 364). If the insurance had been heavily concentrated among the rich and if the co-insurance rate would have been much higher, then if insurance was factored in, the government health expenditures would have appeared to have been much more pro-rich (p. 364-365). In other words, if the social insurance coverage was unequally distributed between the rich and poor, and if social insurance dramatically reduced the amount that people pay out of pocket, then the results would have been more sensitive to factoring in insurance (p. 365).

It is important to mention that there are common concerns that come with using a *unit cost* to measure health service provision (no matter if the analyst uses the average

usage or the health insurance method) that should be considered. Overall, the cost of service provision might not be the most reliable measure of economic benefit to the beneficiary for several reasons. The cost measures might not provide a good enough approximation of true benefits or of marginal valuations of the public service. Also, the unit cost of the provision of the service might ignore any long-term benefits. For example, the long-term benefit of getting an immunization would be ignored. Also, it could be hard to measure the cost of service provision accurately in developing countries. Furthermore, unit cost might reflect inefficiencies in public service provision. Unit costs might also not reflect the potential service quality difference in richer urban areas versus poorer rural areas. Another limitation is that unit cost might not include the *entire* cost of providing the service, for example the administrative costs could be left out (Gaddis & Demery, 2012, p. 2; Davoodi et al., 2010, p. 15; Martinez-Vazquez, 2001, p. 35). Given these concerns, it is not surprising that researchers (Small & Rosen 1981, Gertler & Glewwe 1990, and Younger 2003) have developed methodologies that apply contingent valuation or demand estimates as an alternative to using unit cost as a measure for benefit (Gaddis & Demery 2012, p. 2). Contingent valuation and demand estimates are outside the scope of this dissertation.

Overall, when it comes to assessing gender, it would be helpful to have the usage value, which would be a way to better control for and test health expenditures surrounding lifecycle events. For example, as we all know, females get pregnant, which could likely cause them to require more health care during that period than a male of the same age. Additionally, women generally have a longer life expectancy than men. On top of that, the older one is the more likely to have an illness. Therefore, it could seem like women are

receiving more health care than men, but it could just be simply that women have lived longer than men and eventually become sick in older age.

The CEQ Institute has one definition for “use” and three definitions on “insurance value” imputation that are currently being used for their health expenditure allocation. As previously explained, because the datasets used for this study were CEQ Institute’s harmonized microdata sets, the authors who originally prepared the CEQ Assessments, from which the harmonized microdata sets were prepared, had to choose from one of the following definitions. Here they are as defined in the CEQ Institute’s Standard Indicators, dated June 28, 2019:

- “Actual use: refers to the case in which the public health expenditure is allocated to the individuals who report using the service.”
- Insurance Value:
  - “Basic: the same per capita health benefit is allocated to the whole population. This method is generally used when the whole population is eligible to use the public health service and there is no information for further disaggregation available.”
  - “Access: a different per capita health benefit is allocated according to the system accessed. This method is generally used when there is more than one health system and information on access is available.”
  - “Intermediate: a different per capita health benefit is allocated according to the level of care accessed. This method is generally used when the health system provides at least two levels of care, within the public health system.”

Table 7 shows the health expenditure allocation method used for the countries that were included in this study. As such, the most comparable health systems are those of Colombia, Mexico, and Uruguay, all of which used the insurance value - intermediate approach. Brazil and the Dominican Republic should be assessed separately because Brazil used the insurance value – access method, while the Dominican Republic used both the access and intermediate methods.

**Table 7:** Health Expenditure Allocation, by country

	<b>Insurance Value</b>	
	Access	Intermediate
Brazil 2009	X	
Colombia 2010		X
Dominican Republic 2013	X	X
Mexico 2012		X
Uruguay 2009		X

**Source:** CEQ Institute’s Data Center on Fiscal Redistribution

Now that the gender indicators and the income concepts have been defined, and that the framework that will be used to assess the gender sensitive fiscal incidence study has been discussed, the next section will explain the fiscal incidence analysis methodology that will be used to evaluate how taxes and transfers impact gender inequality in Latin America.

### **CEQ Assessment by Gender**

For this dissertation, the CEQ Assessment fiscal incidence analysis methodology will be used to determine how fiscal policy affects gender inequality in Latin America. The CEQ methodology has been developed over a period of more than ten years. According to Lustig (2018, p. ixi), the CEQ Assessment is designed to answer the following questions:

1. How much income redistribution and poverty reduction is being accomplished

through fiscal policy?

2. How equalizing and pro-poor are specific taxes and government spending?
3. How effective are taxes and government spending in reducing inequality and poverty?
4. What is the impact of fiscal reforms that change the size and/or progressivity of a particular tax or benefit?

As Lustig (2018), explains the CEQ methodology allows researchers to, “estimate the combined impact of taxes and transfers” (p. lxii). To make these estimates the main idea is as follows. First, researchers must obtain a household survey and a national budget for the same year as the household survey. From this data, the authors can begin to construct income concepts. The CEQ framework has eight core income concepts. The first income concept that needs to be defined is the pre fiscal or “pre fisc” income. The CEQ has two pre fisc income concepts. They are:

**Market Income:** This is constructed from earned income (wages and salaries from the formal and informal sector); income from capital, which includes rent collected, profits, dividends, interest, etc.; private pensions, private transfers (such as remittances or alimony), imputed rent for those who own their own homes, and the value of own production.

**Market Income plus Pensions:** This is equal to market income, but it adds the income from public social insurance old-age pensions and subtracts contributions to pensions (Lustig, 2018, p. 233-234).

The researcher must decide which of the pre fisc starting points they will use. If the researcher wants to analyze the impact of social security pensions, then they use the Pensions as Government Transfer (PGT) scenario, for which the starting point is Market Income. If they do not want to assess social security pensions as a government transfer, then they would choose the Pensions as Deferred Income (PDI) scenario, for which the starting point would be Market Income plus Pensions (Lustig, 2018, p.17).

The remaining income concepts are as follows:

**Gross Income:** This is constructed by adding direct cash transfer and near-cash transfers to market income plus pensions.

**Taxable Income:** This consists of the portion of gross income that is taxable.

**Net Market Income:** This is equal to Market Income plus Pensions minus direct taxes, contributions, personal income taxes, payroll taxes, and property taxes.

**Disposable Income:** To construct disposable income, direct transfers are added to Net Market Income. Another way to construct this income concept is to subtract direct taxes and contributions from Gross Income.

**Consumable Income:** This is constructed by adding indirect subsidies to and subtracting indirect taxes from Disposable Income.

**Final Income:** To construct this, the researcher adds benefits from public services, or in-kind transfers, such as education and health services to Consumable Income.

Although the construction of the income concepts might seem fairly straight forward from what was explained above, there are many nuances involved, which

frequently concern data availability. For more information on how to construct these income concepts Chapter 6 in the CEQ Handbook 2018<sup>31</sup> outlines key factors to consider (Lustig, 2018).

As mentioned above, thanks to the research questions being assessed in this dissertation, only two income concepts are being used. The pre fisc income is market income, while the post fisc income is consumable income. Market income was used as the pre fisc income concept because social security contributions were assessed. Given that the CEQ Assessment methodology was going to be used as the fiscal incidence analysis methodology, market income and consumable income were constructed following the CEQ methodology.

After the researcher has constructed the CEQ Income Concepts, they can get started on the analysis. The CEQ Institute has invested a multitude of resources to automating much of the CEQ Assessment using Stata, statistical analysis software that also allows for users to write their own commands. A CEQ Stata Package<sup>32</sup> was prepared using user-written Stata commands. Each command computes a different indicator of the CEQ methodology and automatically populates an excel sheet. These excel sheets comprise the CEQ Master Workbook (MWB) which, when the study is completed, will contain detailed information on the country's economic, political, and social context, as well as descriptions of the data and on the construction of the income concepts, and of course, the results (Lustig, 2018, p. lvii). There are six sections of the MWB. They are: Section A. Country

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<sup>31</sup> The CEQ Handbook 2018 is available online, open source on the CEQ Institute's website: <http://commitmenttoequity.org/publications-ceq-handbook>

<sup>32</sup> Researchers simply have to install this CEQ Stata Package into their Stata software using the `ssc install ceq` command in order to access it.

Context, Section B. Data, Section C. Methodology, Section D. Summary of Results, Section E. Output Tables, and Section F. Results by Race and Ethnicity (Lustig, 2018,p. lvii). The Stata commands automatically populate Sections D, E, and F of the MWB. However, Sections A, B, and C must be filled out manually by the researcher. These are the sections that include background information on the country.

To apply the CEQ Assessment methodology to this study, first I decided to use the PGT scenario so that I could assess social security pensions. Next, I decided which CEQ indicators would need to be measured in order to produce the indicators that were included in the gender framework, which would allow me to answer the research questions. Since the gendered CEQ Assessments would be based on the results of the previously completed CEQ Assessments for the respective countries, MWB Sections A, B, and C, were not completed as they would have been a complete reconstruction of something that has already been completed. Section D is a “Summary of Results” of the “Output Tables,” which are found in Section E. Section D was not completed because I found the Section E MWBs easy to use. Also, a massive number of MWB sheets had to be completed due to the number of countries, programs, and gender variables assessed. In the end, over 1,400 MWB sheets were populated. It was not necessary to have this many sheets for Section D in addition to Section E since the data in both sections is the same.

Based on the available commands, I decided that the following indicators would need to be populated in order for me to produce results that that would allow me to use the gendered framework that was previously described. First, it was necessary to generate population information. Next, I would need poverty and inequality results to correspond to the indicators that I would use to assess these outcomes of the fiscal system. I would also



need concentration share information in USD PPP per day (the results were later annualized manually). The concentration share information along with the corresponding population results would allow me to calculate the progressivity and horizontal equity indicators, which are dimensions of the fiscal system. Additionally, I would need to calculate coverage results for both the overall population as well as the target population. The coverage results were used to support the indicators that assessed the outcomes of the fiscal system as well as the dimensions of the fiscal system. In the same regard, I also would need to calculate education enrollment rates and the average years of education.

Given the indicators that I would need in order to complete the gendered framework, next I determined which commands from the CEQ Stata Package that I would need to use. The commands and their corresponding MWB Sheets that were used to assess the results of the study are as follows<sup>33</sup>: `ceqpop` (MWB Sheet E2), `ceqlorenz` (MWB Sheet E3), `ceqfiscal` (MWB Sheet E11), `ceqcoverage` (MWB Sheet E18), `ceqtarg` (MWB Sheet E19), `ceqeduc` (MWB Sheet E20), `ceqindchar` (MWB Sheet E23).<sup>34</sup> The commands are explained below, mapped to the indicators that they addressed (if necessary).

*Population Confirmation:* `ceqpop` (corresponding MWB Sheet E2) – This

command calculates the population in four ways: the number of households in the sample, the number of individuals in the sample, the number of households in the expanded sample, and the number of individuals in the

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<sup>33</sup> Although this is a bit technical and untraditional to include in such a methodological section, it is being included here so that the results in Appendix B can be more easily understood.

<sup>34</sup> All estimations were made using Stata/IC 15.

expanded sample. Each calculation is made by decile, income group, centile, and bin for each of the core income concepts. These calculations are made for each income concept (Lustig, 2018, p. 425). Although population is not an indicator per se, it is necessary to run this sheet to not only check the population sizes, but having the population sizes on hand often serves as a good cross-check. It was also necessary to have the population sizes to complete the progressivity and horizontal equity indicators.

*Poverty/Inequality: ceqlorenz* (corresponding MWB Sheet E3) - This command calculates anonymous summary statistics for poverty and inequality by decline, income group, centile, and bin for each of the income concepts (Lustig, 2018, p. 427). In this sheet results such as the Gini, poverty headcount, poverty gap, and squared poverty gap can be found. Therefore, this sheet was used to answer the first research question: *What is the impact of taxes and government transfers on gender income inequality and poverty between genders in Latin America?*

*Progressivity/Horizontal Equity: ceqfiscal* (corresponding MWB Sheet E11) – This command calculates the concentration shares (among many other items) for each decile, income group, centile, and income bin for each income concept and each program or tax included in the study. The concentration shares for income groups at US purchasing power parity (PPP) per day (the results were later annualized manually) were used to answer the second two research questions: *Are there noticeable differences between females and males in Latin America in terms of who bears the*

*burden of taxation and who receives the benefits from government spending on transfers? Taking gender into account, how equitable is spending on in-kind transfers such as public education and health in Latin America?*

*Coverage:* Each of the commands listed below provides results about the coverage of programs and taxes. These were used in conjunction with MWB Sheets E3 and E11 to answer the respective questions that correspond with those indicators. The coverage results provided supporting results, thus improving the internal validity of the study.

`ceqcoverage` (corresponding MWB Sheet E18) – This command calculates coverage, leakage, and direct beneficiary indicators according to the fiscal interventions for the **total** population.

`ceqtarg` (corresponding MWB Sheet E19) - This command calculates coverage, leakage, and direct beneficiary indicators according to the fiscal interventions for the **target** population.

`ceqeduc` (corresponding MWB Sheet E20) – This command was used to produce education enrollment results.

*Average Years of Education:* `ceqindchar`<sup>35</sup> (corresponding MWB Sheet E23) –

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<sup>35</sup> It should be noted that this command can calculate means and median values for any of the individual-level sociodemographic characteristic variables in the dataset.

This command was used to produce the average years of education according to each gender variable. This was produced in order to provide summary statistics for the education results.

The results for each of these commands was run on each gender variable. Therefore for each of the aforementioned commands, a different sheet was generated in all cases for the overall country sample; the female, male, multiple, and zero breadwinners; and the male and female headed households. In terms of the male and female beneficiaries, results were completed for each program for which a male and female beneficiary variable could be created. For example, the poverty command `ceqlorez` populated a separate E3 Sheet for every level of education for each gender. Additionally, in order to calculate the marginal contribution of each program, a new set of MWB sheets had to be populated for each gender variable for each program. This would show how much a specific program contributed to the decline in poverty and inequality. For example, to determine how much the non-contributory health insurance program reduced the poverty and inequality of each gender variable, first variables had to be created that would provide the marginal contribution. Second, the results had to be run again to generate another set of MWB sheets for each gender variable of female, male, multiple, and zero breadwinner; the male and female headed households; and the male and female beneficiaries, with the marginal contribution results. The female breadwinner household MWB results would allow us to see how much the non-contributory pensions reduced poverty for the female breadwinner households, etc.

Having to run this many sheets resulted in anywhere from 149 to 267 MWB sheets per country depending on how many programs could be assessed at the individual level. Comparing the results out of the MWBs directly was nearly impossible. Therefore the results for the indicators were transferred into separate excel sheets to compare them cross-country. The next section will discuss the data that was used to complete the study.

## **Data**

The CEQ Institute has produced a multitude of CEQ Assessments, based on the comprehensive methodology found in Lustig (2018), which was explained in the previous section. At the time of this writing 55 studies were completed according to the CEQ Institute's website, with another 20 in progress.<sup>36</sup> Given that the results of the CEQ Assessments, in the form of the MWBs, microdata, and the corresponding do-files will be made publicly available, the CEQ Institute is, in addition, harmonizing the CEQ microdata for a subset of countries. These datasets are officially titled the CEQ Harmonized Microdata. The CEQ Harmonized Microdata is a dataset with the income concepts (e.g., market income, disposable income, consumable income, and final income) and the fiscal policy components used to generate the income concepts (i.e., personal income taxes, cash transfers, value added taxes, and so on).

One reason that these harmonized microdata sets were created is because the CEQ Institute is committed to comparability and harmonization is one way to ensure that cross-country comparisons can be made (Cabrera, Greenspun, and Martinez, 2019, p. 1).

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<sup>36</sup> Please visit the CEQ Institute's website for an update-to-date list of the CEQ Assessments: <http://commitmentoequity.org/> (accessed November 20, 2019).

Harmonization refers to the procedures that aim at improving comparability, . The CEQ Institute harmonizes CEQ Assessments by ensuring that each follows the CEQ Methodology and that its results are produced using the CEQ Stata package and the CEQ MWBs (Cabrera et al., 2019). The benefit of the dataset is that it is prepared in a user friendly manner that allows a user to evaluate aspects of fiscal policy from one country to another. For example, the effectiveness of the direct tax system reducing poverty and inequality in one country can be evaluated as compared to direct tax system in another country. The systems are obviously different country-to-country. But the data is prepared using as close to the same methodology as possible and therefore the majority of the countries have the same variables, which allows for them to be evaluated cross country. The datasets have been cleaned well and also have similar variable names, which makes them easy to use, especially if a researcher wants to use them to complete a cross country study.

To assess the impact of fiscal policy on gender inequality in Latin America, I make use of the CEQ Harmonized Microdata for Brazil, Colombia, the Dominican Republic, Mexico, and Uruguay. Each harmonized microdata set was prepared by Cristina Carrera of the CEQ Institute. The CEQ Harmonized Microdata is based on the CEQ Assessment fiscal incidence analysis carried out for each respective country, which was authored by the following researchers according to the country: Brazil 2009 – Sean Higgins and Claudiney Pereira (2014), Colombia 2010 and 2014 – Marcela Melendez and Valentina Martinez (2019a and 2019b), the Dominican Republic 2013 – Jaime Aristy-Escuder, Maynor Cabrera, Blanca Moreno-Dodson, and Miguel E. Sanchez-Martin (2018), Mexico 2012 and 2014 – John Scott, Sandra Martinez-Alguilar, Enrique de la Rosa, and Rodrigo Aranda

(2017a and 2017b), and Uruguay 2009 – Marisa Bucheli, Nora Lustig, Maximo Rossi, and Florencia Amabile (2014). Although the results were run for Colombia 2014 and Mexico 2014, they will not be assessed in this dissertation. However, the results can be found in Appendix 2 for the interested reader. The corresponding CEQ Assessments were based off of the following households surveys:

*Brazil 2009*: Pesquisa de Orçamentos Familiares 2008-2009 (Income based)

*Dominican Republic 2013*: Encuesta Nacional de Ingresos y Gastos de los Hogares 2006-2007 (Income based)

*Colombia 2010*: Encuesta Nacional de Calidad de Vida 2010 (Income based)

*Colombia 2014*: Encuesta Nacional de Calidad de Vida 2014 (Income based)

*Mexico 2012*: Encuesta Nacional de Ingresos y Gastos de los Hogares 2012  
(Income based)

*Mexico 2014*: Encuesta Nacional de Ingresos y Gastos de los Hogares 2014  
(Income based)

*Uruguay 2009*: Encuesta Continua de Hogares 2009 (Income based)

In order to assess the results for each gender variable that was previously explained, for each country, a second version of the harmonized microdata was created for gender – the CEQ Harmonized Microdata by Gender. After each aforementioned gender variable was created, it was added to the dataset for each country. The CEQ Harmonized Microdata by Gender can be found in Appendix 2. There are two sets of information available in this Appendix. The first are the datasets for the five countries. These are useful in the event that someone wants to run their own code to address new questions. The second set of information are the prepopulated results that were prepared for the five countries included

in this dissertation. The results are in the form of CEQ MWBs and there over 1,400. These results could be helpful for a researcher or policymaker who wants to use the existing results to answer questions. Although many results will be discussed in the next chapter, there are also many more results that can be found in the CEQ Harmonized Microdata by Gender.

In the next chapter, Chapter 3, the results of the cross country study will be discussed. First, the pre fisc results will be discussed. Then, an overarching cross country comparison will be included. Finally, country-by-country results will be including in alphabetical order.



## Chapter 3

### Results

#### A Gendered Sensitive Fiscal Incidence Analysis for Latin America

This dissertation has set out to answer the three following questions. *What is the impact of taxes and government transfers on gender income inequality and poverty between genders in Latin America? Are there noticeable differences between females and males in Latin America in terms of who bears the burden of taxation and who receives the benefits from government spending in transfers? Taking gender into account, how equitable is spending on in-kind transfers such as public education and health in Latin America?* This chapter will answer these questions based on a cross-country study of Latin America that was completed using the gendered fiscal incidence analysis methodology, which was previously described in Chapter 2.

To determine how much government taxes and transfers impact households grouped by gender categories, we must establish which household types are more unequal and more disadvantaged *before* taxes and transfers. Therefore, we will first look at summary statistics of data *prior* to government interventions. As a reminder, because social security pensions are being included in this study, and therefore the Pensions as

Government Transfer (PGT) scenario of the CEQ Assessment is being used, the pre fisc starting point will be market income. Market income is comprised of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production (Lustig, 2018, p. 17).

Let us first introduce the populations that will be examined. Table 8 shows the populations of the total country population and each gender variable in two ways. The first section of the table shows the percentages that each sub-gender variable comprises of the two main gender variables: breadwinner and headship households. We can see that of the breadwinner households, male breadwinners comprise the largest percentage of households in Latin America. The country with the smallest number of male breadwinners is Uruguay with 59.7%, while Mexico has the most with 70.3%. The Dominican Republic has the fewest female breadwinners, 23.3%. Uruguay has 26.8% female breadwinners, which is the most of any country in the study. The population shares of the headship households are similar, where for each country, male headed households comprise the largest percentage of households. The Dominican Republic has the smallest percent of male headed households (69.1%) and the largest percent of female headed households (30.9%). Mexico has the opposite – 21.4% of female headed households, which is the smallest cross-country and 78.2% of male headed households, which is the largest.

The second section of the table assesses the percent of households in each category as a share of the total country sample. Again, the results show that the majority of households in each income group are male breadwinner households of the breadwinner category and male headed of the headship category. The results are about the same from country-to-country.

**Table 8:** Populations Before Taxes and Transfers<sup>a</sup> (Market Income): Brazil, Colombia, Dominican Republic, Mexico, and Uruguay

Indicator	Brazil (2009)	Colombia (2010)	Dominican Republic (2013)	Mexico (2012)	Uruguay (2009)
Population in Total (in %)					
Breadwinner Households					
Female Breadwinner	24.77	25.55	23.34	25.01	26.76
Male Breadwinner	65.75	65.70	67.84	70.37	59.73
Multiple Breadwinners	.73	1.27	.26	.36	.74
Zero Breadwinners	8.75	7.48	8.57	4.26	12.77
TOTAL	100	100	100	100	100
<i>Household Headed Households</i>					
<i>Female Headed Household</i>	27.84	30.82	30.86	21.39	30.37
<i>Male Headed Household</i>	72.16	69.18	69.14	78.61	69.63
TOTAL	100	100	100	100	100
Population in Income Groups as share of Total Country Sample (in %)					
< US\$3.20 PPP per day					
Female Breadwinner Households	20.90	19.77	17.75	20.63	18.47
Male Breadwinner Households	54.72	62.62	63.59	72.85	34.04
Multiple Breadwinner Households	.40	.60	.04	.37	.84
Zero Breadwinner Households	23.98	17.01	18.87	6.15	46.65
TOTAL	100	100	100	100	100
<i>Female Headed Households</i>	33.83	35.01	31.57	16.61	37.75
<i>Male Headed Households</i>	66.17	64.99	68.69	83.39	62.25
TOTAL	100	100	100	100	100
US\$3.20-\$5.50 PPP per day					
Female Breadwinner Households	24.18	22.98	24.19	22.87	24.65
Male Breadwinner Households	66.55	70.25	68.94	72.28	56.83
Multiple Breadwinner Households	.50	.87	.45	.17	1.18
Zero Breadwinner Households	8.77	5.90	6.81	4.68	17.34
TOTAL	100	100	100	100	100
<i>Female Headed Households</i>	29.23	32.00	32.44	21.14	31.98
<i>Male Headed Households</i>	70.77	68.00	18.20	78.86	68.02
TOTAL	100	100	100	100	100
US\$5.50 PPP + per day					
Female Breadwinner Households	26.38	28.56	24.57	26.80	28.29
Male Breadwinner Households	69.72	65.30	68.64	69.16	64.03
Multiple Breadwinner Households	.90	1.65	.26	.41	.68
Zero Breadwinner Households	3.00	4.49	6.35	3.63	7.01
TOTAL	100	100	100	100	100
<i>Female Headed Households</i>	25.23	28.87	30.21	22.77	29.04
<i>Male Headed Households</i>	74.77	71.13	69.60	77.23	70.96
TOTAL	100	100	100	100	100

**Notes:**

a. The before taxes and transfers, or pre fisc, indicators listed in the table are measured using market income, which is composed of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production (Lustig, 2018, p. 17).

In Table 9 we can assess shares of each gender variable according to income groups. This table shows something else about the pre intervention populations that is interesting. When looking at the total country sample for the poorest two income groups, in Brazil, Colombia, and Uruguay, the poorest income group, of US\$3.20 PPP per day or less, has a larger share of the population than the middle income group, of US\$3.20 to US\$5.50 PPP per day. The Dominican Republic and Mexico have a larger share of the population in the middle income group than the poorest. Most countries follow the same patterns for each gender variable as the total population revealed. However, in Colombia and Uruguay, the female and male breadwinners have a larger share of the population in the middle income group despite that when looking at the total country population, there are more households in the poorest group. This is likely due to the number of “zero breadwinners” that these two countries have. Also, in Mexico, there are more male headed households in the poorest income group despite that the total population has a larger number of households in the middle income group.

**Table 9:** Populations within Gender Groups Before Taxes and Transfers<sup>a</sup> (Market Income): Brazil, Colombia, Dominican Republic, Mexico, and Uruguay

Indicator	Brazil (2009)	Colombia (2010)	Dominican Republic (2013)	Mexico (2012)	Uruguay (2009)
Population in Income Groups WITHIN gender groups (in %)					
Total Country Sample					
< US\$3.20 PPP per day	23.16	21.66	17.01	17.59	12.01
US\$3.20-\$5.50 PPP per day	15.48	19.81	18.52	17.97	9.68
US\$5.50 PPP + per day	61.35	58.53	64.47	64.45	78.31
TOTAL	100	100	100	100	100
Female Breadwinner Households					
< US\$3.20 PPP per day	19.55	16.76	12.93	14.51	8.29
US\$3.20-\$5.50 PPP per day	15.11	17.81	19.20	16.43	8.92
US\$5.50 PPP + per day	65.34	65.43	67.87	69.05	82.79
TOTAL	100	100	100	100	100
Male Breadwinner Households					
< US\$3.20 PPP per day	19.28	20.65	15.94	18.21	6.84
US\$3.20-\$5.50 PPP per day	15.67	21.18	18.82	18.45	9.21
US\$5.50 PPP + per day	65.05	58.18	65.23	63.34	83.95
TOTAL	100	100	100	100	100
Multiple Breadwinner Households					
< US\$3.20 PPP per day	12.81	10.26	2.83	17.96	13.50
US\$3.20-\$5.50 PPP per day	10.63	13.64	32.47	8.31	15.31
US\$5.50 PPP + per day	76.57	76.10	64.70	73.72	71.19
TOTAL	100	100	100	100	100
Zero Breadwinner Households					
< US\$3.20 PPP per day	63.45	49.27	37.46	25.37	43.87
US\$3.20-\$5.50 PPP per day	15.51	15.63	14.73	19.72	13.15
US\$5.50 PPP + per day	21.04	35.10	47.81	54.92	42.98
TOTAL	100	100	100	100	100
<i>Female Headed Households</i>					
< US\$3.20 PPP per day	28.14	24.60	17.40	13.66	14.92
US\$3.20-\$5.50 PPP per day	16.26	20.56	19.47	17.76	10.20
US\$5.50 PPP + per day	55.60	54.83	63.13	68.58	74.88
TOTAL	100	100	100	100	100
<i>Male Headed Households</i>					
< US\$3.20 PPP per day	21.24	20.35	16.90	18.66	10.73
US\$3.20-\$5.50 PPP per day	15.18	19.47	18.20	18.02	9.46
US\$5.50 PPP + per day	63.57	60.18	64.90	63.32	79.81
TOTAL	100	100	100	100	100

**Notes:**

a. The before taxes and transfers, or pre fisc, indicators listed in the table are measured using market income, which is composed of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production (Lustig, 2018, p. 17).

Let us now turn to the question of which household type experiences more within household type inequality and which category is more disadvantaged in terms of income

per capita and poverty. Before reviewing the results, the following should be noted. As previously explained in Chapter 2 regarding the methodology used, the breadwinner variables comprise 100% of the total population. In other words, the sum of all four breadwinner variables are equal to the total sample size of the population. Therefore, all four breadwinner variables were included in order for the sample size of breadwinners to equal the sample size of the total country. This allows comparisons of the breadwinner variables to be made to the total country population. Generally, the only results that will be discussed below are the female and male breadwinner categories. This is for several reasons. First, there were very few multiple breadwinner households. These households were not dropped from the sample because they were “diagnosed” to determine if the characteristics of the households showed that they were realistic households. They were realistic situations. Here is an example of a common multiple breadwinner household. The male and female, living in a rural area, appeared to work together and therefore just divided their labor income equally on the household survey. As we saw in Table 8, in all cases aside from Colombia, the multiple breadwinner households comprise less a percentage point of the population. (In Colombia they comprise 1.27%.) Therefore, the results will not generally be discussed below because there are so few households. Second, the zero breadwinner households results were fairly standard cross country. This is because these households started with zero income and then were benefitted by government interventions and therefore their well-being greatly improved. Many of these households were pensioners that were no longer working and therefore had no labor income, but they did receive pensions. The results were briefly tested by decomposing the households into further subgroups of male majority and female majority. But this did not reveal anything

unusual, which was likely because the individuals in the households still had zero incomes and we were not assessing intrahousehold sharing (so it did not really matter how many of which gender was residing in the households). Finally, because this study is assessing gender in Latin America, the most apropos results were those of the female and male breadwinner households. However, results are available upon request and can also be accessed in Appendix 2, the repository of the prepopulated results of the CEQ Harmonized Microdata by Gender. The headship households did not have this issue because this group of variables only consists of two categories: male headed households and female headed households. When added together, the male and female headed households comprise the total population. Finally, the male and female beneficiary results will not be discussed on an overall population level because they do not comprise the total population. Each male/female beneficiary category has to be assessed program-by-program. The pre intervention (as well as post intervention) well-being of the beneficiaries can be found for each program in table format in the discussions of each country that will follow.

Table 10 shows the “pre fisc,” or pre government intervention inequality and poverty results for each country according to their gender variable. In other words, these indicators show the levels of poverty and inequality of each gender group based on their “market income,” which, according to the CEQ methodology is composed of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production (Lustig, 2018, p. 17). The Gini coefficient is the indicator that measures the within-household inequality according to each gender category. In other words, this shows how unequal the distribution of income is among male headed households, among female headed households, etc. It does not show the inequality levels

*between* gender categories. The Gini coefficient results show that for all countries except Brazil, the pre fisc inequality is higher for male breadwinner households than female breadwinners. The results of the Gini are a little more variable for headship households. In Brazil, Colombia, and Uruguay, female headed households have higher levels of inequality, while for the Dominican Republic and Mexico male headed households are more unequal. The inequality of each of these groups is higher than the Gini of the total country population. The only instance for the breadwinner categories where the Gini is higher than that of the total country is Mexico.

To assess which household category is more disadvantaged, two indicators are used: the ratio of average incomes and poverty rates by gender-type household. The average per capita market income is higher for all female breadwinners than male breadwinners. On the other hand, the average per capita market income for headship households is higher for males, except for the case of Mexico. *Based on this indicator*, male breadwinners and female-headed households are the more disadvantaged category. Scrutinizing the results of this indicator show that on average for the five countries, female breadwinners have per capita market incomes that are only .088 higher than male breadwinners. This begs an important gender question. Are male breadwinners disadvantaged because they are a little worse off? On average, male breadwinners comprise about 65% of the households in each country. Should male breadwinner households be a target of policy because they show slightly less income than the 35% of the population, on average, that are female breadwinners? On the other hand, the average difference for the five countries of male headed households is .88. This shows that according to this indicator, female headed households are comparatively much worse off than male breadwinner



households despite that they are both the disadvantaged gender as compared to their respective counterparts. Since the magnitude of disadvantage of the groups is very different, this could result in different potential targets for equalizing interventions. This should be kept in mind as the other indicators are evaluated.

Next, three poverty indicators are shown in Table 10. For each country the headcount ratio and the poverty gap are higher for all male breadwinner households aside from Uruguay. For headship households, the headcount ratio and the poverty gap are higher for all female headed households other than for Mexico. The poverty gap squared results follow a similar trend to the headcount ratio and poverty gap. The pre fisc poverty is higher for female breadwinner households in Brazil and Uruguay, and male breadwinner households in Colombia, Dominican Republic, and Mexico. For the household headed households, pre fisc poverty is higher for female headed households in Brazil, Colombia, the Dominican Republic, and Uruguay. Of these countries, in all but the Dominican Republic, the poverty gap squared is higher for the female headed households than it is for the total country population. The only country in which male headed households are poorer pre fisc is Mexico. The poverty gap squared for male headed households in Mexico is 9.6% while it is only 9.0% for the entire country population. The fact that the most disadvantaged household headed gender group has a higher poverty gap squared than that of the entire country shows the magnitude of the disadvantaged headship households as compared to the disadvantaged breadwinner households. None of the disadvantaged breadwinner households have a higher pre fisc poverty gap squared than that of the total country. Overall, the poverty indicators show that pre fisc male breadwinner households are more likely to be disadvantaged than female breadwinners and that female headed households

are more likely to be disadvantaged than male headed households. Similar to the magnitude of inequality, these results show that female headed households are more disadvantaged than male breadwinner households.

All three poverty indicators in Table 10 are listed in various tables throughout this paper. Nevertheless, the most important indicator for the purposes of assessing gender poverty is the poverty gap squared. As such, that is generally the only indicator that will be discussed in the body of the results. The poverty line that was chosen to assess poverty outcomes is the US\$5.50 PPP per day poverty line. This is the appropriate poverty line to use given that every country is an “upper middle income” country.

The final indicator listed in Table 10 is the average years of schooling for adults over the age of 25 according to the gender variable. Interestingly, female breadwinner households in Latin America have a higher average years of schooling than their male counterparts. On the other hand, male headed households have a higher average years of education than their female counterparts. When simply examining females versus males (not according to anything other than gender and age over 25 years), in all of the countries females have a higher average years of schooling than the males aside from the Dominican Republic. As a whole, Uruguay has the highest average years of education than any other country in the study.

**Table 10: Gender Inequality and Poverty Before Taxes and Transfers (Market Income)<sup>a</sup>:  
Brazil, Colombia, Dominican Republic, Mexico, and Uruguay**

Indicator	Brazil (2009)	Colombia (2010)	Dominican Republic (2013)	Mexico (2012)	Uruguay (2009)
Gini					
Total Country Population	.5932	.5750	.5173	.5210	.5439
Female Breadwinner	.5830	.5491	.4989	.4903	.5076
Male Breadwinner	.5732	.5720	.5124	.5251	.5220
<i>Female Headed Household</i>	.6002	.5798	.4724	.4813	.5507
<i>Male Headed Household</i>	.5890	.5721	.5325	.5314	.5404
Average Female/Male Per Capita Market Income					
Breadwinners	1.05	1.15	1.08	1.11	1.05
<i>Household Heads</i>	.81	.88	.82	1.01	.88
Headcount Ratio: US\$5.50 PPP per day Poverty Line (in %)					
Total Country Population	38.6	41.5	35.6	35.6	21.7
Female Breadwinner	34.7	34.6	32.1	31.0	17.2
Male Breadwinner	35.0	41.8	34.8	36.7	16.1
<i>Female Headed Household</i>	44.4	45.2	36.9	31.4	25.1
<i>Male Headed Household</i>	36.4	39.8	35.1	36.7	14.6
Poverty Gap: US\$5.50 PPP per day Poverty Line (in %)					
Total Country Population	19.4	18.3	14.3	15.4	10.4
Female Breadwinner	16.0	14.6	11.6	12.9	7.2
Male Breadwinner	16.2	17.3	13.6	15.8	6.2
<i>Female Headed Household</i>	23.7	21.0	14.6	12.4	12.7
<i>Male Headed Household</i>	17.7	17.1	14.2	16.2	9.4
Poverty Gap Squared: US\$5.50 PPP per day Poverty Line (in %)					
Total Country Population	12.7	10.9	7.912	9.0	6.7
Female Breadwinner	9.9	8.5	5.8	7.2	4.1
Male Breadwinner	9.8	9.6	7.4	9.3	3.4
<i>Female Headed Household</i>	16.2	13.1	7.929	6.9	8.4
<i>Male Headed Household</i>	11.3	9.9	7.905	9.6	5.9
Average Years of Schooling (+25 years old) <sup>b</sup>					
Total Country Population	7.16	7.62	7.38	8.19	8.73
Females	7.23	7.59	7.56	7.92	8.93
Males	7.08	7.52	7.20	8.48	8.49
Female Breadwinner	8.17	8.73	8.66	8.68	9.80
Male Breadwinner	7.17	7.33	7.22	8.16	8.80
<i>Female Headed Household</i>	7.15	7.56	7.19	7.97	8.69
<i>Male Headed Household</i>	7.17	7.64	7.46	8.25	8.75

**Notes:**

a. The before taxes and transfers, or pre fisc, indicators listed in the table are measured using market income, which is composed of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production (Lustig, 2018, p. 17).

b. For the breadwinner and headship households, the results show the average number of years of education for each household within that gender category. For example, in Brazil, the average number of years of education for adults over the age of 25 living in female headed households is 7.15 years of education.

Based on the above, the within-household inequality, which was measured using the Gini, shows that male breadwinner households are more likely to have higher levels of inequality than their female counterparts. The headship within-household inequality results vary by country. The inequality between gender household categories, which was measured by the average female/male per capita market income, and poverty indicators reveal that male breadwinners and female headed households comprise the more disadvantaged group based on income. Furthermore, the female headed households are disadvantaged at a higher magnitude than the male breadwinner households. These are key results to keep in mind as the impact of taxes and transfers and progressivity are discussed. Given that male breadwinners and female headed households comprise the more disadvantaged groups pre government intervention, we will want to see how they do post intervention. In other words, the analysis of the results will determine whether taxes and transfer improve the wellbeing of male breadwinners and female headed households. Also shown in Table 10, it is good to note that regarding educational attainment, women, with the exception of Mexico, have more years of education than men.

Now that we have seen the pre fisc poverty and inequality levels for the five countries in the study, the research questions will be answered in the next section. The first section will be an overarching cross-country comparison of the results. Following this, there will be one section per country in alphabetical order.

#### **i. CROSS COUNTRY COMPARISON**

Post fisc, or, after taxes and transfers, is being measured by consumable income. As discussed in Chapter 2, income concepts can be thought of linearly. After deciding on

an initial income, various government interventions are added to construct the next income concept. Consumable income is constructed as follows. Starting at market income (which consists of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production), direct and near cash transfers are added and personal income taxes and contributions to social security are subtracted. Then, indirect subsidies are added, and indirect taxes are subtracted. This results in consumable income (Lustig, 2018, p. 17). The construction of consumable income can be seen graphically in Figure 1. To be overly clear, consumable income includes all of the necessary government interventions that are being studied in this cross-country analysis. Therefore, to determine how the most disadvantaged group according to their pre intervention income (in this case market income) fared post intervention, consumable income will be used.

Table 11 shows the post fisc changes in the population groups according to the percent of the population in each income group as a share of the total country sample. This can be revealing in that it could show whether the poorer income groups increase or decrease according to gender. Keeping in mind that pre fisc poverty results showed that male breadwinners and female headed households were the most disadvantaged, we will want to see if these two groups had decreases in population sizes for the poorest income groups. In other words, did households move out of poverty?

For male breadwinners, the number of households in the poorest income group and the middle income group increased post fisc. This is likely not positive for male breadwinners, but this will be further assessed in the post fisc poverty results. Also, as previously determined, the severity of the disadvantaged male breadwinners is not as bad



**Table 11 Notes:**

- a. The before taxes and transfers, or pre fisc, indicators listed in the table are measured using market income, which is composed of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production (Lustig, 2018, p. 17).
- b. The after taxes and transfers, or post fisc, indicators listed in the table are measured using consumable income. Consumable income is composed of the following. The components that comprise all income concepts prior to consumable income are built upon. First, Market Income, which includes income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production. Then direct and near cash transfers are added and personal income taxes and contributions to social security are subtracted, which is Disposable Income. Finally, to arrive at consumable income, indirect subsidies are added and indirect taxes are subtracted (Lustig, 2018, p. 17).
- c. The percent of total of each gender variable compared to the total population does not change pre and post taxes and transfers. This is because the gender category of the households does not change from income concept-to-income concept. This is simply being provided here for the convenience of the reader. Furthermore, it is being provided in the MI and CI columns for clarity.

Table 12 shows the populations according to their income groups *within* gender variables. This table is interesting because it shows the shifts in income groups within each gender post fisc. The lowest income group often declined but the middle and wealthy groups often increased; as people moved out of the poorest group, they moved to the higher groups. For female and male breadwinner households and female and male headed households the number of households in the poorest income group declined post fisc.

**Table 12:** Populations within Gender Groups Before (Market Income<sup>a</sup> (MI)) and After (Consumable Income<sup>b</sup> (CI)) Taxes and Transfers: Brazil, Colombia, Dominican Republic, Mexico, and Uruguay

Indicator	Brazil (2009)		Colombia (2010)		Dominican Republic (2013)		Mexico (2012)		Uruguay (2009)	
	MI	CI	MI	CI	MI	CI	MI	CI	MI	CI
Population in Income Groups WITHIN gender groups (in %)										
Total Country Sample										
< US\$3.20 PPP per day	23.16	18.19	21.66	20.08	17.01	16.31	17.59	13.53	12.01	3.41
US\$3.20-\$5.50 PPP per day	15.48	17.79	19.81	21.22	18.52	19.57	17.97	19.85	9.68	11.13
US\$5.50 PPP + per day	61.35	64.02	58.53	58.69	64.47	64.12	64.45	66.62	78.31	85.46
TOTAL	100	100	100	100	100	100	100	100	100	100
Female Breadwinner Households										
< US\$3.20 PPP per day	19.55	16.25	16.76	16.22	12.93	12.36	14.51	10.96	8.29	2.68
US\$3.20-\$5.50 PPP per day	15.11	18.01	17.81	18.26	19.20	18.76	16.43	15.85	8.92	9.60
US\$5.50 PPP + per day	65.34	65.75	65.43	65.52	67.87	68.88	69.05	73.19	82.79	87.73
TOTAL	100	100	100	100	100	100	100	100	100	100
Male Breadwinner Households										
< US\$3.20 PPP per day	19.28	18.93	20.65	19.84	15.94	15.51	18.21	14.55	6.84	3.28
US\$3.20-\$5.50 PPP per day	15.67	18.23	21.18	23.30	18.82	20.15	18.45	21.57	9.21	12.29
US\$5.50 PPP + per day	65.05	62.83	58.18	56.86	65.23	64.34	63.34	63.88	83.95	84.43
TOTAL	100	100	100	100	100	100	100	100	100	100
Multiple Breadwinner Households										
< US\$3.20 PPP per day	12.81	13.19	10.26	10.26	2.83	0.00	17.96	2.50	13.50	7.49
US\$3.20-\$5.50 PPP per day	10.63	12.85	13.64	13.64	32.47	35.30	8.31	23.61	15.31	17.43
US\$5.50 PPP + per day	76.57	73.96	76.10	76.10	64.70	64.70	73.72	73.88	71.19	75.08
TOTAL	100	100	100	100	100	100	100	100	100	100
Zero Breadwinner Households										
< US\$3.20 PPP per day	63.45	18.55	49.27	37.05	37.46	33.93	25.37	12.73	43.87	5.30
US\$3.20-\$5.50 PPP per day	15.51	14.26	15.63	14.34	14.73	16.69	19.72	14.54	13.15	8.54
US\$5.50 PPP + per day	21.04	67.20	35.10	48.60	47.81	49.38	54.92	72.74	42.98	86.16
TOTAL	100	100	100	100	100	100	100	100	100	100
Female Headed Households										
< US\$3.20 PPP per day	28.14	19.68	24.60	22.80	17.40	16.55	13.66	9.68	14.92	4.68
US\$3.20-\$5.50 PPP per day	16.26	18.97	20.56	21.13	19.47	20.11	17.76	16.78	10.20	11.42
US\$5.50 PPP + per day	55.60	61.35	54.83	56.07	63.13	63.34	68.58	73.53	74.88	83.90
TOTAL	100	100	100	100	100	100	100	100	100	100
Male Headed Households										
< US\$3.20 PPP per day	21.24	17.62	20.35	18.87	16.90	16.21	18.66	14.58	10.73	2.85
US\$3.20-\$5.50 PPP per day	15.18	17.33	19.47	21.27	18.20	19.32	18.02	20.68	9.46	11.00
US\$5.50 PPP + per day	63.57	65.05	60.18	59.86	64.90	64.47	63.32	64.74	79.81	86.15
TOTAL	100	100	100	100	100	100	100	100	100	100

**Notes:**

a. The before taxes and transfers, or pre fisc, indicators listed in the table are measured using market income, which is composed of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production (Lustig, 2018, p. 17).

b. The after taxes and transfers, or post fisc, indicators listed in the table are measured using consumable income. Consumable income is composed of the following. The components that comprise all income concepts prior to consumable income are built upon. First, Market Income, which includes income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production. Then direct and near cash transfers are added and personal income taxes and contributions to social security are subtracted, which is Disposable Income. Finally, to arrive at consumable income, indirect subsidies are added and indirect taxes are subtracted (Lustig, 2018, p. 17).

In general, the interventions that were assessed can be seen in Table 13 according to the percent of gross domestic product (GDP) of the respective country. Due to the fact that this study required a tremendous amount of data, it is not exhaustive from a program/tax perspective. The results of the post fisc poverty and inequality indicators were



generated using all of the taxes and transfers that the original CEQ Assessment authors included in their study. Taxes and programs were also assessed on a more micro level to determine the progressivity and coverage levels. The taxes that were included in this section of results generally include direct and indirect taxes. The programs that were assessed individually were usually the flagship CCT; the main health insurance/programs in the country (contributory and non-contributory); contributory, and non-contributory pensions, although usually only the main non-contributory pension program was included; and primary, secondary (lower and upper), and tertiary education. If there was an important transfer program in a country that was a significant percent of GDP, then it was included. For example, the food transfer program in Uruguay. On the other hand, if a country had a large number of transfer programs that comprised a very small percentage of GDP, like in the Dominican Republic, then only the flagship CCT was included. In general, if a program was less than .1% of GDP, it was not included. If a program that comprised a very small portion of GDP was included, it was because it was necessary to make a cross country comparison or a within country comparison (for example, contributory versus non-contributory health insurance programs in the case of Mexico). In Uruguay, several transfer programs were included because individual beneficiary data was available and therefore, the marginal contribution of these programs could be assessed. Although the results of these transfer programs cannot be compared to other countries because there was not individual beneficiary data available, it was interesting to assess the results of Uruguay. Detailed descriptions of the fiscal systems of each country can be found in Appendix 1. This appendix includes details on each program included in this dissertation as well as the tax system.

**Table 13: Government Revenues and Expenditures<sup>a</sup> as a Percent of GDP, %**

	Brazil (2009)	Colombia (2010)	Dominican Republic (2013)	Mexico (2012)	Uruguay (2009)
<b>Revenue</b>	36.9	17.0	14.4	17.67	27.7
Tax Revenue	24.0	13.4	13.7	9.59	18.4
Direct Taxes	9.5	6.3	5.1	5.08	6.7
Personal Income Tax	2.0	.1	1.3	2.39	2.26
Corporate Income Tax	3.7	1.4	2.3	2.70	3.15
Cannot be Allocated between Personal and Corporate Tax		3.2			
Payroll Tax					
Taxes on Property	2.3	1.5			1.31
Other Direct Taxes	1.4		1.5		
Indirect Taxes	14.5		8.6	4.3	11.6
VAT	7.3		4.4	3.67	9.84
Sales Tax	4.5				
Excise Taxes	.6		2.5	.46	1.80
Customs Duties	.5				
Taxes on Exports					
Other Indirect Taxes	1.5		1.7		
<b>Total Expenditure</b>	48.9	17.2	17.1	18.12	29.7
Primary Government Spending	39.5	14.6	15.1	16.49	26.9
Social Spending	25.3	12.0	8.8	10.76	20.8
Social Protection	14.1	3.6	1.6	3.06	10.5
Social Assistance	5.4	.5		.95	2.2
Non-contributory Pensions	.5			.11 <sup>b</sup>	.51
Non-contributory Pensions Special Circumstances (Brazil)	2.3				
Flagship CCT	.4		.2	.42	.37
Subsidio Familiar (Colombia)		.1			
Familias en Accion (Colombia)		.3			
Programa al Adulta Mayor (Colombia)		.1			
Near Cash Transfers (Food, School Uniforms, etc.)					.32
Other					.98
All Direct Transfers (excluding contributory pensions)	4.2				
Social Security					
Contributory Pensions	9.1	3.1	.8	2.11	8.35
Health	5.2	5.0	1.8		4.5
Public Health (Free)	5.2				
Contributory		2.9	.3	1.77 <sup>c</sup>	
IMSS				1.31	
ISSSTE				.38	
IAMC					2.03
FONASA					.16
Non-contributory				1.46	2.28
Seguro Popular de Salud				.53	
IMSS-Oportunidades				.06	
Secretaria de Salud				.87	
Subsidized		1.2	1.5		
Education	5.3	3.3	3.7	4.47	3.6
Primary	2.4	2.9	1.7	1.43	1.40
Lower Secondary			.5	.94	
Secondary	.4				1.29
Upper Secondary			.8	.60	
Tertiary	.8	.4	.3	1.04	.78
Indirect Subsidies		.5	1.3	1.93	

**Sources:** Brazil 2009: Higgins & Pereira (2014), Higgins & Pereira (2013); Colombia 2010: Melendez & Martinez (2019), Dominican Republic 2013: Aristy-Escuder (2019), Mexico 2012: Scott et al. (2018), Uruguay 2009: Bucheli (2019)

**Notes:**

- a. Generally, the taxes and transfers listed in this table are only the ones that were included in the specific taxes/transfers analysis of this dissertation.
- b. In the case of Mexico, the only non-contributory pension included in the program analysis for this dissertation was 70 y mas, which is what is included in the table. It comprises .11% of GDP. However, there are two other non-contributory pension programs. The Pensiones CDMX comprises .03% of GDP, and the Otros Adultos Mayores comprises .02%. All together the non-contributory pensions are .16% of GDP.
- c. Mexico has a third contributory health program, PEMEX, which comprises .08% of GDP. It was not included in the program analysis for this dissertation and therefore is not included in this table.

To begin with the first research question, *what is the impact of taxes and government transfers on gender inequality and poverty between genders?* Overall, taxes and transfers have a positive effect on reducing inequality for each gendered variable in Latin America, which can be seen in Table 14. In all cases, inequality within the household variables declines. For the breadwinner category, for all countries aside from Brazil, the male breadwinners experienced a higher level of inequality pre fisc and a higher level of inequality post fisc relative to female breadwinners according to the Gini coefficient. In Brazil, the female breadwinners had a higher level of inequality pre fisc, but post fisc the male breadwinners had a higher level, albeit not by much. Uruguay had the only post fisc breadwinner Gini coefficient that was higher than the total country population. The headship households had a little more variety than the breadwinners. In Colombia, the Dominican Republic, and Mexico, the same gender had the higher pre and post fisc inequality levels. In the case of Colombia, it was the female headed households, while in the Dominican Republic and Mexico it was the male headed households. In Brazil and Uruguay, female headed households had higher levels of inequality pre fisc, while male headed households had higher levels post fisc. In all cases except one, the Gini was higher for the headship households pre and post fisc than the Gini of the total country population. The only case that this was not true for was Uruguay, which is the opposite of what happened in Uruguay with the breadwinner Gini.

The average female/male per capita market income results, which are also shown in Table 14, reveal the following. In the case of breadwinners, female breadwinners benefit more pre and post fisc than male breadwinner households. Additionally, the post fisc income shows that the female breadwinner households had an even greater increase in the

ratio, which means that their average per capita consumable income is higher than the per capita market income. On average, females had incomes that were .13 higher for consumable income than their male counterparts, while their average per capita incomes for market income were only .088 higher than males. For the headship households, Brazil, Colombia, and the Dominican Republic all had higher average per capita incomes for male headed households pre and post fisc. However, in each case, the gap closes post fisc, with females catching up (which is evident from the increase in the ratio). In Mexico, female headed households have higher average per capita market income (pre fisc) and consumable incomes (post fisc). The only case in which a ratio changed enough to change which gender benefits the most is the case of Uruguay. Pre fisc, the male headed households had higher per capita market incomes, but post fisc female headed households had higher per capita consumable incomes.

**Table 14:** Gender Inequality Before (Market Income<sup>a</sup> (MI)) and After (Consumable Income<sup>b</sup> (CI)) Taxes and Transfers: Brazil, Colombia, Dominican Republic, Mexico, and Uruguay

Indicator	Brazil (2009)		Colombia (2010)		Dominican Republic (2013)		Mexico (2012)		Uruguay (2009)	
	MI	CI	MI	CI	MI	CI	MI	CI	MI	CI
Gini										
Total Country Population	.5932	.5420	.5750	.5587	.5173	.4951	.5210	.4863	.5439	.4683
Female Breadwinner	.5830	.5362	.5491	.5417	.4989	.4748	.4903	.4605	.5076	.4426
Male Breadwinner	.5732	.5378	.5720	.5543	.5124	.4912	.5251	.4856	.5220	.4757
<i>Female Headed Household</i>	.6002	.5402	.5798	.5635	.4724	.4551	.4813	.4557	.5507	.4680
<i>Male Headed Household</i>	.5890	.5423	.5721	.5562	.5325	.5093	.5314	.4941	.5404	.4681
Average Female/Male Per Capita Market/Consumable Income										
Breadwinners	1.05	1.11	1.15	1.18	1.08	1.09	1.11	1.17	1.05	1.10
<i>Household Heads</i>	.81	.92	.88	.91	.82	.85	1.01	1.09	.88	1.02

**Notes:**

a. The before taxes and transfers, or pre fisc, indicators listed in the table are measured using market income, which is composed of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production (Lustig, 2018, p. 17).

b. The after taxes and transfers, or post fisc, indicators listed in the table are measured using consumable income. Consumable income is composed of the following. The components that comprise all income concepts prior to consumable income are built upon. First, Market Income, which includes income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production. Then direct and near cash transfers are added and personal income taxes and contributions to social security are subtracted, which is Disposable Income. Finally, to arrive at consumable income, indirect subsidies are added and indirect taxes are subtracted (Lustig, 2018, p. 17).

When assessing the absolute difference to see how much inequality declined pre fisc to post fisc, Brazil, the Dominican Republic, and Uruguay female breadwinners had bigger differences than their male counterparts for breadwinners, while Brazil, Colombia, and Uruguay had bigger differences for female headed households than their male counterparts. The Gini declined more for male breadwinner households in Colombia and Mexico, and for male headed households in the Dominican Republic and Mexico. These results are very consistent with the overall results presented in Table 14. For example, for Brazil the Gini decreased the most for female breadwinner and female headed households. Table 14 shows that pre fisc female breadwinner and female headed households had higher levels of inequality, while post fisc the male breadwinners had higher levels. The same can be said for Uruguay's headship households.

Taxes and transfers also positively impact gender poverty levels in Latin America. For each gender variable, the poverty gap squared decreases post fisc, which is shown in Table 15. In Brazil and Uruguay female breadwinners had higher levels of poverty pre fisc, but male breadwinners had higher level post fisc. In both cases this poverty reduction was likely attributed to the transfers received by women. Female breadwinner households in both countries had higher coverage rates for most transfers than male breadwinners. In Brazil, the poverty reduction seemed to be equalizing as the post fisc Gini was lower for female breadwinner households. However, this was not the case in Uruguay. Therefore, it is important to remember that although government intervention can reduce poverty, it does not mean that it has to be equalizing.

As for households defined by headship, the only country that started out with a higher poverty rate for one gender pre fisc, but switched post fisc was the Dominican

Republic, where female headed households had a higher poverty gap squared pre fisc, but male headed households had a higher rate post fisc. This was likely due to progressive direct transfers. Furthermore, direct and indirect taxes were regressive for male headed households, and in many cases very progressive for female headed households. In Brazil, Colombia, and Uruguay, female headed households were poorer pre and post fisc. In Mexico, male headed households were poorer pre and post fisc.

**Table 15:** Gender Poverty Before (Market Income<sup>a</sup> (MI)) and After (Consumable Income<sup>b</sup> (CI)) Taxes and Transfers: Brazil, Colombia, Dominican Republic, Mexico, and Uruguay

Indicator	Brazil (2009)		Colombia (2010)		Dominican Republic (2013)		Mexico (2012)		Uruguay (2009)	
	MI	CI	MI	CI	MI	CI	MI	CI	MI	CI
Headcount Ratio:										
US\$5.50 PPP per day Poverty Line (in %)										
Total Country Population	38.6	36.0	41.5	41.3	35.6	19.6	35.6	33.4	21.7	14.5
Female Breadwinner	34.7	34.3	34.6	32.8	32.1	31.1	31.0	26.8	17.2	12.3
Male Breadwinner	35.0	37.3	41.8	43.1	34.8	35.7	36.7	36.1	16.1	15.6
<i>Female Headed Household</i>	<i>44.4</i>	<i>38.7</i>	<i>45.2</i>	<i>43.9</i>	<i>36.9</i>	<i>36.7</i>	<i>31.4</i>	<i>26.5</i>	<i>25.1</i>	<i>16.1</i>
<i>Male Headed Household</i>	<i>36.4</i>	<i>35.0</i>	<i>39.8</i>	<i>40.1</i>	<i>35.1</i>	<i>35.5</i>	<i>36.7</i>	<i>35.3</i>	<i>14.6</i>	<i>13.9</i>
Poverty Gap:										
US\$5.50 PPP per day Poverty Line (in %)										
Total Country Population	19.4	15.3	18.3	17.2	14.3	9.6	15.4	12.2	10.4	4.0
Female Breadwinner	16.0	14.1	14.6	13.5	11.6	11.2	12.9	9.9	7.2	3.39
Male Breadwinner	16.2	15.8	17.3	17.0	13.6	13.4	15.8	13.1	6.2	4.2
<i>Female Headed Household</i>	<i>23.7</i>	<i>16.8</i>	<i>21.0</i>	<i>19.4</i>	<i>14.6</i>	<i>14.1</i>	<i>12.4</i>	<i>9.0</i>	<i>12.7</i>	<i>4.8</i>
<i>Male Headed Household</i>	<i>17.7</i>	<i>14.8</i>	<i>17.1</i>	<i>16.2</i>	<i>14.2</i>	<i>13.8</i>	<i>16.2</i>	<i>13.2</i>	<i>9.4</i>	<i>3.6</i>
Poverty Gap Squared:										
US\$5.50 PPP per day Poverty Line (in %)										
Total Country Population	12.7	8.7	10.9	9.6	7.913	4.4	9.0	6.2	6.7	1.6
Female Breadwinner	9.9	7.8	8.5	7.7	5.8	5.4	7.2	4.8	4.1	1.3
Male Breadwinner	9.8	8.9	9.6	9.0	7.4	7.0	9.3	6.7	3.4	1.6
<i>Female Headed Household</i>	<i>16.2</i>	<i>9.7</i>	<i>13.1</i>	<i>11.5</i>	<i>7.929</i>	<i>7.364</i>	<i>6.9</i>	<i>4.3</i>	<i>8.4</i>	<i>2.2</i>
<i>Male Headed Household</i>	<i>11.3</i>	<i>8.3</i>	<i>9.9</i>	<i>8.8</i>	<i>7.905</i>	<i>7.386</i>	<i>9.6</i>	<i>6.7</i>	<i>5.9</i>	<i>1.4</i>

**Notes:**

a. The before taxes and transfers, or pre fisc, indicators listed in the table are measured using market income, which is composed of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production (Lustig, 2018, p. 17).

b. The after taxes and transfers, or post fisc, indicators listed in the table are measured using consumable income. Consumable income is composed of the following. The components that comprise all income concepts prior to consumable income are built upon. First, Market Income, which includes income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production. Then direct and near cash transfers are added and personal income taxes and contributions to social security are subtracted, which is Disposable Income. Finally, to arrive at consumable income, indirect subsidies are added and indirect taxes are subtracted (Lustig, 2018, p. 17).

When assessing the amount that poverty changed from pre fisc to post fisc using the absolute difference, female breadwinner households in all countries in the study aside from Mexico had higher reductions in the poverty gap squared as compared to male breadwinner households. This means that post fisc, male breadwinner households would remain more disadvantaged than female breadwinners, which Table 15 shows. In the case of headship, female headed households had a greater decline in poverty in all countries aside from Mexico. Given that the female headed households were more disadvantaged pre fisc, the question that remains is whether the change in poverty was great enough to equalize them to their male counterparts post fisc. Table 15 shows that in Brazil, Colombia, and Uruguay, female headed households were more disadvantaged according to the poverty gap squared pre and post fisc. Therefore, although they had a greater decline in poverty, it was not enough to equalize them to their male counterparts. In the case of the Dominican Republic, female headed households had a greater absolute difference, although not by much, .0038 as compared to .0034 of their male counterparts. The post fisc poverty gap squared for female headed households is 7.364% while it is 7.386% for male headed households. These gendered households are essentially equal.

The likelihood of each gender being poor according to pre fisc (market income) and post fisc (consumable income) can be observed in Table 16. Negative numbers mean that female-type households are *less* likely to be poor. To assess the probability of being poor, Panel A can be used, which is the poverty headcount ratio of female/male-type households. In all countries, post fisc female breadwinner households have a higher probability of *not* being poor than male breadwinner households. This is not surprising given that male breadwinner households are poorer post fisc than female breadwinner households as shown

in Table 15. Colombia and Mexico have the highest probability of female breadwinners not being poor of the countries included in the sample. On the other hand, in all countries aside from Mexico, female household heads have a higher probability of being poor than male headed households. When examining the differences in the poverty gap squared, Panel B, one can see that in Mexico, female-type households have a greater difference than in not being poor than their male counterparts both pre and post fisc. This is consistent with the poverty results discussed in Table 15. In the Dominican Republic, female-type households have a greater difference in not being poor post fisc. This is also consistent with the poverty results in Table 15, where male-type households have higher poverty rates than female-types post fisc. In particular, the female headed households only have a .03 difference from their male counterparts. This is consistent with the fact that the post fisc poverty gap squared for female and male headed households are very close, 7.364% and 7.386% respectively. In Brazil and Colombia, female headed households are more likely to be poor, which is also similar to what Table 15 shows.

This table is also helpful in showing *what* might contribute to the decline in poverty. According to the CEQ methodology, market income is composed of income from wages, salaries, and capital; private transfers, such as remittances or private pensions; imputed rent, and own production. To build consumable income, the components that comprise all income concepts prior to consumable income are built upon. From market income, direct and near cash transfers are added, while personal income taxes and contributions to social security are subtracted, as well as the addition of indirect subsidies and the subtraction of indirect taxes (Lustig, 2018, p. 17). Therefore, in the case of gender, if the likelihood of a group being poor increases from market income to consumable income, it is likely because



the direct transfers did not have a big enough effect and/or that the poor paid direct and indirect taxes that were higher than what they received in transfers or subsidies. Or, the opposite could also happen where the likelihood of being poor declines thanks to the impact of direct transfers and progressive taxes.

Overall, Table 16, Panel A shows that the likelihood of being poor declines from market income to consumable income in all cases. As we will see below in the country-by-country discussion, there are many progressive transfers that benefit women, many of which have a high marginal contribution to the reduction of poverty. This is likely one reason for the decline in probability of being poor from market income to consumable income. A few examples include the following. First, for the breadwinner households. In Brazil female breadwinners had large marginal contributions for contributory pensions, especially compared to male breadwinners. This was most likely the reason that female breadwinner households were more disadvantaged pre fisc, but better off comparatively post fisc. In Colombia, of the transfer programs, the subsidized public health regime helped female breadwinner households improve their wellbeing the most, in comparison to male breadwinners. The Dominican Republic had very small marginal contributions. This could be a reason that the poverty levels did not decline significantly. In Mexico, the flagship CCT, Oportunidades had the largest marginal contribution of all transfer programs for male breadwinner households and for female breadwinner households. Although it was higher for male breadwinner households. Primary education also had a large impact in poverty reduction for male breadwinner households, as well as female breadwinners although not as much. Finally, the non-contributory health regime SSA has a large marginal contribution for male breadwinner households. This is likely why the male breadwinners' poverty

declined more than the female breadwinners' poverty. In Uruguay, most of the programs have a higher marginal contribution for male breadwinner households in comparison to female breadwinners. This is surprising because female breadwinners were more disadvantaged pre fisc while male breadwinners were most disadvantaged post fisc. Female breadwinners also had a larger decline in poverty than their counterparts. This begs the question of what could have contributed to the decline in poverty for male breadwinner households. The non-contributory health regime, the National Health Fund, did have the largest marginal contribution of all programs for male breadwinners. It was also larger, by far, than any marginal contribution of the female breadwinners. To truly understand this, the taxes of breadwinner households would need to be assessed carefully.

Second, for the headship households. As Table 16 shows, the probability of female headed households being poor declined in all cases, but the only case in which females had a lower probability than males of being poor was in Mexico. The marginal contributions of the transfer programs can help confirm these probabilities. In Brazil, female headed households had a much larger decline in poverty than male headed households. This was likely attributed to the contributory pensions and the special circumstances pensions, which both very large marginal contributions for female headed households, much larger than males. This is likely why male headed households still have a greater probability of being poor than female headed households (Table 16, Panel A). In Colombia, the absolute difference in the pre and post fisc squared poverty gap for female headed households was .0161, while it was .0108 for male headed households. The differences were fairly small. Therefore, it is not surprising that there were not many large marginal contributions for one gender over the other. The female headed households did benefit more from contributory

pensions and the subsidized health regime though, which is probably why their poverty declined a bit more. In the Dominican Republic, there was a very small decline in poverty for both genders. This is confirmed when assessing the marginal contributions. The marginal contributions were fairly equal in comparison to gender household types and they were also small. In Mexico, similar to the breadwinners, the male headed households benefited from the CCT, the non-contributory health regime (SSA), and primary education. These programs had the largest marginal contributions of all the programs and they were larger than the marginal contributions of female headed households. As the results below will show, male headed households greatly bear the burden of direct and indirect taxes. Therefore, this is likely why the male headed households were more disadvantaged than the female headed households despite that the transfer programs had a greater impact on them. This also confirms why Table 16, Panel A shows that female headed households have a much lower probability of being in poverty than male headed households. In Uruguay, female headed households had a greater marginal contribution for the non-contributory health regime, which is likely the largest contributing factor to their decline in poverty. Also, direct and indirect taxes are progressive in absolute terms for female headed households, which could further contribute to the decline in poverty. This is likely why the poverty gap for headship households was closed significantly for Uruguay (Table 16, Panel A).

Finally, although this was not included in table form in Table 16, the results of the female and male beneficiaries can be summarized according to their decline in poverty. In Brazil, the contributory pensions had a much greater impact on female beneficiaries than males. The market income squared poverty gap for female beneficiaries was 13.1%, while

post fisc it was 11.5%. Male beneficiaries had respective rates of 9.9% and 8.8%. In Colombia, the marginal contributions were fairly equal for males and females. Although the contributory pensions did have a greater impact on male beneficiaries, while the subsidized health regime, and lower and upper secondary education had a great impact on female beneficiaries.

**Table 16:** Differences in Poverty Gap of being Poor by Gender Household-type according to income concept, Headcount Ratio and Poverty Gap Squared US\$5.50 PPP per day Poverty Line, Panel A and B

*Panel A: Probability of being poor by gender household-type*

Headcount Ratio (US\$5.50 PPP per day Poverty Line) for the Female-type Households minus Headcount Ratio for Male-type Households in Percentage Points	Market Income	Consumable Income
<b>Brazil 2009</b>		
Breadwinners	-.29	-2.92
<i>Household Heads</i>	7.97	3.7
<b>Colombia 2010</b>		
Breadwinners	-7.25	-10.38
<i>Household Heads</i>	5.35	3.79
<b>Dominican Republic 2013</b>		
Breadwinners	-2.4	-4.54
<i>Household Heads</i>	1.77	1.13
<b>Mexico 2012</b>		
Breadwinners	-5.71	-9.31
<i>Household Heads</i>	-5.26	-8.79
<b>Uruguay 2009</b>		
Breadwinners	1.16	-3.30
<i>Household Heads</i>	10.56	2.25

*Panel B: Differences in squared poverty gap of being poor by gender household-type*

Poverty Gap Squared (US\$5.50 PPP per day Poverty Line) for the Female-type Households minus Poverty Gap Squared for Male-type Households in Percentage Points	Market Income	Consumable Income
<b>Brazil 2009</b>		
Breadwinners	.09	-1.14
<i>Household Heads</i>	<i>4.92</i>	<i>1.38</i>
<b>Colombia 2010</b>		
Breadwinners	-1.04	-1.35
<i>Household Heads</i>	<i>3.18</i>	<i>2.64</i>
<b>Dominican Republic 2013</b>		
Breadwinners	-1.55	-1.59
<i>Household Heads</i>	<i>.02</i>	<i>-.03</i>
<b>Mexico 2012</b>		
Breadwinners	-2.03	-1.82
<i>Household Heads</i>	<i>-2.68</i>	<i>-2.40</i>
<b>Uruguay 2009</b>		
Breadwinners	.77	-.29
<i>Household Heads</i>	<i>2.52</i>	<i>.65</i>

In summary, it is clear that fiscal policy does have a positive impact on gender inequality and poverty. Overall, inequality and poverty declined from pre fisc to post fisc for all gender type households. Post fisc, male breadwinners are more disadvantaged than female breadwinners in all cases. In the case of Colombia, the Dominican Republic, and Mexico, this means that although fiscal policy reduced poverty, it was not sufficiently equalizing because the male breadwinners were more disadvantaged pre and post fisc. In the case of Brazil, fiscal policy greatly benefitting female breadwinners. Pre fisc there was only .1 percentage point difference in the poverty gap squared of female and male breadwinners. But post fisc, there was 1.1 percentage point gap and male breadwinners were more disadvantaged despite that they were less disadvantaged pre fisc. In Uruguay, female headed households were more disadvantaged pre fisc, but post fisc they were less disadvantaged. Fiscal policy in Uruguay was equalizing as the pre fisc difference was .7

percentage points and the post fisc difference was .3. Inequality within male headed households was higher post fisc than inequality within female headed households.

Fiscal policy impacted the headship households in a greater magnitude than the breadwinner households according to the absolute differences. The only country where the more disadvantaged gender changed pre to post fisc according to the poverty gap squared was the Dominican Republic. However, this country can essentially be considered equal as the differences between the two gender-type households is miniscule. The Gini coefficient showed that in Brazil and Uruguay there was more within-household inequality for female headed households pre fisc, while male headed households had higher levels post fisc. But the differences in Uruguay were extremely small.

The second research question is, *“Are there noticeable differences between females and males in Latin America in terms of who bears the burden of taxation and who receives the benefits from government spending on transfers?”* To answer this question, progressivity was used. Progressivity was assessed on headship households and on beneficiaries. In the case of both gender-type variables, it became clear very quickly that most countries followed the same patterns. In almost all cases female headed households benefit more from government spending than male headed households, as evidenced by the fact that spending was generally progressive in absolute terms for female headed households. This means that more money was spent on female headed households for that program than their share of the population, or that female headed households paid less in taxes than their share of the population. In many cases there was equality in who received the benefits from government spending. This means that the amount spent on each gendered household was within two percentage points of their respective shares of the

population. This was particularly the case for education, aside from primary education. Primary education had equal spending on the female and male headed households. Contributory pensions benefited female headed households in all cases except Brazil, where they were extremely equal. There was only a .11 percentage point difference between the amount received by the two genders in absolute terms. Non-contributory pensions were progressive for female headed households in all cases, and they were usually fairly regressive for male headed households. This was especially the case for the non-contributory special circumstances in Brazil. Health spending was generally equal or benefitted women, no matter if it was a contributory or non-contributory program. All direct taxes were equal in absolute terms in the Colombia and the Dominican Republic. In Brazil, Mexico, and Uruguay they benefited female headed households. There were very few cases where male headed households received the benefit of a transfer. Here are the cases in which that happened: Colombia's CCT, Mexico's non-contributory health regime (IMSS-Oportunidades), Uruguay's "Other Transfers," Uruguay's contributory health regime (IAMC), and Uruguay's contributory health regime (FONASA). In Uruguay, it is interesting that contributory health regimes were progressive in absolute terms for the male headed households, while the non-contributory health regime was progressive in absolute terms for the female headed households. The burden of taxes is a little more variable according to the type of tax and the country. But overall, males bear the burden of taxes. Although there are cases where the burden is equitable, like direct taxes in Brazil and indirect taxes in Mexico and Uruguay. The fact that these taxes are equitable is one piece of the puzzle in assessing the effect of fiscal policy on gender equality. In Brazil and Uruguay, female headed households are more disadvantaged post fisc than male headed

households. Perhaps if taxes were progressive for female headed households then the poverty gap would close a bit more between the genders. In Mexico, male headed households are more disadvantaged pre and post fisc. Perhaps the burden of taxes needs to be lightened for the male headed households in order to close the poverty gap between the households. Overall, as will be discussed country-by-country below, the coverage results often help to explain the progressivity results. If a program is progressive for female headed households, it is also generally favors female headed households in coverage.

The progressivity of female versus male beneficiaries followed very similar patterns. In most cases spending was equal between the genders. This is likely because in the countries included in this study education and health spending is not allocated differently according to gender. In other words, the same amount is spent on both genders. Education has equal spending in all cases aside from secondary education in Brazil, which is progressive for male beneficiaries and tertiary education in the Dominican Republic, which is progressive for female beneficiaries. There were a few interesting cases of progressivity though. In Brazil, contributory pensions are progressive in absolute terms for male beneficiaries. The special circumstances non-contributory pensions was progressive for female beneficiaries. Although it was regressive for male beneficiaries, it was not as severely regressive as for the male headed households. This is interesting to note because this means that intrahousehold sharing, which cannot be evaluated, could be playing a role in the results of the headship households. The non-contributory pension in Mexico is also progressive in absolute terms for female beneficiaries, although not my much. In the Dominican Republic and Mexico, contributory pensions are progressive in absolute terms for female beneficiaries. In Colombia and Uruguay they are equal between the genders. In



Uruguay, the flagship CCT is progressive in absolute terms for female beneficiaries, while “other transfers,” which comprises a substantial portion of GDP compared to other programs (.98%) (Table 13), is progressive for male beneficiaries. This is consistent with the headship household progressivity results.

To summarize, in many cases female and male headed households and female and male beneficiaries benefit equally from government transfers and in some cases they also equally bear the burden of taxes. If the spending is not equal, then female headed households and female beneficiaries usually benefit the government transfers while male headed households bear the burden of taxes. A few overall results that are interesting to keep in mind are the following. First, contributory pension spending generally benefitted female headed households and female beneficiaries. The only case in which they were progressive for male headed households was Brazil. Non-contributory pensions also benefitted female headed households and female beneficiaries frequently, or there was equal spending. There was also more equal spending than anticipated in the beneficiary results.

How is that female headed households were more likely to be poor than their male counterparts if the progressivity of the transfers and taxes generally favored female headed households and if not, oftentimes had equal spending among both gendered households? As we have seen, although poverty has declined for female headed households, it often did not decline enough to equalize female headed households to male headed households. The marginal contributions gave some insight into this. But more can be learned by assessing the results of the final research question.

The results of the final research question, “*Taking gender into account, how equitable is spending on in-kind transfers such as public education and health in Latin America?*” show that equitable spending on government programs depends on the program and the income groups. Equitable spending on female and male headed households as well as female and male beneficiaries will be assessed using horizontal equity. In short, if the amount spent on both genders of the income group is within two percentage points of their share of the population, then the spending is considered equal between genders for that income group. Coverage, according to income group, will also be used to confirm the horizontal equity results. This final piece of assessing the effect of fiscal policy on gender could be revealing. For example, if one gender of the poorest income group receives a significantly higher amount of benefits from a particular program, then this could potentially explain the overall poverty indicators for that gender.

In assessing horizontal equity some common patterns do emerge for headship households. First, contributory pensions are never horizontally equitable for the poorest and middle income group, aside from in Colombia. In Brazil and Mexico, the poorest female headed income group receives more than their male counterparts. In the Dominican Republic and Uruguay, male headed households receive more than females for the poorest two income groups, while in Mexico the poorest female headed households receive more benefits. Spending is equitable on all direct transfers in Colombia and the Dominican Republic among the poorest income group. In Brazil and Uruguay the poorest female headed households receive more benefits from direct transfers than the poorest male headed households, but in Mexico, the poorest male headed households receive more than the females. In general more is spent on the poorest female headed households for the non-

contributory pensions than males, but there is horizontal equity among the poorest in Colombia. Health spending is equitable for the poorest income group in most cases, including Brazil, the subsidized health regime in Colombia, the Dominican Republic, the non-contributory health regimes in Mexico of Seguro Popular de Salud and SSA, and the contributory health regime in Uruguay, FONASA. In general, the health systems of Colombia and Mexico (which are comparable given their allocation type) were fairly equitable. Brazil's health system was also horizontally equitable but it cannot be compared with any other system. Education is horizontally equitable for the poorest income group for primary education in Colombia, in the Dominican Republic, and in Mexico. Uruguay spends much more on education on females than males. Interestingly, they had the highest average level of education for the cross-country study. The flagship CCT programs, overall were generally horizontally equitable, although not always for the poorest income groups. Although Colombia's was not equitable at all – it favored males.

When assessing horizontal equity of female versus male beneficiaries, the results are interesting, especially in comparison to those of the headship variables. For example, if education does not have horizontal equity among the poorest income groups, then it often favors male beneficiaries, especially in the upper levels of education. Contributory pensions have a mix of which gender benefits from more expenditures, especially among the lower income groups. The rich usually have horizontal equity. Health is almost always horizontally equitable for female and male beneficiaries. Finally, in Uruguay, male beneficiaries benefit from more spending in all cases of the direct transfers. This is interesting to keep in mind because one reason that Uruguay's individual direct transfers

were included in the study was because it is the one country that has direct beneficiary variables for direct transfers.

Now that an overview of the countries has been given, the sections that follow will discuss country level results in alphabetical order, by country.

## **ii. BRAZIL 2009**

In Brazil, Tables 14 and 15 show that using the Gini coefficient and the poverty gap squared as indicators, pre fisc (measured by market income) households identified by breadwinner status are less unequal and less poor than households identified by headship. However, both female -type households are more unequal and poorer than their male counterparts prior to government intervention of taxes and transfers. Respectively, female breadwinner and female headed households have squared poverty gaps of 9.9% and 16.2%, while that of the males are 9.8% and 11.3%. It is also important to point out that female headed households are poorer pre fisc than the total country population, with respective squared poverty gaps of 16.2% and 12.7%, while that of the total country population is 12.7%. Post fisc (measured by consumable income), inequality and poverty significantly decline for all gender household categories, as well as for the total population. Male breadwinners are more unequal and poorer than the female breadwinners, while female headed households are poorer than male headed households. The poorer groups have squared poverty gaps that are higher than the post fisc squared poverty gap of the total population. Table 11 shows that the number of poor male breadwinners significantly increased more than the number of poor female breadwinners from pre to post fisc. Therefore it is not surprising that male breadwinners are more disadvantaged post fisc.

It is now clear that inequality and poverty decline for all gender-type households in Brazil, but which groups have the largest declines? Taxes and government transfers reduce inequality and poverty for female-type households more than for male-type households. As shown in Table 17, using the absolute difference, the Gini coefficient declines more for female-type households than their male counterparts.

In regard to poverty, both female-type households have a greater decline in poverty than their male counterparts. However, poverty declines much more for female headed households than breadwinner households (Table 17). In fact, female headed households' post fisc squared poverty gap is lower than that of the total country population. As Table 12 will show, the number of poor female headed households declined from pre to post fisc, which validates this result.

**Table 17: Poverty and Inequality Pre (Market Income (MI)) and Post Fisc (Consumable Income (CI)), Brazil 2009**

	Gini Coefficient	Headcount Index (%)	Squared Poverty Gap (%)
<b>Total Country</b>			
MI	0.5932	38.6	12.7
CI	0.5420	36.0	8.7
Absolute Difference (CI - MI)	-0.0513	-0.0537	-0.0353
<b>Breadwinner Households</b>			
<i>Female</i>			
MI	.5830	34.7	9.9
CI	0.5362	34.3	7.8
Absolute Difference (CI - MI)	-0.0468	-0.0343	-0.0196
<i>Male</i>			
MI	0.5732	34.9	9.8
CI	0.5378	37.2	8.9
Absolute Difference (CI - MI)	-0.0354	-0.0177	-0.0127
<b>Household Headed Households</b>			
<i>Female</i>			
MI	0.6002	44.4	16.2
CI	0.5402	38.7	9.7
Absolute Difference (CI - MI)	-0.0600	-.0847	-0.0568
<i>Male</i>			
MI	0.5890	36.4	11.3
CI	0.5423	35.0	8.3
Absolute Difference (CI - MI)	-0.0467	-0.0417	-0.0270

How can this reduction in poverty and inequality be explained? Table 18 shows that, in most instances, female-type households are better covered by government programs than the male-type households. In particular, women are better covered for both types of non-contributory pensions in Brazil, the BPC as well as the Special Circumstances Pension. Interestingly, the CCT, Bolsa Familia, generally benefits male-type households, especially for the poorest income group (those living on less than US\$3.20 PPP per day). However, female headed households are covered in total better than male headed households. Public health coverage is equal for both gendered households, which is not surprising considering that Brazil's public health insurance program is a universally free program. The coverage table also shows that a greater number of male headed households pay direct and indirect taxes. Although "coverage" only refers to the households that pay taxes, it could be worth investigating if this is one reason that female headed households have a greater decline in poverty – that fewer households pay direct and indirect taxes than their male counterparts.

**Table 18: Coverage Rates of Taxes and Transfers, Brazil 2009**

	Coverage Rate of Total Households (Beneficiary Households/Total Number of Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Direct Taxes	17.37	53.39	15.11	50.31	1.1500	1.0613	18.62	47.33	22.65	51.48	0.8222	0.9194
Contributory Pensions	31.08	26.75	21.58	18.66	1.4403	1.4339	50.14	38.84	41.99	25.54	1.1941	1.5208
All Direct Transfers (excluding contributory pensions)	58.19	32.14	58.66	28.37	0.9919	1.1330	60.90	42.80	47.62	25.24	1.2789	1.6956
Non-contributory Pension	3.49	1.61	3.97	1.43	0.8781	1.1244	5.71	2.45	4.81	1.69	1.1865	1.4500
Non-contributory Pension Special Flagship CCT	13.22	12.88	8.49	7.06	1.5572	1.8261	28.17	25.07	7.53	5.34	3.7419	4.6952
Flagship CCT	41.58	12.61	46.22	14.07	0.8996	0.8958	29.62	12.84	34.67	12.48	0.8542	1.0289
Health												
Public Health (Free)	100.00	100.00	100.00	100.00	1.0000	1.0000	100.00	100.00	100.00	100.00	1.0000	1.0000
Indirect Subsidies	63.65	25.53	64.49	25.53	0.9869	0.9999	56.08	28.52	56.87	25.13	0.9862	1.1351
Indirect Taxes	99.69	99.95	99.85	99.95	0.9984	1.0000	99.73	99.93	99.87	99.95	0.9987	0.9998

Table 19 can help further explain which programs have the largest impacts on the poverty reduction. These results were calculated to see how each transfer program affects the poverty levels of according to each gender variable. The absolute difference column shows by how much the poverty changed from pre fisc (market income) to post fisc (consumable income) . To assess how much the program impacted that change consumable income was calculated without the transfer program. Consumable income without the transfer can be found in the column “CI-B or CI +B.” The title of the column simply means that it is Consumable Income minus transfers or pensions, or consumable income plus education and health. Because of the composition of consumable income, these are the formulas that needs to be used to measure the how much the program impacts poverty. The amount that the program impacts poverty can be found in the “marginal contribution” column. The ratio of the marginal contribution and absolute difference provides a way to put the marginal contribution values in context to show how “big” or “small” they are by comparing them to the change in the indicator of interest between market income and consumable income.

In the case of Brazil, the marginal contribution of many programs is larger for male breadwinners than female breadwinners. The program with the largest marginal contributions is the contributory pensions, which reduces poverty for female breadwinners by .7644, and for male breadwinners by .0393. The ratio of the marginal contribution and absolute difference show that the marginal contribution values for female breadwinners are much greater than for the male breadwinners. As we saw in Tables 15 and 17, the poverty of female breadwinners reduces from pre to post fisc more than that of their male counterparts. The fact that the marginal contribution of the contributory pensions is so large

is a contributing reason. Poverty for the breadwinners declines thanks to contributory pensions and the special circumstances non-contributory pensions. Female headed households have larger marginal contributions in both cases, which is a contributing reason as to why poverty declined more for female headed households than for male headed households. The results of the male and female beneficiaries show that the programs affect the poverty levels of the beneficiaries more than they do the breadwinner and the headship households, which is clear because the poverty levels of the beneficiaries are much lower post fisc than the levels of the household categories. The programs that have the largest marginal contributions to reducing poverty for beneficiaries are the contributory pensions and the non-contributory pensions. Women benefit the most from contributory pensions and the non-contributory special circumstances pension, while men benefit the most from the non-contributory BPC program. Male breadwinner households also benefitted more from the BPC program than female breadwinners.



**Table 19:** Marginal Contribution of Interventions on Poverty and Inequality Indicators, Market Income (MI), Consumable Income (CI), and Consumable Income – Transfer/Pensions (CI-B) or Consumable Income + Education/Health (CI+B), Brazil 2019

*Panel A: Breadwinner Households*

		Female Breadwinners						Male Breadwinners					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
US\$5.50 PPP per day	Theil Index	0.6647	0.5500	-0.1148	0.5651	0.0152	-0.1323	0.6667	0.5814	-0.0853	0.6004	0.0191	-0.2236
	Headcount Index	34.7%	34.3%	-0.0041	41.6%	0.0737	-18.1059	34.9%	37.2%	0.0222	41.7%	0.0454	2.0445
	Squared Poverty Gap	9.9%	7.8%	-0.0213	84.2%	0.7644	-35.9092	9.8%	8.9%	-0.0091	12.8%	0.0393	-4.3198
<b>DIRECT TRANSFERS</b>													
<b>Non-Contributory Pension - BPC</b>													
US\$5.50 PPP per day	Theil Index	0.5830	0.5362	-0.0468	0.5386	0.0024	-0.0517	0.5732	0.5378	-0.0354	0.5401	0.0022	-0.0634
	Headcount Index	34.7%	34.3%	-0.0041	34.7%	0.0046	-1.1342	34.9%	37.2%	0.0222	37.5%	0.0038	0.1715
	Squared Poverty Gap	9.9%	7.8%	-0.0213	8.1%	0.0029	-0.1372	9.8%	8.9%	-0.0091	9.2%	0.0030	-0.3260
<b>Non-Contributory Special Circumstances Pension</b>													
US\$5.50 PPP per day	Theil Index	0.5830	0.5362	-0.0468	0.5453	0.0092	-0.1962	0.5732	0.5378	-0.0354	0.5420	0.0042	-0.1187
	Headcount Index	34.7%	34.3%	-0.0041	37.1%	0.0288	-7.0712	34.9%	37.2%	0.0222	38.4%	0.0125	0.5655
	Squared Poverty Gap	9.9%	7.8%	-0.0213	9.0%	0.0117	-0.5512	9.8%	8.9%	-0.0091	9.6%	0.0069	-0.7562
<b>Flagship CCT</b>													
US\$5.50 PPP per day	Theil Index	0.5830	0.5362	-0.0468	0.5418	0.0056	-0.1204	0.5732	0.5378	-0.0354	0.5442	0.0064	-0.1804
	Headcount Index	34.7%	34.3%	-0.0041	34.9%	0.0067	-1.6372	34.9%	37.2%	0.0222	37.7%	0.0055	0.2480
	Squared Poverty Gap	9.9%	7.8%	-0.0213	8.9%	0.0108	-0.5089	9.8%	8.9%	-0.0091	10.1%	0.0116	-1.2811
<b>HEALTH</b>													
<b>Public Health Care Regime</b>													
US\$5.50 PPP per day	Theil Index	0.5830	0.5362	-0.0468	0.5005	-0.0357	0.7628	0.6667	0.5378	-0.1289	0.4988	-0.0391	0.3032
	Headcount Index	34.7%	34.3%	-0.0041	26.2%	-0.0807	19.8266	34.9%	37.2%	0.0222	29.5%	-0.0766	-3.4529
	Squared Poverty Gap	9.9%	7.8%	-0.0213	4.1%	-0.0372	1.7454	9.8%	8.9%	-0.0091	4.7%	-0.0421	4.6302
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.6647	0.5500	-0.1148	0.5108	-0.0392	0.3413	0.6667	0.5814	-0.0853	0.5388	-0.0425	0.4986
	Headcount Index	34.7%	34.3%	-0.0041	30.4%	-0.0389	9.5537	34.9%	37.2%	0.0222	33.3%	-0.0388	-1.7467
	Squared Poverty Gap	9.9%	7.8%	-0.0213	4.9%	-0.0284	1.3362	9.8%	8.9%	-0.0091	6.1%	-0.0285	3.1357
<b>Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.6647	0.5500	-0.1148	0.5438	-0.0061	0.0536	0.6667	0.5814	-0.0853	0.5758	-0.0056	0.0651
	Headcount Index	34.7%	34.3%	-0.0041	33.6%	-0.0066	1.6161	34.9%	37.2%	0.0222	36.6%	-0.0056	-0.2510
	Squared Poverty Gap	9.9%	7.8%	-0.0213	7.4%	-0.0036	0.1685	9.8%	8.9%	-0.0091	8.6%	-0.0029	0.3239
<b>Tertiary Education</b>													
US\$5.50 PPP per day	Theil Index	0.6647	0.5500	-0.1148	0.5477	-0.0022	0.0194	0.6667	0.5814	-0.0853	0.5800	-0.0013	0.0157
	Headcount Index	34.7%	28.8%	-0.0587	33.8%	0.0505	-0.8611	34.9%	37.2%	0.0222	36.9%	-0.0023	-0.1042
	Squared Poverty Gap	9.9%	6.2%	-0.0376	7.7%	0.0156	-0.4156	9.8%	8.9%	-0.0091	8.9%	-0.0004	0.0482

**Panel B: Headship Households**

		Female Headed Households						Male Headed Households					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
US\$5.50 PPP per day	Theil Index	0.6945	0.5671	-0.1275	0.5928	0.0258	-0.2021	0.6960	0.5925	-0.1034	0.6281	0.0355	-0.3435
	Headcount Index	44.4%	38.7%	-0.0574	47.2%	0.0852	-1.4832	36.4%	35.0%	-0.0147	43.7%	0.0878	-5.9544
	Squared Poverty Gap	16.2%	9.7%	-0.0655	205.8%	1.9611	-29.9252	11.3%	8.3%	-0.0302	49.6%	0.4134	-13.7101
<b>DIRECT TRANSFERS</b>													
<b>Non-Contributory Pension - BPC</b>													
US\$5.50 PPP per day	Theil Index	0.6002	0.5402	-0.0600	0.5450	0.0048	-0.0803	0.5890	0.5423	-0.0467	0.5451	0.0028	-0.0605
	Headcount Index	44.4%	38.7%	-0.0574	39.4%	0.0074	-0.1292	36.4%	35.0%	-0.0147	35.4%	0.0048	-0.3281
	Squared Poverty Gap	16.2%	9.7%	-0.0655	10.3%	0.0068	-0.1034	11.3%	8.3%	-0.0302	8.7%	0.0038	-0.1253
<b>Non-Contributory Special Circumstances Pension</b>													
US\$5.50 PPP per day	Theil Index	0.6002	0.5402	-0.0600	0.5529	0.0127	-0.2116	0.5890	0.5423	-0.0467	0.5461	0.0037	-0.0802
	Headcount Index	44.4%	38.7%	-0.0574	44.7%	0.0601	-1.0456	36.4%	35.0%	-0.0147	35.9%	0.0099	-0.6722
	Squared Poverty Gap	16.2%	9.7%	-0.0655	13.7%	0.0404	-0.6168	11.3%	8.3%	-0.0302	8.8%	0.0052	-0.1735
<b>Flagship CCT</b>													
US\$5.50 PPP per day	Theil Index	0.6002	0.5402	-0.0600	0.5473	0.0071	-0.1182	0.5890	0.5423	-0.0467	0.5479	0.0056	-0.1199
	Headcount Index	44.4%	38.7%	-0.0574	39.4%	0.0070	-0.1222	36.4%	35.0%	-0.0147	35.4%	0.0048	-0.3270
	Squared Poverty Gap	16.2%	9.7%	-0.0655	11.0%	0.0133	-0.2027	11.3%	8.3%	-0.0302	9.3%	0.0107	-0.3552
<b>HEALTH</b>													
<b>Public Health Care Regime</b>													
US\$5.50 PPP per day	Theil Index	0.6002	0.5402	-0.0600	0.5006	-0.0396	0.6607	0.5890	0.5423	-0.0467	0.5053	-0.0371	0.7941
	Headcount Index	44.4%	38.7%	-0.0574	30.4%	-0.0828	1.4419	36.4%	35.0%	-0.0147	27.6%	-0.0737	5.0023
	Squared Poverty Gap	16.2%	9.7%	-0.0655	5.2%	-0.0446	0.6798	11.3%	8.3%	-0.0302	4.4%	-0.0392	1.3004
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.6945	0.5671	-0.1275	0.5216	-0.0455	0.3569	0.6960	0.5925	-0.1034	0.5534	-0.0391	0.3784
	Headcount Index	44.4%	38.7%	-0.0574	34.8%	-0.0380	0.6620	36.4%	35.0%	-0.0147	31.3%	-0.0365	2.4731
	Squared Poverty Gap	16.2%	9.7%	-0.0655	6.3%	-0.0341	0.5203	11.3%	8.3%	-0.0302	5.7%	-0.0262	0.8698
<b>Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.6945	0.5671	-0.1275	0.5605	-0.0066	0.0516	0.6960	0.5925	-0.1034	0.5874	-0.0051	0.0496
	Headcount Index	44.4%	38.7%	-0.0574	38.0%	-0.0066	0.1149	36.4%	35.0%	-0.0147	34.4%	-0.0052	0.3497
	Squared Poverty Gap	16.2%	9.7%	-0.0655	9.3%	-0.0038	0.0583	11.3%	8.3%	-0.0302	8.0%	-0.0028	0.0916
<b>Tertiary Education</b>													
US\$5.50 PPP per day	Theil Index	0.6945	0.5671	-0.1275	0.5654	-0.0017	0.0131	0.6960	0.5925	-0.1034	0.5907	-0.0018	0.0175
	Headcount Index	44.4%	38.7%	-0.0574	38.3%	-0.0035	0.0607	36.4%	35.0%	-0.0147	34.7%	-0.0024	0.1606
	Squared Poverty Gap	16.2%	9.7%	-0.0655	9.6%	-0.0007	0.0100	11.3%	8.3%	-0.0302	8.2%	-0.0005	0.0155

*Panel C: Beneficiaries*

	Female Beneficiaries							Male Beneficiaries					
	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	
<b>CONTRIBUTORY PENSIONS</b>													
US\$5.50 PPP per day	Theil Index	0.7650	0.5179	-0.2471	0.7067	0.1887	-0.7637	0.9369	0.5764	-0.3605	0.9229	0.3465	-0.9611
	Headcount Index	46.5%	12.1%	-0.3444	46.9%	0.3478	-1.0098	48.2%	12.3%	-0.3592	59.8%	0.4754	-1.3235
	Squared Poverty Gap	19.1%	1.5%	-0.1759	919.5%	9.1795	-52.1731	18.9%	1.6%	-0.1735	287.4%	2.8584	-16.4713
<b>DIRECT TRANSFERS</b>													
<b>Non-Contributory Pension - BPC</b>													
US\$5.50 PPP per day	Theil Index	0.5703	0.3281	-0.2422	0.5345	0.2064	-0.8521	0.5950	0.3573	-0.2377	0.5816	0.2243	-0.9433
	Headcount Index	69.1%	31.2%	-0.3786	67.4%	0.3616	-0.9551	76.6%	40.9%	-0.3575	77.3%	0.3641	-1.0186
	Squared Poverty Gap	32.3%	4.4%	-0.2793	30.6%	0.2628	-0.9409	35.2%	6.1%	-0.2907	36.7%	0.3062	-1.0535
<b>Non-Contributory Special Circumstances Pension</b>													
US\$5.50 PPP per day	Theil Index	0.5651	0.4905	-0.0746	0.5470	0.0565	-0.7566	0.5733	0.4510	-0.1223	0.5473	0.0964	-0.7879
	Headcount Index	40.7%	12.9%	-0.2773	39.7%	0.2680	-0.9666	48.2%	19.7%	-0.2852	45.9%	0.2623	-0.9197
	Squared Poverty Gap	16.0%	1.8%	-0.1419	17.9%	0.1606	-1.1318	16.9%	2.9%	-0.1400	18.0%	0.1510	-1.0788
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4460	0.3486	-0.0974	0.2596	-0.0890	0.9140	0.4512	0.3413	-0.1099	0.2519	-0.0894	0.8141
	Headcount Index	57.0%	60.7%	0.0371	50.8%	-0.0986	-2.6567	57.3%	60.9%	0.0356	50.3%	-0.1060	-2.9754
	Squared Poverty Gap	20.2%	16.6%	-0.0361	8.4%	-0.0818	2.2687	20.2%	16.6%	-0.0358	8.3%	-0.0831	2.3237
<b>Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.3801	0.2935	-0.0866	0.2697	-0.0238	0.2749	0.3660	0.2958	-0.0702	0.2726	-0.0232	0.3305
	Headcount Index	41.1%	43.5%	0.0235	39.4%	-0.0413	-1.7586	39.3%	39.8%	0.0049	36.0%	-0.0382	-7.7892
	Squared Poverty Gap	12.3%	9.2%	-0.0306	7.2%	-0.0202	0.6614	10.7%	8.0%	-0.0272	6.1%	-0.0186	0.6846
<b>Tertiary Education</b>													
US\$5.50 PPP per day	Theil Index	0.6548	0.4934	-0.1614	0.3497	-0.1437	0.8901	0.4461	0.3559	-0.0902	0.2492	-0.1067	1.1835
	Headcount Index	14.6%	10.4%	-0.0420	1.1%	-0.0929	2.2129	12.9%	9.2%	-0.0369	1.1%	-0.0807	2.1863
	Squared Poverty Gap	3.8%	1.5%	-0.0231	0.0%	-0.0149	0.6481	3.5%	1.7%	-0.0175	0.0%	-0.0167	0.9508

The progressivity of transfers show that programs are generally more progressive for female headed households than for male headed households, in both absolute terms and in relative terms. Therefore, female headed households receive the benefits of government transfers more so than male headed households. This can be observed in Table 20. The non-contributory Special Circumstances Pension is also extremely regressive for male headed households. This program provides protection against adverse shocks such as illness, disability, and widowhood (Lustig, 2015, p. 9-10). It is possible that women are benefitting more from this program than men because women often live longer than men, and the longer one lives, the higher risk of illness, which could increase the number of beneficiaries. Despite that women generally receive the benefit from government spending, they bear the burden of indirect taxation, although not by much. The burden of direct taxes is equal.

To determine how equitable spending is on poor male and female headship households and poor male and female beneficiaries public education, health, pensions, and other government services, horizontal equity can be used, which can be found in respective Tables 20 and 21. In general female headed households benefit much more from each government intervention. Education is particularly progressive for female headed households on a whole. This can be explained by the coverage rates, which generally favor female-type households (Table 22). Despite that female headed households often receive more spending than male headed households, there are several programs that have horizontal equity within the poorest income group. These include the CCT, the health insurance program, and tertiary education. It was a little surprising that the CCT had equal spending among the poorest beneficiaries. Especially given that the mother is the payee of

the benefit from Bolsa Familia (Fiszbein and Schady, 2009). But this shows that the same amount of money goes to the poorest households no matter to whom the money is given.

There is an important question in the health literature about this. Is 50-50 government spending on health considered equal? This is interesting to note when it comes to gender because a common question that is discussed in the gendered fiscal incidence literature is surrounding how to quantify equality in health expenditure. Aziz (2015) explains that there are higher expenditures in health for women during childbearing years (p. 14). Therefore, one might ponder whether 50-50 spending is considered equal? To truly test this age and life cycle differences should be considered. Or, as Demery and Gaddis (2009) explain, “to analyze the gender dimensions of health spending would require distinguishing between those services used mostly by females (such as perinatal health care) from those services used by both sexes.” This data is usually hard to find. Furthermore, if there is data available, it might only be available at the health facility level and not for the type of treatment provided (p. 8). Although there is no answer to what constitutes equality in health spending, this should be kept in mind when assessing the progressivity of health programs.

**Table 20:** Progressivity and Horizontal Equity of Taxes and Transfers by Headship, Brazil 2009 (Shares in Percent)

	<b>Female Headed Households %total</b>	<b>Male Headed Households %total</b>	<b>Total</b>
<b>POPULATION</b>			
< US\$3.20 PPP	33.83%	66.17%	100.00%
US\$3.20 PPP - \$5.50 PPP	29.23%	70.77%	100.00%
US\$5.50 PPP +	25.23%	74.77%	100.00%
Total	27.84%	72.16%	100.00%
<b>MARKET INCOME</b>			
< US\$3.20 PPP	31.19%	68.81%	100.00%
US\$3.20 PPP - \$5.50 PPP	29.27%	70.73%	100.00%
US\$5.50 PPP +	23.25%	76.75%	100.00%
Total	23.74%	76.26%	100.00%
<b>Direct Taxes</b>			
< US\$3.20 PPP	61.22%	38.78%	100.00%
US\$3.20 PPP - \$5.50 PPP	24.35%	75.65%	100.00%
US\$5.50 PPP + *	24.35%	75.65%	100.00%
Total	26.53%	73.47%	100.00%
<b>Contributory Pensions (treated as a direct transfer)</b>			
< US\$3.20 PPP	35.96%	64.04%	100.00%
US\$3.20 PPP - \$5.50 PPP	26.33%	73.67%	100.00%
US\$5.50 PPP + *	25.51%	74.49%	100.00%
Total	27.95%	72.05%	100.00%
<b>All Other Direct Transfers (excluding contributory pensions)</b>			
< US\$3.20 PPP	59.78%	40.22%	100.00%
US\$3.20 PPP - \$5.50 PPP	59.20%	40.80%	100.00%
US\$5.50 PPP +	66.07%	33.93%	100.00%
Total	63.46%	36.54%	100.00%
<b>Non-contributory Pension</b>			
< US\$3.20 PPP	41.43%	58.57%	100.00%
US\$3.20 PPP - \$5.50 PPP	33.58%	66.42%	100.00%
US\$5.50 PPP +	36.29%	63.71%	100.00%
Total	38.66%	61.34%	100.00%
<b>Non-contributory Pension Special</b>			
< US\$3.20 PPP	75.10%	24.90%	100.00%
US\$3.20 PPP - \$5.50 PPP	71.62%	28.38%	100.00%
US\$5.50 PPP +	74.21%	25.79%	100.00%
Total	74.05%	25.95%	100.00%
<b>Flagship CCT</b>			
< US\$3.20 PPP*	33.34%	66.66%	100.00%
US\$3.20 PPP - \$5.50 PPP*	30.03%	69.97%	100.00%
US\$5.50 PPP +	28.98%	71.02%	100.00%
Total	31.74%	68.26%	100.00%
<b>Health</b>			
<b>Public Health (Free)</b>			
< US\$3.20 PPP *	33.92%	66.08%	100.00%
US\$3.20 PPP - \$5.50 PPP*	29.12%	70.88%	100.00%
US\$5.50 PPP + *	25.02%	74.98%	100.00%
Total	28.04%	71.96%	100.00%
<b>Education</b>			
<b>Primary</b>			

< US\$3.20 PPP	36.77%	63.23%	100.00%
US\$3.20 PPP - \$5.50 PPP*	27.84%	72.16%	100.00%
US\$5.50 PPP +	22.55%	77.45%	100.00%
Total	28.64%	71.36%	100.00%
<b>Secondary</b>			
< US\$3.20 PPP	38.08%	61.92%	100.00%
US\$3.20 PPP - \$5.50 PPP	33.97%	66.03%	100.00%
US\$5.50 PPP +	28.17%	71.83%	100.00%
Total	31.39%	68.61%	100.00%
<b>Tertiary</b>			
< US\$3.20 PPP *	35.30%	64.70%	100.00%
US\$3.20 PPP - \$5.50 PPP	31.72%	68.28%	100.00%
US\$5.50 PPP +	32.98%	67.02%	100.00%
Total	33.07%	66.93%	100.00%
<b>Indirect Subsidies</b>			
< US\$3.20 PPP	36.97%	63.03%	100.00%
US\$3.20 PPP - \$5.50 PPP	31.44%	68.56%	100.00%
US\$5.50 PPP +	31.35%	68.65%	100.00%
Total	33.67%	66.33%	100.00%
<b>Indirect Taxes</b>			
< US\$3.20 PPP	38.28%	61.72%	100.00%
US\$3.20 PPP - \$5.50 PPP	31.97%	68.03%	100.00%
US\$5.50 PPP + *	24.51%	75.49%	100.00%
Total	25.83%	74.17%	100.00%
<b>Net Indirect Taxes</b>			
< US\$3.20 PPP	38.32%	61.68%	100.00%
US\$3.20 PPP - \$5.50 PPP	31.97%	68.03%	100.00%
US\$5.50 PPP + *	24.49%	75.51%	100.00%
Total	25.79%	74.21%	100.00%

**Notes:**

\*Indicates that the program is horizontally equitable for that income group.

When assessing progressivity and horizontal equity of the beneficiaries, the results show that the contributory pensions are progressive for male beneficiaries and regressive for female beneficiaries. As the results have generally shown, the non-contributory special circumstances pension is progressive for women. This program benefits women much more than males in all cases. Secondary education is also progressive for male beneficiaries and regressive for female beneficiaries. This is not surprising given that the coverage of the target population, which is shown in Table 22, Panel B is greater for male beneficiaries. Primary education is horizontally equal for all income groups, and tertiary education is horizontally equal for the poorest and richest income groups.

**Table 21:** Progressivity and Horizontal Equity of Taxes and Transfers by Beneficiary, Brazil 2009 (Shares in Percent)

	Female Beneficiaries % total	Male Beneficiaries % total	Total
<b>CONTRIBUTORY PENSIONS</b>			
<b>Population</b>			
< US\$3.20 PPP	52.78%	47.22%	100.00%
US\$3.20 PPP - \$5.50 PPP	53.14%	46.86%	100.00%
US\$5.50 PPP +	54.59%	45.41%	100.00%
Total	53.79%	46.21%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	50.98%	49.02%	100.00%
US\$3.20 PPP - \$5.50 PPP	52.80%	47.20%	100.00%
US\$5.50 PPP +	50.78%	49.22%	100.00%
Total	50.89%	49.11%	100.00%
<b>Contributory Pensions</b>			
< US\$3.20 PPP	56.08%	43.92%	100.00%
US\$3.20 PPP - \$5.50 PPP	44.43%	55.57%	100.00%
US\$5.50 PPP +	46.57%	53.43%	100.00%
Total	48.59%	51.41%	100.00%
<b>NON-CONTRIBUTORY PENSIONS</b>			
<b>NON-CONTRIBUTORY PENSION BPC</b>			
<b>Population</b>			
< US\$3.20 PPP	53.79%	46.21%	100.00%
US\$3.20 PPP - \$5.50 PPP	57.87%	42.13%	100.00%
US\$5.50 PPP +	64.06%	35.94%	100.00%
Total	57.37%	42.63%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	51.49%	48.51%	100.00%
US\$3.20 PPP - \$5.50 PPP	58.67%	41.33%	100.00%
US\$5.50 PPP +	60.71%	39.29%	100.00%
Total	59.01%	40.99%	100.00%
<b>Non-Contributory Pension BPC</b>			
< US\$3.20 PPP	56.28%	43.72%	100.00%
US\$3.20 PPP - \$5.50 PPP	51.29%	48.71%	100.00%
US\$5.50 PPP +*	63.34%	36.66%	100.00%
Total	57.05%	42.95%	100.00%
<b>NON-CONTRIBUTORY SPECIAL CIRCUMSTANCES PENSION</b>			
<b>Population</b>			
< US\$3.20 PPP	80.06%	19.94%	100.00%
US\$3.20 PPP - \$5.50 PPP	79.87%	20.13%	100.00%
US\$5.50 PPP +	84.45%	15.55%	100.00%
Total	82.58%	17.42%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	77.66%	22.34%	100.00%
US\$3.20 PPP - \$5.50 PPP	79.51%	20.49%	100.00%
US\$5.50 PPP +	84.23%	15.77%	100.00%
Total	83.74%	16.26%	100.00%
<b>Non-Contributory Special Circumstances Pension</b>			
< US\$3.20 PPP	88.16%	11.84%	100.00%
US\$3.20 PPP - \$5.50 PPP	86.89%	13.11%	100.00%
US\$5.50 PPP +	89.84%	10.16%	100.00%
Total	89.15%	10.85%	100.00%



<b>EDUCATION</b>			
<b>PRIMARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	46.90%	53.10%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.29%	52.71%	100.00%
US\$5.50 PPP +	47.42%	52.58%	100.00%
Total	47.20%	52.80%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	46.52%	53.48%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.35%	52.65%	100.00%
US\$5.50 PPP +	47.85%	52.15%	100.00%
Total	47.67%	52.33%	100.00%
<b>Primary Education</b>			
< US\$3.20 PPP*	46.45%	53.55%	100.00%
US\$3.20 PPP - \$5.50 PPP*	46.92%	53.08%	100.00%
US\$5.50 PPP +*	47.44%	52.56%	100.00%
Total	46.96%	53.04%	100.00%
<b>SECONDARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	55.85%	44.15%	100.00%
US\$3.20 PPP - \$5.50 PPP	53.67%	46.33%	100.00%
US\$5.50 PPP +	52.95%	47.05%	100.00%
Total	53.72%	46.28%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	54.32%	45.68%	100.00%
US\$3.20 PPP - \$5.50 PPP	53.40%	46.60%	100.00%
US\$5.50 PPP +	51.85%	48.15%	100.00%
Total	52.08%	47.92%	100.00%
<b>Secondary Education</b>			
< US\$3.20 PPP	59.15%	40.85%	100.00%
US\$3.20 PPP - \$5.50 PPP*	54.73%	45.27%	100.00%
US\$5.50 PPP +	42.18%	57.82%	100.00%
Total	48.82%	51.18%	100.00%
<b>TERTIARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	57.59%	42.41%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.27%	52.73%	100.00%
US\$5.50 PPP +	49.03%	50.97%	100.00%
Total	49.54%	50.46%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	61.95%	38.05%	100.00%
US\$3.20 PPP - \$5.50 PPP	48.14%	51.86%	100.00%
US\$5.50 PPP +	48.75%	51.25%	100.00%
Total	48.80%	51.20%	100.00%
<b>Tertiary Education</b>			
< US\$3.20 PPP*	56.14%	43.86%	100.00%
US\$3.20 PPP - \$5.50 PPP	40.36%	59.64%	100.00%
US\$5.50 PPP +*	48.19%	51.81%	100.00%
Total	48.28%	51.72%	100.00%

**Notes:**

\*Indicates that the program is horizontally equitable for that income group.

**Table 22: Coverage Rates of Education, Brazil 2009***Panel A: Coverage Rate of Total Households*

	Coverage Rate of Total Households (Beneficiary Households/Total Number of Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Education												
Primary	61.65	31.02	60.11	34.75	1.0257	0.8926	46.21	28.72	48.01	31.97	0.9625	0.8985
Secondary	20.27	14.01	15.90	13.52	1.2745	1.0360	13.84	12.45	13.27	12.37	1.0430	1.0061
Tertiary	1.07	3.13	0.60	2.21	1.7842	1.4162	0.83	2.37	0.88	2.21	0.9355	1.0705

*Panel B: Coverage Rates of Target Households*

	Coverage Rate of Target Households (Beneficiary Target Households/Total Number of Target Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Education												
Primary	92.00	76.60	91.59	80.48	1.0044	0.9517	91.56	80.79	90.75	78.98	1.0090	1.0229
Secondary	36.52	48.02	34.16	46.87	1.0689	1.0246	35.56	46.43	36.46	47.14	0.9751	0.9851
Tertiary	1.84	6.65	1.08	4.13	1.6997	1.6085	1.20	5.12	1.98	4.73	0.6052	1.0804

**iii. COLOMBIA 2010**

In Colombia, female-type households are not as unambiguously benefitted by government interventions. However, they do benefit. Overall, male breadwinners are more unequal and poorer than female breadwinner households pre and post taxes and transfers. The post fisc population numbers in Table 11 are consistent with the poverty results. The number of poor breadwinner households increased much more than the number of poor female breadwinners post fisc. Also, the number of middle income male breadwinners increased, while the number of middle income female breadwinners decreased. When assessed by headship, female headed households are more unequal and poorer pre and post fisc (Tables 14 and 15). The post fisc population numbers are a little surprising for female headed households considering that they are poorer post fisc. The number of poor and

middle income female headed households decreases, while the number of rich female headed households increases. This could be an explanation as to why the magnitude of those who are disadvantaged in the headship households is much greater than the breadwinner households (Table 11).

Table 23 shows by how much inequality and poverty have declined using the absolute difference. Inequality declines more for male breadwinner households than female breadwinners, but it declines more for female headed households than male headed. Poverty as measured by the poverty gap squared, declines more for both female-type households. However, poverty of female headed households does not decline as much as for the female breadwinner households. In fact, the post fisc (consumable income) squared poverty gap for female headed households, 11.5%, is higher than that of the total country population, 9.6% (Table 12), which is not the case for male headed households or either gender of breadwinner households.

What could the smaller decline in poverty for female headed households be attributed to? One possibility is that poor women households, those living on less than US\$3.20 PPP per day, have lower coverage rates than their male counterparts (Table 24). Also, female-type households have higher “coverage” rates of direct and indirect taxes, meaning that a higher proportion of the population of female-type household pay these types of taxes compared to the male-type households. This could also affect the poverty rates of female-type households. Table 23 the differences in poverty gap squared by gender households according to income concept. This is calculated by simply subtracting the poverty gap squared (US \$5.50 PPP per day poverty line) for the male-type households from female type households. The results show that female headed households are more

likely to be poor than male headed households pre and post fisc. From market income to consumable income, the differences decrease from 5.35 to 3.79, respectively. This is attributed to direct transfers, specifically the contributory pensions and subsidized health regime. The marginal contributions of these transfer programs can be seen in Table 25, Panel B.

**Table 23:** Poverty and Inequality Pre (Market Income (MI)) and Post Fisc (Consumable Income (CI)), Colombia 2010

	Gini Coefficient	Headcount Index (%)	Squared Poverty Gap (%)
<b>Total Country</b>			
MI	.5750	41.5	10.9
CI	.5587	41.3	9.6
Absolute Difference (CI - MI)	-.0163	-.0016	-.0124
<b>Breadwinner Households</b>			
<i>Female</i>			
MI	.5491	34.6	8.5
CI	.5417	32.8	7.7
Absolute Difference (CI - MI)	-.0074	-.0181	-.0085
<i>Male</i>			
MI	0.5720	41.8	9.5
CI	0.5543	43.1	9.0
Absolute Difference (CI - MI)	-.0177	.0132	-.0053
<b>Household Headed Households</b>			
<i>Female</i>			
MI	0.5798	45.2	13.1
CI	0.5635	43.9	11.5
Absolute Difference (CI - MI)	-.0163	-.0124	-.0161
<i>Male</i>			
MI	0.5721	39.8	9.9
CI	0.5562	40.1	8.8
Absolute Difference (CI - MI)	-.0159	.0032	-.0108

**Table 24: Coverage Rates of Taxes and Transfers, Colombia 2010**

	Coverage Rate of Total Households (Beneficiary Households/Total Number of Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Direct Taxes	17.69	34.94	17.47	29.11	1.0126	1.2001	22.28	34.67	19.67	31.64	1.1327	1.0956
Contributory Pensions	4.88	12.42	2.87	6.31	1.7033	1.9688	10.47	14.06	8.74	9.84	1.1980	1.4290
All Direct Transfers (excluding contributory pensions)	48.64	33.00	55.81	34.45	0.8715	0.9579	44.01	31.16	49.66	32.47	0.8862	0.9595
Non-contributory Pension	48.16	18.04	54.91	23.77	0.8772	0.7592	43.72	22.84	48.90	20.81	0.8940	1.0978
Flagship CCT	0.47	16.36	1.33	12.44	0.3538	1.3149	0.29	9.30	1.13	13.34	0.2528	0.6974
Health												
Subsidized Health Regime	88.85	46.86	89.49	56.38	0.9929	0.8311	84.19	56.45	83.84	51.15	1.0042	1.1036
Contributory Health Regime	20.33	67.52	11.78	52.21	1.7259	1.2934	25.24	58.99	18.58	55.95	1.3583	1.0542
Indirect Subsidies	86.07	87.44	84.91	85.06	1.0137	1.0280	85.47	86.85	85.26	84.62	1.0024	1.0264
Indirect Taxes	83.67	94.90	64.25	82.84	1.3023	1.1455	81.41	92.80	67.40	84.15	1.2079	1.1029

**Table 25:** Marginal Contribution of Interventions on Poverty and Inequality Indicators, Market Income (MI), Consumable Income (CI), and Consumable Income – Transfer/Pensions (CI-B) or Consumable Income + Education/Health (CI+B), Colombia 2010

*Panel A: Breadwinner Households*

		Female Breadwinners					Male Breadwinners						
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
US\$5.50 PPP per day	Theil Index	0.5996	0.5693	-0.0303	0.5654	-0.0039	0.1298	0.7406	0.6990	-0.0415	0.6951	-0.0039	0.0950
	Headcount Index	34.6%	34.5%	-0.0009	37.7%	0.0322	-35.6725	41.8%	43.1%	0.0132	44.6%	0.0145	-1.1002
	Squared Poverty Gap	8.5%	7.9%	-0.0061	8.6%	0.0074	-1.2054	9.5%	9.0%	-0.0053	9.4%	0.0037	-0.6911
<b>DIRECT TRANSFERS</b>													
<b>Non-Contributory Pension</b>													
US\$5.50 PPP per day	Theil Index	0.5996	0.5693	-0.0303	0.5787	0.0094	-0.3113	0.7406	0.6990	-0.0415	0.7119	0.0129	-0.3101
	Headcount Index	34.6%	34.5%	-0.0009	35.2%	0.0068	-7.5154	41.8%	43.1%	0.0132	44.0%	0.0085	0.6447
	Squared Poverty Gap	8.5%	7.9%	-0.0061	8.7%	0.0077	-1.2532	9.5%	9.0%	-0.0053	9.9%	0.0092	-1.7180
<b>Flagship CCT</b>													
US\$5.50 PPP per day	Theil Index	0.5996	0.5693	-0.0303	0.5718	0.0025	-0.0818	0.7406	0.6990	-0.0415	0.7013	0.0023	-0.0555
	Headcount Index	34.6%	34.5%	-0.0009	34.8%	0.0034	-3.8062	41.8%	43.1%	0.0132	43.4%	0.0027	0.2047
	Squared Poverty Gap	8.5%	7.9%	-0.0061	8.0%	0.0006	-0.0901	9.5%	9.0%	-0.0053	9.1%	0.0007	-0.1241
<b>HEALTH</b>													
<b>Contributory Regime</b>													
US\$5.50 PPP per day	Theil Index	0.5996	0.5693	-0.0303	0.5506	-0.0187	0.6182	0.7406	0.6990	-0.0415	0.6797	-0.0193	0.4642
	Headcount Index	34.6%	34.5%	-0.0009	32.2%	-0.0228	25.3206	41.8%	43.1%	0.0132	40.8%	-0.0239	-1.8075
	Squared Poverty Gap	8.5%	7.9%	-0.0061	7.3%	-0.0055	0.9012	9.5%	9.0%	-0.0053	8.5%	-0.0047	0.8827
<b>Subsidized Regime</b>													
US\$5.50 PPP per day	Theil Index	0.5996	0.5530	-0.0466	0.4861	-0.0669	1.4351	0.7406	0.6990	-0.0415	0.6746	-0.0244	0.5868
	Headcount Index	34.6%	32.8%	-0.0181	25.9%	-0.0682	3.7656	41.8%	43.1%	0.0132	41.5%	-0.0165	-1.2504
	Squared Poverty Gap	8.5%	6.7%	-0.0181	3.3%	-0.0336	1.8594	9.5%	9.0%	-0.0053	7.5%	-0.0155	2.8941
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.5996	0.5693	-0.0303	0.5530	-0.0163	0.5378	0.7406	0.6990	-0.0415	0.6780	-0.0210	0.5063
	Headcount Index	34.6%	34.5%	-0.0009	33.4%	-0.0106	11.7765	41.8%	43.1%	0.0132	41.7%	-0.0142	-1.0723
	Squared Poverty Gap	8.5%	7.9%	-0.0061	6.7%	-0.0123	2.0167	9.5%	9.0%	-0.0053	7.6%	-0.0140	2.6211
<b>Lower Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.5996	0.5693	-0.0303	0.5536	-0.0157	0.5174	0.7406	0.6990	-0.0415	0.6824	-0.0167	0.4013
	Headcount Index	34.6%	34.5%	-0.0009	33.0%	-0.0150	16.6507	41.8%	43.1%	0.0132	41.8%	-0.0136	-1.0266
	Squared Poverty Gap	8.5%	7.9%	-0.0061	6.9%	-0.0105	1.7122	9.5%	9.0%	-0.0053	8.1%	-0.0092	1.7279
<b>Upper Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.5996	0.5693	-0.0303	0.5639	-0.0054	0.1780	0.7406	0.6990	-0.0415	0.6942	-0.0048	0.1155
	Headcount Index	34.6%	34.5%	-0.0009	33.9%	-0.0055	6.0948	41.8%	43.1%	0.0132	42.6%	-0.0050	-0.3776
	Squared Poverty Gap	8.5%	7.9%	-0.0061	7.6%	-0.0033	0.5319	9.5%	9.0%	-0.0053	8.8%	-0.0021	0.4017
<b>Tertiary Education</b>													
US\$5.50 PPP per day	Theil Index	0.5996	0.5693	-0.0303	0.5672	-0.0021	0.0700	0.7406	0.6990	-0.0415	0.6976	-0.0014	0.0343
	Headcount Index	34.6%	34.5%	-0.0009	34.1%	-0.0034	3.7985	41.8%	43.1%	0.0132	42.8%	-0.0031	-0.2343
	Squared Poverty Gap	8.5%	7.9%	-0.0061	7.8%	-0.0005	0.0827	9.5%	9.0%	-0.0053	9.0%	-0.0002	0.0286

*Panel B: Headship Households*

		Female Headed Households						Male Headed Households					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
US\$5.50 PPP per day	Theil Index	0.7200	0.6770	-0.0430	0.6799	0.0029	-0.0663	0.7042	0.6647	-0.0395	0.6643	-0.0004	0.0110
	Headcount Index	45.2%	43.9%	-0.0124	48.0%	0.0403	-3.2577	39.8%	40.1%	0.0032	42.7%	0.0260	8.1984
	Squared Poverty Gap	13.1%	11.5%	-0.0161	13.1%	0.0164	-1.0152	9.9%	8.8%	-0.0108	10.0%	0.0115	-1.0638
<b>DIRECT TRANSFERS</b>													
<b>Non-Contributory Pension</b>													
US\$5.50 PPP per day	Theil Index	0.7200	0.6770	-0.0430	0.6914	0.0144	-0.3334	0.7042	0.6647	-0.0395	0.6760	0.0113	-0.2854
	Headcount Index	45.2%	43.9%	-0.0124	44.7%	0.0082	-0.6606	39.8%	40.1%	0.0032	40.9%	0.0076	2.3899
	Squared Poverty Gap	13.1%	11.5%	-0.0161	12.5%	0.0105	-0.6523	9.9%	8.8%	-0.0108	9.7%	0.0088	-0.8137
<b>Flagship CCT</b>													
US\$5.50 PPP per day	Theil Index	0.7200	0.6770	-0.0430	0.6788	0.0018	-0.0422	0.7042	0.6647	-0.0395	0.6671	0.0024	-0.0600
	Headcount Index	45.2%	43.9%	-0.0124	44.1%	0.0021	-0.1688	39.8%	40.1%	0.0032	40.4%	0.0029	0.9168
	Squared Poverty Gap	13.1%	11.5%	-0.0161	11.5%	0.0005	-0.0307	9.9%	8.8%	-0.0108	8.9%	0.0006	-0.0570
<b>HEALTH</b>													
<b>Contributory Regime</b>													
US\$5.50 PPP per day	Theil Index	0.7200	0.6770	-0.0430	0.6568	-0.0202	0.4697	0.7042	0.6647	-0.0395	0.6452	-0.0195	0.4930
	Headcount Index	45.2%	43.9%	-0.0124	41.7%	-0.0221	1.7879	39.8%	40.1%	0.0032	37.7%	-0.0242	-7.6530
	Squared Poverty Gap	13.1%	11.5%	-0.0161	10.7%	-0.0074	0.4606	9.9%	8.8%	-0.0108	8.3%	-0.0051	0.4739
<b>Subsidized Regime</b>													
US\$5.50 PPP per day	Theil Index	0.7200	0.6770	-0.0430	0.6527	-0.0243	0.5655	0.7042	0.6647	-0.0395	0.6433	-0.0214	0.5419
	Headcount Index	45.2%	43.9%	-0.0124	42.4%	-0.0154	1.2430	39.8%	40.1%	0.0032	38.5%	-0.0163	-5.1553
	Squared Poverty Gap	13.1%	11.5%	-0.0161	9.8%	-0.0167	1.0355	9.9%	8.8%	-0.0108	7.4%	-0.0145	1.3461
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.7200	0.8709	0.1509	0.8560	-0.0150	-0.0992	0.7042	0.6647	-0.0395	0.6463	-0.0184	0.4659
	Headcount Index	45.2%	43.9%	-0.0124	42.7%	-0.0120	0.9728	39.8%	40.1%	0.0032	38.8%	-0.0133	-4.1960
	Squared Poverty Gap	13.1%	11.5%	-0.0161	9.8%	-0.0164	1.0171	9.9%	8.8%	-0.0108	7.5%	-0.0128	1.1864
<b>Lower Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.7200	0.6770	-0.0430	0.6576	-0.0194	0.4502	0.7042	0.6647	-0.0395	0.6493	-0.0154	0.3897
	Headcount Index	45.2%	43.9%	-0.0124	42.4%	-0.0152	1.2278	39.8%	40.1%	0.0032	38.8%	-0.0131	-4.1336
	Squared Poverty Gap	13.1%	11.5%	-0.0161	10.2%	-0.0125	0.7756	9.9%	8.8%	-0.0108	7.9%	-0.0091	0.8450
<b>Upper Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.7200	0.6770	-0.0430	0.6704	-0.0066	0.1538	0.7042	0.6647	-0.0395	0.6602	-0.0045	0.1139
	Headcount Index	45.2%	43.9%	-0.0124	43.4%	-0.0051	0.4124	39.8%	40.1%	0.0032	39.7%	-0.0045	-1.4295
	Squared Poverty Gap	13.1%	11.5%	-0.0161	11.1%	-0.0039	0.2436	9.9%	8.8%	-0.0108	8.6%	-0.0022	0.2038
<b>Tertiary Education</b>													
US\$5.50 PPP per day	Theil Index	0.7200	0.6770	-0.0430	0.6747	-0.0023	0.0543	0.7042	0.6647	-0.0395	0.6630	-0.0017	0.0424
	Headcount Index	45.2%	43.9%	-0.0124	43.5%	-0.0043	0.3511	39.8%	40.1%	0.0032	39.9%	-0.0027	-0.8438
	Squared Poverty Gap	13.1%	11.5%	-0.0161	11.4%	-0.0008	0.0518	9.9%	8.8%	-0.0108	8.8%	-0.0003	0.0257

*Panel C: Beneficiaries*

		Female Beneficiaries						Male Beneficiaries					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
US\$5.50 PPP per day	Theil Index	0.5581	0.4076	-0.1505	0.5733	0.16574	-1.10092	0.6145	0.4321	-0.1824	0.6447	0.2126	-1.1653
	Headcount Index	26.1%	4.6%	-0.2155	32.8%	0.28249	-1.31088	31.3%	5.9%	-0.2535	41.3%	0.3539	-1.3958
	Squared Poverty Gap	6.9%	0.4%	-0.0652	11.4%	0.11086	-1.69948	10.8%	0.7%	-0.1008	20.0%	0.1930	-1.9142
<b>HEALTH</b>													
<b>Contributory Regime</b>													
US\$5.50 PPP per day	Theil Index	0.5897	0.5621	-0.0276	0.5244	-0.03772	1.36875	0.6132	0.5776	-0.0356	0.5404	-0.0372	1.0433
	Headcount Index	18.0%	17.3%	-0.0064	12.8%	-0.04552	7.07472	16.7%	17.1%	0.0033	12.5%	-0.0458	-13.8712
	Squared Poverty Gap	3.3%	2.4%	-0.0095	1.3%	-0.01072	1.12764	3.0%	2.3%	-0.0069	1.3%	-0.0101	1.4525
<b>Subsidized Regime</b>													
US\$5.50 PPP per day	Theil Index	0.3412	0.3127	-0.0285	0.2803	-0.03243	1.13740	0.3447	0.3135	-0.0312	0.2814	-0.0320	1.0261
	Headcount Index	63.3%	63.2%	-0.0012	60.1%	-0.03133	26.10217	61.2%	60.8%	-0.0035	57.7%	-0.0312	8.9747
	Squared Poverty Gap	17.8%	16.0%	-0.0174	13.0%	-0.03044	1.74589	17.2%	15.4%	-0.0176	12.4%	-0.0300	1.7020
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4491	0.4220	-0.0271	0.3641	-0.0579	2.1398	0.3994	0.3535	-0.0460	0.2980	-0.0555	1.2065
	Headcount Index	63.4%	63.7%	0.0029	59.8%	-0.0395	-13.4367	65.9%	67.0%	0.0110	61.7%	-0.0531	-4.8118
	Squared Poverty Gap	18.5%	16.9%	-0.0155	12.1%	-0.0488	3.1358	19.2%	17.5%	-0.0170	12.4%	-0.0511	3.0012
<b>Lower Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.3249	0.3054	-0.0195	0.2593	-0.0461	2.3664	0.3548	0.3396	-0.0151	0.2915	-0.0481	3.1789
	Headcount Index	55.4%	55.7%	0.0029	50.2%	-0.0548	-18.5652	53.1%	54.2%	0.0108	47.9%	-0.0634	-5.8770
	Squared Poverty Gap	15.6%	13.8%	-0.0179	9.4%	-0.0436	2.4416	14.9%	13.1%	-0.0176	9.0%	-0.0412	2.3442
<b>Upper Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4575	0.4134	-0.0441	0.3741	-0.0393	0.8920	0.3304	0.2928	-0.0375	0.2625	-0.0304	0.8086
	Headcount Index	48.3%	49.2%	0.0089	42.4%	-0.0676	-7.5575	40.5%	38.3%	-0.0212	34.9%	-0.0345	1.6282
	Squared Poverty Gap	11.2%	10.3%	-0.0090	7.5%	-0.0280	3.1064	10.1%	9.0%	-0.0110	6.4%	-0.0260	2.3713
<b>Tertiary Education</b>													
US\$5.50 PPP per day	Theil Index	0.3477	0.3119	-0.0358	0.2816	-0.0302	0.8442	0.2786	0.2636	-0.0150	0.2364	-0.0272	1.8142
	Headcount Index	17.9%	18.8%	0.0095	10.9%	-0.0795	-8.3495	11.7%	14.7%	0.0302	9.9%	-0.0478	-1.5811
	Squared Poverty Gap	5.0%	2.9%	-0.0210	1.3%	-0.0160	0.7643	2.5%	2.5%	-0.0008	1.1%	-0.0134	17.7979



There is more of a mix of progressivity and horizontal equity in Colombia than in Brazil (Table 26). First, comparatively, poor women are poorer than their male counterparts as shown by the fact that their share of market income, 32.57%, is less than their share of the population, 35.01%. Second, male headed households bear the burden of direct and indirect taxes. Third, female headed households benefit the most from progressivity of transfers. Contributory pensions, non-contributory pensions, and secondary through tertiary education are progressive for female headed households. There are several programs that are horizontally equal for the total population. These include all direct transfers, both the subsidized and the contributory health regimes, and primary education. This is in line with what the coverage rates show as well (Table 24). In particular, the education results are not surprising because in general, female-type households have better coverage than male-type households for both the total population and the target population, which is shown in Table 28. The only program that is progressive for male headed households is the CCT, Programa de Familias en Acción, which is progressive in absolute and relative terms. This is interesting because the payee is the mother (Fiszbein and Schady, 2009).

There are programs that have horizontal equity for the poor. These include the contributory pensions, all direct transfers, the non-contributory pension, the subsidized health regime, and primary education. The subsidized health regime's equity is in line with the program design. The health system was reformed in accordance to Colombia's Law 100 of 1993, which introduced mandatory social health insurance (Escobar, Giedion, Giuffrida, & Glassman, 2009, p. 2, 4). The subsidized regime was designed for those who cannot afford to contribute to the contributory regime. While the contributory regime

covers all levels of care, the subsidized regime covers primary care, some inpatient care, and emergency care (Escobar, et al., 2009, p. 4).

**Table 26:** Progressivity and Horizontal Equity of Taxes and Transfers by Headship, Colombia 2010 (Shares in Percent)

	<b>Female Headed Households %total</b>	<b>Male Headed Households %total</b>	<b>Total</b>
<b>POPULATION</b>			
< US\$3.20 PPP	35.01%	64.99%	100.00%
US\$3.20 PPP - \$5.50 PPP	32.00%	68.00%	100.00%
US\$5.50 PPP +	28.87%	71.13%	100.00%
Total	30.82%	69.18%	100.00%
<b>MARKET INCOME</b>			
< US\$3.20 PPP	32.57%	67.43%	100.00%
US\$3.20 PPP - \$5.50 PPP	32.03%	67.97%	100.00%
US\$5.50 PPP +	27.72%	72.28%	100.00%
Total	28.17%	71.83%	100.00%
<b>Direct Taxes</b>			
< US\$3.20 PPP	50.06%	49.94%	100.00%
US\$3.20 PPP - \$5.50 PPP	40.53%	59.47%	100.00%
US\$5.50 PPP +	26.33%	73.67%	100.00%
Total	27.40%	72.60%	100.00%
<b>Contributory Pensions (treated as a direct transfer)</b>			
< US\$3.20 PPP*	36.63%	63.37%	100.00%
US\$3.20 PPP - \$5.50 PPP	36.32%	63.68%	100.00%
US\$5.50 PPP +	34.27%	65.73%	100.00%
Total	34.74%	65.26%	100.00%
<b>All Other Direct Transfers (excluding contributory pensions)</b>			
< US\$3.20 PPP *	34.55%	65.45%	100.00%
US\$3.20 PPP - \$5.50 PPP	34.55%	65.45%	100.00%
US\$5.50 PPP +	26.52%	73.48%	100.00%
Total	30.91%	69.09%	100.00%
<b>Non-contributory Pension</b>			
< US\$3.20 PPP *	34.69%	65.31%	100.00%
US\$3.20 PPP - \$5.50 PPP	35.92%	64.08%	100.00%
US\$5.50 PPP +	32.15%	67.85%	100.00%
Total	34.27%	65.73%	100.00%
<b>Flagship CCT</b>			
< US\$3.20 PPP	25.75%	74.25%	100.00%
US\$3.20 PPP - \$5.50 PPP	27.23%	72.77%	100.00%
US\$5.50 PPP +	21.42%	78.58%	100.00%
Total	22.27%	77.73%	100.00%
<b>Health</b>			
<b>Subsidized Health Regime</b>			
< US\$3.20 PPP *	33.67%	66.33%	100.00%
US\$3.20 PPP - \$5.50 PPP*	31.20%	68.80%	100.00%
US\$5.50 PPP + *	30.59%	69.41%	100.00%
Total	31.85%	68.15%	100.00%
<b>Contributory Health Regime</b>			

< US\$3.20 PPP	37.79%	62.21%	100.00%
US\$3.20 PPP - \$5.50 PPP	34.50%	65.50%	100.00%
US\$5.50 PPP +*	27.96%	72.04%	100.00%
<b>Total</b>	<b>29.28%</b>	<b>70.72%</b>	<b>100.00%</b>
<b>Education</b>			
<b>Primary</b>			
< US\$3.20 PPP *	36.53%	63.47%	100.00%
US\$3.20 PPP - \$5.50 PPP*	30.94%	69.06%	100.00%
US\$5.50 PPP + *	29.20%	70.80%	100.00%
<b>Total</b>	<b>32.48%</b>	<b>67.52%</b>	<b>100.00%</b>
<b>Lower Secondary</b>			
< US\$3.20 PPP	38.07%	61.93%	100.00%
US\$3.20 PPP - \$5.50 PPP	34.25%	65.75%	100.00%
US\$5.50 PPP + *	29.11%	70.89%	100.00%
<b>Total</b>	<b>33.09%</b>	<b>66.91%</b>	<b>100.00%</b>
<b>Upper Secondary</b>			
< US\$3.20 PPP	38.07%	61.93%	100.00%
US\$3.20 PPP - \$5.50 PPP	34.25%	65.75%	100.00%
US\$5.50 PPP + *	29.11%	70.89%	100.00%
<b>Total</b>	<b>33.09%</b>	<b>66.91%</b>	<b>100.00%</b>
<b>Tertiary</b>			
< US\$3.20 PPP	63.86%	36.14%	100.00%
US\$3.20 PPP - \$5.50 PPP	39.93%	60.07%	100.00%
US\$5.50 PPP +	30.34%	69.66%	100.00%
<b>Total</b>	<b>33.23%</b>	<b>66.77%</b>	<b>100.00%</b>
<b>Indirect Subsidies</b>			
< US\$3.20 PPP	38.04%	61.96%	100.00%
US\$3.20 PPP - \$5.50 PPP	35.78%	64.22%	100.00%
US\$5.50 PPP +*	30.76%	69.24%	100.00%
<b>Total</b>	<b>33.17%</b>	<b>66.83%</b>	<b>100.00%</b>
<b>Indirect Taxes</b>			
< US\$3.20 PPP *	36.09%	63.91%	100.00%
US\$3.20 PPP - \$5.50 PPP	36.38%	63.62%	100.00%
US\$5.50 PPP + *	27.89%	72.11%	100.00%
<b>Total</b>	<b>28.58%</b>	<b>71.42%</b>	<b>100.00%</b>
<b>Net Indirect Taxes</b>			
< US\$3.20 PPP	32.72%	67.28%	100.00%
US\$3.20 PPP - \$5.50 PPP	36.63%	63.37%	100.00%
US\$5.50 PPP + *	27.72%	72.28%	100.00%
<b>Total</b>	<b>28.16%</b>	<b>71.84%</b>	<b>100.00%</b>

**Notes:**

\*Indicates that the program is horizontally equitable for that income group.

The progressivity for beneficiaries reveals that there none of the programs that could be evaluated according to beneficiary are progressive for either gender. This means that the total spending received by each gender is within two percentage, points of their share of the population. Furthermore, most of the programs are horizontally equitable for the poor, including primary education, lower secondary education, tertiary education, and

both the subsidized and contributory health regimes. Contributory pensions is not horizontally equal for the poor. Poor men receive a larger share of spending. This can be seen in Table 27.

**Table 27:** Progressivity and Horizontal Equity of Taxes and Transfers by Beneficiary, Colombia 2010 (Shares in Percent)

	<b>Female Beneficiaries % total</b>	<b>Male Beneficiaries % total</b>	<b>Total</b>
<b>CONTRIBUTORY PENSIONS</b>			
<b>Population</b>			
< US\$3.20 PPP	37.20%	62.80%	100.00%
US\$3.20 PPP - \$5.50 PPP	48.03%	51.97%	100.00%
US\$5.50 PPP +	48.90%	51.10%	100.00%
Total	47.10%	52.90%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	42.93%	57.07%	100.00%
US\$3.20 PPP - \$5.50 PPP	42.24%	57.76%	100.00%
US\$5.50 PPP +	51.78%	48.22%	100.00%
Total	51.59%	48.41%	100.00%
<b>Contributory Pensions</b>			
< US\$3.20 PPP	34.76%	65.24%	100.00%
US\$3.20 PPP - \$5.50 PPP	40.51%	59.49%	100.00%
US\$5.50 PPP +*	47.17%	52.83%	100.00%
Total	45.93%	54.07%	100.00%
<b>EDUCATION</b>			
<b>PRIMARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	46.05%	53.95%	100.00%
US\$3.20 PPP - \$5.50 PPP	44.15%	55.85%	100.00%
US\$5.50 PPP +	47.98%	52.02%	100.00%
Total	46.22%	53.78%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	46.58%	53.42%	100.00%
US\$3.20 PPP - \$5.50 PPP	44.35%	55.65%	100.00%
US\$5.50 PPP +	50.33%	49.67%	100.00%
Total	48.69%	51.31%	100.00%
<b>Primary Education</b>			
< US\$3.20 PPP*	45.77%	54.23%	100.00%
US\$3.20 PPP - \$5.50 PPP*	44.03%	55.97%	100.00%
US\$5.50 PPP +*	47.53%	52.47%	100.00%
Total	45.87%	54.13%	100.00%
<b>LOWER SECONDARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	50.82%	49.18%	100.00%
US\$3.20 PPP - \$5.50 PPP	46.34%	53.66%	100.00%
US\$5.50 PPP +	46.55%	53.45%	100.00%
Total	47.78%	52.22%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	52.39%	47.61%	100.00%

US\$3.20 PPP - \$5.50 PPP	46.38%	53.62%	100.00%
US\$5.50 PPP +	45.26%	54.74%	100.00%
Total	46.03%	53.97%	100.00%
<b>Lower Secondary Education</b>			
< US\$3.20 PPP*	50.71%	49.29%	100.00%
US\$3.20 PPP - \$5.50 PPP*	46.57%	53.43%	100.00%
US\$5.50 PPP +*	44.66%	55.34%	100.00%
Total	46.95%	53.05%	100.00%
<b>UPPER SECONDARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	56.26%	43.74%	100.00%
US\$3.20 PPP - \$5.50 PPP	56.61%	43.39%	100.00%
US\$5.50 PPP +	48.52%	51.48%	100.00%
Total	52.05%	47.95%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	57.81%	42.19%	100.00%
US\$3.20 PPP - \$5.50 PPP	56.62%	43.38%	100.00%
US\$5.50 PPP +	50.23%	49.77%	100.00%
Total	51.35%	48.65%	100.00%
<b>Upper Secondary Education</b>			
< US\$3.20 PPP	53.58%	46.42%	100.00%
US\$3.20 PPP - \$5.50 PPP*	55.77%	44.23%	100.00%
US\$5.50 PPP +*	47.78%	52.22%	100.00%
Total	50.66%	49.34%	100.00%
<b>TERTIARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	69.88%	30.12%	100.00%
US\$3.20 PPP - \$5.50 PPP	55.49%	44.51%	100.00%
US\$5.50 PPP +	49.21%	50.79%	100.00%
Total	51.03%	48.97%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	67.67%	32.33%	100.00%
US\$3.20 PPP - \$5.50 PPP	58.49%	41.51%	100.00%
US\$5.50 PPP +	50.57%	49.43%	100.00%
Total	50.87%	49.13%	100.00%
<b>Tertiary Education</b>			
< US\$3.20 PPP*	69.41%	30.59%	100.00%
US\$3.20 PPP - \$5.50 PPP	43.32%	56.68%	100.00%
US\$5.50 PPP +*	47.75%	52.25%	100.00%
Total	49.23%	50.77%	100.00%
<b>HEALTH</b>			
<b>SUBSIDIZED HEALTH REGIME</b>			
<b>Population</b>			
< US\$3.20 PPP	52.15%	47.85%	100.00%
US\$3.20 PPP - \$5.50 PPP	52.65%	47.35%	100.00%
US\$5.50 PPP +	50.06%	49.94%	100.00%
Total	51.49%	48.51%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	52.06%	47.94%	100.00%
US\$3.20 PPP - \$5.50 PPP	52.71%	47.29%	100.00%
US\$5.50 PPP +	49.41%	50.59%	100.00%
Total	50.38%	49.62%	100.00%
<b>Subsidized Health Regime</b>			
< US\$3.20 PPP*	51.78%	48.22%	100.00%
US\$3.20 PPP - \$5.50 PPP*	51.90%	48.10%	100.00%
US\$5.50 PPP +*	49.33%	50.67%	100.00%

Total	50.94%	49.06%	100.00%
<b>CONTRIBUTORY HEALTH REGIME</b>			
<b>Population</b>			
< US\$3.20 PPP	54.15%	45.85%	100.00%
US\$3.20 PPP - \$5.50 PPP	52.89%	47.11%	100.00%
US\$5.50 PPP +	51.13%	48.87%	100.00%
Total	51.51%	48.49%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	53.96%	46.04%	100.00%
US\$3.20 PPP - \$5.50 PPP	52.71%	47.29%	100.00%
US\$5.50 PPP +	49.89%	50.11%	100.00%
Total	49.98%	50.02%	100.00%
<b>Contributory Health Regime</b>			
< US\$3.20 PPP*	53.93%	46.07%	100.00%
US\$3.20 PPP - \$5.50 PPP*	53.15%	46.85%	100.00%
US\$5.50 PPP +*	51.19%	48.81%	100.00%
Total	51.53%	48.47%	100.00%

**Notes:**

\*Indicates that the program is horizontally equitable for that income group.

**Table 28:** Coverage Rates of Education, Colombia 2010*Panel A: Coverage Rate of Total Households*

	Coverage Rate of Total Households (Beneficiary Households/Total Number of Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Education												
Primary	54.04	23.74	53.01	27.20	1.0195	0.8729	45.35	24.65	45.78	24.69	0.9906	0.9983
Lower Secondary	44.26	21.80	32.31	20.70	1.3698	1.0530	32.64	20.53	30.18	19.52	1.0815	1.0520
Upper Secondary	17.05	9.65	9.07	8.32	1.8791	1.1596	12.12	8.91	9.20	7.94	1.3175	1.1225
Tertiary	2.29	5.83	0.22	4.07	10.6094	1.4304	2.80	4.8%	0.86	4.38	3.2719	1.1130

*Panel B: Coverage Rates of Target Households*

	Coverage Rate of Target Households (Beneficiary Target Households/Total Number of Target Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Education												
Primary	85.98	68.28	83.67	72.83	1.0275	0.9376	84.46	72.25	83.79	71.31	1.0080	1.0131
Lower Secondary	63.63	56.75	52.17	54.73	1.2197	1.0368	54.71	55.24	56.44	55.30	0.9694	0.9990
Upper Secondary	22.26	27.89	16.48	24.04	1.3506	1.1602	21.32	25.25	18.78	25.29	1.1355	0.9983
Tertiary	3.53	9.88	0.54	6.52	6.5801	1.5148	4.96	8.16	2.61	7.99	1.8963	1.0215

#### **iv. DOMINICAN REPUBLIC 2013**

In the Dominican Republic, male breadwinners and female headed households are more unequal pre and post government intervention than their counterparts (Table 14). Male breadwinner households are poorer pre and post intervention. However, female headed households are poorer pre intervention, but male headed households are poorer post intervention (Table 15). It is clear that government transfers and taxes impact poverty and inequality positively for female and male breadwinner households as well as female and male headed households due to the overall decline in inequality and poverty. Although it should be noted that the decline was not by much, which is likely due to the low pre fisc poverty rates and the fact that the poverty rates are very close together according to gender, as is government expenditures. In Table 29 we can see that the absolute difference of the Gini coefficient and the squared poverty gap shows a decline in inequality and poverty using these indicators for each household type. Female breadwinner households have a greater decline in both poverty and inequality indicators than their male counterparts. Furthermore, the Gini and the headcount index decline for the female breadwinners more than for the total country population. The squared poverty gap of female headed households declines more than for male headed households, and it is lower than the post fisc squared poverty gap for the total country population. Despite this decline, the ratio of the average female/male per capita income favors male headed households post fisc (consumable income) albeit female household heads are closing the gap compared to the pre fisc average (Table 14).

**Table 29:** Poverty and Inequality Pre (Market Income (MI)) and Post Fisc (Consumable Income (CI)), Dominican Republic 2013

	Gini Coefficient	Headcount Index (%)	Squared Poverty Gap (%)
<b>Total Country</b>			
MI	.5173	35.6	7.9
CI	.4951	35.9	7.4
Absolute Difference (CI - MI)	-.02222	.0023	-.0053
<b>Breadwinner Households</b>			
<i>Female</i>			
MI	.4989	32.1	5.8
CI	.4748	31.1	5.4
Absolute Difference (CI - MI)	-.0241	-.0101	-.0038
<i>Male</i>			
MI	0.5124	34.8	7.4
CI	0.4912	35.7	7.0
Absolute Difference (CI - MI)	-.0212	.0089	-.0034
<b>Household Headed Households</b>			
<i>Female</i>			
MI	0.4729	36.9	7.9
CI	0.4551	36.7	7.4
Absolute Difference (CI - MI)	-.0173	.0021	-.0056
<i>Male</i>			
MI	0.5325	35.1	7.9
CI	0.5093	35.5	7.4
Absolute Difference (CI - MI)	-.0232	.0043	-.0052

For female breadwinner households, the decline in poverty and inequality is most likely attributed to their coverage of contributory pensions, health, and indirect subsidies, which can be observed in Table 30. The direct transfers and the flagship CCT, Progresando con Solidaridad, similar to Brazil and Colombia, are better covered by male breadwinner households. However, different from Brazil and Colombia, this program is paid to the household head, not necessarily the mother (World Food Programme, 2014, p. 4 and Fiszbein and Schady, 2009, p. 212). The marginal contributions of the programs can be examined in Table 31, Panel A. Some of the results can be used to support the poverty reduction of female breadwinners. For example, the contributory pensions for female breadwinners is larger than for male breadwinners. But in general, the marginal



contributions are fairly similar for both genders. This could be why poverty declines so little for both genders.

We can also examine the coverage of the program according to headship in Table 30. For both the poor income group and the total of all income groups, coverage of the CCT is better for male headed households. Despite that male headed households have better coverage for the CCT, which makes sense according to the aforementioned program rules, female headed households have better coverage of “all direct transfers.” Female headed households also have better coverage for the subsidized health regime as well as indirect subsidies. This coverage likely contributes to the decline of the poverty gap squared for female headed households. The coverage for the Dominican Republic actually looks similar to that of Colombia, where poorer female-type households are not always as covered for transfers. Brazil female-type households benefitted much more from direct transfers than either Colombia or the Dominican Republic. The marginal contributions for the headship households are very small and almost equal according to gender-type.

In regard to taxes, female breadwinner households have a larger proportion of people who pay direct taxes in total, as well as those who pay indirect taxes for both the poor and total population. Of the headship households, male headed households have better “coverage” for indirect taxes and better coverage for direct taxes when assessing all income groups. Perhaps the fact that a larger proportion of poor female headed households pay direct taxes could be a reason that the poverty headcount increases for female headed households, while it declines for female breadwinners.

Similar to Colombia, the differences in poverty gap squared in Table 15 show that female breadwinner households are less likely to be poor pre and post fisc. This is

consistent with the absolute differences of poverty and inequality indicators that can be observed in Table 29. The female headed households are more likely to be poor pre fisc, as measured by market income (1.77). They are less likely to be poor post fisc, as measured by consumable income (1.13), but they are still poorer than their male counterparts. This means that both the direct and indirect transfers have a significant role in the reduction of poverty, but not enough to make them less poor than male headed households. Although the marginal contributions are small, the decline in poverty is small, which is why it is plausible that the transfers cause the reduction in poverty.

**Table 30: Coverage Rates of Taxes and Transfers, Dominican Republic 2013**

	Coverage Rate of Total Households (Beneficiary Households/Total Number of Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Direct Taxes	0.00	9.25	0.38	7.03	0.0000	1.3149	0.39	4.96	0.27	8.34	1.4210	0.5952
Contributory Pensions	2.93	3.74	2.28	2.67	1.2823	1.3996	1.68	3.83	5.88	3.96	0.2858	0.9668
All Direct Transfers (excluding contributory pensions)	93.61	68.23	94.45	70.41	0.9911	0.9689	93.74	70.07	91.51	69.11	1.0244	1.0139
Flagship CCT	50.63	19.47	55.94	26.88	0.9052	0.7242	50.92	25.04	52.98	25.90	0.9612	0.9665
Health Subsidized Health Regime	73.34	46.37	68.28	42.80	1.0742	1.0835	70.30	47.93	64.11	40.93	1.0965	1.1708
Indirect Subsidies	34.84	53.94	23.64	42.48	1.4741	1.2697	30.64	50.73	25.95	43.52	1.1806	1.1657
Indirect Taxes	100.00	100.00	99.60	99.90	1.0041	1.0010	99.27	99.90	99.75	99.92	0.9952	0.9998

**Table 31: Marginal Contribution of Interventions on Poverty and Inequality Indicators, Market Income (MI), Consumable Income (CI), and Consumable Income – Transfer/Pensions (CI-B) or Consumable Income + Education/Health (CI+B), Dominican Republic 2013**

*Panel A: Breadwinner Households*

		Female Breadwinners						Male Breadwinners					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
US\$5.50 PPP per day	Theil Index	0.4536	0.4022	-0.0514	0.4041	0.0018	-0.0356	0.5342	0.4807	-0.0535	0.4810	0.0003	-0.0062
	Headcount Index	32.1%	31.1%	-0.0101	31.7%	0.0060	-0.5940	34.8%	35.7%	0.0089	36.0%	0.0033	0.3669
	Squared Poverty Gap	5.8%	5.4%	-0.0038	5.5%	0.0008	-0.2061	7.4%	7.0%	-0.0034	7.1%	0.0007	-0.2092
<b>DIRECT TRANSFERS</b>													
<b>Flagship CCT</b>													
US\$5.50 PPP per day	Theil Index	0.4537	0.4022	-0.0514	0.4045	0.0022	-0.0436	0.5341	0.4807	-0.0534	0.4838	0.0031	-0.0588
	Headcount Index	32.1%	31.1%	-0.0102	31.4%	0.0024	-0.2411	34.8%	35.7%	0.0089	36.0%	0.0033	0.3733
	Squared Poverty Gap	5.8%	5.4%	-0.0039	5.6%	0.0016	-0.4275	7.4%	7.0%	-0.0034	7.2%	0.0021	-0.6246
<b>HEALTH</b>													
<b>Subsidized Regime</b>													
US\$5.50 PPP per day	Theil Index	0.4536	0.4022	-0.0514	0.3999	-0.0023	0.0446	0.5342	0.4807	-0.0535	0.4781	-0.0026	0.0482
	Headcount Index	32.1%	31.1%	-0.0101	31.0%	-0.0009	0.0872	34.8%	35.7%	0.0089	35.6%	-0.0010	-0.1172
	Squared Poverty Gap	5.8%	5.4%	-0.0038	5.3%	-0.0016	0.4244	7.4%	7.0%	-0.0034	6.8%	-0.0018	0.5355
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4536	0.4022	-0.0514	0.3852	-0.0170	0.3304	0.5342	0.4807	-0.0535	0.4617	-0.0190	0.3556
	Headcount Index	32.1%	31.1%	-0.0101	29.3%	-0.0185	1.8290	34.8%	35.7%	0.0089	33.5%	-0.0218	-2.4572
	Squared Poverty Gap	5.8%	5.4%	-0.0038	4.3%	-0.0113	2.9429	7.4%	7.0%	-0.0034	5.8%	-0.0126	3.6985
<b>Lower Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4536	0.4022	-0.0514	0.3961	-0.0061	0.1183	0.5342	0.4807	-0.0535	0.4754	-0.0053	0.0993
	Headcount Index	32.1%	31.1%	-0.0101	30.5%	-0.0067	0.6605	34.8%	35.7%	0.0089	34.9%	-0.0074	-0.8406
	Squared Poverty Gap	5.8%	5.4%	-0.0038	5.1%	-0.0032	0.8352	7.4%	7.0%	-0.0034	6.7%	-0.0030	0.8914
<b>Upper Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4536	0.4022	-0.0514	0.3955	-0.0067	0.1298	0.5342	0.4807	-0.0535	0.4749	-0.0058	0.1079
	Headcount Index	32.1%	31.1%	-0.0101	30.4%	-0.0071	0.7068	34.8%	35.7%	0.0089	35.0%	-0.0064	-0.7216
	Squared Poverty Gap	5.8%	5.4%	-0.0038	5.1%	-0.0032	0.8384	7.4%	7.0%	-0.0034	6.7%	-0.0031	0.8992
<b>Tertiary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4536	0.4022	-0.0514	0.4014	-0.0008	0.0159	0.5342	0.4807	-0.0535	0.4800	-0.0007	0.0136
	Headcount Index	32.1%	31.1%	-0.0101	31.0%	-0.0008	0.0770	34.8%	35.7%	0.0089	35.3%	-0.0032	-0.3624
	Squared Poverty Gap	5.8%	5.4%	-0.0038	5.4%	-0.0003	0.0863	7.4%	7.0%	-0.0034	7.0%	-0.0003	0.0772

*Panel B: Headship Households*

		Female Headed Households						Male Headed Households					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
US\$5.50 PPP per day	Theil Index	0.4157	0.3793	-0.0363	0.3789	-0.0005	0.0132	0.5656	0.5069	-0.0587	0.5094	0.0025	-0.0421
	Headcount Index	36.9%	36.7%	-0.0021	36.9%	0.0024	-1.1443	35.1%	35.5%	0.0043	36.1%	0.0059	1.3695
	Squared Poverty Gap	7.9%	7.4%	-0.0056	7.4%	0.0008	-0.1396	7.9%	7.4%	-0.0052	7.6%	0.0016	-0.3176
<b>DIRECT TRANSFERS</b>													
<b>Flagship CCT</b>													
US\$5.50 PPP per day	Theil Index	0.4157	0.3793	-0.0363	0.3826	0.0032	-0.0882	0.5656	0.5069	-0.0587	0.5101	0.0032	-0.0548
	Headcount Index	36.9%	36.7%	-0.0021	37.3%	0.0067	-3.1339	35.1%	35.5%	0.0043	35.7%	0.0015	0.3598
	Squared Poverty Gap	7.9%	7.4%	-0.0056	7.6%	0.0024	-0.4242	7.9%	7.4%	-0.0052	7.6%	0.0022	-0.4311
<b>HEALTH</b>													
<b>Subsidized Regime</b>													
US\$5.50 PPP per day	Theil Index	0.4157	0.3793	-0.0363	0.3768	-0.0025	0.0699	0.5656	0.5069	-0.0587	0.5044	-0.0026	0.0437
	Headcount Index	36.9%	36.7%	-0.0021	36.3%	-0.0036	1.6775	35.1%	35.5%	0.0043	35.5%	-0.0008	-0.1831
	Squared Poverty Gap	7.9%	7.4%	-0.0056	7.2%	-0.0020	0.3484	7.9%	7.4%	-0.0052	7.2%	-0.0018	0.3539
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4157	0.3793	-0.0363	0.3607	-0.0187	0.5133	0.5656	0.5069	-0.0587	0.4877	-0.0192	0.3275
	Headcount Index	36.9%	36.7%	-0.0021	34.3%	-0.0237	11.0690	35.1%	35.5%	0.0043	33.6%	-0.0192	-4.4676
	Squared Poverty Gap	7.9%	7.4%	-0.0056	6.0%	-0.0137	2.4323	7.9%	7.4%	-0.0052	6.1%	-0.0128	2.4740
<b>Lower Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4157	0.3793	-0.0363	0.3731	-0.0063	0.1728	0.5656	0.5069	-0.0587	0.5014	-0.0055	0.0935
	Headcount Index	36.9%	36.7%	-0.0021	35.7%	-0.0095	4.4289	35.1%	35.5%	0.0043	34.9%	-0.0063	-1.4764
	Squared Poverty Gap	7.9%	7.4%	-0.0056	7.0%	-0.0041	0.7312	7.9%	7.4%	-0.0052	7.1%	-0.0031	0.5985
<b>Upper Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4157	0.3793	-0.0363	0.3727	-0.0067	0.1834	0.5656	0.5069	-0.0587	0.5013	-0.0057	0.0966
	Headcount Index	36.9%	36.7%	-0.0021	35.7%	-0.0091	4.2513	35.1%	35.5%	0.0043	35.0%	-0.0055	-1.2819
	Squared Poverty Gap	7.9%	7.4%	-0.0056	7.0%	-0.0038	0.6674	7.9%	7.4%	-0.0052	7.1%	-0.0030	0.5868
<b>Tertiary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4157	0.3793	-0.0363	0.3789	-0.0005	0.0130	0.5656	0.5069	-0.0587	0.5061	-0.0008	0.0145
	Headcount Index	36.9%	36.7%	-0.0021	36.4%	-0.0026	1.1990	35.1%	35.5%	0.0043	35.3%	-0.0023	-0.5392
	Squared Poverty Gap	7.9%	7.4%	-0.0056	7.3%	-0.0004	0.0660	7.9%	7.4%	-0.0052	7.4%	-0.0003	0.0584

*Panel C: Beneficiaries*

		Female Headed Households						Male Headed Households					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
	Theil Index	0.7865	0.5734	-0.2131	0.7194	0.1459	-0.6847	0.7705	0.5220	-0.2485	0.6869	0.1649	-0.6636
US\$5.50 PPP per day	Headcount Index	19.0%	8.1%	-0.1084	18.9%	0.1080	-0.9959	40.2%	20.8%	-0.1946	41.1%	0.2029	-1.0431
	Squared Poverty Gap	2.4%	0.5%	-0.0189	2.3%	0.0179	-0.9512	10.3%	3.2%	-0.0705	9.3%	0.0604	-0.8574
<b>EDUCATION</b>													
<b>Primary Education</b>													
	Theil Index	0.3384	0.2958	-0.0426	0.2367	-0.0591	1.3886	0.3260	0.2913	-0.0347	0.2370	-0.0544	1.5686
US\$5.50 PPP per day	Headcount Index	60.8%	60.7%	-0.0007	52.5%	-0.0821	111.6440	58.2%	58.2%	0.0004	49.9%	-0.0834	-205.2539
	Squared Poverty Gap	15.4%	14.2%	-0.0128	8.4%	-0.0572	4.4758	14.2%	12.9%	-0.0125	7.8%	-0.0510	4.0911
<b>Lower Secondary Education</b>													
	Theil Index	0.3071	0.2712	-0.0359	0.2407	-0.0305	0.8505	0.3526	0.3174	-0.0352	0.2799	-0.0375	1.0658
US\$5.50 PPP per day	Headcount Index	48.4%	49.5%	0.0119	43.8%	-0.0577	-4.8355	45.1%	46.4%	0.0124	39.7%	-0.0670	-5.3983
	Squared Poverty Gap	10.5%	9.9%	-0.0059	7.1%	-0.0275	4.6643	9.9%	9.1%	-0.0080	6.2%	-0.0296	3.7128
<b>Upper Secondary Education</b>													
	Theil Index	0.2599	0.2395	-0.0204	0.2146	-0.0249	1.2199	0.4336	0.3984	-0.0353	0.3609	-0.0374	1.0616
US\$5.50 PPP per day	Headcount Index	36.8%	37.3%	0.0057	33.4%	-0.0389	-6.8626	35.0%	36.4%	0.0148	30.9%	-0.0555	-3.7561
	Squared Poverty Gap	7.6%	7.3%	-0.0033	5.1%	-0.0214	6.5577	8.1%	7.6%	-0.0049	5.2%	-0.0248	5.0365
<b>Tertiary Education</b>													
	Theil Index	0.3514	0.3297	-0.0217	0.3169	-0.0128	0.5897	0.2893	0.2743	-0.0149	0.2615	-0.0128	0.8591
US\$5.50 PPP per day	Headcount Index	17.7%	17.9%	0.0018	14.7%	-0.0324	-17.7879	13.8%	15.7%	0.0188	10.2%	-0.0553	-2.9434
	Squared Poverty Gap	2.8%	2.5%	-0.0028	2.0%	-0.0052	1.8464	2.0%	1.9%	-0.0016	1.4%	-0.0052	3.3164

Progressivity can be used to show that there is a noticeable difference between female and male headed households and which household-type bears the burden of taxation and which receives the benefits from government spending. As shown in Table 32, male headed households in the poorest two income groups are actually poorer than female headed households in the same groups. This is shown because their shares of market income are less than their shares of the population. For example, male headed households in the less than US\$3.20 PPP per day income group have a share of market income of 67.92%, but their share of the population is 68.51%.

Male headed households bear the burden of indirect taxes, and net indirect taxes. The burden of direct taxes is shared by both genders of households. Female headed households receive the benefits from government spending in all other cases, unless there is horizontal equity, which there is quite a bit of. Despite that coverage of the CCT and direct transfers is better for male headed households, in the case of progressivity female headed households generally benefit more. This means that although there are more male headed households who are covered, female headed households are receiving a larger share of the government expenditures than the males. This could be by chance, meaning that female headed households have more children that fit the qualifications of the program, for example, being the correct ages to receive health and school benefits. Or, it could be because female headed households have higher enrollment rates than male headed households. This was assessed using the CEQ Assessment ado file command `ceqeduc` which produces education enrollment results by education level and income groups in Sheet E20 of the CEQ MWB. The results show that female headed households generally

have better net enrollment rates<sup>37</sup> and a larger share of enrolled students belonging to the target population than male headed households. Furthermore, male headed households have a higher gross enrollment rate, which is measured by the total number of students attending school at each level regardless of age divided by the population of children within the target age cohort. Therefore, female headed households could in fact be receiving more benefits from the CCT because they have higher enrollment rates, especially for the target age.

Contributory pensions, and lower secondary through tertiary education are progressive for female headed households. Therefore, it is not surprising that the education is progressive for female headed households given that proportionally, more female headed households have children enrolled in school as compared to male headed households (Table 34, Panel A). Like Brazil and Colombia, the female headed households benefit from the progressivity of contributory pensions. This is likely due to the fact the life expectancy at birth is usually higher for women than for men. For example, in 2013 females in the Dominican Republic had a life expectancy at birth of 76.018 years, while for males it was 59.75 years (World Bank, 2019a and 2019b).

Although we just discussed that transfers tend to be more progressive for female-type households, there are several programs in the Dominican Republic that have horizontal equity for the poor. These include all direct transfers, the flagship CCT, the subsidized health regime, and primary education. This country is very equitable in their spending on transfers for the poor according to gender.

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<sup>37</sup> Net enrollment rates are measures as the number of children within the target age cohort attending school divided by the total population of children within the target age cohort (Ratzlaff, 2018, p.398).

**Table 32: Progressivity and Horizontal Equity of Taxes and Transfers by Headship, Dominican Republic 2013 (Shares in Percent)**

	<b>Female Headed Households %total</b>	<b>Male Headed Households %total</b>	<b>Total</b>
<b>POPULATION</b>			
< US\$3.20 PPP	31.49%	68.51%	100.00%
US\$3.20 PPP - \$5.50 PPP	32.31%	67.69%	100.00%
US\$5.50 PPP +	30.27%	69.73%	100.00%
Total	30.86%	69.14%	100.00%
<b>MARKET INCOME</b>			
< US\$3.20 PPP	32.08%	67.92%	100.00%
US\$3.20 PPP - \$5.50 PPP	32.31%	67.69%	100.00%
US\$5.50 PPP +	26.28%	73.72%	100.00%
Total	26.85%	73.15%	100.00%
<b>Direct Taxes</b>			
< US\$3.20 PPP*	1.27%	98.73%	100.00%
US\$3.20 PPP - \$5.50 PPP*	25.47%	74.53%	100.00%
US\$5.50 PPP +*	19.06%	80.94%	100.00%
Total	19.07%	80.93%	100.00%
<b>Contributory Pensions (treated as a direct transfer)</b>			
< US\$3.20 PPP	12.38%	87.62%	100.00%
US\$3.20 PPP - \$5.50 PPP	25.25%	74.75%	100.00%
US\$5.50 PPP +	35.95%	64.05%	100.00%
Total	33.00%	67.00%	100.00%
<b>All Other Direct Transfers (excluding contributory pensions)</b>			
< US\$3.20 PPP *	31.72%	68.28%	100.00%
US\$3.20 PPP - \$5.50 PPP*	31.15%	68.85%	100.00%
US\$5.50 PPP + *	30.76%	69.24%	100.00%
Total	31.09%	68.91%	100.00%
<b>Flagship CCT</b>			
< US\$3.20 PPP *	32.21%	67.79%	100.00%
US\$3.20 PPP - \$5.50 PPP*	32.39%	67.61%	100.00%
US\$5.50 PPP + *	30.68%	69.32%	100.00%
Total	31.49%	68.51%	100.00%
<b>Health</b>			
<b>Subsidized Health Regime</b>			
< US\$3.20 PPP *	32.07%	67.93%	100.00%
US\$3.20 PPP - \$5.50 PPP*	34.36%	65.64%	100.00%
US\$5.50 PPP + *	31.38%	68.62%	100.00%
Total	32.30%	67.70%	100.00%
<b>Education</b>			
<b>Primary</b>			
< US\$3.20 PPP *	32.58%	67.42%	100.00%
US\$3.20 PPP - \$5.50 PPP*	33.86%	66.14%	100.00%
US\$5.50 PPP +	27.42%	72.58%	100.00%
Total	30.84%	69.16%	100.00%
<b>Lower Secondary</b>			
< US\$3.20 PPP	38.18%	61.82%	100.00%
US\$3.20 PPP - \$5.50 PPP	34.42%	65.58%	100.00%
US\$5.50 PPP +	35.21%	64.79%	100.00%
Total	35.62%	64.38%	100.00%
<b>Upper Secondary</b>			



< US\$3.20 PPP	33.51%	66.49%	100.00%
US\$3.20 PPP - \$5.50 PPP	42.36%	57.64%	100.00%
US\$5.50 PPP +	37.92%	62.08%	100.00%
Total	38.02%	61.98%	100.00%
<b>Tertiary</b>			
< US\$3.20 PPP	39.48%	60.52%	100.00%
US\$3.20 PPP - \$5.50 PPP	19.61%	80.39%	100.00%
US\$5.50 PPP +	34.36%	65.64%	100.00%
Total	33.18%	66.82%	100.00%
<b>Indirect Subsidies</b>			
< US\$3.20 PPP	36.06%	63.94%	100.00%
US\$3.20 PPP - \$5.50 PPP	35.63%	64.37%	100.00%
US\$5.50 PPP +	35.35%	64.65%	100.00%
Total	35.43%	64.57%	100.00%
<b>Indirect Taxes</b>			
< US\$3.20 PPP	29.13%	70.87%	100.00%
US\$3.20 PPP - \$5.50 PPP*	30.33%	69.67%	100.00%
US\$5.50 PPP +	21.99%	78.01%	100.00%
Total	22.54%	77.46%	100.00%
<b>Net Indirect Taxes</b>			
< US\$3.20 PPP	18.17%	81.83%	100.00%
US\$3.20 PPP - \$5.50 PPP	27.37%	72.63%	100.00%
US\$5.50 PPP +	19.70%	80.30%	100.00%
Total	19.97%	80.03%	100.00%

**Notes:**

\*Indicates that the program is horizontally equitable for that income group.

Interestingly, although the majority of the results for the Dominican Republic show that it is an extremely equal country, the progressivity and horizontal equity according to beneficiaries is not as equal as other countries, in particular Colombia. Table 33 shows that contributory pensions are progressive for women in absolute terms. Tertiary education is also progressive for women. Each gender receives within 2% of their share of the population for the other programs. Therefore, they are essentially equal in terms of spending on male versus female beneficiaries. The other surprising result for the beneficiaries is that there is not horizontal equity for most of the poorest income groups. Primary education has equal spending on poor male and females, but that is it. Poor and middle income male beneficiaries receive more of the contributory pensions than the female beneficiaries. Poor male beneficiaries also receive more spending for lower and upper secondary education.

**Table 33: Progressivity and Horizontal Equity of Taxes and Transfers by Beneficiary, Dominican Republic 2013 (Shares in Percent)**

	Female Beneficiaries % total	Male Beneficiaries % total	Total
<b>CONTRIBUTORY PENSIONS</b>			
<b>Population</b>			
< US\$3.20 PPP	9.70%	90.30%	100.00%
US\$3.20 PPP - \$5.50 PPP	28.74%	71.26%	100.00%
US\$5.50 PPP +	41.92%	58.08%	100.00%
Total	34.73%	65.27%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	9.05%	90.95%	100.00%
US\$3.20 PPP - \$5.50 PPP	22.34%	77.66%	100.00%
US\$5.50 PPP +	43.82%	56.18%	100.00%
Total	43.07%	56.93%	100.00%
<b>Contributory Pensions</b>			
< US\$3.20 PPP	6.10%	93.90%	100.00%
US\$3.20 PPP - \$5.50 PPP	17.82%	82.18%	100.00%
US\$5.50 PPP +*	41.71%	58.29%	100.00%
Total	38.35%	61.65%	100.00%
<b>EDUCATION</b>			
<b>PRIMARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	48.73%	51.27%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.26%	52.74%	100.00%
US\$5.50 PPP +	45.34%	54.66%	100.00%
Total	46.95%	53.05%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	48.29%	51.71%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.17%	52.83%	100.00%
US\$5.50 PPP +	44.83%	55.17%	100.00%
Total	45.64%	54.36%	100.00%
<b>Primary Education</b>			
< US\$3.20 PPP*	49.77%	50.23%	100.00%
US\$3.20 PPP - \$5.50 PPP*	47.54%	52.46%	100.00%
US\$5.50 PPP +*	45.88%	54.12%	100.00%
Total	47.69%	52.31%	100.00%
<b>LOWER SECONDARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	56.40%	43.60%	100.00%
US\$3.20 PPP - \$5.50 PPP	55.00%	45.00%	100.00%
US\$5.50 PPP +	52.41%	47.59%	100.00%
Total	53.91%	46.09%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	57.83%	42.17%	100.00%
US\$3.20 PPP - \$5.50 PPP	54.79%	45.21%	100.00%
US\$5.50 PPP +	50.87%	49.13%	100.00%
Total	51.83%	48.17%	100.00%
<b>Lower Secondary Education</b>			
< US\$3.20 PPP	52.58%	47.42%	100.00%
US\$3.20 PPP - \$5.50 PPP	50.87%	49.13%	100.00%
US\$5.50 PPP +*	52.43%	47.57%	100.00%
Total	52.08%	47.92%	100.00%

**UPPER SECONDARY EDUCATION****Population**

< US\$3.20 PPP	52.04%	47.96%	100.00%
US\$3.20 PPP - \$5.50 PPP	60.99%	39.01%	100.00%
US\$5.50 PPP +	54.88%	45.12%	100.00%
Total	55.57%	44.43%	100.00%

**Market Income**

< US\$3.20 PPP	51.78%	48.22%	100.00%
US\$3.20 PPP - \$5.50 PPP	60.30%	39.70%	100.00%
US\$5.50 PPP +	50.62%	49.38%	100.00%
Total	51.55%	48.45%	100.00%

**Upper Secondary Education**

< US\$3.20 PPP	48.23%	51.77%	100.00%
US\$3.20 PPP - \$5.50 PPP*	59.42%	40.58%	100.00%
US\$5.50 PPP +*	53.76%	46.24%	100.00%
Total	53.84%	46.16%	100.00%

**TERTIARY EDUCATION****Population**

< US\$3.20 PPP	71.42%	28.58%	100.00%
US\$3.20 PPP - \$5.50 PPP	65.95%	34.05%	100.00%
US\$5.50 PPP +	61.31%	38.69%	100.00%
Total	62.40%	37.60%	100.00%

**Market Income**

< US\$3.20 PPP	71.08%	28.92%	100.00%
US\$3.20 PPP - \$5.50 PPP	67.29%	32.71%	100.00%
US\$5.50 PPP +	60.99%	39.01%	100.00%
Total	61.25%	38.75%	100.00%

**Tertiary Education**

< US\$3.20 PPP	65.70%	34.30%	100.00%
US\$3.20 PPP - \$5.50 PPP	60.66%	39.34%	100.00%
US\$5.50 PPP +	58.52%	41.48%	100.00%
Total	59.01%	40.99%	100.00%

**Notes:**

\*Indicates that the program is horizontally equitable for that income group.

**Table 34: Coverage Rates of Education, Dominican Republic 2013***Panel A: Coverage Rate of Total Households*

	Coverage Rate of Total Households (Beneficiary Households/Total Number of Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Education												
Primary	50.49	23.61	47.21	22.58	1.0696	1.0456	45.14	22.38	42.27	21.71	1.0680	1.0304
Lower Secondary	16.69	11.56	14.81	9.68	1.1273	1.1946	16.29	10.85	13.03	9.25	1.2503	1.1729
Upper Secondary	17.47	16.16	15.89	12.35	1.0995	1.3085	15.04	14.88	14.12	11.28	1.0651	1.3188
Tertiary	3.86	6.41	2.25	5.07	1.7163	1.2645	3.11	5.23	2.29	4.98	1.3574	1.0488

*Panel B: Coverage Rates of Target Households*

Coverage Rate of Target Households (Beneficiary Target Households/Total Number of Target Households)												
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Education												
Primary	70.34	47.59	73.40	55.72	0.9583	0.8541	69.24	52.21	71.48	53.72	0.9687	0.9718
Lower Secondary	11.72	25.43	23.54	26.48	0.4980	0.9603	20.47	28.88	22.55	25.33	0.9080	1.1401
Upper Secondary	23.01	33.68	30.05	31.12	0.7657	1.0823	27.17	33.43	27.35	30.42	0.9935	1.0990
Tertiary	6.55	9.18	2.45	6.67	2.6700	1.3754	4.96	8.40	3.04	6.60	1.6325	1.2729

**v. MEXICO 2012**

In Mexico, pre and post fisc, male-type households experienced more inequality and poverty than female-type households (Tables 14 and 15). Therefore, it is not surprising that the differences in the headcount ratio in Table 16, Panel A show that female-type households are less likely to be poor pre and post fisc. However, when examining by how much poverty and inequality declines, the story gets more interesting. Male breadwinner households and male headed households had a greater reduction in the Gini and the squared poverty gap than their female counterparts, according to the absolute difference (Table 35). However, when a robustness check was completed using the relative change, female-type households had a greater reduction in the poverty gap squared than the male-type households. In the case of female breadwinner households, the squared poverty gap had a percent change of 33.19 while the male breadwinner households' percent change was 28.11. For female headed households, the percent change was 37.75, while it was 30.07 for those that were male headed. This shows that in the case of Mexico, different indicators tell different stories. Since one indicator is not better than the other, it is important to keep this in mind when assessing the results. This is also a good example of why it is helpful to perform such robustness tests whenever possible. Since absolute difference was used to

assess the changes in poverty and inequality for the other countries in this study, that is what will be reported on below.

Which interventions helped the poverty rates of male-type households decline? Table 36 shows that the male-type households have better coverage for many government interventions, including “all direct transfers,” the CCT (Oportunidades), and three of the five health insurance programs. Additionally, male headed households have a larger proportion paying direct and indirect taxes, and they have better coverage for contributory pensions and indirect subsidies. Therefore, the decline in poverty for male-type households could be attributed to the better coverage of male-type households. Table 37 shows that the marginal contributions for many programs were larger for male-type households than for female-type households. This is another confirmation of the decline in poverty for male-type households. The programs that contributed the most to poverty reduction include the flagship CCT, the non-contributory health insurance regime – SSA, and primary education. Female-type households have better coverage in contributory and non-contributory pensions as well as two contributory health regimes. One of the contributory health regimes is the Institute of Safety and Social Services for Government Workers (ISSSTE – Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado). Perhaps more female breadwinners work for the government and are therefore enrolled in this program. Similar to the other countries assessed thus far, female-type households have less coverage than their male counterparts for “all direct transfers” and the CCT, Oportunidades.

**Table 35: Poverty and Inequality Pre (Market Income (MI)) and Post Fisc (Consumable Income (CI)), Mexico 2012**

	Gini Coefficient	Headcount Index (%)	Squared Poverty Gap (%)
<b>Total Country</b>			
MI	.5210	35.6	9.0
CI	.4863	33.4	6.2
Absolute Difference (CI - MI)	-.0347	-.0217	-.0281
<b>Breadwinner Households</b>			
<i>Female</i>			
MI	.4903	30.9	7.2
CI	.4605	26.8	4.8
Absolute Difference (CI - MI)	-.0298	-.0413	-.0240
<i>Male</i>			
MI	0.5251	36.7	9.3
CI	0.4856	36.1	6.7
Absolute Difference (CI - MI)	-.0395	-.0054	-.0261
<i>Household Headed Households</i>			
<i>Female</i>			
MI	0.4813	31.4	6.9
CI	0.4557	26.5	4.3
Absolute Difference (CI - MI)	-.0255	-.0495	-.0259
<i>Male</i>			
MI	0.5314	36.7	9.5
CI	0.4941	35.3	6.7
Absolute Difference (CI - MI)	-.0372	-.0142	-.0287

**Table 36: Coverage Rates of Taxes and Transfers, Mexico 2012**

	Coverage Rate of Total Households (Beneficiary Households/Total Number of Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Direct Taxes	4.05	44.41	2.48	42.05	1.6358	1.0561	0.79	32.74	2.96	41.30	0.2658	0.7927
Contributory Pensions	12.31	16.81	6.01	8.92	2.0474	1.8853	21.19	21.15	7.87	10.97	2.6936	1.9286
All Direct Transfers (excluding contributory pensions)	60.70	25.68	67.23	28.52	0.9028	0.9004	60.79	29.22	66.35	28.20	0.9162	1.0360
Non-contributory Pension	18.50	6.89	9.15	4.76	2.0224	1.4462	20.23	10.41	12.36	5.75	1.6362	1.8112
Flagship CCT	51.76	14.68	56.13	18.24	0.9223	0.8051	46.44	15.02	54.56	17.55	0.8511	0.8556
Health												
Non-contributory Health (IMSS-Oportunidades)	7.54	3.31	12.11	4.38	0.6223	0.7543	6.81	2.77	10.98	4.27	0.6197	0.6496
Contributory Health (IMSS)	17.34	48.16	10.88	43.63	1.5943	1.1038	17.80	45.24	13.42	44.22	1.3267	1.0230
Contributory Health (ISSSTE)	5.95	14.68	0.90	7.75	6.6312	1.8943	3.93	11.72	2.36	9.06	1.6690	1.2936
Non-contributory Health (Seguro Popular)	79.07	47.77	83.40	51.37	0.9480	0.9300	76.33	49.23	80.84	49.40	0.9441	0.9966
Non-contributory Health (SSA)	79.74	46.21	87.15	52.55	0.9149	0.8793	79.34	48.68	83.23	50.12	0.9534	0.9714
Indirect Subsidies	100.00	100.00	100.00	100.00	1.0000	1.0000	99.58	99.36	99.95	99.96	0.9962	0.9940
Indirect Taxes	100.00	100.00	99.88	99.98	1.0012	1.0002	99.58	99.21	99.86	99.90	0.9972	0.9930

The marginal contributions in Table 37 further show that all contributory health regimes were generally pro-female. The biggest changes in poverty were for the beneficiary variables, while the marginal contributions for the breadwinners and headship households were generally fairly small. Also, although the marginal contributions might have been small, there was more variance in which programs contributed in a greater way to the poverty reduction by gender-type as compared to other countries in the study.

**Table 37:** Marginal Contribution of Interventions on Poverty and Inequality Indicators, Market Income (MI), Consumable Income (CI), and Consumable Income – Transfer/Pensions (CI-B) or Consumable Income + Education/Health (CI+B), Mexico 2012

*Panel A: Breadwinner Households*

		Female Breadwinners						Male Breadwinners					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
US\$5.50 PPP per day	Theil Index	0.4440	0.3977	-0.0462	0.3791	-0.0186	0.4019	0.5566	0.4695	-0.0871	0.4611	-0.0084	0.0969
	Headcount Index	30.9%	26.8%	-0.0413	29.8%	0.0296	-0.7164	36.7%	36.1%	-0.0054	37.2%	0.0103	-1.9111
	Squared Poverty Gap	7.2%	4.8%	-0.0240	5.5%	0.0062	-0.2598	9.3%	6.7%	-0.0261	6.9%	0.0025	-0.0972
<b>DIRECT TRANSFERS</b>													
<b>Non-Contributory Pension</b>													
US\$5.50 PPP per day	Theil Index	0.4440	0.3977	-0.0462	0.4012	0.0034	-0.0746	0.5566	0.4695	-0.0871	0.4717	0.0022	-0.0258
	Headcount Index	30.9%	26.8%	-0.0413	27.2%	0.0036	-0.0874	36.7%	36.1%	-0.0054	36.5%	0.0040	-0.7342
	Squared Poverty Gap	7.2%	4.8%	-0.0240	5.1%	0.0024	-0.0979	9.3%	6.7%	-0.0261	6.8%	0.0013	-0.0499
<b>Flagship CCT</b>													
US\$5.50 PPP per day	Theil Index	0.4440	0.3977	-0.0462	0.4128	0.0151	-0.3256	0.5566	0.4695	-0.0871	0.4916	0.0221	-0.2538
	Headcount Index	30.9%	26.8%	-0.0413	28.4%	0.0161	-0.3887	36.7%	36.1%	-0.0054	37.7%	0.0154	-2.8430
	Squared Poverty Gap	7.2%	4.8%	-0.0240	6.1%	0.0128	-0.5345	9.3%	6.7%	-0.0261	8.5%	0.0183	-0.7039
<b>HEALTH</b>													
<b>Non-Contributory (IMSS-Oportunidades)</b>													
US\$5.50 PPP per day	Theil Index	0.4440	0.3977	-0.0462	0.3970	-0.0007	0.0153	0.5566	0.4695	-0.0871	0.4680	-0.0015	0.0175
	Headcount Index	30.9%	26.8%	-0.0413	26.7%	-0.0008	0.0190	36.7%	36.1%	-0.0054	36.1%	-0.0003	0.0628
	Squared Poverty Gap	7.2%	4.8%	-0.0240	4.8%	-0.0005	0.0226	9.3%	6.7%	-0.0261	6.5%	-0.0013	0.0486
<b>Contributory Regime (IMSS)</b>													
US\$5.50 PPP per day	Theil Index	0.4440	0.3977	-0.0462	0.3903	-0.0074	0.1607	0.5566	0.4695	-0.0871	0.4610	-0.0085	0.0972
	Headcount Index	30.9%	26.8%	-0.0413	26.0%	-0.0079	0.1903	36.7%	36.1%	-0.0054	34.8%	-0.0134	2.4677
	Squared Poverty Gap	7.2%	4.8%	-0.0240	4.6%	-0.0022	0.0930	9.3%	6.7%	-0.0261	6.4%	-0.0021	0.0825
<b>Contributory Regime (ISSSTE)</b>													
US\$5.50 PPP per day	Theil Index	0.4440	0.3977	-0.0462	0.3967	-0.0010	0.0222	0.5566	0.4695	-0.0871	0.4692	-0.0003	0.0029
	Headcount Index	30.9%	26.8%	-0.0413	26.7%	-0.0007	0.0158	36.7%	36.1%	-0.0054	35.9%	-0.0026	0.4795
	Squared Poverty Gap	7.2%	4.8%	-0.0240	4.8%	-0.0005	0.0202	9.3%	6.7%	-0.0261	6.6%	-0.0002	0.0060
<b>Non-Contributory Regime (Seguro Popular de Salud)</b>													
US\$5.50 PPP per day	Theil Index	0.4440	0.3977	-0.0462	0.3911	-0.0066	0.1429	0.5566	0.4695	-0.0871	0.4599	-0.0096	0.1105
	Headcount Index	30.9%	26.8%	-0.0413	26.1%	-0.0073	0.1777	36.7%	36.1%	-0.0054	35.1%	-0.0101	1.8646
	Squared Poverty Gap	7.2%	4.8%	-0.0240	4.4%	-0.0045	0.1869	9.3%	6.7%	-0.0261	6.0%	-0.0063	0.2425
<b>Non-Contributory Regime (SSA)</b>													
US\$5.50 PPP per day	Theil Index	0.4440	0.3977	-0.0462	0.3861	-0.0116	0.2504	0.5566	0.4695	-0.0871	0.4524	-0.0171	0.1959
	Headcount Index	30.9%	26.8%	-0.0413	25.7%	-0.0116	0.2799	36.7%	36.1%	-0.0054	34.3%	-0.0180	3.3207
	Squared Poverty Gap	7.2%	4.8%	-0.0240	4.0%	-0.0082	0.3418	9.3%	6.7%	-0.0261	5.5%	-0.0113	0.4350
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4440	0.3977	-0.0462	0.3779	-0.0198	0.4290	0.5566	0.4695	-0.0871	0.4440	-0.0255	0.2930
	Headcount Index	30.9%	26.8%	-0.0413	25.1%	-0.0169	0.4096	36.7%	36.1%	-0.0054	33.5%	-0.0261	4.8158



	Squared Poverty Gap	7.2%	4.8%	-0.0240	3.6%	-0.0124	0.5151	9.3%	6.7%	-0.0261	5.1%	-0.0160	0.6130
<b>Lower Secondary Education</b>													
	Theil Index	0.4440	0.3977	-0.0462	0.3862	-0.0116	0.2501	0.5566	0.4695	-0.0871	0.4539	-0.0156	0.1786
US\$5.50 PPP per day	Headcount Index	30.9%	26.8%	-0.0413	25.1%	-0.0168	0.4063	36.7%	36.1%	-0.0054	33.9%	-0.0223	4.1168
	Squared Poverty Gap	7.2%	4.8%	-0.0240	4.2%	-0.0059	0.2440	9.3%	6.7%	-0.0261	5.8%	-0.0084	0.3209
<b>Upper Secondary Education</b>													
	Theil Index	0.4440	0.3977	-0.0462	0.3912	-0.0065	0.1414	0.5566	0.4695	-0.0871	0.4629	-0.0066	0.0761
US\$5.50 PPP per day	Headcount Index	30.9%	26.8%	-0.0413	26.0%	-0.0080	0.1944	36.7%	36.1%	-0.0054	34.9%	-0.0122	2.2509
	Squared Poverty Gap	7.2%	4.8%	-0.0240	4.6%	-0.0026	0.1089	9.3%	6.7%	-0.0261	6.4%	-0.0023	0.0891
<b>Tertiary Education</b>													
	Theil Index	0.4440	0.3977	-0.0462	0.3947	-0.0030	0.0644	0.5566	0.4695	-0.0871	0.4661	-0.0034	0.0388
US\$5.50 PPP per day	Headcount Index	30.9%	26.8%	-0.0413	26.1%	-0.0074	0.1786	36.7%	36.1%	-0.0054	35.4%	-0.0069	1.2795
	Squared Poverty Gap	7.2%	4.8%	-0.0240	4.7%	-0.0014	0.0593	9.3%	6.7%	-0.0261	6.6%	-0.0009	0.0334

### Panel B: Headship Households

		Female Headed Households						Male Headed Households					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.3817	-0.0240	0.6116	0.5714	0.4883	-0.0832	0.4801	-0.0082	0.0986
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	29.9%	0.0346	-0.6994	36.7%	35.3%	-0.0142	37.0%	0.0171	-1.2051
	Squared Poverty Gap	6.9%	4.3%	-0.0259	5.1%	0.0084	-0.3222	9.5%	6.7%	-0.0287	7.1%	0.0042	-0.1478
<b>DIRECT TRANSFERS</b>													
<b>Non-Contributory Pension</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.4099	0.0042	-0.1079	0.5714	0.4883	-0.0832	0.4914	0.0032	-0.0379
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	27.3%	0.0086	-0.1747	36.7%	35.3%	-0.0142	35.6%	0.0033	-0.2300
	Squared Poverty Gap	6.9%	4.3%	-0.0259	4.5%	0.0022	-0.0842	9.5%	6.7%	-0.0287	6.9%	0.0020	-0.0686
<b>Flagship CCT</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.4214	0.0157	-0.4003	0.5714	0.4883	-0.0832	0.5097	0.0214	-0.2580
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	28.0%	0.0153	-0.3082	36.7%	35.3%	-0.0142	36.8%	0.0152	-1.0689
	Squared Poverty Gap	6.9%	4.3%	-0.0259	5.5%	0.0119	-0.4597	9.5%	6.7%	-0.0287	8.5%	0.0182	-0.6350
<b>HEALTH</b>													
<b>Non-Contributory (IMSS-Oportunidades)</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.4050	-0.0007	0.0178	0.5714	0.4883	-0.0832	0.4868	-0.0015	0.0175
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	26.3%	-0.0013	0.0256	36.7%	35.3%	-0.0142	35.2%	-0.0002	0.0148
	Squared Poverty Gap	6.9%	4.3%	-0.0259	4.2%	-0.0005	0.0193	9.5%	6.7%	-0.0287	6.6%	-0.0012	0.0419
<b>Contributory Regime (IMSS)</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.3986	-0.0071	0.1812	0.5714	0.4883	-0.0832	0.4794	-0.0089	0.1068
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	25.6%	-0.0084	0.1694	36.7%	35.3%	-0.0142	34.0%	-0.0127	0.8941
	Squared Poverty Gap	6.9%	4.3%	-0.0259	4.1%	-0.0018	0.0698	9.5%	6.7%	-0.0287	6.5%	-0.0022	0.0771
<b>Contributory Regime (ISSSTE)</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.4052	-0.0005	0.0129	0.5714	0.4883	-0.0832	0.4877	-0.0006	0.0072
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	26.4%	-0.0008	0.0154	36.7%	35.3%	-0.0142	35.0%	-0.0024	0.1707

	Squared Poverty Gap	6.9%	4.3%	-0.0259	4.2%	-0.0003	0.0124	9.5%	6.7%	-0.0287	6.7%	-0.0002	0.0078
<b>Non-Contributory Regime (Seguro Popular de Salud)</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.3990	-0.0067	0.1701	0.5714	0.4883	-0.0832	0.4788	-0.0095	0.1139
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	25.4%	-0.0106	0.2136	36.7%	35.3%	-0.0142	34.4%	-0.0091	0.6407
	Squared Poverty Gap	6.9%	4.3%	-0.0259	3.9%	-0.0041	0.1574	9.5%	6.7%	-0.0287	6.0%	-0.0063	0.2190
<b>Non-Contributory Regime (SSA)</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.3937	-0.0120	0.3066	0.5714	0.4883	-0.0832	0.4716	-0.0166	0.2001
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	24.7%	-0.0174	0.3523	36.7%	35.3%	-0.0142	33.6%	-0.0163	1.1518
	Squared Poverty Gap	6.9%	4.3%	-0.0259	3.5%	-0.0074	0.2856	9.5%	6.7%	-0.0287	5.5%	-0.0113	0.3922
<b>EDUCATION</b>													
<b>Primary Education</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.3862	-0.0195	0.4981	0.5714	0.4883	-0.0832	0.4632	-0.0251	0.3017
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	24.2%	-0.0225	0.4543	36.7%	35.3%	-0.0142	32.9%	-0.0233	1.6418
	Squared Poverty Gap	6.9%	4.3%	-0.0259	3.1%	-0.0114	0.4381	9.5%	6.7%	-0.0287	5.1%	-0.0158	0.5508
<b>Lower Secondary Education</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.3943	-0.0114	0.2916	0.5714	0.4883	-0.0832	0.4732	-0.0151	0.1817
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	24.9%	-0.0159	0.3207	36.7%	35.3%	-0.0142	33.1%	-0.0213	1.5009
	Squared Poverty Gap	6.9%	4.3%	-0.0259	3.8%	-0.0050	0.1926	9.5%	6.7%	-0.0287	5.9%	-0.0082	0.2869
<b>Upper Secondary Education</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.3998	-0.0059	0.1515	0.5714	0.4883	-0.0832	0.4814	-0.0069	0.0825
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	25.5%	-0.0100	0.2022	36.7%	35.3%	-0.0142	34.2%	-0.0110	0.7758
	Squared Poverty Gap	6.9%	4.3%	-0.0259	4.1%	-0.0016	0.0601	9.5%	6.7%	-0.0287	6.4%	-0.0027	0.0928
<b>Tertiary Education</b>													
	Theil Index	0.4449	0.4057	-0.0392	0.4025	-0.0032	0.0814	0.5714	0.4883	-0.0832	0.4841	-0.0042	0.0501
US\$5.50 PPP per day	Headcount Index	31.4%	26.5%	-0.0495	25.8%	-0.0070	0.1420	36.7%	35.3%	-0.0142	34.5%	-0.0071	0.5032
	Squared Poverty Gap	6.9%	4.3%	-0.0259	4.1%	-0.0013	0.0500	9.5%	6.7%	-0.0287	6.6%	-0.0009	0.0312

### Panel C: Beneficiaries

	Female Beneficiaries							Male Beneficiaries					
	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	
<b>CONTRIBUTORY PENSIONS</b>													
	Theil Index	0.3622	0.3627	0.0005	0.3335	-0.0292	-58.0632	0.3956	0.3532	-0.0424	0.3625	0.0093	-0.2198
US\$5.50 PPP per day	Headcount Index	22.1%	7.3%	-0.1481	23.8%	0.1651	-1.1145	29.3%	9.0%	-0.2023	30.1%	0.2106	-1.0410
	Squared Poverty Gap	4.6%	0.7%	-0.0385	4.4%	0.0367	-0.9531	6.6%	1.0%	-0.0559	6.4%	0.0543	-0.9712
<b>DIRECT TRANSFERS</b>													
<b>Non-Contributory Pension</b>													
	Theil Index	0.3949	0.3017	-0.0932	0.3599	0.0582	-0.6245	0.3709	0.2476	-0.1233	0.2969	0.0493	-0.3996
US\$5.50 PPP per day	Headcount Index	46.0%	31.8%	-0.1423	41.1%	0.0927	-0.6518	59.6%	41.7%	-0.1783	50.6%	0.0885	-0.4964
	Squared Poverty Gap	13.5%	4.4%	-0.0910	8.5%	0.0411	-0.4515	17.3%	5.3%	-0.1197	10.1%	0.0481	-0.4016
<b>HEALTH</b>													
<b>Non-Contributory (IMSS-Oportunidades)</b>													
	Theil Index	0.4106	0.2917	-0.1189	0.2604	-0.0313	0.2631	0.4045	0.2753	-0.1292	0.2446	-0.0307	0.2378
US\$5.50 PPP per day	Headcount Index	69.8%	63.9%	-0.0597	62.5%	-0.0139	0.2338	71.2%	66.5%	-0.0474	65.7%	-0.0073	0.1548

	Squared Poverty Gap	26.9%	17.2%	-0.0967	14.0%	-0.0320	0.3314	27.9%	17.7%	-0.1023	14.4%	-0.0330	0.3224
<b>Contributory Regime (IMSS)</b>													
	Theil Index	0.3821	0.3351	-0.0471	0.3131	-0.0219	0.4660	0.4125	0.3523	-0.0602	0.3309	-0.0214	0.3558
US\$5.50 PPP per day	Headcount Index	14.0%	12.8%	-0.0129	9.8%	-0.0300	2.3340	13.7%	13.6%	-0.0004	10.7%	-0.0292	71.8816
	Squared Poverty Gap	1.9%	1.2%	-0.0071	0.6%	-0.0052	0.7322	1.9%	1.3%	-0.0061	0.8%	-0.0051	0.8356
<b>Contributory Regime (ISSSTE)</b>													
	Theil Index	0.3464	0.3051	-0.0412	0.2850	-0.0201	0.4873	0.4973	0.3754	-0.1219	0.3532	-0.0221	0.1816
US\$5.50 PPP per day	Headcount Index	9.6%	7.1%	-0.0253	4.0%	-0.0315	1.2465	7.2%	5.7%	-0.0146	2.8%	-0.0289	1.9801
	Squared Poverty Gap	1.8%	0.7%	-0.0110	0.3%	-0.0035	0.3171	1.5%	0.5%	-0.0104	0.2%	-0.0025	0.2375
<b>Non-Contributory Regime (Seguro Popular de Salud)</b>													
	Theil Index	0.3921	0.3193	-0.0728	0.3046	-0.0146	0.2010	0.3831	0.3094	-0.0737	0.2944	-0.0150	0.2037
US\$5.50 PPP per day	Headcount Index	54.8%	51.0%	-0.0383	48.9%	-0.0210	0.5479	55.9%	52.9%	-0.0299	51.0%	-0.0191	0.6399
	Squared Poverty Gap	14.9%	10.1%	-0.0482	8.9%	-0.0121	0.2520	15.5%	10.6%	-0.0487	9.3%	-0.0130	0.2659
<b>Non-Contributory Regime (SSA)</b>													
	Theil Index	0.3768	0.3047	-0.0720	0.2789	-0.0258	0.3582	0.3455	0.2713	-0.0743	0.2463	-0.0250	0.3364
US\$5.50 PPP per day	Headcount Index	57.0%	53.7%	-0.0326	50.3%	-0.0349	1.0693	58.3%	55.8%	-0.0250	52.1%	-0.0371	1.4795
	Squared Poverty Gap	15.8%	10.9%	-0.0491	8.7%	-0.0225	0.4585	16.5%	11.4%	-0.0507	9.0%	-0.0238	0.4703
<b>EDUCATION</b>													
<b>Primary Education</b>													
	Theil Index	0.4176	0.3366	-0.0810	0.2835	-0.0531	0.6554	0.4637	0.3879	-0.0758	0.3277	-0.0602	0.7934
US\$5.50 PPP per day	Headcount Index	48.4%	48.1%	-0.0037	42.3%	-0.0577	15.7495	51.2%	50.1%	-0.0105	43.4%	-0.0674	6.4379
	Squared Poverty Gap	13.7%	9.9%	-0.0378	5.9%	-0.0405	1.0705	14.2%	10.5%	-0.0362	6.2%	-0.0431	1.1900
<b>Lower Secondary Education</b>													
	Theil Index	0.4175	0.3282	-0.0893	0.2784	-0.0498	0.5575	0.4505	0.3512	-0.0993	0.3029	-0.0483	0.4859
US\$5.50 PPP per day	Headcount Index	47.5%	45.1%	-0.0236	34.9%	-0.1023	4.3352	41.9%	40.5%	-0.0141	32.0%	-0.0850	6.0213
	Squared Poverty Gap	12.1%	8.0%	-0.0413	4.8%	-0.0322	0.7787	11.3%	7.1%	-0.0415	4.2%	-0.0290	0.6978
<b>Upper Secondary Education</b>													
	Theil Index	0.4075	0.3170	-0.0906	0.2866	-0.0304	0.3355	0.4131	0.3465	-0.0666	0.3153	-0.0312	0.4686
US\$5.50 PPP per day	Headcount Index	30.0%	26.5%	-0.0355	19.9%	-0.0661	1.8610	29.5%	25.7%	-0.0377	19.5%	-0.0622	1.6497
	Squared Poverty Gap	5.9%	3.3%	-0.0261	2.1%	-0.0120	0.4610	6.2%	3.7%	-0.0248	2.3%	-0.0139	0.5588
<b>Tertiary Education</b>													
	Theil Index	0.3019	0.2630	-0.0389	0.2252	-0.0378	0.9708	0.3962	0.3598	-0.0365	0.3081	-0.0517	1.4172
US\$5.50 PPP per day	Headcount Index	10.3%	6.6%	-0.0367	2.7%	-0.0395	1.0762	13.3%	11.0%	-0.0221	4.8%	-0.0623	2.8226
	Squared Poverty Gap	2.0%	0.6%	-0.0144	0.2%	-0.0039	0.2733	2.1%	1.1%	-0.0101	0.4%	-0.0068	0.6690

As Table 38 will show, male headed households bear the burden of taxation for direct taxes, which are regressive. The burden of indirect taxes is shared by both female and male headed households, but male headed households bear the burden of net indirect taxes, although not by much. Female headed households receive the benefits of government expenditures for the majority of the transfer programs. These include contributory pensions, all direct transfers, non-contributory pensions, the contributory health regime ISSSTE, and upper secondary and tertiary education. Education is a little more divided between genders compared to Brazil, Colombia, and the Dominican Republic. This is confirmed by examining the education coverage in Table 29. Male-type households have better coverage than female-type households in most cases, especially among the poor. The only program that is progressive for male headed households is the non-contributory health regime IMSS-Oportunidades.

Taking gender into account, horizontal equity will show us how equitable government spending is on public education, health, pensions, and other government transfers. Table 38 shows that many of the programs in Mexico are horizontally equitable among the poor. The programs include the CCT, the non-contributory health regime Seguro Popular de Salud, the non-contributory health regime SSA, primary education, lower secondary education, and upper secondary education.

**Table 38: Progressivity and Horizontal Equity of Taxes and Transfers by Headship, Mexico 2012 (Shares in Percent)**

	<b>Female Headed Households %total</b>	<b>Male Headed Households %total</b>	<b>Total</b>
<b>POPULATION</b>			
< US\$3.20 PPP	16.61%	83.39%	100.00%
US\$3.20 PPP - \$5.50 PPP	21.14%	78.86%	100.00%
US\$5.50 PPP +	22.77%	77.23%	100.00%
Total	21.39%	78.61%	100.00%
<b>MARKET INCOME</b>			
< US\$3.20 PPP	17.36%	82.64%	100.00%
US\$3.20 PPP - \$5.50 PPP	21.33%	78.67%	100.00%
US\$5.50 PPP +	21.74%	78.26%	100.00%
Total	21.59%	78.41%	100.00%
<b>Direct Taxes</b>			
< US\$3.20 PPP	11.31%	88.69%	100.00%
US\$3.20 PPP - \$5.50 PPP	17.73%	82.27%	100.00%
US\$5.50 PPP +	15.97%	84.03%	100.00%
Total	15.98%	84.02%	100.00%
<b>Contributory Pensions (treated as a direct transfer)</b>			
< US\$3.20 PPP	31.57%	68.43%	100.00%
US\$3.20 PPP - \$5.50 PPP	34.83%	65.17%	100.00%
US\$5.50 PPP +	33.01%	66.99%	100.00%
Total	33.09%	66.91%	100.00%
<b>All Other Direct Transfers (excluding contributory pensions)</b>			
< US\$3.20 PPP	15.22%	84.78%	100.00%
US\$3.20 PPP - \$5.50 PPP	25.20%	74.80%	100.00%
US\$5.50 PPP +	31.53%	68.47%	100.00%
Total	23.87%	76.13%	100.00%
<b>Non-contributory Pension</b>			
< US\$3.20 PPP	23.90%	76.10%	100.00%
US\$3.20 PPP - \$5.50 PPP	32.77%	67.23%	100.00%
US\$5.50 PPP +	40.40%	59.60%	100.00%
Total	33.77%	66.23%	100.00%
<b>Flagship CCT</b>			
< US\$3.20 PPP *	15.13%	84.87%	100.00%
US\$3.20 PPP - \$5.50 PPP	24.29%	75.71%	100.00%
US\$5.50 PPP +	28.63%	71.37%	100.00%
Total	20.98%	79.02%	100.00%
<b>Health</b>			
<b>Non-contributory Health Regime (IMSS-Oportunidades)</b>			
< US\$3.20 PPP	9.96%	90.04%	100.00%
US\$3.20 PPP - \$5.50 PPP	24.20%	75.80%	100.00%
US\$5.50 PPP +	16.87%	83.13%	100.00%
Total	14.86%	85.14%	100.00%
<b>Contributory Health Regime (IMSS)</b>			
< US\$3.20 PPP	20.69%	79.31%	100.00%
US\$3.20 PPP - \$5.50 PPP*	21.79%	78.21%	100.00%
US\$5.50 PPP + *	21.06%	78.94%	100.00%
Total	21.12%	78.88%	100.00%
<b>Contributory Health Regime (ISSSTE)</b>			
< US\$3.20 PPP	27.82%	72.18%	100.00%

US\$3.20 PPP - \$5.50 PPP*	20.67%	79.33%	100.00%
US\$5.50 PPP + *	24.41%	75.59%	100.00%
Total	24.33%	75.67%	100.00%
<b>Non-contributory Health Regime (Seguro Popular)</b>			
< US\$3.20 PPP *	15.71%	84.29%	100.00%
US\$3.20 PPP - \$5.50 PPP*	19.42%	80.58%	100.00%
US\$5.50 PPP + *	22.69%	77.31%	100.00%
Total	19.78%	80.22%	100.00%
<b>Non-contributory Health Regime (SSA)</b>			
< US\$3.20 PPP *	15.81%	84.19%	100.00%
US\$3.20 PPP - \$5.50 PPP*	19.36%	80.64%	100.00%
US\$5.50 PPP + *	23.67%	76.33%	100.00%
Total	20.08%	79.92%	100.00%
<b>Education</b>			
<b>Primary</b>			
< US\$3.20 PPP *	16.79%	83.21%	100.00%
US\$3.20 PPP - \$5.50 PPP	23.17%	76.83%	100.00%
US\$5.50 PPP +	20.74%	79.26%	100.00%
Total	20.21%	79.79%	100.00%
<b>Lower Secondary</b>			
< US\$3.20 PPP *	15.30%	84.70%	100.00%
US\$3.20 PPP - \$5.50 PPP*	21.59%	78.41%	100.00%
US\$5.50 PPP + *	23.33%	76.67%	100.00%
Total	21.03%	78.97%	100.00%
<b>Upper Secondary</b>			
< US\$3.20 PPP *	16.03%	83.97%	100.00%
US\$3.20 PPP - \$5.50 PPP	28.72%	71.28%	100.00%
US\$5.50 PPP + *	23.45%	76.55%	100.00%
Total	23.54%	76.46%	100.00%
<b>Tertiary</b>			
< US\$3.20 PPP	25.85%	74.15%	100.00%
US\$3.20 PPP - \$5.50 PPP*	20.88%	79.12%	100.00%
US\$5.50 PPP +	27.39%	72.61%	100.00%
Total	26.65%	73.35%	100.00%
<b>Indirect Subsidies</b>			
< US\$3.20 PPP	20.81%	79.19%	100.00%
US\$3.20 PPP - \$5.50 PPP*	21.79%	78.21%	100.00%
US\$5.50 PPP + *	22.09%	77.91%	100.00%
Total	21.98%	78.02%	100.00%
<b>Indirect Taxes</b>			
< US\$3.20 PPP *	18.42%	81.58%	100.00%
US\$3.20 PPP - \$5.50 PPP*	21.78%	78.22%	100.00%
US\$5.50 PPP + *	21.13%	78.87%	100.00%
Total	21.09%	78.91%	100.00%
<b>Net Indirect Taxes</b>			
< US\$3.20 PPP	27.76%	72.24%	100.00%
US\$3.20 PPP - \$5.50 PPP*	21.88%	78.12%	100.00%
US\$5.50 PPP +	19.24%	80.76%	100.00%
Total	18.87%	81.13%	100.00%

**Notes:**

\*Indicates that the program is horizontally equitable for that income group.

Among beneficiaries, the only programs that are progressive are the contributory pensions and the non-contributory pensions. Both programs are progressive for female

beneficiaries. There is horizontal equity among the poor in many instances. This includes primary education, lower secondary education, the non-contributory health regime IMSS-Oportunidades, the contributory health regime IMSS, the contributory health regime ISSSTE, the non-contributory health regime Seguro Popular de Salud, and the non-contributory health regime SSA. Both the contributory and non-contributory pensions provide poor women with more benefits than poor men (Table 39).

**Table 39:** Progressivity and Horizontal Equity of Taxes and Transfers by Beneficiary, Mexico 2012 (Shares in Percent)

	<b>Female Beneficiaries</b>	<b>Male Beneficiaries</b>	<b>Total</b>
	<b>% total</b>	<b>% total</b>	
<b>CONTRIBUTORY PENSIONS</b>			
<b>Population</b>			
< US\$3.20 PPP	37.90%	62.10%	100.00%
US\$3.20 PPP - \$5.50 PPP	41.85%	58.15%	100.00%
US\$5.50 PPP +	49.33%	50.67%	100.00%
Total	46.93%	53.07%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	34.82%	65.18%	100.00%
US\$3.20 PPP - \$5.50 PPP	38.56%	61.44%	100.00%
US\$5.50 PPP +	51.68%	48.32%	100.00%
Total	51.24%	48.76%	100.00%
<b>Contributory Pensions</b>			
< US\$3.20 PPP	41.13%	58.87%	100.00%
US\$3.20 PPP - \$5.50 PPP	28.19%	71.81%	100.00%
US\$5.50 PPP +*	51.05%	48.95%	100.00%
Total	49.52%	50.48%	100.00%
<b>NON-CONTRIBUTORY PENSION</b>			
<b>Population</b>			
< US\$3.20 PPP	46.41%	53.59%	100.00%
US\$3.20 PPP - \$5.50 PPP	49.86%	50.14%	100.00%
US\$5.50 PPP +	61.37%	38.63%	100.00%
Total	54.33%	45.67%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	44.49%	55.51%	100.00%
US\$3.20 PPP - \$5.50 PPP	50.25%	49.75%	100.00%
US\$5.50 PPP +	64.63%	35.37%	100.00%
Total	61.27%	38.73%	100.00%
<b>Non-Contributory Pension</b>			
< US\$3.20 PPP	49.60%	50.40%	100.00%
US\$3.20 PPP - \$5.50 PPP	53.41%	46.59%	100.00%
US\$5.50 PPP +*	61.55%	38.45%	100.00%
Total	56.39%	43.61%	100.00%
<b>EDUCATION</b>			

**PRIMARY EDUCATION****Population**

< US\$3.20 PPP	49.81%	50.19%	100.00%
US\$3.20 PPP - \$5.50 PPP	48.38%	51.62%	100.00%
US\$5.50 PPP +	51.87%	48.13%	100.00%
Total	50.52%	49.48%	100.00%

**Market Income**

< US\$3.20 PPP	49.81%	50.19%	100.00%
US\$3.20 PPP - \$5.50 PPP	48.40%	51.60%	100.00%
US\$5.50 PPP +	51.38%	48.62%	100.00%
Total	50.92%	49.08%	100.00%

**Primary Education**

< US\$3.20 PPP*	49.84%	50.16%	100.00%
US\$3.20 PPP - \$5.50 PPP*	48.21%	51.79%	100.00%
US\$5.50 PPP +*	52.34%	47.66%	100.00%
Total	50.56%	49.44%	100.00%

**LOWER SECONDARY EDUCATION****Population**

< US\$3.20 PPP	52.65%	47.35%	100.00%
US\$3.20 PPP - \$5.50 PPP	55.92%	44.08%	100.00%
US\$5.50 PPP +	48.63%	51.37%	100.00%
Total	51.16%	48.84%	100.00%

**Market Income**

< US\$3.20 PPP	52.50%	47.50%	100.00%
US\$3.20 PPP - \$5.50 PPP	56.01%	43.99%	100.00%
US\$5.50 PPP +	46.44%	53.56%	100.00%
Total	47.76%	52.24%	100.00%

**Lower Secondary Education**

< US\$3.20 PPP*	51.52%	48.48%	100.00%
US\$3.20 PPP - \$5.50 PPP*	57.00%	43.00%	100.00%
US\$5.50 PPP +*	47.98%	52.02%	100.00%
Total	50.83%	49.17%	100.00%

**UPPER SECONDARY EDUCATION****Population**

< US\$3.20 PPP	46.20%	53.80%	100.00%
US\$3.20 PPP - \$5.50 PPP	48.67%	51.33%	100.00%
US\$5.50 PPP +	47.03%	52.97%	100.00%
Total	47.23%	52.77%	100.00%

**Market Income**

< US\$3.20 PPP	46.22%	53.78%	100.00%
US\$3.20 PPP - \$5.50 PPP	49.33%	50.67%	100.00%
US\$5.50 PPP +	43.28%	56.72%	100.00%
Total	43.74%	56.26%	100.00%

**Upper Secondary Education**

< US\$3.20 PPP	43.81%	56.19%	100.00%
US\$3.20 PPP - \$5.50 PPP*	46.96%	53.04%	100.00%
US\$5.50 PPP +*	45.46%	54.54%	100.00%
Total	45.57%	54.43%	100.00%

**TERTIARY EDUCATION****Population**

< US\$3.20 PPP	48.34%	51.66%	100.00%
US\$3.20 PPP - \$5.50 PPP	41.66%	58.34%	100.00%
US\$5.50 PPP +	51.35%	48.65%	100.00%
Total	50.51%	49.49%	100.00%

**Market Income**

< US\$3.20 PPP	46.83%	53.17%	100.00%
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US\$3.20 PPP - \$5.50 PPP	41.31%	58.69%	100.00%
US\$5.50 PPP +	46.40%	53.60%	100.00%
Total	46.32%	53.68%	100.00%
<b>Tertiary Education</b>			
< US\$3.20 PPP	54.31%	45.69%	100.00%
US\$3.20 PPP - \$5.50 PPP	37.32%	62.68%	100.00%
US\$5.50 PPP +*	49.77%	50.23%	100.00%
Total	48.86%	51.14%	100.00%
<b>HEALTH</b>			
<b><i>NON-CONTRIBUTORY HEALTH REGIME (IMSS-OPORTUNIDADES)</i></b>			
<b>Population</b>			
< US\$3.20 PPP	51.75%	48.25%	100.00%
US\$3.20 PPP - \$5.50 PPP	56.73%	43.27%	100.00%
US\$5.50 PPP +	54.81%	45.19%	100.00%
Total	53.65%	46.35%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	51.13%	48.87%	100.00%
US\$3.20 PPP - \$5.50 PPP	56.18%	43.82%	100.00%
US\$5.50 PPP +	54.31%	45.69%	100.00%
Total	54.08%	45.92%	100.00%
<b>Non-Contributory Health Regime (IMSS-Oportunidades)</b>			
< US\$3.20 PPP*	52.11%	47.89%	100.00%
US\$3.20 PPP - \$5.50 PPP*	57.56%	42.44%	100.00%
US\$5.50 PPP +*	55.10%	44.90%	100.00%
Total	53.93%	46.07%	100.00%
<b><i>CONTRIBUTORY HEALTH REGIME (IMSS)</i></b>			
<b>Population</b>			
< US\$3.20 PPP	50.07%	49.93%	100.00%
US\$3.20 PPP - \$5.50 PPP	50.73%	49.27%	100.00%
US\$5.50 PPP +	49.76%	50.24%	100.00%
Total	49.87%	50.13%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	50.76%	49.24%	100.00%
US\$3.20 PPP - \$5.50 PPP	50.60%	49.40%	100.00%
US\$5.50 PPP +	47.93%	52.07%	100.00%
Total	48.01%	51.99%	100.00%
<b>Contributory Health Regime (IMSS)</b>			
< US\$3.20 PPP*	51.87%	48.13%	100.00%
US\$3.20 PPP - \$5.50 PPP*	52.25%	47.75%	100.00%
US\$5.50 PPP +*	50.18%	49.82%	100.00%
Total	50.43%	49.57%	100.00%
<b><i>CONTRIBUTORY HEALTH REGIME (ISSSTE)</i></b>			
<b>Population</b>			
< US\$3.20 PPP	62.87%	37.13%	100.00%
US\$3.20 PPP - \$5.50 PPP	63.31%	36.69%	100.00%
US\$5.50 PPP +	55.31%	44.69%	100.00%
Total	55.98%	44.02%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	65.42%	34.58%	100.00%
US\$3.20 PPP - \$5.50 PPP	63.75%	36.25%	100.00%
US\$5.50 PPP +	51.28%	48.72%	100.00%
Total	51.44%	48.56%	100.00%
<b>Contributory Health Regime (ISSSTE)</b>			
< US\$3.20 PPP*	62.51%	37.49%	100.00%
US\$3.20 PPP - \$5.50 PPP*	64.55%	35.45%	100.00%
US\$5.50 PPP +*	54.29%	45.71%	100.00%

Total	55.04%	44.96%	100.00%
<b>NON-CONTRIBUTORY HEALTH REGIME (SEGURO POPULAR DE SALUD)</b>			
<b>Population</b>			
< US\$3.20 PPP	52.80%	47.20%	100.00%
US\$3.20 PPP - \$5.50 PPP	54.64%	45.36%	100.00%
US\$5.50 PPP +	54.67%	45.33%	100.00%
Total	54.11%	45.89%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	52.70%	47.30%	100.00%
US\$3.20 PPP - \$5.50 PPP	54.56%	45.44%	100.00%
US\$5.50 PPP +	54.69%	45.31%	100.00%
Total	54.50%	45.50%	100.00%
<b>Non-Contributory Health Regime (Seguro Popular de Salud)</b>			
< US\$3.20 PPP*	52.51%	47.49%	100.00%
US\$3.20 PPP - \$5.50 PPP*	53.82%	46.18%	100.00%
US\$5.50 PPP +*	53.76%	46.24%	100.00%
Total	53.39%	46.61%	100.00%
<b>NON-CONTRIBUTORY HEALTH REGIME (SSA)</b>			
<b>Population</b>			
< US\$3.20 PPP	51.81%	48.19%	100.00%
US\$3.20 PPP - \$5.50 PPP	53.47%	46.53%	100.00%
US\$5.50 PPP +	53.93%	46.07%	100.00%
Total	53.15%	46.85%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	51.59%	48.41%	100.00%
US\$3.20 PPP - \$5.50 PPP	53.49%	46.51%	100.00%
US\$5.50 PPP +	54.36%	45.64%	100.00%
Total	53.94%	46.06%	100.00%
<b>Non-Contributory Health Regime (Seguro Popular de Salud)</b>			
< US\$3.20 PPP*	51.59%	48.41%	100.00%
US\$3.20 PPP - \$5.50 PPP*	52.94%	47.06%	100.00%
US\$5.50 PPP +*	53.32%	46.68%	100.00%
Total	52.63%	47.37%	100.00%

**Notes:**

\*Indicates that the program is horizontally equitable for that income group.

**Table 40:** Coverage Rates of Education, Mexico 2012

*Panel A: Coverage Rate of Total Households*

	Coverage Rate of Total Households (Beneficiary Households/Total Number of Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Education												
Primary	49.78	28.42	55.45	32.29	0.8977	0.8803	45.13	23.52	52.27	31.34	0.8635	0.7504
Lower Secondary	27.24	15.99	30.24	18.87	0.9009	0.8471	23.29	14.15	27.97	17.79	0.8327	0.7956
Upper Secondary	11.88	14.38	12.48	13.20	0.9522	1.0898	9.70	11.92	12.23	13.00	0.7938	0.9166
Tertiary	6.52	9.31	1.97	7.25	3.3054	1.2834	4.94	8.27	3.06	7.55	1.6151	1.0948

*Panel B: Coverage Rates of Target Households*

Coverage Rate of Target Households (Beneficiary Target Households/Total Number of Target Households)												
	Breadwinner Households				Household Headed Households							
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Education												
Primary	97.86	98.56	97.97	97.83	0.9988	1.0074	97.72	97.71	98.06	98.13	0.9965	0.9957
Lower Secondary	68.89	81.58	73.62	82.56	0.9357	0.9880	68.98	81.97	73.22	82.30	0.9421	0.9960
Upper Secondary	37.21	68.03	40.31	57.15	0.9232	1.1904	32.42	60.78	42.70	60.06	0.7594	1.0120
Tertiary	17.51	29.76	5.62	21.89	3.1166	1.3596	14.26	27.17	9.55	24.66	1.4930	1.1016

**vi. URUGUAY 2009**

Overall, in Uruguay, pre government interventions, male breadwinner households and female headed households had a higher rate of inequality as measured by the Gini (Table 10). However, post fisc, inequality remained higher for male breadwinners than female breadwinners, but male headed households had a higher level of inequality than female headed households. In regard to poverty, female breadwinner households had a higher poverty gap squared pre fisc, while post fisc it was higher for male breadwinner households. Female headed households had a higher poverty gap squared compared to their male counterparts both pre and post fisc (Tables 14 and 15). Table 41 shows the absolute difference in poverty and inequality indicators from market income plus pensions to consumable income. The absolute difference of female breadwinner households pre and post fisc was greater than that of males, which is why it is not surprising that male breadwinners were poorer post fisc overall. Female headed households experienced a greater decline in poverty and inequality than their male counterparts, despite that they remained poorer post fisc. This could be related to the fact that when a robustness check was completed using the relative change, male headed households had a greater reduction in the poverty gap squared. This shows that, similar to the case of Mexico, different

indicators tell different stories. Overall, female headed households were more likely to be in poverty than male headed households at each income concept, as shown in Table 16, Panel A. While female breadwinner households were more likely to be in poverty at market income, they were less likely to be in poverty than male breadwinner households at consumable income. This is likely due to the progressive transfers in the country.

Female breadwinner households had better coverage of contributory pensions and the contributory health regime. They also had a higher proportion of payers of indirect taxes for all income groups and for direct taxes for the poor (those living in the income group of less than US\$3.20 PPP per day). Because poverty for female breadwinner households did decline, it could be attributed to the contributory pensions and the contributory health regime. This is confirmed by the marginal contributions in table 43, which show that the contributory health regime reduced the poverty of female breadwinners more than that of male breadwinners. The coverage for female headed households is much different than breadwinner households. Poor households are better covered for the non-contributory pensions, the flagship CCT, and the food transfers, as well as the non-contributory health regime. The direct transfers are likely what the reduction in poverty for female headed households can be attributed to. In particular, the amount that beneficiaries receive of Uruguay's CCT, Plan de Equidad, is based on the number of beneficiaries per household, the level of education, and whether a beneficiary has a disability (BPS, 2019). This likely provides a wider range of benefits family-to-family than some of the other CCTs that have been assessed in this study. This could be one reason why female headed household heads have better coverage of the CCT than in other countries.

**Table 41: Poverty and Inequality Pre (Market Income (MI)) and Post Fisc (Consumable Income (CI)), Uruguay 2009**

	Gini Coefficient	Headcount Index (%)	Squared Poverty Gap (%)
<b>Total Country</b>			
MI	.5439	21.7	6.7
CI	.4683	14.5	1.6
Absolute Difference (CI - MI)	-.0756	-.0715	-.0509
<b>Breadwinner Households</b>			
<b>Female</b>			
MI	.5076	17.2	4.1
CI	.4426	12.3	1.3
Absolute Difference (CI - MI)	-.0651	-.0494	-.0286
<b>Male</b>			
MI	.5220	16.1	3.4
CI	.4757	15.6	1.6
Absolute Difference (CI - MI)	-.0463	-.0048	-.0180
<b>Household Headed Households</b>			
<b>Female</b>			
MI	.5507	25.1	8.4
CI	.4680	16.1	2.0
Absolute Difference (CI - MI)	-.0826	-.0901	-.0640
<b>Male</b>			
MI	0.5404	20.2	5.9
CI	0.4681	13.9	1.4
Absolute Difference (CI - MI)	-.0723	-.0634	-.0452

**Table 42: Coverage Rates of Taxes and Transfers, Uruguay 2009**

	Coverage Rate of Total Households (Beneficiary Households/Total Number of Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total	y < 3.2	Total
Direct Taxes	2.40	36.82	1.62	41.50	1.4779	0.8870	6.47	29.74	11.23	40.52	0.5760	0.7340
Contributory Pensions	44.28	32.44	28.34	20.47	1.5624	1.5850	61.20	47.96	68.95	30.39	0.8876	1.5779
All Direct Transfers (excluding contributory pensions)	77.10	30.81	82.30	36.15	0.9368	0.8524	56.58	27.95	46.93	32.34	1.2056	0.8643
Non-contributory Pension	10.98	3.09	15.84	3.42	0.6934	0.9038	16.54	4.96	14.92	4.19	1.1087	1.1842
Flagship CCT	56.33	12.92	62.16	15.71	0.9063	0.8225	35.27	12.39	24.06	12.65	1.4657	0.9798
Food Transfers	56.92	12.79	65.25	16.62	0.8723	0.7696	41.86	13.68	29.28	14.08	1.4297	0.9713
Other Transfers	17.47	13.78	11.62	15.74	1.5042	0.8758	7.85	9.56	11.86	14.44	0.6622	0.6619
<b>Health</b>												
Non-contributory Health (National Health Fund)	92.45	42.61	94.80	52.24	0.9752	0.8157	80.56	46.26	72.87	48.75	1.1055	0.9490
Contributory Health (IAMC)	26.21	69.95	20.97	68.12	1.2501	1.0269	17.63	48.81	29.72	63.58	0.5932	0.7677
Contributory Public Regime (FONASA)	5.66	5.86	6.29	6.36	0.9007	0.9207	4.41	4.28	4.72	5.82	0.9349	0.7362
Indirect Taxes	88.30	94.49	90.03	94.31	0.9807	1.0019	88.35	92.25	90.81	94.31	0.9728	0.9781

**Table 43: Marginal Contribution of Interventions on Poverty and Inequality Indicators, Market Income (MI), Consumable Income (CI), and Consumable Income – Transfer/Pensions (CI-B) or Consumable Income + Education/Health (CI+B), Uruguay 2009**

*Panel A: Breadwinner Households*

		Female Breadwinners						Male Breadwinners					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
US\$5.50 PPP per day	Theil Index	0.4640	0.3555	-0.1084	0.3566	0.0011	-0.0099	0.5288	0.4503	-0.0785	0.4446	-0.0057	0.0726
	Headcount Index	17.2%	12.3%	-0.0494	11.2%	-0.0109	0.2200	16.1%	15.6%	-0.0048	14.7%	-0.0091	1.8823
	Squared Poverty Gap	4.1%	1.3%	-0.0286	1.2%	-0.0008	0.0279	3.4%	1.6%	-0.0180	1.5%	-0.0005	0.0288
<b>DIRECT TRANSFERS</b>													
<b>Non-Contributory Pension</b>													
US\$5.50 PPP per day	Theil Index	0.4640	0.3555	-0.1084	0.3514	-0.0042	0.0384	0.5288	0.4503	-0.0785	0.4454	-0.0048	0.0612
	Headcount Index	17.2%	12.3%	-0.0494	11.8%	-0.0044	0.0884	16.1%	15.6%	-0.0048	14.9%	-0.0065	1.3557
	Squared Poverty Gap	4.1%	1.3%	-0.0286	1.2%	-0.0005	0.0165	3.4%	1.6%	-0.0180	1.5%	-0.0006	0.0331
<b>Flagship CCT</b>													
US\$5.50 PPP per day	Theil Index	0.4640	0.3555	-0.1084	0.3456	-0.0100	0.0921	0.5288	0.4503	-0.0785	0.4385	-0.0118	0.1499
	Headcount Index	17.2%	12.3%	-0.0494	10.1%	-0.0221	0.4484	16.1%	15.6%	-0.0048	13.0%	-0.0256	5.3034
	Squared Poverty Gap	4.1%	1.3%	-0.0286	0.8%	-0.0046	0.1615	3.4%	1.6%	-0.0180	1.0%	-0.0051	0.2845
<b>Food Transfers</b>													
US\$5.50 PPP per day	Theil Index	0.4640	0.3555	-0.1084	0.3461	-0.0095	0.0873	0.5288	0.4503	-0.0785	0.4384	-0.0119	0.1514
	Headcount Index	17.2%	12.3%	-0.0494	10.1%	-0.0219	0.4429	16.1%	15.6%	-0.0048	13.0%	-0.0259	5.3626
	Squared Poverty Gap	4.1%	1.3%	-0.0286	0.8%	-0.0043	0.1500	3.4%	1.6%	-0.0180	1.1%	-0.0049	0.2734
<b>Other Transfers</b>													
US\$5.50 PPP per day	Theil Index	0.4640	0.3555	-0.1084	0.3487	-0.0069	0.0632	0.5288	0.4503	-0.0785	0.4438	-0.0064	0.0819
	Headcount Index	17.2%	12.3%	-0.0494	11.7%	-0.0060	0.1214	16.1%	15.6%	-0.0048	14.8%	-0.0074	1.5248
	Squared Poverty Gap	4.1%	1.3%	-0.0286	1.2%	-0.0007	0.0250	3.4%	1.6%	-0.0180	1.5%	-0.0008	0.0430
<b>HEALTH</b>													
<b>Contributory Regime (IAMC)</b>													
US\$5.50 PPP per day	Theil Index	0.4640	0.3555	-0.1084	0.3438	-0.0117	0.1082	0.5288	0.4503	-0.0785	0.4350	-0.0152	0.1936
	Headcount Index	17.2%	12.3%	-0.0494	10.9%	-0.0132	0.2676	16.1%	15.6%	-0.0048	13.9%	-0.0166	3.4353
	Squared Poverty Gap	4.1%	1.3%	-0.0286	1.1%	-0.0014	0.0485	3.4%	1.6%	-0.0180	1.4%	-0.0017	0.0942
<b>Contributory Public Regime (FONASA)</b>													
US\$5.50 PPP per day	Theil Index	0.4640	0.3555	-0.1084	0.3535	-0.0021	0.0192	0.5288	0.4503	-0.0785	0.4475	-0.0028	0.0352
	Headcount Index	17.2%	12.3%	-0.0494	12.0%	-0.0025	0.0507	16.1%	15.6%	-0.0048	15.1%	-0.0046	0.9472
	Squared Poverty Gap	4.1%	1.3%	-0.0286	1.2%	-0.0004	0.0123	3.4%	1.6%	-0.0180	1.5%	-0.0006	0.0329
<b>Non-Contributory Regime (National Health Fund)</b>													
US\$5.50 PPP per day	Theil Index	0.4640	0.3555	-0.1084	0.3310	-0.0245	0.2259	0.5288	0.4503	-0.0785	0.4168	-0.0334	0.4255
	Headcount Index	17.2%	12.3%	-0.0494	8.0%	-0.0432	0.8737	16.1%	15.6%	-0.0048	9.9%	-0.0571	11.8337
	Squared Poverty Gap	4.1%	1.3%	-0.0286	0.4%	-0.0083	0.2912	3.4%	1.6%	-0.0180	0.5%	-0.0102	0.5651
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.4640	0.3555	-0.1084	0.3407	-0.0148	0.1366	0.5288	0.4503	-0.0785	0.4311	-0.0192	0.2443
	Headcount Index	17.2%	12.3%	-0.0494	9.5%	-0.0275	0.5567	16.1%	15.6%	-0.0048	12.4%	-0.0320	6.6256

	Squared Poverty Gap	4.1%	1.3%	-0.0286	0.7%	-0.0055	0.1930	3.4%	1.6%	-0.0180	0.9%	-0.0065	0.3638
<b>Lower Secondary Education</b>													
	Theil Index	0.4640	0.3555	-0.1084	0.3463	-0.0092	0.0850	0.5288	0.4503	-0.0785	0.4404	-0.0098	0.1253
US\$5.50 PPP per day	Headcount Index	17.2%	12.3%	-0.0494	10.5%	-0.0177	0.3583	16.1%	15.6%	-0.0048	13.9%	-0.0167	3.4557
	Squared Poverty Gap	4.1%	1.3%	-0.0286	1.0%	-0.0027	0.0946	3.4%	1.6%	-0.0180	1.3%	-0.0027	0.1520
<b>Upper Secondary Education</b>													
	Theil Index	0.4640	0.3555	-0.1084	0.3491	-0.0065	0.0596	0.5288	0.4503	-0.0785	0.4439	-0.0064	0.0814
US\$5.50 PPP per day	Headcount Index	17.2%	12.3%	-0.0494	11.5%	-0.0082	0.1650	16.1%	15.6%	-0.0048	14.7%	-0.0084	1.7433
	Squared Poverty Gap	4.1%	1.3%	-0.0286	1.2%	-0.0008	0.0295	3.4%	1.6%	-0.0180	1.5%	-0.0008	0.0456
<b>Tertiary Education</b>													
	Theil Index	0.4640	0.3555	-0.1084	0.3546	-0.0010	0.0088	0.5288	0.4503	-0.0785	0.4496	-0.0006	0.0080
US\$5.50 PPP per day	Headcount Index	17.2%	12.3%	-0.0494	12.1%	-0.0012	0.0248	16.1%	15.6%	-0.0048	15.5%	-0.0006	0.1267
	Squared Poverty Gap	4.1%	1.3%	-0.0286	1.3%	-0.0001	0.0030	3.4%	1.6%	-0.0180	1.6%	-0.0001	0.0031

### Panel B: Headship Households

		Female Headed Households						Male Headed Households					
		MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference
<b>CONTRIBUTORY PENSIONS</b>													
	Theil Index	0.5511	0.4003	-0.1508	0.4398	0.0395	-0.2619	0.5502	0.4252	-0.1251	0.4289	0.0038	-0.0301
US\$5.50 PPP per day	Headcount Index	25.1%	16.1%	-0.0901	14.6%	-0.0149	0.1655	20.2%	13.9%	-0.0634	12.7%	-0.0111	0.1745
	Squared Poverty Gap	8.4%	2.0%	-0.0640	1.9%	-0.0016	0.0245	5.9%	1.4%	-0.0452	1.3%	-0.0007	0.0147
<b>DIRECT TRANSFERS</b>													
<b>Non-Contributory Pension</b>													
	Theil Index	0.5511	0.4003	-0.1508	0.3923	-0.0080	0.0531	0.5502	0.4252	-0.1251	0.4195	-0.0057	0.0455
US\$5.50 PPP per day	Headcount Index	25.1%	16.1%	-0.0901	15.3%	-0.0078	0.0868	20.2%	13.9%	-0.0634	13.2%	-0.0070	0.1107
	Squared Poverty Gap	8.4%	2.0%	-0.0640	2.0%	-0.0009	0.0143	5.9%	1.4%	-0.0452	1.3%	-0.0006	0.0132
<b>Flagship CCT</b>													
	Theil Index	0.5511	0.4003	-0.1508	0.3874	-0.0130	0.0859	0.5502	0.4252	-0.1251	0.4154	-0.0098	0.0781
US\$5.50 PPP per day	Headcount Index	25.1%	16.1%	-0.0901	13.7%	-0.0242	0.2683	20.2%	13.9%	-0.0634	11.6%	-0.0221	0.3480
	Squared Poverty Gap	8.4%	2.0%	-0.0640	1.3%	-0.0075	0.1176	5.9%	1.4%	-0.0452	1.0%	-0.0044	0.0979
<b>Food Transfers</b>													
	Theil Index	0.5511	0.4003	-0.1508	0.3868	-0.0135	0.0897	0.5502	0.4252	-0.1251	0.4154	-0.0097	0.0780
US\$5.50 PPP per day	Headcount Index	25.1%	16.1%	-0.0901	13.4%	-0.0275	0.3047	20.2%	13.9%	-0.0634	11.6%	-0.0221	0.3483
	Squared Poverty Gap	8.4%	2.0%	-0.0640	1.3%	-0.0076	0.1183	5.9%	1.4%	-0.0452	1.0%	-0.0041	0.0907
<b>Other Transfers</b>													
	Theil Index	0.5511	0.4003	-0.1508	0.3949	-0.0054	0.0357	0.5502	0.4252	-0.1251	0.4177	-0.0074	0.0596
US\$5.50 PPP per day	Headcount Index	25.1%	16.1%	-0.0901	15.6%	-0.0048	0.0533	20.2%	13.9%	-0.0634	13.0%	-0.0081	0.1281
	Squared Poverty Gap	8.4%	2.0%	-0.0640	2.0%	-0.0007	0.0116	5.9%	1.4%	-0.0452	1.3%	-0.0010	0.0211
<b>HEALTH</b>													
<b>Contributory Regime (IAMC)</b>													
	Theil Index	0.5511	0.4003	-0.1508	0.3897	-0.0106	0.0704	0.5502	0.4252	-0.1251	0.4108	-0.0143	0.1147
US\$5.50 PPP per day	Headcount Index	25.1%	16.1%	-0.0901	14.8%	-0.0129	0.1430	20.2%	13.9%	-0.0634	12.4%	-0.0147	0.2316
	Squared Poverty Gap	8.4%	2.0%	-0.0640	1.9%	-0.0016	0.0255	5.9%	1.4%	-0.0452	1.2%	-0.0016	0.0351

<b>Contributory Public Regime (FONASA)</b>													
US\$5.50 PPP per day	Theil Index	0.5511	0.4003	-0.1508	0.3984	-0.0019	0.0128	0.5502	0.4252	-0.1251	0.4227	-0.0025	0.0201
	Headcount Index	25.1%	16.1%	-0.0901	15.8%	-0.0026	0.0288	20.2%	13.9%	-0.0634	13.46%	-0.0039	0.0622
	Squared Poverty Gap	8.4%	2.0%	-0.0640	2.0%	-0.0004	0.0063	5.9%	1.4%	-0.0452	1.34%	-0.0006	0.0127
<b>Non-Contributory Regime (National Health Fund)</b>													
US\$5.50 PPP per day	Theil Index	0.5511	0.4003	-0.1508	0.3675	-0.0328	0.2174	0.5502	0.4252	-0.1251	0.3958	-0.0294	0.2348
	Headcount Index	25.1%	16.1%	-0.0901	10.9%	-0.0525	0.5826	20.2%	13.9%	-0.0634	8.8%	-0.0501	0.7895
	Squared Poverty Gap	8.4%	2.0%	-0.0640	0.7%	-0.0134	0.2095	5.9%	1.4%	-0.0452	0.5%	-0.0088	0.1953
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.5511	0.4003	-0.1508	0.3821	-0.0182	0.1207	0.5502	0.4252	-0.1251	0.4090	-0.0162	0.1296
	Headcount Index	25.1%	16.1%	-0.0901	13.0%	-0.0313	0.3468	20.2%	13.9%	-0.0634	11.1%	-0.0279	0.4403
	Squared Poverty Gap	8.4%	2.0%	-0.0640	1.1%	-0.0092	0.1434	5.9%	1.4%	-0.0452	0.8%	-0.0056	0.1227
<b>Lower Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.5511	0.4003	-0.1508	0.3904	-0.0099	0.0657	0.5502	0.4252	-0.1251	0.4165	-0.0087	0.0695
	Headcount Index	25.1%	16.1%	-0.0901	14.4%	-0.0172	0.1910	20.2%	13.9%	-0.0634	12.3%	-0.0153	0.2415
	Squared Poverty Gap	8.4%	2.0%	-0.0640	1.7%	-0.0039	0.0607	5.9%	1.4%	-0.0452	1.2%	-0.0025	0.0547
<b>Upper Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.5511	0.4003	-0.1508	0.3947	-0.0056	0.0373	0.5502	0.4252	-0.1251	0.4191	-0.0061	0.0489
	Headcount Index	25.1%	16.1%	-0.0901	15.4%	-0.0075	0.0830	20.2%	13.9%	-0.0634	13.1%	-0.0080	0.1257
	Squared Poverty Gap	8.4%	2.0%	-0.0640	1.9%	-0.0010	0.0153	5.9%	1.4%	-0.0452	1.3%	-0.0008	0.0186
<b>Tertiary Education</b>													
US\$5.50 PPP per day	Theil Index	0.5511	0.4003	-0.1508	0.3993	-0.0010	0.0064	0.5502	0.4252	-0.1251	0.4243	-0.0009	0.0070
	Headcount Index	25.1%	16.1%	-0.0901	16.1%	-0.0005	0.0057	20.2%	13.9%	-0.0634	13.8%	-0.0009	0.0137
	Squared Poverty Gap	8.4%	2.0%	-0.0640	2.0%	-0.0001	0.0012	5.9%	1.4%	-0.0452	1.4%	-0.0001	0.0013

### Panel C: Beneficiaries

	Female Beneficiaries							Male Beneficiaries						
	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference	MI	CI	Absolute Difference between MI and CI	CI-B or CI + B	Marginal Contribution	Ratio of Marginal Contribution and Absolute Difference		
<b>CONTRIBUTORY PENSIONS</b>														
US\$5.50 PPP per day	Theil Index	0.5629	0.2832	-0.2797	0.2805	-0.0026	0.0094	0.7254	0.3069	-0.4185	0.2785	-0.0285	0.0680	
	Headcount Index	29.2%	2.7%	-0.2650	0.9%	-0.0178	0.0671	43.7%	3.0%	-0.4065	0.5%	-0.0254	0.0625	
	Squared Poverty Gap	11.2%	0.2%	-0.1096	0.1%	-0.0013	0.0120	16.9%	0.2%	-0.1678	0.0%	-0.0014	0.0084	
<b>DIRECT TRANSFERS</b>														
<b>Non-Contributory Pension</b>														
US\$5.50 PPP per day	Theil Index	0.3776	0.2165	-0.1612	0.2226	0.0061	-0.0380	0.3883	0.2243	-0.1640	0.2291	0.0048	-0.0291	
	Headcount Index	40.7%	32.3%	-0.0841	30.3%	-0.0199	0.2372	38.8%	30.5%	-0.0832	28.5%	-0.0206	0.2477	
	Squared Poverty Gap	12.8%	3.6%	-0.0924	3.4%	-0.0017	0.0188	12.9%	3.2%	-0.0968	3.0%	-0.0019	0.0200	
<b>Flagship CCT</b>														
US\$5.50 PPP per day	Theil Index	0.3776	0.2165	-0.1612	0.1909	-0.0256	0.1585	0.3883	0.2243	-0.1640	0.2036	-0.0207	0.1261	
	Headcount Index	40.7%	32.3%	-0.0841	25.9%	-0.0647	0.7696	38.8%	30.5%	-0.0832	25.1%	-0.0540	0.6490	
	Squared Poverty Gap	12.8%	3.6%	-0.0924	2.0%	-0.0152	0.1641	12.9%	3.2%	-0.0968	2.0%	-0.0123	0.1270	



<b>Food Transfers</b>													
US\$5.50 PPP per day	Theil Index	0.3776	0.2165	-0.1612	0.1864	-0.0301	0.1865	0.3883	0.2243	-0.1640	0.1924	-0.0319	0.1944
	Headcount Index	40.7%	32.3%	-0.0841	24.0%	-0.0835	0.9935	38.8%	30.5%	-0.0832	21.7%	-0.0880	1.0579
	Squared Poverty Gap	12.8%	3.6%	-0.0924	1.9%	-0.0164	0.1777	12.9%	3.2%	-0.0968	1.6%	-0.0167	0.1731
<b>Other Transfers</b>													
US\$5.50 PPP per day	Theil Index	0.3776	0.2165	-0.1612	0.2292	0.0128	-0.0791	0.3883	0.2243	-0.1640	0.2377	0.0134	-0.0817
	Headcount Index	40.7%	32.3%	-0.0841	31.1%	-0.0126	0.1497	38.8%	30.5%	-0.0832	28.5%	-0.0200	0.2407
	Squared Poverty Gap	12.8%	3.6%	-0.0924	3.4%	-0.0016	0.0176	12.9%	3.2%	-0.0968	3.0%	-0.0024	0.0244
<b>HEALTH</b>													
<b>Contributory Regime (IAMC)</b>													
US\$5.50 PPP per day	Theil Index	0.3756	0.3052	-0.0703	0.2853	-0.0199	0.2831	0.3942	0.3292	-0.0650	0.3089	-0.0203	0.3129
	Headcount Index	7.8%	5.3%	-0.0252	3.2%	-0.0211	0.8387	7.9%	6.6%	-0.0132	4.2%	-0.0238	1.7986
	Squared Poverty Gap	2.0%	0.4%	-0.0162	0.2%	-0.0022	0.1351	2.1%	0.5%	-0.0164	0.2%	-0.0024	0.1460
<b>Contributory Public Regime (FONASA)</b>													
US\$5.50 PPP per day	Theil Index	0.3465	0.2555	-0.0910	0.2297	-0.0258	0.2837	0.3667	0.2555	-0.1112	0.2290	-0.0265	0.2382
	Headcount Index	20.2%	18.2%	-0.0206	12.2%	-0.0598	2.9089	22.3%	21.1%	-0.0124	14.3%	-0.0681	5.5141
	Squared Poverty Gap	5.0%	1.4%	-0.0360	0.7%	-0.0075	0.2089	5.5%	1.8%	-0.0374	0.9%	-0.0094	0.2517
<b>Non-Contributory Regime (National Health Fund)</b>													
US\$5.50 PPP per day	Theil Index	0.4270	0.2817	-0.1452	0.2341	-0.0476	0.3279	0.4508	0.2845	-0.1663	0.2322	-0.0523	0.3147
	Headcount Index	38.6%	27.7%	-0.1083	16.6%	-0.1111	1.0258	41.3%	29.4%	-0.1195	17.1%	-0.1230	1.0292
	Squared Poverty Gap	12.3%	3.2%	-0.0906	0.9%	-0.0231	0.2552	13.0%	3.5%	-0.0947	1.0%	-0.0259	0.2733
<b>EDUCATION</b>													
<b>Primary Education</b>													
US\$5.50 PPP per day	Theil Index	0.3807	0.2352	-0.1455	0.1910	-0.0442	0.3041	0.3895	0.2340	-0.1556	0.1890	-0.0449	0.2886
	Headcount Index	36.7%	35.1%	-0.0163	23.2%	-0.1185	7.2603	37.1%	36.2%	-0.0093	23.5%	-0.1266	13.5642
	Squared Poverty Gap	11.1%	4.1%	-0.0695	1.5%	-0.0266	0.3827	11.5%	4.3%	-0.0712	1.6%	-0.0275	0.3857
<b>Lower Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.3443	0.2164	-0.1279	0.1840	-0.0324	0.2529	0.3731	0.2460	-0.1272	0.2123	-0.0337	0.2648
	Headcount Index	30.2%	30.1%	-0.0009	19.7%	-0.1041	113.0606	29.3%	27.0%	-0.0233	18.0%	-0.0902	3.8718
	Squared Poverty Gap	8.8%	3.1%	-0.0563	1.4%	-0.0172	0.3050	7.8%	2.7%	-0.0507	1.2%	-0.0151	0.2981
<b>Upper Secondary Education</b>													
US\$5.50 PPP per day	Theil Index	0.3128	0.2301	-0.0827	0.2028	-0.0273	0.3298	0.3001	0.2270	-0.0731	0.1996	-0.0274	0.3747
	Headcount Index	15.4%	13.3%	-0.0209	7.5%	-0.0584	2.7928	13.0%	10.2%	-0.0284	4.7%	-0.0546	1.9243
	Squared Poverty Gap	3.7%	1.2%	-0.0255	0.5%	-0.0066	0.2589	3.1%	0.8%	-0.0222	0.3%	-0.0050	0.2252
<b>Tertiary Education</b>													
US\$5.50 PPP per day	Theil Index	0.2514	0.2112	-0.0402	0.1865	-0.0247	0.6150	0.2463	0.2025	-0.0438	0.1790	-0.0235	0.5360
	Headcount Index	2.3%	1.3%	-0.0096	0.3%	-0.0097	1.0068	1.8%	0.8%	-0.0101	0.2%	-0.0054	0.5338
	Squared Poverty Gap	0.5%	0.1%	-0.0045	0.0%	-0.0007	0.1467	0.5%	0.1%	-0.0044	0.0%	-0.0005	0.1052

The progressivity in Uruguay follows many of the same patterns as the other countries that have been assessed in this study. For example, male headed households bear the burden of direct taxes while the burden of indirect taxes is shared. The majority of direct transfers and education in-kind transfers benefit female headed households (Table 42). Poor female-type households also have better coverage in education, which is shown in Table 46.

To determine if spending on public education, health, pensions, and other government services is equitable by gender, horizontal equity can be used. Spending on education is variable. It depends on the level and the income group. But in general, female headed households receive a much larger proportion of the spending than their share of the population and a larger proportion than their share of the market income. Spending on health generally favors male headed households. Although the differences are not huge, it is important to remember that the definition of “equity” when it comes to government spending on health is unclear. Women need more health care during their childbearing years and because they live longer. So, although the spending is not that much more for male headed households, if the definition of equity were changed, it could be much more regressive for female headed households.

**Table 44:** Progressivity and Horizontal Equity of Taxes and Transfers by Headship, Uruguay 2009 (Shares in Percent)<sup>a</sup>

	<b>Female Headed Households %total</b>	<b>Male Headed Households %total</b>	<b>Total</b>
<b>POPULATION</b>			
< US\$3.20 PPP	38.38%	61.62%	100.00%
US\$3.20 PPP - \$5.50 PPP	34.32%	65.68%	100.00%
US\$5.50 PPP +	29.21%	70.79%	100.00%
Total	30.37%	69.63%	100.00%
<b>MARKET INCOME</b>			
< US\$3.20 PPP	36.83%	63.17%	100.00%
US\$3.20 PPP - \$5.50 PPP	34.12%	65.88%	100.00%
US\$5.50 PPP +	27.73%	72.27%	100.00%
Total	27.84%	72.16%	100.00%
<b>Direct Taxes</b>			
< US\$3.20 PPP	29.56%	70.44%	100.00%
US\$3.20 PPP - \$5.50 PPP*	19.90%	80.10%	100.00%
US\$5.50 PPP + *	23.90%	76.10%	100.00%
Total	23.91%	76.09%	100.00%
<b>Contributory Pensions (treated as a direct transfer)</b>			
< US\$3.20 PPP	32.02%	67.98%	100.00%
US\$3.20 PPP - \$5.50 PPP	29.16%	70.84%	100.00%
US\$5.50 PPP +	48.19%	51.81%	100.00%
Total	43.87%	56.13%	100.00%
<b>All Other Direct Transfers (excluding contributory pensions)</b>			
< US\$3.20 PPP	41.46%	58.54%	100.00%
US\$3.20 PPP - \$5.50 PPP	35.89%	64.11%	100.00%
US\$5.50 PPP +	30.25%	69.75%	100.00%
Total	33.59%	66.41%	100.00%
<b>Non-contributory Pension</b>			
< US\$3.20 PPP	41.54%	58.46%	100.00%
US\$3.20 PPP - \$5.50 PPP	39.14%	60.86%	100.00%
US\$5.50 PPP +	39.85%	60.15%	100.00%
Total	40.33%	59.67%	100.00%
<b>Flagship CCT</b>			
< US\$3.20 PPP	50.10%	49.90%	100.00%
US\$3.20 PPP - \$5.50 PPP	37.47%	62.53%	100.00%
US\$5.50 PPP + *	31.05%	68.95%	100.00%
Total	36.05%	63.95%	100.00%
<b>Food Transfers</b>			
< US\$3.20 PPP	51.69%	48.31%	100.00%
US\$3.20 PPP - \$5.50 PPP	37.29%	62.71%	100.00%
US\$5.50 PPP + *	29.16%	70.84%	100.00%
Total	36.69%	63.31%	100.00%
<b>Other Transfers</b>			
< US\$3.20 PPP	20.37%	79.63%	100.00%
US\$3.20 PPP - \$5.50 PPP	24.38%	75.62%	100.00%
US\$5.50 PPP +	25.70%	74.30%	100.00%
Total	24.82%	75.18%	100.00%
<b>Health</b>			
<b>Non-contributory Health Regime (National Health Fund)</b>			
< US\$3.20 PPP	41.23%	58.77%	100.00%

US\$3.20 PPP - \$5.50 PPP	36.40%	63.60%	100.00%
US\$5.50 PPP + *	29.98%	70.02%	100.00%
Total	32.69%	67.31%	100.00%
<b>Contributory Health Regime (IAMC)</b>			
< US\$3.20 PPP	26.79%	73.21%	100.00%
US\$3.20 PPP - \$5.50 PPP	31.64%	68.36%	100.00%
US\$5.50 PPP +	27.11%	72.89%	100.00%
Total	27.20%	72.80%	100.00%
<b>Contributory Health Regime (FONASA)</b>			
< US\$3.20 PPP *	36.87%	63.13%	100.00%
US\$3.20 PPP - \$5.50 PPP	24.73%	75.27%	100.00%
US\$5.50 PPP +	26.93%	73.07%	100.00%
Total	27.46%	72.54%	100.00%
<b>Education</b>			
<b>Primary</b>			
< US\$3.20 PPP	49.25%	50.75%	100.00%
US\$3.20 PPP - \$5.50 PPP	38.06%	61.94%	100.00%
US\$5.50 PPP +	26.73%	73.27%	100.00%
Total	31.51%	68.49%	100.00%
<b>Lower Secondary</b>			
< US\$3.20 PPP	46.63%	53.37%	100.00%
US\$3.20 PPP - \$5.50 PPP	42.44%	57.56%	100.00%
US\$5.50 PPP + *	28.82%	71.18%	100.00%
Total	32.07%	67.93%	100.00%
<b>Upper Secondary</b>			
< US\$3.20 PPP	36.16%	63.84%	100.00%
US\$3.20 PPP - \$5.50 PPP	34.86%	65.14%	100.00%
US\$5.50 PPP +	29.34%	70.66%	100.00%
Total	29.88%	70.12%	100.00%
<b>Tertiary (University)</b>			
< US\$3.20 PPP	49.54%	50.46%	100.00%
US\$3.20 PPP - \$5.50 PPP*	40.70%	59.30%	100.00%
US\$5.50 PPP + *	34.35%	65.65%	100.00%
Total	34.48%	65.52%	100.00%
<b>Indirect Taxes</b>			
< US\$3.20 PPP	33.78%	66.22%	100.00%
US\$3.20 PPP - \$5.50 PPP	30.90%	69.10%	100.00%
US\$5.50 PPP + *	29.39%	70.61%	100.00%
Total	29.57%	70.43%	100.00%

**Notes:**

a. Indirect Subsidies were not included in the original CEQ Assessment Uruguay. Therefore, Net Indirect Taxes are not being reported in this table.

\*Indicates that the program is horizontally equitable for that income group.

Only two programs were progressive according to beneficiary gender. The flagship CCT was progressive for females, while “other transfers” was progressive for males. Most programs did have horizontal equity between the genders among the poor. This includes contributory pensions, non-contributory pensions, the flagship CCT, the food transfers,

primary and secondary education, the non-contributory health regime National Health Fund, and the contributory health regime FONASA.

**Table 45:** Progressivity and Horizontal Equity of Taxes and Transfers by Beneficiary, Uruguay 2009 (Shares in Percent)

	Female Beneficiaries % total	Male Beneficiaries % total	Total
<b>CONTRIBUTORY PENSIONS</b>			
<b>Population</b>			
< US\$3.20 PPP	50.14%	49.86%	100.00%
US\$3.20 PPP - \$5.50 PPP	53.94%	46.06%	100.00%
US\$5.50 PPP +	66.61%	33.39%	100.00%
Total	61.34%	38.66%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	49.16%	50.84%	100.00%
US\$3.20 PPP - \$5.50 PPP	54.14%	45.86%	100.00%
US\$5.50 PPP +	69.06%	30.94%	100.00%
Total	68.16%	31.84%	100.00%
<b>Contributory Pensions</b>			
< US\$3.20 PPP*	51.71%	48.29%	100.00%
US\$3.20 PPP - \$5.50 PPP*	53.08%	46.92%	100.00%
US\$5.50 PPP +*	67.98%	32.02%	100.00%
Total	62.57%	37.43%	100.00%
<b>NON-CONTRIBUTORY PENSION</b>			
<b>Population</b>			
< US\$3.20 PPP	57.04%	42.96%	100.00%
US\$3.20 PPP - \$5.50 PPP	53.78%	46.22%	100.00%
US\$5.50 PPP +	57.38%	42.62%	100.00%
Total	56.63%	43.37%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	57.76%	42.24%	100.00%
US\$3.20 PPP - \$5.50 PPP	53.87%	46.13%	100.00%
US\$5.50 PPP +	56.15%	43.85%	100.00%
Total	56.05%	43.95%	100.00%
<b>Non-Contributory Pension</b>			
< US\$3.20 PPP*	56.96%	43.04%	100.00%
US\$3.20 PPP - \$5.50 PPP*	51.99%	48.01%	100.00%
US\$5.50 PPP +*	58.30%	41.70%	100.00%
Total	56.59%	43.41%	100.00%
<b>DIRECT TRANSFERS</b>			
<b>FLAGSHIP CCT</b>			
<b>Population</b>			
< US\$3.20 PPP	89.26%	10.74%	100.00%
US\$3.20 PPP - \$5.50 PPP	87.73%	12.27%	100.00%
US\$5.50 PPP +	67.44%	32.56%	100.00%
Total	75.81%	24.19%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	89.39%	10.61%	100.00%
US\$3.20 PPP - \$5.50 PPP	87.61%	12.39%	100.00%
US\$5.50 PPP +	62.42%	37.58%	100.00%

Total	65.48%	34.52%	100.00%
Flagship CCT			
< US\$3.20 PPP*	90.91%	9.09%	100.00%
US\$3.20 PPP - \$5.50 PPP	89.85%	10.15%	100.00%
US\$5.50 PPP +	78.29%	21.71%	100.00%
Total	84.08%	15.92%	100.00%
<b>FOOD TRANSFERS</b>			
Population			
< US\$3.20 PPP	51.47%	48.53%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.10%	52.90%	100.00%
US\$5.50 PPP +	48.40%	51.60%	100.00%
Total	49.17%	50.83%	100.00%
Market Income			
< US\$3.20 PPP	51.08%	48.92%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.13%	52.87%	100.00%
US\$5.50 PPP +	48.04%	51.96%	100.00%
Total	48.18%	51.82%	100.00%
Food Transfers			
< US\$3.20 PPP*	52.12%	47.88%	100.00%
US\$3.20 PPP - \$5.50 PPP*	47.12%	52.88%	100.00%
US\$5.50 PPP +*	46.99%	53.01%	100.00%
Total	49.16%	50.84%	100.00%
<b>OTHER TRANSFERS</b>			
Population			
< US\$3.20 PPP	35.16%	64.84%	100.00%
US\$3.20 PPP - \$5.50 PPP	50.39%	49.61%	100.00%
US\$5.50 PPP +	53.98%	46.02%	100.00%
Total	52.00%	48.00%	100.00%
Market Income			
< US\$3.20 PPP	41.19%	58.81%	100.00%
US\$3.20 PPP - \$5.50 PPP	50.29%	49.71%	100.00%
US\$5.50 PPP +	55.04%	44.96%	100.00%
Total	54.80%	45.20%	100.00%
Other Transfers			
< US\$3.20 PPP	21.61%	78.39%	100.00%
US\$3.20 PPP - \$5.50 PPP	39.62%	60.38%	100.00%
US\$5.50 PPP +	50.43%	49.57%	100.00%
Total	44.21%	55.79%	100.00%
<b>EDUCATION</b>			
<b>PRIMARY EDUCATION</b>			
Population			
< US\$3.20 PPP	47.99%	52.01%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.94%	52.06%	100.00%
US\$5.50 PPP +	48.44%	51.56%	100.00%
Total	48.26%	51.74%	100.00%
Market Income			
< US\$3.20 PPP	48.62%	51.38%	100.00%
US\$3.20 PPP - \$5.50 PPP	48.17%	51.83%	100.00%
US\$5.50 PPP +	48.10%	51.90%	100.00%
Total	48.13%	51.87%	100.00%
Primary Education			
< US\$3.20 PPP*	48.58%	51.42%	100.00%
US\$3.20 PPP - \$5.50 PPP*	47.62%	52.38%	100.00%
US\$5.50 PPP +*	48.58%	51.42%	100.00%
Total	48.42%	51.58%	100.00%
<b>LOWER SECONDARY EDUCATION</b>			

<b>Population</b>			
< US\$3.20 PPP	54.44%	45.56%	100.00%
US\$3.20 PPP - \$5.50 PPP	49.48%	50.52%	100.00%
US\$5.50 PPP +	50.98%	49.02%	100.00%
Total	51.30%	48.70%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	54.16%	45.84%	100.00%
US\$3.20 PPP - \$5.50 PPP	49.35%	50.65%	100.00%
US\$5.50 PPP +	49.05%	50.95%	100.00%
Total	49.18%	50.82%	100.00%
<b>Lower Secondary Education</b>			
< US\$3.20 PPP*	54.93%	45.07%	100.00%
US\$3.20 PPP - \$5.50 PPP*	50.87%	49.13%	100.00%
US\$5.50 PPP +*	50.83%	49.17%	100.00%
Total	51.47%	48.53%	100.00%
<b>UPPER SECONDARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	62.17%	37.83%	100.00%
US\$3.20 PPP - \$5.50 PPP	58.95%	41.05%	100.00%
US\$5.50 PPP +	55.46%	44.54%	100.00%
Total	56.16%	43.84%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	63.74%	36.26%	100.00%
US\$3.20 PPP - \$5.50 PPP	58.42%	41.58%	100.00%
US\$5.50 PPP +	52.12%	47.88%	100.00%
Total	52.30%	47.70%	100.00%
<b>Upper Secondary Education</b>			
< US\$3.20 PPP	56.80%	43.20%	100.00%
US\$3.20 PPP - \$5.50 PPP*	55.41%	44.59%	100.00%
US\$5.50 PPP +*	54.28%	45.72%	100.00%
Total	54.50%	45.50%	100.00%
<b>TERTIARY EDUCATION</b>			
<b>Population</b>			
< US\$3.20 PPP	66.01%	33.99%	100.00%
US\$3.20 PPP - \$5.50 PPP	66.56%	33.44%	100.00%
US\$5.50 PPP +	60.86%	39.14%	100.00%
Total	60.97%	39.03%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	70.92%	29.08%	100.00%
US\$3.20 PPP - \$5.50 PPP	66.33%	33.67%	100.00%
US\$5.50 PPP +	58.62%	41.38%	100.00%
Total	58.63%	41.37%	100.00%
<b>Tertiary Education</b>			
< US\$3.20 PPP	63.93%	36.07%	100.00%
US\$3.20 PPP - \$5.50 PPP	60.54%	39.46%	100.00%
US\$5.50 PPP +*	60.40%	39.60%	100.00%
Total	60.43%	39.57%	100.00%
<b>HEALTH</b>			
<b>NON-CONTRIBUTORY HEALTH REGIME (NATIONAL HEALTH FUND)</b>			
<b>Population</b>			
< US\$3.20 PPP	47.42%	52.58%	100.00%
US\$3.20 PPP - \$5.50 PPP	45.81%	54.19%	100.00%
US\$5.50 PPP +	47.05%	52.95%	100.00%
Total	47.01%	52.99%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	49.36%	50.64%	100.00%

US\$3.20 PPP - \$5.50 PPP	45.69%	54.31%	100.00%
US\$5.50 PPP +	47.80%	52.20%	100.00%
Total	47.79%	52.21%	100.00%
<b>Non-Contributory Health Regime (National Health Fund)</b>			
< US\$3.20 PPP*	48.10%	51.90%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.91%	52.09%	100.00%
US\$5.50 PPP +*	48.48%	51.52%	100.00%
Total	48.45%	51.55%	100.00%
<b>CONTRIBUTORY HEALTH REGIME (IAMC)</b>			
<b>Population</b>			
< US\$3.20 PPP	48.59%	51.41%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.31%	52.69%	100.00%
US\$5.50 PPP +	50.92%	49.08%	100.00%
Total	50.26%	49.74%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	49.58%	50.42%	100.00%
US\$3.20 PPP - \$5.50 PPP	47.64%	52.36%	100.00%
US\$5.50 PPP +	51.08%	48.92%	100.00%
Total	50.93%	49.07%	100.00%
<b>Contributory Health Regime (IAMC)</b>			
< US\$3.20 PPP	50.69%	49.31%	100.00%
US\$3.20 PPP - \$5.50 PPP*	47.95%	52.05%	100.00%
US\$5.50 PPP +*	51.31%	48.69%	100.00%
Total	50.84%	49.16%	100.00%
<b>CONTRIBUTORY HEALTH REGIME (FONASA)</b>			
<b>Population</b>			
< US\$3.20 PPP	55.63%	44.37%	100.00%
US\$3.20 PPP - \$5.50 PPP	55.39%	44.61%	100.00%
US\$5.50 PPP +	58.36%	41.64%	100.00%
Total	57.24%	42.76%	100.00%
<b>Market Income</b>			
< US\$3.20 PPP	55.31%	44.69%	100.00%
US\$3.20 PPP - \$5.50 PPP	55.49%	44.51%	100.00%
US\$5.50 PPP +	57.88%	42.12%	100.00%
Total	57.62%	42.38%	100.00%
<b>Contributory Health Regime (FONASA)</b>			
< US\$3.20 PPP*	55.04%	44.96%	100.00%
US\$3.20 PPP - \$5.50 PPP*	54.45%	45.55%	100.00%
US\$5.50 PPP +	56.07%	43.93%	100.00%
Total	55.52%	44.48%	100.00%

**Notes:**

\*Indicates that the program is horizontally equitable for that income group.



**Table 46:** Coverage Rates of Education, Uruguay 2009*Panel A: Coverage Rate of Total Households*

	Coverage Rate of Total Households (Beneficiary Households/Total Number of Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	$\gamma < 3.2$	Total	$\gamma < 3.2$	Total	$\gamma < 3.2$	Total	$\gamma < 3.2$	Total	$\gamma < 3.2$	Total	$\gamma < 3.2$	Total
Education												
Primary	50.11	18.18	56.91	23.03	0.8805	0.7895	32.82	15.19	22.55	19.31	1.4554	0.7865
Lower Secondary	32.01	12.87	27.01	14.07	1.1854	0.9146	18.13	10.10	12.38	12.12	1.4651	0.8334
Upper Secondary	9.63	11.20	7.76	10.67	1.2400	1.0488	4.88	7.44	4.90	9.74	0.9959	0.7639
Tertiary (University)	0.74	9.22	0.30	6.72	2.4548	1.3707	0.74	5.84	0.35	6.34	2.0843	0.9204

*Panel B: Coverage Rates of Target Households*

	Coverage Rate of Target Households (Beneficiary Target Households/Total Number of Target Households)											
	Breadwinner Households						Household Headed Households					
	Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households		Female (%)		Male (%)		Differences Between Female/Male Breadwinner Households	
	$\gamma < 3.2$	Total	$\gamma < 3.2$	Total	$\gamma < 3.2$	Total	$\gamma < 3.2$	Total	$\gamma < 3.2$	Total	$\gamma < 3.2$	Total
Education												
Primary	97.79	76.28	96.78	79.58	1.0105	0.9586	96.55	81.59	95.93	78.28	1.0065	1.0423
Lower Secondary	62.33	63.36	50.39	60.84	1.2369	1.0414	58.03	62.55	56.99	61.59	1.0181	1.0157
Upper Secondary	20.92	40.13	18.65	38.49	1.1217	1.0427	19.39	34.68	27.52	41.03	0.7044	0.8451
Tertiary (University)	0.36	18.95	0.75	11.99	0.4764	1.5811	1.98	14.63	1.83	14.28	1.0800	1.0245

Overall, this study has shown that the results are more complex than they appear upon first glance. If looking quickly, one might see that female-type households and female beneficiaries benefit from the majority of programs and have greater absolute reductions in poverty and inequality than their male counterparts. When carefully looking at the results, which has been done in this chapter, it is easy to see that each piece of the fiscal system has to be assessed to determine the overall picture. As we have seen, male breadwinner households are more likely to be poor than their male counterparts. But female headed households are more likely to be poor than their male counterparts. How can this inverse relationship happen? Especially given that the female headed households are much more disadvantaged than they male breadwinner households. When making policy

recommendations from such a study, every piece of the puzzle must be carefully assessed. For example, percentage of households in each gender type of household according to income group matter. If female headed households are slightly disadvantaged as compared to male headed households in a country, but they only comprise 25% of the population, should fiscal policy target these households? What would that do to the remaining 75% of the population? The next chapter will address conclusions such as these.

## **Chapter 4**

### **Conclusions and Next Steps**

The literature review in Chapter 1 of this dissertation revealed important shortcomings in the gendered fiscal incidence analysis field. The most important limitation was that no comprehensive gendered fiscal incidence analysis study was available. In particular, there were no studies that looked at the impact of direct and indirect taxes (including consumption taxes and subsidies), cash transfers, and in-kind transfers combined. This was a serious shortcoming. When studying fiscal policy, what matters in the end is the net effect of fiscal interventions on people's incomes and consumption. This is particularly true when assessing gender. Focusing on only the tax side could result in policy recommendations that do not take into consideration the fact that individuals receive benefits from transfer programs. The opposite could also be true. If only benefits are assessed and these benefits particularly improve the wellbeing of poor females for example, this could mean nothing if the transfers are not high enough to compensate for the amount that the females pay in taxes.

The literature review revealed another shortcoming in the lack of comprehensiveness. Some studies only assessed one type of gender variable. For example, a study might only assess the effect of transfers on the individual beneficiary, or a study might only assess how taxes affect households according to headship. Assessing only

individual beneficiaries ignores the fact that the individual likely lives in a household with other people with whom they probably share benefits. On the other hand, if only the household level is assessed, it is difficult to assess the benefits of in-kind transfers such as education and health, which are generally received by one person. Although several studies did use multiple gender variables, they were usually the studies that only assessed taxes.

The systematic literature review also revealed that there was not a common framework to assess gender through fiscal incidence analysis. One benefit of using the systematic literature review methodology was that it allowed the indicators used in existing studies to be mapped to three main objectives. *Objective 1*: What is the impact of taxes and government transfers on gendered inequality and poverty indicators? *Objective 2*: Are the burden of taxation and the benefits from government direct transfers and indirect subsidies different by gender? *Objective 3*: How equitable is spending on/usage of public education, health, and other government services by gender? A comprehensive fiscal incidence analysis would answer all three questions. Of the 16 studies reviewed, two studies fell under Objective 1. These studies analyzed the impact of taxes and government transfers on gendered inequality and poverty indicators. Six studies fell under Objective 2, examining who bears the burden of taxes and who received the benefits of taxes. Eight studies assessed gender indicators of access to/use of public services, Objective 3. No study looked at all three objectives (Tables 2 and 3). Mapping the indicators to the objectives allowed common methodologies to emerge. But it also provided the opportunity to build on the existing methodologies to develop a framework to assess gender that would evaluate all three objectives.

The final important shortcoming that the literature review revealed was the lacking number of gendered fiscal incidence analyses in the Latin America and Caribbean region. The majority of studies in the literature review were regarding Sub-Saharan Africa<sup>38</sup> (Table 3). Of the 16 papers assessed in the literature review, only one study included two countries in the Latin American region. This was the Glick et al. (2004) study, which was a cross country study assessing health, education, public employment, and time spent collecting water in nine countries, two of which were Jamaica and Peru. In addition to the Glick et al. (2004) study, two chapters in the Grown and Valodia (2010) edited volume assessed taxation and gender equality in Latin America. The Enriquez et al. chapter assessed Argentina, while the Perez Fragoso chapter assessed Mexico.<sup>39</sup> Other than these studies, to my knowledge there have not been any other gendered fiscal incidence analyses completed regarding the region of Latin America. Furthermore, there has not been a comprehensive study that assesses both taxes and transfers, and there has not been a cross country study about the region. There also have not been any gendered fiscal incidence analyses using household survey data from 2010 forward (Table 3).

This dissertation has taken advantage of the shortcomings in the gendered fiscal incidence analysis field that were discovered through the literature review. Using the results of the literature review, specifically the mapping of the indicators to the objectives and following the ethno-racial framework created by Lustig (2015), a gendered fiscal

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<sup>38</sup> The 16 studies reviewed assessed 22 countries in total. This is because several studies assessed multiple countries. Of 22 countries assessed, 12 were regarding Sub-Saharan Africa, three were regarding East Asia and the Pacific, two were regarding Europe and Central Asia, two were regarding Latin America and the Caribbean, none studied the Middle East and North Africa, and three examined South Asia (Table 3).

<sup>39</sup> These chapters were read, but ultimately not included in the literature review because they followed the exact same methodology of other chapters in the book that were included in the review.

incidence framework was created. This framework, which was presented in Chapter 2, included a recommendation of indicators to assess the poverty and inequality outcomes of fiscal policy, as well as indicators to assess progressivity and horizontal equity among the poor, which were dimensions of the fiscal system. To strengthen the internal validity of the study, the framework that was developed included several indicators per outcome and per dimension of the fiscal system whenever possible.

After the framework was developed, the gender variables that would be evaluated were created. Three variable groups were created. The first was the breadwinner households, which had four sub-groups. These were female breadwinner households, male breadwinner households, multiple breadwinner households, and zero breadwinner households. The breadwinner was defined by the gender of the individual in the household who earned the most money from labor income. In other words, if a female made the most money of everyone in the household through her employment, this became a female breadwinner household. This indicator was an employment status indicator. It examined how households fared based on whether a male or female earned the most money through their job. The breadwinner variable category is commonly used in gendered fiscal incidence analyses, especially among those who study tax incidence. The following authors used the breadwinner variable: Aryeetey et al. (2010), Browne (2011), Casale (2012), Chakraborty et al. (2010), Figari et al. (2011), Siddiqui (2009), and Ssewanyana et al. (2010). The second gender variable set was headship households. This was simply male versus female headed households as self-identified in the household surveys. Of the studies included in the literature review, Browne (2011), Siddiqui (2009), Casale (2012), and Mogues et al. (2013) also assessed headship. Finally, male and female beneficiaries were

also assessed following Austen et al. (2013), Castro-Leal (1996), Demery and Gaddis (2009), Demery et al. (1995), Demery et al. (1996), Glick et al. (2004), Mogues et al. (2013) and Rashid et al (2001) (Table 4).

After the gender variables were determined, the data that would be used to assess gender inequality in Latin America was identified. The data that was used to complete a gendered fiscal incidence analysis of Brazil, Colombia, the Dominican Republic, Mexico, and Uruguay was the unique, recently released, harmonized microdata on fiscal incidence produced by CEQ Institute at Tulane University. This data is officially titled the CEQ Harmonized Microdata. These harmonized datasets were produced from previously completed CEQ Assessments for the respective countries, which were authored by the following researchers according to the country: Brazil 2009 – Sean Higgins and Claudiney Pereira (2014), Colombia 2010 and 2014 – Marcela Melendez and Valentina Martinez (2019a and 2019b), the Dominican Republic 2013 – Jaime Aristy-Escuder, Maynor Cabrera, Blanca Moreno-Dodson, and Miguel E. Sanchez-Martin (2018), Mexico 2012 and 2014 – John Scott, Sandra Martinez-Alguilar, Enrique de la Rosa, and Rodrigo Aranda (2017a and 2017b), and Uruguay 2009 – Marisa Bucheli, Nora Lustig, Maximo Rossi, and Florencia Amabile (2014).<sup>40</sup> Although the results were run for Colombia 2014 and Mexico 2014, they were not assessed in this dissertation. However, the results can be found in Appendix 2 for the interested reader. The corresponding CEQ Assessments were based off of the following households surveys: Brazil 2009: Pesquisa de Orçamentos Familiares

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<sup>40</sup> The Tulane University Human Research Protection Office reviewed the research proposal to use these datasets. The Institutional Review Board (IRB) deemed that the study did not involve human subjects research as defined by the Common Federal Rule. Therefore, IRB review and approval were not required. Additionally, despite that the CEQ Harmonized Microdata will be made publicly available, I sought permission from each CEQ Assessment author to use the datasets produced from their studies for the purposes of this dissertation. Each author provided me with written permission.

2008-2009 (Income based), Dominican Republic 2013: Encuesta Nacional de Ingresos y Gastos de los Hogares 2006-2007 (Income based), Colombia 2010: Encuesta Nacional de Calidad de Vida 2010 (Income based), Colombia 2014: Encuesta Nacional de Calidad de Vida 2014 (Income based), Mexico 2012: Encuesta Nacional de Ingresos y Gastos de los Hogares 2012 (Income based), Mexico 2014: Encuesta Nacional de Ingresos y Gastos de los Hogares 2014 (Income based), and Uruguay 2009: Encuesta Continua de Hogares 2009 (Income based). Each of these CEQ Assessments was completed following the methodology in Lustig (2018). Using these CEQ Assessments, Cristina Carrera of the CEQ Institute create each harmonized microdata set.

In order to complete a gendered fiscal incidence analysis, the data first had to have the necessary gender variables added to it. Therefore, the aforementioned gender variables were added to each of the CEQ Harmonized Microdata for the total population. In turn, a CEQ Harmonized Microdata by Gender was created. This was one of the main contributions of this dissertation.

After the CEQ Harmonized Microdata by Gender was created, the datasets were used to complete a gendered fiscal incidence analysis. The fiscal incidence analysis methodology that was used was that of the CEQ Assessment. The CEQ Assessment is a comprehensive methodology that examines the effect of both taxes and transfers on a multitude of poverty, inequality, and other similar wellbeing indicators. The CEQ Harmonized Microdata by Gender was applied to the CEQ Assessment methodology in order to produce results to the indicators that were included in the gendered fiscal incidence analysis framework.



Using the CEQ Assessment fiscal incidence analysis methodology allowed both taxes and transfers to be studied together. To my knowledge, the cross country study completed in this dissertation was the first comprehensive fiscal incidence analysis that assessed both taxes and transfers, and therefore the net effects of the fiscal system. It was also the first cross country study of gendered fiscal incidence analysis in Latin America that I am aware of. Given that the majority of existing gendered fiscal incidence analyses used data from the 1990s and early 2000s, this study also provided results using more recent household survey data (Brazil 2009, Colombia 2010, the Dominican Republic 2013, Mexico 2012, and Uruguay 2009). Finally, given that the dissertation also assessed the results on three sets of gender variables, the results provided multiple angles to evaluate how fiscal policy affects gender.

This dissertation set out to answer the three following questions, which were based on Objectives 1-3 of the literature review of Chapter 1, but modified to be applied to Latin America. *What is the impact of taxes and government transfers on gender income inequality and poverty between genders in Latin America? Are there noticeable differences between females and males in Latin America in terms of who bears the burden of taxation and who receives the benefits from government spending on transfers? Taking gender into account, how equitable is spending on in-kind transfers such as public education and health in Latin America?* As discussed in Chapter 3, the results of this cross country study have been able to answer each of these questions. The main conclusions will be summarized below.

*What is the impact of taxes and government transfers on gender income inequality and poverty between genders in Latin America?*

Overall, the results have shown that the impact of taxes and government transfers on gender income inequality within gender categories has a positive (that is, inequality reducing) effect. The average difference between market income and consumable income of the change in the Gini coefficient was .03462 for female breadwinners, .03202 for male breadwinners, .04038 for female headed households, and .03908 for male headed households. This shows that, on average, within-household category inequality declined the most for female headed households and the least for male breadwinner households. Despite that inequality declined for all gender categories, post fisc male breadwinner households were more unequal than their female counterparts. Considering that the male breadwinner households were not severely disadvantaged compared to the female breadwinner households, this result is not surprising, especially when considering that the female breadwinner households have a higher average per capita income pre and post fisc.

Fiscal policy also has a positive impact on poverty. In all cases poverty (both measured by the headcount ratio and the poverty gap squared) declined for each gender variables thanks to fiscal policy. However, the poverty gap between the female and male breadwinners widened post fisc. This means that fiscal poverty impacted the poverty of female breadwinners more positively than it did male breadwinner households. Pre fisc the average difference of the squared poverty gap between female and male breadwinners was only .8. But post fisc it was 1.24. This is important, especially considering that on average female breadwinner households comprise about 25% of the population, while male breadwinners comprise about 65%. This means that fiscal policy is significantly impacting the less disadvantaged 25% of the population (female breadwinners) much more so than the disadvantaged 65% of the population (male breadwinners).

On average, female headed households were much poorer than their male headed households pre and post fisc. Pre fisc the average difference across the five countries of the poverty gap squared between the two genders was 1.58. But post fisc it was .50. Although the wellbeing of female headed households did improve thanks to government interventions, these households continued to show the highest poverty rates of the household gender variables.

*Are there noticeable differences between females and males in Latin America in terms of who bears the burden of taxation and who receives the benefits from government spending on transfers?*

The results also showed that there are some noticeable differences between female and male headed households in terms of who bears the burden of taxation and who receives the benefits from spending. Using progressivity as the indicator, it became clear very quickly that most countries followed the same patterns for headship variables. As a reminder, a transfer (tax) is progressive in absolute terms if it benefits more (burdens less) the household type or gender (in terms of beneficiaries) with the lower per capita income. In most cases, female headed households benefited more so than male headed households from government spending on transfers. But there were also many cases where there was neutrality in who received the benefits from government spending for headship households as well as for male and female beneficiaries.

In regard to pensions. Spending on contributory pensions and non-contributory pensions for the poorest income group is gender neutral for male and female headed households in Colombia. In Brazil, contributory pensions are equitable for the wealthy headship households. But these are the only instances in which any pension program has

horizontal equity, meaning that spending on female headed households and male headed households is within two percent of their share of the population. As for the male and female beneficiaries in Brazil. The contributory pensions are progressive for male beneficiaries, while the non-contributory special circumstances pensions are progressive for female beneficiaries. The only country in which spending on contributory pensions is neutral among the poor male and female beneficiaries is Uruguay. There is horizontal equity for the wealthy male and female contributory pension beneficiaries in Colombia, the Dominican Republic, Mexico, and Uruguay. In Colombia and the Dominican Republic, male beneficiaries receive more expenditures on contributory pensions than female beneficiaries. Female beneficiaries received a greater share of non-contributory pensions expenditures in Brazil and Mexico, while there was equal spending on all levels of non-contributory pensions in Uruguay.

All direct transfers are gender neutral for the poorest income group of headship households in Colombia, for all income groups in the Dominican Republic, and for the middle income group and the wealthy in Uruguay. Also for headship households, spending on the flagship CCTs is equitable among the poor in Brazil, for all income groups in the Dominican Republic, for the poorest income group in Mexico, and for the wealthy in Uruguay. The flagship CCT in Colombia is progressive in absolute terms for male headed households. In Mexico, the non-contributory health insurance regime IMSS-Oportunidades is progressive in absolute terms for male headed households, as is the contributory health insurance regimes IAMC and FONASA in Uruguay. Much of government spending on transfer programs for poor male and female beneficiaries is gender neutral. Almost every

health regime has horizontal equity for most income groups. If there was not horizontal equity, then health expenditures favored female beneficiaries, but not by much.

Female headed households generally receive more in-kind education transfers than their male counterparts. In the case of the beneficiaries, education spending is usually gender neutral. Although male beneficiaries benefitted the most from secondary education expenditure in Brazil.

Overall, male headed households bear the burden of taxes. They pay more in direct and indirect taxes than their share of the population. As such, taxes are generally regressive in absolute terms (and therefore by definition also in relative terms) for male headed households. The most regressive of the taxes of all the countries for male headed households was direct taxes in Dominican Republic, followed by direct taxes in Uruguay, and then direct taxes in Mexico. There are cases where the burden is neutral meaning that each gendered household paid within two percentage points of their share of the population in taxes. This occurs for direct taxes in Brazil and indirect taxes in Mexico and Uruguay.

It should be pointed out that when assessing horizontal equity, the burden of direct taxes fell heavily on poor female headed households in Brazil and Colombia. This is an issue because if a household is that poor, the gender really should not matter – no poor household should be overburdened by taxes in an ethical sense. But this is a point that should be investigated in future research. Net indirect taxes were progressive in absolute terms for male headed households in Mexico. In Brazil and Colombia, although indirect taxes and net indirect taxes were regressive for male headed households, it was not by much more than two percent of their respective share of the population.

As a test of internal validity, coverage was used to determine if these results made sense. Coverage is simply the portion of the population that is enrolled in a program or that pays a tax. This was assessed according to the three general income groups used throughout this study. As discussed country-by-country in Chapter 3, the coverage results were generally consistent with the progressivity results. In other words, if more female headed households were enrolled in a program then it was likely that the program was progressive for female headed households. However, there were some surprises. For example, in Uruguay, all direct transfers, non-contributory pensions, the flagship CCT, the food transfers, and other transfers were progressive for female headed households. But in all cases aside from the non-contributory pensions, male headed households had higher coverage rates as compared to the female headed households. This means that larger shares of transfers went to the female headed households than the male headed households. This makes sense considering that the poverty rates of female headed households declined post fisc on average more than those of male headed households.

*Taking gender into account, how equitable is spending on in-kind transfers on public education and health in Latin America?*

The study also revealed that when taking gender into account, how equitable in-kind spending on public education and health is depends on the service and the income groups. However, some common patterns do emerge. Overall, the health regimes are generally equitable for the majority of the income groups for both the headship households and beneficiary variables. For the headship variables, in every country aside from Uruguay there is a least one subsidized or non-contributory health regime that has horizontal equity

among the poorest income group. In Uruguay, the contributory health regime FONASA has equitable spending on the poorest income group. If spending on health is not equitable, then female headed households generally receive more, especially among the poor. However, in Mexico poor male headed households receive more health expenditures from the non-contributory health regime IMSS-Oportunidades. Male headed households also receive more health expenditures for each income group for the contributory health regime IAMC in Uruguay. Although there is gender neutrality among the poorest headship households for the contributory health regime FONASA in Uruguay, male headed households receive more expenditures for the other income groups. This is a phenomenon that could be evaluated further in the future.

Spending on education is generally gender neutral for the male and female beneficiaries. In regard to the headship households, there is equitable spending among the poor for primary education in Colombia, the Dominican Republic, and Mexico. Mexico has equitable spending on all income groups of the headship households for lower secondary education and for the poorest income group for upper secondary education. Brazil has equitable spending on tertiary education for the poorest headship income groups. There are also other various levels of education that have equitable spending for other income groups, which are oftentimes the wealthy. There are a few cases where education spending is greater for males. The most prominent example is that the Dominican Republic spends much more on male headed households in the middle income group than female headed households on tertiary education. Uruguay spends much more on education on females than males. Interestingly, they had the highest average level of educations for the cross-country study. The coverage rates of education are consistent with these results.

The reason that there was equal spending in many cases for the beneficiaries is because by definition, the only individuals who were assessed were actual beneficiaries. The same amount of education and health spending is allocated equally to males and females in the original CEQ Assessments from which the variables were constructed. Therefore, these results are not surprising.

As a test of internal validity, coverage was used to determine if these results made sense. In most cases the coverage results were generally consistent with the horizontal equity results. For the case of education, the coverage of the target populations were also assessed. These results were also consistent with the aforementioned results.

### ***Main Conclusions***

Overall the results have shown that pre fisc and post fisc inequality is generally higher for male breadwinners. Pre and post fisc poverty is also typically higher for male breadwinners. Post fisc the poverty gap squared declines more on average for female breadwinners than male breadwinners. This means that the poverty gap between male and female breadwinners widens post fisc. Female headed households are generally poorer pre fisc, but their wellbeing does improve post fisc more than that of their better off counterparts of male headed households. However, female headed households remain the most disadvantage. What does this mean about the effectiveness of fiscal policy on gender? In general we should have expected effective fiscal policy to improve the wellbeing of all households and beneficiaries. The normative ideal would be for there to be equal poverty levels between the genders and that poverty reduction is gender neutral.



In terms of progressivity the normative ideal would be that the more disadvantaged pre fisc group is benefitting more from progressive transfers net of taxes. This was generally the case as we saw that in many cases female headed households benefitted from more progressive transfers net of taxes in absolute terms much more often than male headed households. In order to further reduce the poverty of female headed households, however, these households would need to receive even more benefits from transfers than they do now. We also saw that many countries have horizontal equity among the poor for many programs, which is the normative ideal.

### ***Study Limitations***

This study had several limitations that are important to discuss. First, in several cases, ratios were used as an indicator. For example, the per capita income ratio was used to compare the pre and post fisc incomes between female-type and male-type households. As such, if the ratio was over one, then female-type households had a higher income than their male-type counterparts, and vice versa. A ratio was also used when evaluating the coverage indicators to determine if female-type households and female beneficiaries had higher coverage rates than their male counterparts. To the same end, if the ratio was over one, then females had higher coverage rates than males, and vice versa. The statistical significance of these ratios was not tested. Therefore, the differences may or may not be statistically significant.

Another limitation is that this study did not assess inequality between households. This could be done in a future study using the Theil Index, which is a decomposable inequality indicator. This decomposition shows what share of inequality is due to

differences in income *between* groups (Lustig, 2018, p. 471). In other words, what share of inequality is due to difference in income *between* male-type households as compared to their respective female-type households. In this study only the Gini was assessed, which shows the level of inequality *within* each gender variable.

There is also a major methodological shortcoming in the field, which was discussed in Chapter 1 as a result of the systematic literature review. That is the lack of both intrahousehold sharing data and a sound methodology to assess intrahousehold sharing. It is very difficult to truly assess gender without this kind of detailed data and/or methodology. Once the money goes to the household, we do not know how it is spent. This makes it very difficult to assess consumption taxes in particular. The literature review revealed that several studies tried to tackle this problem by relying on equating the distribution of the burden of taxes to the distribution (budget shares) of gendered adult-specific goods. For instance, these studies disaggregate adult-specific goods by gender (e.g., male vs. female clothing, sanitary napkins, alcohol consumption, etc.) and assign the statutory incidence of consumption taxes to the females and males according to the budget shares of these gendered adult-specific goods. Such an approach ignores the significant dynamics that may occur within the households due to the unequal distribution of decision power. For instance, an increase in excise taxes on alcohol may not result in the male member drinking less alcohol but in a lower consumption of food for his children as the male transfers the burden of the tax to the powerless children. An exactly opposite situation may occur with a transfer or pensions to retirees: grandparents may share the benefit with their grandchildren. Ignoring these behavioral dynamics within the household could lead to very wrong conclusions. Modeling these dynamics and estimating their orders of

magnitude is a daunting task and requires access to special type of surveys and, thus, was beyond the scope of this dissertation. However, this could be interesting and important research in the future.

### ***Implications of study on Gender Inequality in Latin America***

This study has shown interesting results about gender inequality in Latin America. Specifically, we have seen that the severity of the gender that is disadvantaged pre fisc depends on the gender variable that is being assessed. Furthermore, the gender that is most disadvantaged prior to government intervention varies. Some of the results were not surprising for the Latin American region. For example, prior to this study, it was already known that females are more likely to be enrolled in schools than males in Latin America. It is also not surprising that there is generally equal spending among genders on health programs. Some of the horizontal equity results are interesting and useful, especially when assessing the poor.

The results in this study and those in the Grown and Valodia (2010) edited volume about Latin America did reveal somewhat different results. When assessing indirect taxes in Argentina, Rodriguez Enriquez et al. (2010) found that male breadwinner households and male headed households bear the burden of indirect taxes as compared to their female counterparts. This was also the case in this dissertation in Brazil, Colombia, and the Dominican Republic. Indirect taxation in Mexico and Uruguay was considered neutral. Rodriguez Enriquez et al. (2010) also found that the indirect taxes were proportional and slightly progressive (based on income, not gender). Interestingly, the authors found that assessing the aggregate of indirect taxes was very important. As an example, female

breadwinners faced the most regressive VAT. However, when assessing the aggregate indirect taxes, female breadwinners have a lower indirect tax incidence than male breadwinners as well as female and male headed households. This is another example of why studying the net effect of the fiscal system is important. In regard to the personal income taxes, the authors found that the tax system was implicitly biased against women. In this dissertation, in contrast, the results of all direct taxes were actually progressive for female headed households. Although the results were not summarized for only personal income taxes (these results can be found in Appendix 2 for the interested reader), if there were implicit gender biases against women in the personal income tax systems, they did not affect the net effect of direct taxes. Rodriguez Enriquez et al. (2010) also found that the tax system was not horizontally equitable, but it was vertically equitable. This dissertation found some horizontal equity in the tax system for headship households, more so for indirect taxes than direct taxes. But generally there was not a lot of horizontal equity across the five countries for the headship households.

In Mexico, Perez Fragoso and Cota Gonzalez (2011) found that when using income (as opposed to expenditure) to measure indirect taxes, male breadwinner households bear a higher burden than their female counterparts. The authors also found that indirect taxes were relatively regressive for lower incomes. These were not the same results as were found in this dissertation. This dissertation found that male breadwinners pay less in indirect taxes than their female counterparts, but not by a lot. Also, there is horizontal equity for the middle and wealthy income groups, but not for the poorest. Male headed households pay a bit more than female headed in indirect taxes, but it was considered equal for the purposes of this dissertation (i.e., less than a 2% difference). From doing a

qualitative assessment of the personal income tax system the authors found that there is implicit bias in the tax system that benefits men. The results of the dissertation showed that there was neutral spending between breadwinner households. But poor female breadwinner households bear the burden of personal income taxes. The dissertation also found that overall, direct taxes are progressive female headed households and there is not horizontal equity among the poor. The differences in results could be due to the fact that the breadwinner variables were defined differently. The Perez Fragoso and Cota Gonzalez (2010) defined a male breadwinner as *only* men being employed in the household, and vice versa for females. In this dissertation, both spouses could earn income in a breadwinner category. It was simply defined according to the gender who earned more.

Unfortunately, neither the Mexico study nor the Argentina study in the Grown and Valodia (2010) edited volume assessed poverty and inequality indicators, so the results cannot be compared other than intervention-by-intervention. But overall, of the countries assessed in the Grown and Valodia edited volume, male headed households bear the burden of indirect taxes in all countries except India. In most countries male breadwinners also bear the burden. In the United Kingdom, those who were not employed bear the burden, which was interesting. The results for breadwinner tax incidence analysis of this dissertation can be found in Appendix 2. But in general the results from the book are not surprising. The male headed households in this dissertation bear the tax burden in most cases, as previously discussed.

The results of the male and female beneficiaries in this dissertation show who receives the benefit of taxes depends on the country, program, and income group. This is the same as in the previous existing literature – results vary significantly by program and

country, and even region. One important item that was assessed in this dissertation that has not been widely assessed is pensions. This study showed that pensions often benefitted women, which makes sense given that women's life expectancy is greater than that of men. However, it is still important to understand how pensions affect women's wellbeing. Especially as life expectancy increases. Most of the design of the non-contributory pension programs in Latin America are similar (Appendix 1). Despite, this the results varied, especially in regard to horizontal equity.

The most interesting result might be the inverse relationship of wellbeing of the male breadwinners and female headship households being the most disadvantaged groups. The breadwinner variable set is a commonly used to assess gender inequality. But the results of this dissertation have shown that this needs more investigation to determine if it is even a useful variable category. This is particularly important when assessing fiscal policy. As previously discussed, the male breadwinners comprise 65% of the population on average, while the female breadwinners comprise about 25% of the population. Given that the male breadwinners are slightly more disadvantaged than female breadwinners, does not necessarily mean that fiscal policy should be targeted to 65% of the population. However, given that fiscal policy further disadvantages male breadwinners means that this gender variable cannot be dropped without further research, which will be among the issues discussed in the next section.

### ***Further Research***

Much has been learned by this study, including what can be done for future research. First and foremost, the inverse relationship of the results of the disadvantaged

male breadwinners as compared to the disadvantaged female headed households should be examined. To do this, the gendered variables need to be better explored. More work needs to be done to determine if the breadwinner variables are worthwhile variables. This research should begin with determining why female breadwinners have higher incomes. These households need to be truly diagnosed in each country. This would help to answer some of the questions that have been posted throughout this dissertation, such as whether female breadwinner households have high levels of education, if they have more professional type of jobs, or if they are simply clustered in the higher deciles of the income distribution. It would also be necessary to determine if female headed households are more likely to have no adult males in the household or no adult males who are employed in the household. Answering these questions could help to determine why female headed households are so much more disadvantaged than male breadwinners. In most instances, the study results showed that female headed households had higher education enrollment rates, especially for target populations. Further examination of these variables should also look into this. Is this because female headed households are more likely to be single parent households and therefore they send their kids to school so that they do not have to pay for childcare? Or, do the children of single parent female headed households stay enrolled longer because there is not a family business for them to go work for? These are complex questions that cannot be answered easily. But they are important questions to learn how fiscal policy can best affect gender inequality.

Both household groups should be controlled for according to lifecycle events. This is necessary to see how much health and pension expenditures female-type households receive at which points of their lives. Controlling for households with and without

pensioners could also help to show how much the pensions are affecting households intergenerationally in the cases when pensioners and younger family members reside together. In order to make the results more comparable to existing studies, it would also be good to control for the number of children in the household, and to create a set of variables where a breadwinner is defined as the only person who works. Several studies also used majority household variables. That is households that were “female majority” and “male majority.” Using this gender variable group could be interesting to see if taxes in particular are affected. It would also be worthwhile to include other types of income to define the breadwinner variables. For example, instead of only using labor income, capital income could also be included. This could potentially yield different results, particularly among the wealthy.

The beneficiary variables should be assessed according to target populations. This would likely be more enlightening than only assessing beneficiaries that are already enrolled. Additionally, previously ethno-racial studies have been completed using the CEQ methodology in Latin America. For this, it would also be interesting to add rural/urban and ethno-racial results. This could help target fiscal policy even more carefully, especially in terms of gender.

Second, this study could benefit from having statistical significance added to the ratio indicators. It would also be good to add confidence intervals. Finally, adding the Theil decomposition would strengthen the inequality results of the study. This would show the inequality *between* gender-type households, which could help answer additional questions and support other results in the study.



Third, all of the harmonized data that was used for this study was allocated at the per capita level. It could be interesting to test the results using adult equivalence scales. Although this method has its shortcomings, because there is no way to test intrahousehold sharing, testing the allocation of consumption and expenditure differently could be interesting.

Fourth, in order to make reliable interpretations of results and subsequent policy recommendations, the gender variables need to be further investigated. As previously discussed, it is uncertain, for example, if the breadwinner household category is a worthwhile variable. It is also uncertain if households need to be controlled for according to whether or not the spouse works, the number of children in a household, if there are intergenerational family members residing within a single household, etc. Reliable policy recommendations cannot be made until the strongest gender variables are determined.

Finally, to build an even more robust CEQ Harmonized Microdata by Gender, it would be worthwhile to run the results for every single CEQ Assessment indicator. This dissertation did not require results for every indicator to answer the research questions. However, users of the pre populated microdata results who would like to ask other questions could benefit from having the full set of indicators complete.

## **Appendix 1**

### **Description of Government Programs in Latin America**

Across Latin America, countries take varying approaches to tax systems and transfer programs. This section is designed to serve as a reference guide, outlining the standards of transfer programs, as well as the responsibilities of participants. In addition, the section includes information on the tax systems and structures, a brief history of education and health systems, the origins and name of the program, the type of incentives, the targeted recipients, eligibility, and the desired goals for the program.

#### **I. BRAZIL**

##### **Tax System**

Brazil's tax system consists of 85 distinct taxes (Higgins and Pereira, 2013). Personal income tax returns are a significant source of revenue. Individuals pay income tax if taxable income exceeds the exemption limit, which is equivalent to the minimum wage for one month. No exemptions exist for taxpayers filing jointly and with dependents, nor are there allowances for health insurance and education.

The standard tax deduction in Brazil is equal to 20 percent of taxable income. Marginal tax rates range from 15 to 27.5 percent. Across the population, less than 10 percent pay income tax. Corporate taxable income is taxed at 25 percent (Higgins and

Pereira, 2013). Businesses also pay social contribution taxes on profits at 9 percent of the net taxable income. Many indirect taxes operate each with their own administering department at the federal, state, or municipal level. The most important indirect tax is the Imposto sobre Circulação de Mercadorias e Serviços (ICMS), a state tax on the sale or physical movement of goods, freight, transportation, communication services, and electricity (Higgins and Pereira, 2013). Intrastate transactions are taxed at 18 percent on average, while interstate transactions are taxed at 7 percent or 12 percent. Imported goods are taxed from 4 to 25 percent, depending on the item. Rates for intrastate transactions are determined by the states, while interstate rates are calculated by the Brazilian Senate. ICMS revenue accounts for 21 percent of the tax collection in 2009. Relevant indirect taxes also include the COFINS (federal tax to finance the social security deficit), the ISS municipal tax on services, the PIS federal tax to finance social services for workers, and IPI which is a federal tax on industrial products.

### **Direct Transfers**

**Bolsa Família** is a direct income transfer program for families living in poverty and extreme poverty in Brazil. The goal of the program is to help families overcome their impoverishment and vulnerable situation by guaranteeing the right to food, access to education, and health. The objectives of Bolsa Família are to 1) combat hunger while promoting food and nutrition security, 2) combat poverty, and 3) promote access to public services networks, like health, education, food security, and social assistance.

In Brazil, families are classified as “poor” if they earn an income between R\$89.01 and R\$178 per person per month and considered “extremely poor” if they earn an income

up to R\$89 per person per month. Families who meet these income requirements, and currently have, or are expecting children (i.e. a pregnant woman lives in the household), between the ages of 0 to 17 years are eligible for enrollment.

The types of benefits that beneficiaries receive in the program range from basic to variable, depending on the recipient:

- **Basic Benefits** are for families living in extreme poverty (Caixa).
- **Variable Benefits** go to families living in poverty or extreme poverty, who also have a pregnant woman, a breastfeeding woman, or children from 0 to 15 years of age in the household. Each receive a benefit of R\$41 per month. Each family can receive up to five benefits per month if they have the corresponding household members. Thus, the maximum amount that they can receive is R\$205 (Caixa).
  - **Variable Benefits for Pregnant Women** go to households with a pregnant woman, who can receive up to nine installments of R\$41 per month. This benefit starts the month that gestation has been identified through the ninth month of pregnancy (Caixa).
  - **Variable Benefit Nutriz** go to families with babies between the ages of 0 to 6 six months, who can receive up to six consecutive installments of R\$41 (Caixa).
- **Young Variable Benefits** are for families living in poverty or extreme poverty and who have 16 to 17-year-old adolescents. Each family can receive up to two benefits in the amount of R \$48 each (Caixa).
- **Benefits to Overcome Extreme Poverty** are targeted at families who are living in extreme poverty. Each family can receive one benefit per month. The amount of

the benefit varies by family. It is calculated according to the income per person per family in conjunction with the rest of the benefits that the family receives from Bolsa Familia (Caixa).

Families living in extreme poverty can receive the Basic, Variable, and Young Variable benefit of up to R\$372 per month. They may also receive one Benefit to Overcome Extreme Poverty (Caixa).

### **Brasil Sem Miséria (Brazil without Extreme Poverty)**

In an effort to overcome the fact that 7.6 million people in rural areas remained in extreme poverty in 2011, the government instituted a “Brazil Without Extreme Poverty” plan. Using the Unified Registry for Social Programs, which assembles data on 26.5 million families in Brazil, the government can identify the most vulnerable families. The goal of the plan is to use cash transfers to help raise family income per capita, while extending public service access to people in extreme poverty and promoting job and income opportunities for people living in extreme poverty (Plano Brasil Sem Miséria).

The program prioritizes expanding a range of services including documentation, electricity, literacy, medical, dental care, eye care, day care, and sanitation. The program flips government service around: rather than the extreme poor seeking out government services, the government locates the extreme poor to ensure they are receiving services and their needs are met. Eligibility included anyone who is consider extremely poor and not enrolled in Bolsa Familia. The program also aims to concentrate on productive inclusion through increasing the skills and capabilities of participants to allow them to contribute to the national economy. For example, in rural areas, the program aims to increase production

through seed distribution augmented with technical and commercial support, while in urban areas it is focused on jobs training (Portal Brasil, 2011).

CCT benefits are paid out to the mother on a magnetic card that can be used to withdraw cash at federally owned bank offices (or at lottery agents or shops in rural areas) (Fiszbein and Schady, 2009, p. 212).

**Bolsa Verde** is a part of the Brazil sem Miseria program. Originating in 2011, the purpose of the program is to promote environmental conservation, encourage citizenship, improve living conditions of the extreme poor, while promoting participation in their desired fields of employment. The target population is for households living in extreme poverty engaged in activities of conservation of natural resources. In order to qualify for the program, the household must live in extreme poverty, but also reside in areas that have activities of ongoing conservation and sustainability as identified by the Chico Mendes Institute for the Conservation of Biodiversity (ICMbio), the National Institute of Colonization and Agrarian Reform (INCRA), and the Secretary of the Patrimony of the Union (SPU). As of 2017, the transfer amount for Bolsa Verde totaled R\$300 per month, with a minimum per capita amount of R\$77 and a maximum amount per household of R\$300 (ECLAC, 2018c).

## **Education**

Brazil's education system is built on the 1988 Constitution, which declared education as a universal right that the government must protect and promote. In 1996, the National Education Guidelines and Frameworks Law (LDB – Lei de Diretrizes e Bases da Educação) passed, mandating several important changes, which influenced the direction of

education. The law included a common curriculum for primary and secondary education; an increased number of teaching days; an increased length in the school day; evaluation of all courses and institutions at every level of the education system; vocational education integration; and special education and indigenous education accommodations (Stanek, 2013, p. 2).

At public institutions, primary education is compulsory and free. Pre primary and secondary education are also free but not compulsory. Duration of primary education is nine years, for students aged six to 15 years. The curriculum includes history, geography, science, math, arts, Portuguese, and physical education. When students complete a level, they receive the *Certificado de Ensino Fundamental* certificate. Secondary education is three years long for students aged 15 to 18. It includes geography, history, physics, chemistry, biology, mathematics, art, physical education, Portuguese, sociology, philosophy, and a foreign language. When students complete this level, they receive their *Certificado de Ensino Médio*.

After completing primary education, students have the option to follow a vocation school pathway for secondary school. This is generally three to four years depending on the vocation. Brazil also offers an adult education secondary school diploma. Students receiving this qualification are eligible to take the university entrance exams. Public secondary schools are disproportionately attended by lower-income students (Stanek, 2013, pp. 2-4).

After completing secondary school, students are eligible for the *Exame Nacional do Ensino Médio (ENEM)* – the official university entrance exam beginning in 1998. The best universities in Brazil are public federal universities, which are free of charge. Entrance

is very competitive. Students with the financial means to attend a private primary and secondary education are typically students who are able to gain attendance to public universities. In 2012, Brazil passed a comprehensive affirmative action law requiring half of the incoming class for each federal university to be public secondary school graduates (Stanek, 2013, p. 4).

Based on common education outcome metrics, such as enrollment, attendance, and literacy rates, Brazil's educational gender gap has closed. As of 2016, Gukovas, Müller, Pereira, and Reimão, (2016) reported that education attainment is consistently increasing for men and women. Also, youth literacy rates (15-24 year olds) are 98% for males and 99% for females respectively, while almost two thirds of graduates from tertiary institutions are female. However, persistent racial and geographic inequalities exist in education outcomes. School attendance for girls aged 13 to 16 is much more likely in the Southeast and South than in the North, Northeast, or Center-West geographic locations, where higher populations for minorities reside. Within each ethno-racial group, girls over the age of 19 are more likely to attend school than boys, but Afro-Brazilians much lower rates of attendance than white youth (pp. 3-4).

Although the gender gap is seemingly closed in education outcomes, and in some cases, girls have surpassed boys, there is still work to be done. The World Bank reports female school attendance drops significantly between 14 and 17 years of age, for example. In 2013, equal shares, 95%, of girls and boys ages 6 to 14 were enrolled in school. However, for ages 15 to 17, enrollment decreased to 60.1% for girls and 50.4% for boys. For 18 to 24-year-olds, the drop is much greater, as only 18.8% of women were enrolled



and only 14% of men. Almost two thirds of tertiary education graduates are women each year (Gukovas et al., 2016, p. 17).

## **Health**

Similar to the education system reforms, the 1988 Constitution declared health as a fundamental right and responsibility of the government. It also contained provisions to create a unified national health system (Massuda, Hone, Gomes Leles, de Castro, Atun, 2018). The Brazilian Unified Health System (Sistema Único de Saúde (SUS)) launched following this declaration. The primary goals of SUS are to 1) provide universal access to health services, 2) ensure equality in access to healthcare, and 3) guarantee continuity and comprehensiveness in the provision of healthcare (Gragnotati, Lindelow, and Couttolenc, 2013, p. 1).

The founding of SUS targeted several weaknesses of the previous health system. Limited availability of services, weak primary care, and extreme centralization hampered access and quality for all Brazilians. The role of the private sector also became complementary to support the health system. With the establishment of SUS, the capacity of the system significantly expanded. For example, the number of health care facilities in 1981 was roughly 22,000, while in 2009 it was approximately 75,000. However, the number of hospital beds over the same period remained almost the same. The number of health teams expanded from 4,000 in 1988 to 31,600 in 2010. Thus, the growth in facilities and workers helped increase access to services, as over 50% of the population to gain coverage over the period. SUS also focused on addressing regional disparities. For example, the density of public hospital beds reduced by spreading the number of beds

across states. Now there is almost no link between public hospital bed density and average income at the state level. There was also a dramatic decentralization of service delivery responsibility. SUS also encouraged a change in the mix of public-private hospitals. Although the private hospital beds still account for more than 50% of hospital beds, the public sector increased from 22% to 35% from about 1993 to 2013 (Gragnotati, 2013, p. 2-3).

The SUS unified and integrated several independent systems of service provision and financing into one publicly operated and funded system. The SUS reforms triggered an increase in public health spending broadly, as spending grew 224% in real terms from the early 1980s to 2011. The expansion of health spending was accompanied by increases in budget allocation. For example, spending for “basic care” increased from 11% in 1995 to 20% in 2002. Disparities in government states and municipalities also fell significantly (Gragnotati, 2013, p. 3). It is also important to note that although the establishment of the SUS was expected to decrease the importance of the private, or supplemental, health system, this did not happen. The share of private plans rose across the population over 20%. Overall, Brazil’s total government health spending remains significantly lower than in OECD countries and other middle-income peers (Gragnotati et al., 2013, p. 4).

### **Contributory and Non-contributory Pensions**

Brazil’s pension system consists of two pillars. The first is a poverty alleviation and redistribution objective financed by the government. The second is a pay-as-you-go system, which is considered an income replacement program with redistribution objectives. The contributory programs are General Regime of Social Security (RGPS) and the Social

Security Own Regimes (RPPS). These programs are mandatory and managed by the public sector operating on a defined benefit basis. The RGPS is compulsory for all private sector workers who formally participate in social security. It is administered by the National Institute of Social Security (INSS). The RPPS is for government employees. This is administered by the respective level of government – federal, state, and municipal. It is compulsory for civil and military workers. Brazil also has a third pension pillar, aimed at income smoothing through savings. It is a fully funded, tax-preferred private savings fund. Participation is completely voluntary, and the fund is privately managed (Gragnotati, Jorgensen, Rocha, & Fruttero, 2011, pp. 84-87).

There are two ways that private sector employees earn benefits through retirement. Participants who have contributed for at least 15 years can retire when they reach the age of 65 for men and 60 for women. The second is for those who have contributed for at least 35 years for men and 30 years for women irrespective of their age (OECD, IDB, & World Bank, 2014, p. 92).

### **Benefício de Prestação Continuada (BPC)**

Expenditure on Brazil's non-contributory pension system increased exponentially since the 1988 Constitution. The Benefício de Prestação Continuada (BPC) was established in January 1996 (Gragnotati, Jorgensen, Rocha, & Fruttero, 2011, pp. 84-86). The BPC provides disabled and elderly people aged 65 and older who do not have the means to support themselves with a guaranteed monthly wage. In order to qualify for the program, the income of each person in the family must be less than a quarter of the current minimum

wage as determined by the government (INSS, 2017). Since 2003, the program grew significantly. As of 2011, the program covers about seven percent of the elderly population.

The 1988 Constitution also established guidelines for the reform of the rural pension program. These included a decreased minimum retirement age for men and women, an increased minimum wage benefit floor, and extended access to length of service. The lower eligibility requirements encouraged beneficiaries to join. From 1990 to 1993, the number of rural beneficiaries nearly doubled. The program is more of a social assistance program as rural workers are essentially exempt from making contributions. It is partly financed by taxes on agriculture sales, but it strongly subsidized (Gragnotati et al., 2011).

Brazil also has a minimum pension guarantee equal to the minimum wage that is provided to members of the aforementioned RGPS and RPPS. The subsidation rate varies. For example, it is completely subsidized for rural workers, while urban workers are only partially subsidized and have to contribute for 12 years in order to be entitled to the benefit. The benefit is indexed to the minimum wage. Any benefit above the minimum wage is indexed to consumer prices. Almost two thirds of beneficiaries receive exactly the minimum wage. The minimum pension guarantee contributed to lifting the elderly out of poverty, particularly in rural areas. However, it also contributed to diverging inequality among the elderly, as the higher level of benefits did not increase as much as the minimum wage, although it has led to an increase in pension expenditures. Expenditure on the minimum wage transfers has more than doubled from 2000 to 2010 Gragnolati et al. (2011, pp. 91-92).

Finally, Brazil also utilizes the Rural Pension (Previdencia Rural) benefit, which is for males aged at least 60 and females aged at least 55. These individuals had to have had at least 180 months of work in rural areas, and receive a benefit equal to the minimum wage (OECD, IDB, & World Bank, 2014, p. 93).

## **II. COLOMBIA**

### **Tax system**

Colombia's tax system imposes direct taxes on individuals based on income and profits. In December 2006, the Colombian government approved a reform of the tax system, which incorporated the tax unit (Unidad de Valor Tributario or UVT) to measure the different limits and thresholds originally set out in absolute numbers (Melendez & Martinez, 2019). The UVT is adjusted every year by decree. In 2010, the tax unit was equivalent to COP\$24,555 (roughly \$7 USD). UVT is used to calculate the tax rates on legal entities in the country including foreign companies. Earned income places individuals and entities in tax brackets based on amount earned annually, and the income brackets determine the amount of tax owed, using UVT. In 2010, earners under approximately COP\$26.7 million paid no income tax. From there, the lowest tax bracket (between COP\$26.7 million and COP\$41.7 million) paid approximately 19% on taxable income; the next bracket (between COP\$41.7 million and COP\$100.7 million) paid approximately 28% on taxable income; and the highest tax bracket (between COP\$100.7 million and above) paid approximately 33% on taxable income. Obligatory and voluntary contributions of the employer and the worker to pension funds (that were not constitutive of the income) are

tax exempt. Families and households can claim deductions on health and education expenses (Melendez & Martinez, 2019).

The majority of government revenue derived from income taxes comes from business income (e.g. 92% in 2010). Personal income tax evasion is significant due to underreporting of income.

Colombia also deploys indirect tax through its value added taxes. The general VAT rate is 16% for goods and services (Melendez & Martinez, 2019). Some exemptions exist on agricultural goods that are considered part of the family food basket. In addition, some industrial and mining goods, home services and machinery imports are tax exempt.

### **Direct Transfers**

Colombia's cash transfer program allocates cash to women through its "Programa de Familias en Acción". This Conditional Cash Transfer (CCT) program provides financial incentives to families for health and education (Prosperidad Social, 2016a).

The health incentive aims to encourage attendance at the Growth and Development Controls to contribute to the early detection of diseases. The goal of the incentive is to improve nutrition in households (Prosperidad Social, 2016b). Families with one or more children, under the age of six years old are eligible to receive one health incentive. In other words, no matter how many children the family has under the age of six, they only receive one benefit. As long as the child attends all growth and development appointments in a timely manner according to their age, the health incentive is distributed every two months until the day before the child reaches the age of six.

The goal of the education incentive is to encourage attendance, retention, and transition through the 11<sup>th</sup> grade, to ultimately increase graduation rates (Prosperidad Social, 2016b). The monetary incentive for education covers the expenses associated with the costs of attending school. While the health incentive is given directly The monetary incentive is to cover the expenses associated with the costs of attending school to the family, the education incentive is paid out to the individual. The incentive is distributed every two months over the ten months students are in school each year (after deducting the days that students are not in school for holidays). In order to receive the incentive, boys and girls between the ages of 4 to 18 years old that are enrolled in the school system must attend a minimum of 80% of their classes. Students cannot have missed more than two levels of schooling to be eligible. If a participant is 18 or 19 years old, they must be in at least 10<sup>th</sup> grade. If a participant is 20 years old, they must be in a least the 11<sup>th</sup> grade (Prosperidad Social, 2016a).

## **Education**

Colombia's education system is regulated by the Ministry of Education. The country has an 11 year or grade education system. Students spend five years in elementary education, which runs from grade one to five. Most children start first grade when they are six years old. Next is secondary education, which is divided into four years of lower secondary education, grades six through nine, and two years of upper secondary education, grades 10 and 11. Most students are 11 years old when they enter lower secondary school and 15-16 years old when they enter upper secondary. Once students enter upper secondary school, they must choose between two tracks. One is the academic and the other technical.

There are also three university levels. The first is the professional level (professional/undergraduate), the second is the maestría/magister (master's degree), and the third is the doctor level (doctoral/PhD). Finally, there are also options for technical degrees that are offered from technical institutions and from some university level institutions (Immerstein, 2015).

The basic education levels are free and compulsory for five to 15 year old children. The fees for the university level correspond to the student's socioeconomic background.

Within the education programs, different criteria exist that determined whether a family is eligible to participate. Families with students between first grade and eleventh grade only receive a maximum of three incentives per family. In the capital, Bogota, only students in grades six through eleven are eligible. Participants can receive the money in one of three ways: 1) an electronic savings account that allows the use of debit cards and/or mobile banking, 2) a direct bank transfer, and 3) by going in person to receive the transfer (Prosperidad Social, 2016b). The transfers are paid out to the mother or head of household on a bimonthly basis (Fiszbein and Schady, 2009, p. 212).

Three distinct incentives are available for participants depending on their age, grade, or situation.

1. **Jóvenes en Acción** supports poor and vulnerable youth with conditional monetary transfers to allow young people to continue technical, technological, and professional studies. To be eligible to participate, youth must be high school graduates between 16 and 24 years old, and register with one of the following



groups: the SISBEN<sup>41</sup> III<sup>42</sup>, in the Red UNIDOS network<sup>43</sup>, in the Registro Único de Víctimas – RUV<sup>44</sup>, in the census list as an indigenous youth, or registered with the ICBF<sup>45</sup>. Participants must enroll in a training program at SENA or an Institucion de Educacion Superior (IES) (Higher Education Institution) as classified by the Social Prosperity ministry. The participant must be in a municipality targeted by the program and meet the criteria for program enrollment. In addition to attending the training/education program, the participants must attend a participant workshop as well as a conference on financial enrollment (Prosperidad Social, 2016c).

Enrolled participants receive a Transferencia Monetaria Condicionada (TMC), in the amount of \$200 pesos each month (Prosperidad Social, 2016d).

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<sup>41</sup> The Sisbén is a System of Identification of Potential Beneficiaries of Social Programs (Sistema de Identificación de Potenciales Beneficiarios de Programas Sociales). Through a score, the population is classified according to their socioeconomic conditions. It is used to quickly and objectively identify the poor and vulnerable so that social assistance can be allocated to those who need it the most. The score is calculated automatically when the household completed the application. The household is assigned a value between 0 and 100.

<sup>42</sup> In order to be eligible, a student must receive the following SISBEN III scores according to where they live: Area 1, SISBEN III score of 0-54.86 – Main cities without their metropolitan areas: Bogota, Medellin, Cali, Barranquilla, Cartagena, Bucaramanga, Cucuta, Ibague, Pereira, Villavicencio, Pasto, Monteria, Manizales, and Santa Maria; Area 2, SISEN III score of 0-51.57 – The remaining urban areas, composed of the urban areas from the 14 main cities, populated centers, and the dispersed rural areas of the 14 main cities; Areas 3, SISBEN III score of 0-37.80 – Rural, formed by the dispersed rural zone (Prosperidad Social, 2016c).

<sup>43</sup> Beneficiaries of the Red UNIDOS are the poorest families in level one of the SISBEN, and families in displacement condition (Ministerio de Salud, 2019).

<sup>44</sup> The Registro Único de Víctimas – RUV (the National Registry of Victims) is a registry of people who have been victims of various land laws. The goal of the registry is to assist and repair damages to victims of the internal armed conflicts (Unidad para la atención y reparación integral a las víctimas). As of April 2017, Rivillas, Rodriguez, Song, and Martel (2018), reported that the RUV estimated that there were over 8.1 million victims of armed conflict in Colombia. However, it is important to note that the population of Colombia is 45 million. Therefore, the victims represent 18% of the population. Of the 8.1 million victims, 4.5 million were women (p. 3).

<sup>45</sup> The ICBF (Colombian Institute for Family Welfare) works for the protection and prevention of early childhood, childhood, and adolescents and the wellbeing of families. The Institute provides attention to those living in threatening conditions and those who have had their rights violated or who have vulnerable rights Instituto (ICBF, 2019).

There are also additional incentives depending on the education program the student enrolls in. For example, students enrolled in a SENA program can receive an enrollment and permanence incentive every two months in the amount of \$400,000 pesos. To receive this, participants must be enrolled in a technical or technological training program and be active in the program without any academic or disciplinary probation. For those enrolled in IES, there is also an enrollment incentive in the amount of \$400,000 pesos, which is given halfway through the academic term. The young person has to be enrolled in the program without any academic or disciplinary probation. There is also a permanence incentive of \$400,000 that is given at the beginning of the next academic period. To receive this amount the student must have completed the academic period and obtained the academic grade point average determined by the program guidelines. Finally, there is an incentive to excellence transfer where the student can receive \$200,000 pesos for having completed the academic period and having obtained the average of the period determined in the program guidelines (Prosperidad Social, 2016e).

2. **Ingreso Social** provides incentives for families of la Red UNIDOS to acquire skills and develop work and team habits to generate income and fulfill their personal goals. The specific objectives of the program are threefold, each aimed at promoting human capital accumulation to 1) improve the possibilities of engagement in the labor market, 2) provide advice and support to participants in the development of their personal goals, and 3) to identify activities that enable

participants to comply with the social service provision (Prosperidad Social, 2016f).

The target population is household heads and their spouses in the Red UNIDOS. Only one member of the family can enter the program with targeted families being those within the goal of Meta Graduation. The individual characteristics are that the participant must be between 18 and 35 years of age. Their education levels must be of at least 5<sup>th</sup> grade and no more than 11<sup>th</sup> grade (Prosperidad Social, 2016f).

The duration of the program is for a minimum of two years and the maximum is four years depending on what level of education they enter the program. Beneficiaries receive \$300,000 pesos per month. To participate, individuals must enroll, attend, and pass all formal training courses for secondary school. Also, they must perform tasks related to the program, attend meetings associated with the program, and maintain permanent contact with their support network, which includes a social worker, a community leader, and an employment counselor (Prosperidad Social, 2016f).

3. **Subsidio Familiar-** The Subsidio Familiar program provides comprehensive protection to workers. The benefits include a monetary quota for the dependents of the beneficiary, a housing allowance, discounts on education programs, and discounts on recreation, sports, and tourism programs. If the beneficiary is unemployed, the program provides several benefits, including contribution to the worker's health and pension, a monetary fee for dependents of the employee, a

monetary benefit for severance savings, training, and job search support (Mintrabajo).

## **Health**

Colombia's Law 100 of 1993 reformed its health care package by introducing mandatory social health insurance. This reform happened in the midst of decentralization and other modernization reforms (Escobar, Giedion, Giuffrida, & Glassman, 2009, p. 2, 4). According to Escobar, et al. (2009), "the health reform was intended to increase burden-sharing of health risks and financing to improve access to care and provide financial protection to those beyond the formally employed" (p. 2). The reform created an umbrella system called General System of Social Security in Health (SGSSS), which unified the social security, public, and private sub-systems (to Escobar, et al., 2009, p. 4).

The reform was deemed largely successful. Prior to 1993 only a quarter of the population had health insurance. Of the total health spending, more than half was out of pocket. Of the bottom income quintile, more than half could not get health care when it was needed due to cost. Also, 25% of the population lacked access to health care. By 2008, more than 85% of the population was insured. For the poor, access to and use of health care significantly increased. Spending on public health dramatically increased (Escobar, et al., 2009, p. 2-3).

The reformed health system is financed through payroll contributions and taxation. There is a contributory regime for those able to pay and fully subsidized regime for those who cannot (i.e. the poor). The beneficiaries can enroll with public or private insurers, choose their care package, and can receive care from a combination of public and private

providers. All members of a family unit can be enrolled as dependents in the contributory regime. The contributory regime is generous and covers all levels of care. The subsidized regime covers primary care, some inpatient care, and emergency care. All citizens can receive benefits of the public health insurance package, which is called the Plan Básico de Salud (PBS) or the Basic Services Plan (Escobar, et al., 2009, p. 4).

In regard to women, Giedion, Díaz, Alfonso, and Savedoff (2009) found that outcomes of pregnant women with subsidized insurance are slightly better than those without subsidized insurance. For example, as compared to women without the subsidized insurance, those with the subsidized insurance receive four percent more prenatal visits, take their babies to health facilities three percent more often, and are assisted by health professionals four percent more (p. 57).

### **Contributory and Non-contributory Pensions**

Similar to the health system reform, the Colombian pension system was reformed in 1993 to build a consolidated and more efficient public pension system. Also, a funded component was added. The previous pension system was fragmented and inefficient with over 1,000 different pension administrators with different occupation-specific schemes, each with different rules for contributions, accruals and benefits. As a result, unequal treatment of savers and administrative inefficiencies emerged across pension provision. In order to transition to the new system, 20 year transitional rules were created to phase out the previous system while protecting the rights of the existing members. No new members can join the previous schemes. The transitional rules allowed men, 40 years old and older

and women 35 years old and older with at least 15 years of contributions to keep their previous scheme (OECD, 2016a, p. 4-5).

The old scheme was replaced by the Colombian General Pension System (GPS), which covers formal workers. There are a few public sector, defined-benefit professional schemes that were retained, for teachers, the military, and the police. GPS is a mandatory system with two competing schemes. One is a public pension scheme, and the other is a private pension scheme. Insured individuals have to contribute to one of the two schemes. Up to ten years before retirement, participants are eligible to switch membership every five years (OECD, 2016a, p. 4-5).

The public pension scheme is financed on a pay-as-you-go basis and is a defined-benefit scheme. The public scheme includes the Solidarity Pension Fund (SPF), which funds Colombia Mayor that gives a subsidy to the elderly living in extreme poverty. A contribution subsidy is also funded which is for lower-income workers that might not fulfill the eligibility requirements for the GPS. To receive the public pension, the individual must have contributed for at least 1,300 weeks (25 years), and men must have reached the age of 62 and women must have reached the age of 57 (OECD, 2016a, p. 4-5).

On the other hand, the private pension scheme is a funded defined-contribution scheme. It is protected by a government guarantee that provides a top-up for account balances that are too low to finance the minimum pension according to the law. There is also a guaranteed return, which is set by the government. To receive the private pension, regardless of their age, members are eligible when they have enough capital to finance a monthly benefit of more than 110% of the nationally determined minimum monthly wage. Members who have not accumulated enough capital, but who have reached retirement age,

receive a lump sum payment of their account balance. But these members must have reached the retirement age and contributed to the system for 1,150 weeks (22.1 years). The retirement age is the same as for the public scheme – 62 years old for men, and 57 years old for women (OECD, 2016a, p. 4-5).

The GPS has two complementary voluntary pensions schemes. The first was introduced in 2014, called the Beneficios Económicos Periódicos (BEPS). This allows the lowest income groups to voluntarily contribute to GPS. When individuals retire, they receive a 20% match of contributions from the government. All individuals can contribute to voluntary private pension schemes. As long as these contributions are kept in the system for five years, they are tax exempt up to a maximum amount (OECD, 2016a, p. 5).

There is an additional benefit for low income households. Spouses with a low level of accumulation in the GPS, who have reached the retirement age and who are entitled to the lump sum payment, can combine their accumulations to receive a single monthly benefit from the Family Pension Scheme (OECD, 2016a, p. 6).

The OECD (2016a) reports that, “according to national sources, the participation rate for males was 74.7% and 53.3% for females at the beginning of 2015” (p. 14). Also, almost half of the population was informally employed, while the dependency ratio was 45.8% (OECD, 2016a, p. 14).

**El Programa de Protección al Adulto Mayor “Colombia Mayor”** is a non-contributory, social protection program for the elderly who are homeless, who do not have a pension or who live in poverty or extreme poverty. In order to be a beneficiary, the following conditions must be met. The person must be Colombian, who has lived in Colombia for the past ten years. The person must be at least 54 years old for women or 59

years old for men (the age at which they could receive a pension). They must receive a score of Level 1 or 2 of the SISben, and they must not have sufficient income to subsist. The range of the monthly monetary benefit is from \$15,000 to \$75,000 pesos in cash with complementary social services that are equivalent of up to \$31,000 pesos (Ministerio de la Protección Social, República de Colombia, 2005).

### **III. DOMINICAN REPUBLIC**

#### **Tax System**

The Dominican Republic's tax system employs both direct and indirect taxes with the latter through VAT providing the majority of public revenues. Operating a territorial system of taxation, income earned from work or business activities within the Dominican Republic is directly taxed (Deloitte, 2019). Income is taxed at progressive rates between 15 percent and 25 percent depending on the amount of net taxable income. These rates are adjusted annually for inflation. Corporations are taxed at a flat rate of 27 percent. Capital gains is also a tax deployed on sale of capital assets, which is also taxed at the flat rate of 27 percent (Deloitte, 2019).

Direct taxes on wages and personal income, interest income, and dividends are found to be progressive in the Dominican Republic, representing 1.3 percent of total market income (Aristy-Escuder et al, 2016). Concentration shares show that top decile of the population pays 92 percent of the direct taxes, while it receives 40.5 percent of total market income. Personal income taxes account for 90.6 percent of the direct taxes in the D.R. The tax on interest income affects the middle and upper socioeconomic groups. A tax on income



interest was established by the November 2012 tax reform and represented 7.8 percent of total direct tax revenues in 2016 (Aristy-Escuder et al, 2016).

Deductions can be claimed on all related activities other than employment activities that individuals incur to preserve and maintain the taxable income and its source (i.e. business activities other than direct employment). Individuals may deduct up to 10 percent of net taxable income for education expenses, and for self-employed direct dependents (Deloitte, 2019).

At 18 percent, the value added tax is the largest driver of tax revenue with some goods experiencing a reduced rate of 16 percent. Some total exemptions from VAT include basic food, medicine, fuel, fertilizer, books and education materials, some transport, and utilities. Telecommunications services are taxed at 10 percent and insurance services at 16 percent.

Value-added tax (VAT) evasion is a problem in the Dominican Republic. According to General Directorate of Internal Taxation (DGII) estimates for 2010, about 29.7 percent of this tax was evaded (Aristy-Escuder et al, 2016).

### **Direct Transfers**

**Progresando con Solidaridad** was rolled out in 2004 to assist the most vulnerable citizens, improve human capital and spur economic growth. The program is a conditional cash transfer that includes income generating activities to focus on promoting the livelihoods of beneficiaries. The program also focuses on stronger community outreach and supporting a mobilization network. To be eligible for enrollment in the program, individuals have to be included in the Unique System of Beneficiaries (SUIBEN) database,

which indicates they live in moderate and extreme poverty. Beneficiaries must have also have a national identity card. There are three components to Progresando con Solidaridad:

1. **Comer es Primero (CEP):** This program addresses hunger by providing a transfer of roughly US\$16 per month (\$700 Dominican Pesos) to each beneficiary household. The purpose of the transfer is to supplement basic foods for families living in extreme poverty. Another goal is improving the overall health of kids through access to vaccines, growth monitoring, and health education. There is also a component focused on the distribution of micronutrient powders to children between the ages of 6 to 59 months of age.
2. **Incentivo a la Asistencia Escolar:** This program provides between US\$7 to US\$13 per child attending school between the ages of 6 and 16. The dollar amount received by the family depends on the number of children in the household. The goal of this transfer is to increase school attendance and decrease attrition.
3. **Dominicanos con Nombres y Apellido:** This program facilitates and promotes birth registration. It also improves the process of obtaining formal documentation (World Food Programme, 2014, p. 4).

In order to receive the transfers, families must comply with various conditions. For health, families must have regular visits to health centers for exams, growth and development monitoring, and immunizations every two months for babies under one year of age, and every four months for children ages one to five years. To verify compliance, a program liaison at the community level collects the forms from the health centers.

For education, children must be enrolled in school, and children between the ages of six to 16 years of age must attend at least 85% of school days per year. To verify the condition is met, the school districts must send attendance information on a regular basis to the State Secretariat for Education. The household head and spouse are also required to attend a capacity building session every four months. To certify compliance, program liaison staff at the community level collect information forms. If family members lack proper identification, like a birth certificate or identification card, they have to obtain one to be eligible (World Food Programme, 2014, p. 7).

According to Fiszbein and Schady (2009) the transfer money is paid to the household head on bimonthly basis on a debit card to be used only at certain retailers for specific products, such as food and education supplies (p. 212).

## **Education**

The education system in the Dominican Republic is comprised of three departments: The Ministry of Education, The Ministry of Higher Education, Science and Technology, and The National Institute of Professional and Technical Training. The State Secretariat for Education (SEE), which is part of the executive branch, oversees the educational system in management and administration. It also implements all education laws and regulations across pre primary, primary, and secondary (OECD, 2008, pp. 28-29).

The structure of the education system is comprised of pre primary, primary, secondary, and university levels of education. Aside from university/tertiary, the other levels are organized in cycles, which is divided further into grades. The university system

is supervised under the Ministry of Higher Education, Science and Technology (SEESCyT).

Education begins at pre primary for children six years old and under. Pre primary is broken into three cycles: children 0-2 years of age, 2 to 4 years of age, and 4 to 6 years of age are grouped together. The last year of pre primary is compulsory and free, and managed by the Dominican government. The other years are not compulsory. However, efforts are being made to expand participation. Second is the primary level, which is eight years, but comprised of two cycles spanning ages 6 to 14 years. The first cycle contains grades one to four, for children aged six to 10 years. The second cycle is for grades five to eight and is intended for children 10 to 14 years old. Within each cycle, the duration is one year with courses being taught over a period of ten months.

The next level is secondary school. Youth aged 14 to 18 attend secondary school for four years. This level is free but not compulsory. Students are ineligible for secondary school unless they completed primary education. There are two, two year cycles within secondary. The first cycle offers general and compulsory education. The second presents students with three options including general education, vocational/technical, or the arts. The vocational/technical education prepares students to enter into qualified positions across three primary sectors of the economy including industry, agriculture, and services. The goal of the arts education is to develop sensibility and creative skills with major orientations representing music, visual arts, performing arts, and applied arts (OECD, 2008, pp. 29-30).

Subsystems for special needs and adult education also exist. The special needs education is for children with special needs or physical disabilities, while adult education

is for adults who did not attend regular schooling. Adult education is intended to provide further training for those who wish to have it for the purposes of self-fulfillment but also to enter the labor market. Programming for both special needs and adult education include literacy and primary education as well as secondary education. Primary education is a total of five years. It is divided into three cycles. The first is two years, the second is two years, and the third is one year. There is also vocational and work-related education available for enrollees who are interested in building skills for the labor market (OECD, 2008, p. 30).

Within the education, two primary transfers exist to promote increase participation and matriculation and improve livelihoods for Dominicans.

**Bono Estudiando Progreso (BEEP)** is a monthly incentive paid bimonthly in the amount of RD\$500 for each youth up to the age of 21 that attends the first or second course of the baccalaureate. Students enrolled in third or fourth are also eligible and receive RD\$750. Those in the last course of the professional technical module receive RD\$1,000. The money is meant to allow the family to purchase food from the basic basket of foods to smooth income in hopes of decreasing school dropout rates. Households who live in extreme and moderate poverty are eligible to enroll (Administradora de Subsidios Sociales, 2017a).

**Incentivo a la Educación Superior (IES)** targets students at the Universidad Autónoma de Santa Domingo without the financial resources to cover education costs. The determination of financial need is based on whether the student comes from a low income area, and if they graduated from schools that are within a district on the country's poverty map. The condition to receive the benefit is attendance and completion/matriculation

through studies. The incentive is granted to the beneficiary after verifying compliance in attendance and completion of courses (Progresando con Solidaridad). Student beneficiaries receive monthly financial aid in the amount of RE\$500. The money is designated for covering tuition costs, books, and study supplies.

## **Health**

The health system in the Dominican Republic is a compulsory social security system with universal coverage, solidarity, and comprehensive care. According to PAHO (2017a), “in 2014, the country adopted a model of care based on the primary health care and integrated health service delivery networks strategy, coordinating, managing, and articulating policies, resources, and structures aimed at meeting health commitments and reaching the targets of all institutional stakeholders in the National Health System.” Originally the model was implemented in six provinces. After it was deemed functional and competent in those regions, it was to be scaled up across other regions. The National Health System (Servicio Nacional de Salud, SNS) totals 1,450 First Level of Care Centers (CPNs) with an additional 1,774 Primary Care Units (UNAPs), and 189 Specialized Health Care Centers (CEAS) which includes hospitals. Management agreements signed by the National Health Insurance System (SENASA) allow hospitals to provide care included in the Basic Health Plan (PBS) (Pan American Health Organization, 2017).

Two laws contributed to the establishment of the D.R. health system today: the General Health Law (la Ley General de Salud (Ley 42-01)) and the Dominican Social Security System (SDSS) (el Sistema Dominicano de Seguridad Social (SDSS) (Ley 87-01)). These laws established a complex system of public, private, and non-profit

institutions specializing in specific functions. All beneficiaries are affiliated with a health risks administrator (ARS) (una administradora de riesgos de salud). Beneficiaries of the contributory scheme choose among private providers offered by the ARS. Beneficiaries of the contributory scheme are public and private salaried worker and employers. It is financed by contributions from workers and employers. The government can also serve as an employer and thus make contributions for its workers.

Beneficiaries of the subsidized scheme are only affiliated with the public ARS, which is the National Health Insurance (Seguro Nacional de Salud (SENASA)). These beneficiaries must use the services of the public provision network or the non-profit private hospitals. If the service does not exist in the public sector, then SENASA will pay for the user to receive the service in the private sector. Beneficiaries of the subsidized regime are self-employed workers with unstable incomes, and individuals with incomes lower than the national minimum wage. Unemployed, disabled, and the poor are also eligible beneficiaries of the subsidized regime. This regime is financed by government resources (Rathe and Moliné, 2011, p. S257-S260).

### **Contributory and Non-contributory Pensions**

The Dominican Republic pension scheme is contributory. It is based on individual capitalization accounts. Private and public workers and their employees are required to contribute. They must also pay an insurance premium for disability and survivor insurance. The contribution is 2.87% for workers and 7.10% for employers for old age, disability and survivors insurance. There is a guaranteed minimum pension, which is equal to the lowest legal minimum wage of the sector in which the pensioner belongs. The minimum

contribution is calculated by averaging the private sector minimum wages. The maximum contribution is 20 times the legal minimum wage. To be able to retire, workers have two possibilities. First, they can retire at the age of 60 if they have had 30 years of contributions. Second, they can retire at the age of 55 regardless of the number of contributory years if the person has the funds to withdraw an annuity that is greater than 50% of the minimum pension. Additionally, workers who are insured and have contributed for a minimum of 25 years and who are over the age of 65 are eligible for a guaranteed minimum pension. Contributions to social security are exempt from tax as are pension as long as they do not exceed five times the national minimum wage (OECD, IDB, & World Bank, 2014, p. 93).

There is also a non-contributory social assistance pension in the Dominican Republic. It is equal to 60% of the public sector minimum wage (OECD, IDB, & World Bank, 2014, p. 93).

#### **IV. MEXICO**

##### **Tax System**

Mexico deploys progressive tax policy with a mix of direct and indirect taxes. Individual and businesses are taxed on income. Income is partially taxed based on a scheduler system. Profits from trade or professional activities are treated as the same as profits and taxed accordingly. Individual rates are calculated by income earned. Rates are considered progressive up to 35%.

Individuals can claim deductions and allowances on certain items, subject to some restrictions (i.e. the lower of MXN\$187,000 or 15 percent of taxable income can be claimed) (Deloitte Mexico, 2019). Deductions include medical expenses and medical



insurance, retirement annuities, and mortgage interest. Medical, dental and hospital expenses are deductible with no restrictions for people living with disabilities under the terms of the law. Allowances can be claimed by the taxpayer, spouse and children/dependents. Some income tax exemptions also exist such as exemptions on agricultural producers

VAT is collected at 16 percent on the sale of goods, leasing and the provision of services, and imports (Scott et al, 2017). Some goods like food, medicine and other select items are tax exempt. In addition, exemptions on VAT also exist with aims of making the tax system more progressive, such as those on food, medicine and fuel.

### **Direct Transfers**

**Progresa/Oportunidades - Brief History** In August 1997, Mexico's Secretary of Social Development (SEDESOL), implemented a human development program known as Progresa, an acronym in Spanish for Program for Education, Health, and Nutrition. At its inception, Progresa provided assistance to 300,000 families (Irala Burgos 2008). The program began by identifying potential households to receive benefits by following two distinct stages. First, the government determined the marginal rural localities where extremely poor families reside. The definition of these localities was based on a "marginality index" that ranked them based on a combination of social and economic factors. The second stage was using a means test to identify households within the chosen localities to receive benefits; and to that effect, all homes within the locality were identified as poor or non-poor. Although this was time consuming, it enabled administrators to provide services to those families in greatest need (Behrman and Skoufias 2006).

In 2002, the program modified and expanded under the administration of Vicente Fox. The name was changed from Progresa to Oportunidades, still focusing on the reduction of poverty by improving education, health, and nutrition (Irala Burgos 2008). Oportunidades aims to simultaneously decrease current and future poverty through cash transfers and in-kind benefits, contingent upon the family members attending school, mandated medical appointments, and health education workshops (García-Verú 2003). The most important change was the expansion of geographic locations, in which the program began to cover almost all metropolitan areas. In 2003, Jóvenes con Oportunidades was added, a component that provides basic support for young people after graduation from high school (Behrman and Skoufias 2006). Oportunidades is a federal program that involves the Ministry of Education, Ministry of Health, Mexican Social Security Institute, Ministry of Social Development, and state and city governments (Irala Burgos 2008). Under the presidency of Enrique Peña Nieto, the program rebranded as Prospera (Niño-Zarazua, 2017, p.3). As of June 2015, the program covered more than 6.1 million households, of which more than 70 percent were regarded as extremely poor (Niño-Zarazua, 2017, p. 11-12).

Oportunidades reaches households in 93,000 districts, 99% of which are rural and semi-urban; all marginalized municipalities are included. The goal for Oportunidades is for 5 million participant households to improve in overall wellbeing, socioeconomic status, and general quality of life. For that purpose, the program follows eleven goals: contribute to human development, promote development of capabilities, reach families living in extreme poverty, focus on the family as a whole and create social and community interaction, promote equal opportunities and access for women, encourage co-

responsibility of the family sending their children to school and medical appointments regularly, involve the community to overcome poverty, function based on inter-institutional and inter-sector coordination, stimulate interaction with other social programs, and evaluate its impact and use findings to update and review operational standards (Irala Burgos 2008).

Oportunidades is only granted to families living in extreme poverty. The program also seeks to strengthen the role of women in the family and community by naming mothers as the family member that is able to apply for and receive the benefits, including cash transfers. Monetary support goes directly to the mother through a bank transfer, ensuring that the family receives the money, and supports savings. Following these guidelines and enrollment system, Oportunidades aspires to reach its mission to “coordinate interinstitutional actions to contribute to the overcoming of poverty, by means of development of the basic capacity of the people and better their access to economic and social opportunities of development.” The growth and success of the program hopes to achieve its vision that “by the year 2030, Mexicans will see Mexico as a country of equal opportunity for everyone, where the Mexicans fully exercise their social rights and poverty has been eradicated” (Irala Burgos 2008).

### **Description of Education Component**

Oportunidades provides scholarships to families with individuals under the age of 18 enrolled in school from third grade to the third year of secondary school. For higher education, scholarships are awarded to individuals ages 14 to 21. The scholarships are provided during the 10 months of the school year and increase depending on grade level.

Females receive higher scholarship amounts in secondary and senior high schools, empowering them to remain in school and elevate their position in the family and community (Irala Burgos 2008).

Oportunidades offers this monetary support to poor households to compensate for the opportunity cost of sending child to school rather than working. After the age of 11, girls have a lower school enrollment rate than boys, but they also have a lower labor force participation rate. Implying that girls are most likely engaged in home production (García-Verdú 2003). The amount of the scholarship is calculated as a portion of the amount the child would be earning if they were working or in home production, which should encourage families to keep their children, especially daughters, in school (Parker 2003). Oportunidades scholarship amounts from July through December 2008 are shown in Table 6. The *co-responsibility* of students to receive these benefits is that they must be registered for school and have regular attendance. For those enrolled in senior high school and other higher education, they must be registered and prove bimonthly retention and re-enrollment every six months (Irala Burgos 2008).

Households with children in primary school receive a package of school supplies or money at the beginning of each school year, and, before the second semester, they receive half the amount of the initial subsidy of money to replenish the supplies. Households with children in secondary school and higher education receive a set amount at the beginning of each school year. The amount for males and females is the same but does increase with the level of education. Families have a *co-responsibility* in order to receive the money or initial school supply package, to certify and demonstrate registration

of the children enrolled in primary school. To receive the second payment, the children must remain enrolled and have regular attendance. Youth in secondary and senior high schools must provide certification of registration or enrollment to receive the school supplies support each year (Oportunidades 2009).

Oportunidades provides monetary educational incentives for children and young adults under the age of 22 enrolled in school between the third grade of primary school up to the senior year of high school through the Jóvenes con Oportunidades program (Parker 2003). Qualifying youth are awarded a savings account in which cash is deposited until the individual graduates from high school. After graduating, the individual can receive their savings account provided that they are under the age of 22. Students are awarded points every year, divided between two semesters. The maximum total number of points that can be accumulated is 3,000. Each year the value of peso per point changes and is announced for the previous year on the 30<sup>th</sup> of April. The 2007-2008 amount was US\$.092 per point, which is US\$267.73<sup>46</sup> if the entire 3,000 points are accumulated. Although this may not seem like a significant amount of money, the low cost of living in Mexico must be considered. A financial institution manages the savings account until the student graduates.

The individual has several options to access the savings account once of age. The first option is for individuals who remain in school to receive this money through a scholarship from the Programa Nacional de Becas para la educación Superior (National Scholarship Program for Higher Education) and Programa Nacional de Becas a la

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<sup>46</sup> US currency calculated by author. The 2007-2008 amount in Mexican pesos was 1.1993 per point, which was 3,597.90 if the entire 3,000 points were accumulated (Oportunidades 2009).

Excelencia Académica y Aprovechamiento Escolar (National Scholarship Program for Academic Excellence and School Achievement). The second option is to negotiate with a savings and loan institution. Third, the individual can choose to use the savings to receive the benefits of the Programa de Ahorro, Subsidio y Crédito para la Vivienda Progresiva “Tu Casa” (Energy Conservation Program, Subsidy, and Credit for Progressive Housing “Your House”), or through a similar housing program. Finally, the individual can be added to the SPSS or purchase SPS for health coverage (Oportunidades 2009).

### **Description of Health Component**

Oportunidades emphasizes preventative health care and provides basic health care to all family members through SPS (Parker 2003). There are four specific health strategies. First, el Paquete Básico de Servicios de Salud (Basic Package of Health Services) and PREVENIMISS are provided for free.<sup>47</sup> Second, Oportunidades aims to improve the nutrition of the poor by preventing and attending to malnutrition of children under 5 and pregnant or breast-feeding mothers by providing food supplements and nutrition education. Third, Oportunidades improves health care of families and the community through educational workshops about health, nutrition, and hygiene, referred to as Talleres Comunitarios para el Autocuidado de la Salud (Community Workshops for Self Health

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<sup>47</sup> The services provided through these two programs include: basic sanitation of the household; family planning; prenatal, delivery, postpartum, and newborn care; monitoring of nutrition and child growth; immunizations; home case management of diarrhea; de-worming; acute respiratory infection management; prevention and control of pulmonary tuberculosis; prevention and control of hypertension and diabetes; accident prevention and management of injuries; community training for self health care; and prevention and detection of cervical cancer.

Care). Fourth, Oportunidades enhances the supply of health services to meet any additional needs (Irala Burgos 2008).

The *co-responsibility* portion of the healthcare requires all family members to attend scheduled health appointments, at a frequency determined by age, gender, and current life situations. All family members age 15 or older are required to participate in the Community Workshops for Self Health Care.<sup>48</sup> The only exceptions are for people who have a certification from a doctor expressing the preclusion of their attendance due to a disability. Also, if a family member who is age 20 or older voluntarily is tested for prostate disease, receives a pap smear or acetic acid test, has a clinical breast examination, or has 6 months of continuous diabetes and hypertension monitoring, they can consider these tests as equivalent to the attendance of 2 continuous months of Workshops for Self Health Care. Between September and June, high school students are also required to attend Workshops for Self Health Care,<sup>49</sup> covering 8 mandatory topics in order to receive their educational support for July (Irala Burgos 2008).

### **Description of Nutrition Component**

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<sup>48</sup> Workshop topics include: dietary supplement use, food and salt education, parasite/worming eradication, acute respiratory infections (ARIs), basic sanitation of the household, tuberculosis, social participation, hypertension and diabetes, addiction prevention, accident prevention, initial wound management, oral health, adolescence and sexuality, sexually transmitted infections, HIV/AIDS, family planning, gender and health, breast cancer/cervical cancer and pap exam/breast self-examination, safe motherhood, pregnancy, nutrition during pregnancy and lactation, childbirth and puerperium, newborn care, breastfeeding, care of children of less than one year and more than one year, domestic violence, menopause, immunizations, scorpions and Vector-Borne Diseases, basic actions in case of a disaster, attention to the elderly and their immunizations, early stimulation, disability, diarrhea and use of VSO, and other issues related to the local epidemiological situation.

<sup>49</sup> Workshop topics for high school students are adolescence and sexuality, family planning, accident prevention, addiction prevention, sexually transmitted infections, HIV/AIDS, gender and health, and domestic violence.

Oportunidades provides bimonthly food supplements to the beneficiary families to improve the quality, quantity, and diversity of food to increase the family and community nutritional levels (Irala Burgos 2008). These supplements are given to all children between the ages of 4 months and 2 years, to children between the ages of 2-5 years who exhibit signs of malnutrition, and to all pregnant and nursing mothers. These supplements provide 20% of the daily caloric requirements and give 100% of several micronutrients. An additional monetary stipend is given to qualifying households to encourage the nutritional improvements when purchasing food (García-Verdú 2003). Together, the bi-monthly food supplements, additional monetary stipends, and the food and nutrition education components of the Workshops for Self Health Care help to improve the lives of infants, young children, and mothers. The *co-responsibility* to receive the bimonthly food stipends is that all family members attend scheduled health appointments and the self health care workshops (Irala Burgos 2008).

### **Description of Elderly Component**

Adults age 70 and older receive bimonthly financial support to help improve their living conditions. To continue to receive this support, the *co-responsibility* is that participants attend scheduled doctor appointments every six months, which is the frequency promoted by PREVENIMISS. Failure to attend these doctor appointments jeopardizes not only their subsidy, but also the benefits that other beneficiaries in the family are entitled to (Irala Burgos 2008).



## Description of Energy Component

Since 2007, the Coordinación Nacional (National Coordination) has offered additional subsidies to families depending on the objectives for the poor population set forth that year by the national government. In 2009, the Coordinación Nacional is offering bimonthly support to qualifying families in the amount of US\$3.84<sup>50</sup> monthly towards energy consumption. The energy component is only granted to families who have completed all other *co-responsibility* aspects, including fulfilling the scheduled health care appointments set by PREVENIMISS, and attending Community Workshops for Self Health Care by family members who are older than 15 years of age. If these co-responsibility aspects are not completed by any member of the household, the family's food and energy aid are jeopardized (Oportunidades 2009).

## Becas Benito Juárez

In February 2019, the Mexican government announced that it would replace the Prospera with a new program. This is likely because the current president, Andrés Manuel López Obrador was elected largely thanks to his promise to “put the poor first.” President López Obrador's main changes to the program are that he will use about \$3 billion from the budget or the Prospera program to fund a new scholarship program called Becas Benito Juárez. The health and nutrition components of Prospera were eradicated. Families still need to enroll their children in school to receive the benefit, but there would not be the time consuming conditions attached with it, which became a burden on women. In addition, the

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<sup>50</sup> US currency calculated by author. Oportunidades provides 50.00 per month in pesos.

conditions caused women to be discriminated against by potential employers because in order to meet the conditions they often had to ask for time off from work. It was also thought that the Prospera program was not eradicating poverty as well as it should have been as the official poverty rate has been about the same for the last decade despite expansions of Prospera (Russell, 2019).

The new program, Becas Benito Juárez will grant all students who are enrolled in public high schools in Mexico with 1,600 pesos bimonthly. The beneficiary receives the money through a Tarjeta del Bienestar (Secretaría de Educación Pública, 2019).

## **Education**

Huck (2008) explains that all Mexicans are guaranteed access to a secular and free public education through Article 3 of the 1917 Constitution (p. 293).

Mexico has both private and public schools. As the middle class in Mexico has grown, more middle class students have fled to private schools. However, the private school sector is not carefully regulated as the public system (Scott, Posner, Martin, & Guzman, 2018, p. 9). According to Scott et al. (2018), Mexico has 26 million students in the school system, of which most attend school part time (p. 10). These students typically attend multi-grade schools depending on the state in which they reside. The legal public school system operates in 32 constituent state systems (31 states plus the federal entity of Mexico City). However, Scott et al. (2018) explain that the financing is controlled by the federal government in actuality as it has to give approval to local programs before releasing funds. Also, state governments have little money to use towards this (p. 10).

Mexico's education system structure is similar to that of the United States (Huck, 2008, p. 293). Students begin in preschool and primary levels where there are three levels of schooling. Pre escolar (preschool) is a federal program for children four and five years of age. Next is Primaria, which consists of grades one through six. And finally, Multigrados which is one-room schools with a single teacher for all grades of primary school (grades one to six). In some settings, multi-grade schools have more than one teacher, but, by definition, each teacher teaches more than one grade in Multigrados.

The next level of education is the middle school grades, which comprises grades seven to nine. Within middle school, there are three categories. The first is Secundarias, which are schools that enroll students from nonrural areas, many of which will enter university upon graduation. Tecnicas is vocational training institutes for students who plan to enter the workforce upon graduation. The third is Telesecundarias, which are rural schools that provide distance learning through televised curriculums.

The final level of education in Mexico is High School, which consists of grades 10 to 12. There are two categories within high school. The first is Preparatorias and Bachilleratos, which is upper secondary school. In this level, youth elect academic track aimed at promoting matriculation into college. Students choose one of the following: physics-mathematics, chemistry-biology, economics-business administration, or the humanities. The second category within high school is Technologicas and Comercios, which are schools that prepare students for a vocational career (Kuznetsov and Dahlman, 2008, p. 63). After high school, students can go on to college. There are both public and private universities. The public schools have guaranteed admission and are essentially free to enroll. The private institutions have selective admissions processes and high tuitions that

are not affordable for most students. The university system has a similar arrangement to that of Europe. Students have to select a career path upon enrollment. They graduate with a licenciatura, which allows the student to have a license to practice in the career of their choice (Huck, 2008, p. 295-296).

## **Health**

Mexico has a public health insurance system. For those who are formally employed, health insurance cover is provided by the Instituto Mexicano de Seguridad Social (IMSS) (Mexico Social Security Institute), the Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE) (Institute of Safety and Social Services for Government Workers), Petróleos Mexicanos, the Secretariat of the National Defense, the Secretariat of the Navy, and others. Those who are not covered by social security are covered by the Sistema de Protección Social en Salud (SPSS), the Secretariat of Health, and the State Health Services. For those who can pay, the private sector insurance can be purchased (PAHO, 2017e). In 2003, the General Health Law was revised to create the SPSS.

### **Seguro Popular de Salud (SPS) - Brief History**

SPS is part of el Sistema de Protección Social en Salud (SPSS), which began in 2001- 2006, and provides an alternative social protection system to those who do not have access to health services. SPS provides subsidized health care to all Mexicans without a distinction of socioeconomic status or profession, to reduce, and eventually eliminate, the number of impoverished families (Comisión 2008). The program began by providing health services coverage through a voluntary and public insurance system for those people

who were low- income, unemployed, or self-employed and were not covered by social security (Salomón 2009). A modification of the Mexican General Health Law in 2003 and 2004 formally allowed SPS to become part of SPSS. This law granted permission to the Comisión Nacional de Protección Social en Salud (National Commission for Social Protection in Health) to supervise the social welfare program and coordinate with the program's state offices. Although the program has slowly been implemented in states across the country, targeting the poorest areas first, it is available for all Mexicans. By 2010, it is expected that all uninsured people will be enrolled, and SPS is also expected to attract the high-income brackets (King, et al. 2007).

All beneficiaries of SPS must formally enroll to receive benefits and each family must pay an annual quota depending on their income, with the exception of the lowest two income levels. Most families in the two lowest income brackets are also automatically enrolled in Oportunidades (King, et al. 2007). Through a catalog called CAUSES (Catálogo Universal de Servicios de Salud), beneficiaries have access to 294 interventions, which is equivalent to 1,807 diagnoses in the International Classification of Diseases. The Fondo de Protección contra Gastos Catastróficos (FPGC) pays for beneficiaries to receive treatment for 65 pathologies. Finally, the Seguro Médico Siglo XXI is a fund that covers all health conditions in children under the age of five years (Chemor Ruiz, Ochmann Ratsch, Alamilla Martínez, 2018, p. 194-195).

### **Description of Public Health Component**

The public health component of SPS provides 25 direct services of protection and prevention against diseases through a series of programs in las Cartillas Nacionales de

Salud (National Health Records). The specific services are provided to individuals depending on their age, because individuals have different medical needs depending on what portion of their life they are in. The age breakdown is newborns, children less than 5 years, 5 to 9 years, 10-19 years, 20-59 years, and 60 and older. With the overall objective of providing primary care to promote health and disease protection, the offered services include vaccinations; diabetes, hypertension, and tuberculosis detection; diagnosis and treatment of addictions including alcohol, tobacco, and other drugs; and detection of abnormal hygiene and dietary behaviors with attention to family violence and sexual abuse (Comisión 2008).

### **Description of General or Family and Specialty Consultation Component**

SPS offers 100 services in the detection, treatment, and rehabilitation of chronic infectious diseases in children and adults at the primary health care level with referrals to secondary levels. A medical specialist ensures that the patient receives multidisciplinary, comprehensive care and management of their disease in addition to an integrated review with rehabilitation and therapy for incidence of fractures and facial paralysis (Comisión 2008).

### **Description of Dentistry Component**

SPS offers eight services for oral health care, including prevention and removal of cavities and periodontal disease, elimination of sources of infection and abscesses, and teeth extraction. The goal of both children and adults is to form good dental hygiene habits, and subsequently prevent dental disease (Comisión 2008).

### **Description of Emergency Component**

Beneficiaries of SPS are eligible for 26 emergency care services for life endangerment situations, thus providing stabilization, diagnosis, and therapeutic management. These emergency care services also cover additional situations that are not determinants of putting a life, body, or system in danger, but the traumatic event does require prompt medical intervention to generate welfare and stability for the patient (Comisión 2008).

### **Description of Hospitalization Component**

Hospitalization services and stays, including medical specialist and nursing care, and medical supplies essential for control and stabilization of health issues are covered by SPS for 38 matters. These matters include chronic-degenerative diseases such as diabetes, hypertension, hyperthyroidism, obstructive chronic pulmonary disease; and acute conditions such as heart failure, care of second degree burns, gastrointestinal bleeding, infectious problems such as pneumonia, mastoiditis, and osteomyelitis. Care is provided for neurological disorders causing convulsions, eclampsia, meningitis and other complications from pregnancy (Comisión 2008).

### **Description of General Surgery Component**

General surgery is covered by SPS for 69 acute and chronic health issues, including high frequency of orthopedics, digestive pathologies, and obstetrics and gynecological, male urinary, ophthalmological, and dermatological issues. In addition to the surgery,

hospital stays, diagnostic appointments, and pre surgical appointments are covered (Comisión 2008).

### **Upcoming Changes**

It is important to note that Mexico's current President, President López Obrador, announced in December 2018 that there would be significant changes to the health care services. The management of care would become centralized – transferring the management from the individual Mexican states to the federal government. The new, integrated federal health system incorporates all states within a two year period. Every six months, eight states are added. The reason for this change is that the President believes SPS is not working as it is currently set up, with federal and state authorities offering separate services. The financing will also change thanks to a constitutional reform. The federal government will use health funding allocated previously to state governments. The goal is to create a universal and free health care system, like that of Europe and Canada (Mexico News Daily, 2018).

In April 2019, President López Obrador further explained his proposed changes. For those individuals not covered by IMSS or ISSTE, there is a new government department called the National Institute of Health for Well-Being. This department provides services to the 60 million Mexicans who lack insurance. President López Obrador feels that Seguro Popular failed in the past because past governments had privatized parts of the health care system (Mexico News Daily, 2019).



### **Contributory and Non-contributory Pensions**

As of April 1, 2007, private sector workers (and those who had previously entered the work force, but opted for it), are covered under a mandatory defined-contribution scheme that is privately managed and funded. Workers, employers, and the government make contributions. Private sector workers also have a minimum pension (OECD, 2014, p. 140).

The retirement age for private sector workers is 65 for both men and women. However, eligibility is dependent on contributing for at least 1,250 weeks, or approximately 24 years. If the worker is not employed but made at least 1,250 weeks of contributions, then the individual can be eligible for early retirement starting at the age of 60 for both men and women. Another way to retire early is if the person contributed 1,250 weeks but already accumulated sufficient funds in their account to allow them to buy an annuity at least 30% higher than the minimum guaranteed pension. Also, participants are able to defer the pension until after the age of 65 (OECD, 2014, pp. 140-142).

Private sector workers contribute 6.275% of their earnings to an individual account. The government contributes the equivalent of .225% of the earnings of the individual. There is also an additional 5% contribution that is made to an individual housing account. When not used, the 5% reverts to the retirement account. Additionally, the government makes a quarterly contribution that is a fixed amount indexed to inflation (OECD, 2014, p. 140).

In May 2009, a progressive social fee was established to benefit workers who earn the lowest salaries through an amended Social Security Law. The amounts are based on the minimum wage. For example, a worker who earns up to one minimum wage will

receive a higher social fee than a worker who earns between 1.01 and four times the minimum wage. Every three months, the social fee is indexed for inflation. There is no social fee contribution for higher wage earners. The maximum amount of contributions is 25 times the minimum wage. The pension payments are calculated by concerting the accumulated account balance into a price-indexed annuity at the age of 65. Interesting from a gender perspective is the fact that annuity rates are gender-specific (OECD, 2014, pp. 140-142).

### **Non-Contributory**

There are two non-contributory pension programs in Mexico. The first is called pension alimentaria. This is for adults aged 68 years old or older who reside in the Federal District (DF). They are eligible for a benefit equal to at least 50% of the minimum wage. The second program is called Pension “70 y mas.” This program is for adults ages 70 or older who live in rural areas with a population of 30,000 or less. This is an exclusive program where beneficiaries cannot be a recipient of any other government program (OECD, 2014, pp. 140-142).

## **V. URUGUAY**

### **Tax System**

Uruguay follows a system of direct and indirect taxes. Direct taxes on income account for 22 percent of the government’s tax revenues through a personal income tax (Bucheli, M., et al, 2014). Initiated in 2007, income derived from work and pensions is treated separate from income derived from capital. Income derived from capital is taxed at

a flat rate while wages and pensions are taxed at progressive rates through the personal income tax (Bucheli, M., et al, 2014). Deductions exist for all levels, and typically align with family related responsibilities. Direct taxes include a tax/contribution to finance the National Health Insurance system. Labor earnings determine the level of insurance and accessibility for workers, and whether the worker is a sole beneficiary, or if members of his or her family are covered by the system. Finally, a small tax exists on private labor earnings to support a Labor Retraining Fund.

The majority (56 percent) of revenue is derived from indirect taxes with the Value Added Tax accounting for the largest share (Bucheli, M., et al, 2014). The base rate for the VAT is 22 percent. Basic goods and services that are considered necessities such as milk, medicine and education are exempt, while some foods (e.g. items like meat and bread) and health care items are taxed at a lower rate of 10 percent. In addition, separate taxes exist on some specific products like fuel, alcohol, tobacco, and automobiles. The remaining tax revenues come from taxes on businesses and property of individuals and legal entities. These rates are comparable to the progressive rates levied on individuals. In 2019, the corporate tax rate was 25 percent (Deloitte Uruguay, 2019).

### **Direct Transfers**

Uruguay's CCT is called Plan de Equidad and was initiated in 2008 (ECLAC and (BPS, 2019). The programs are targeted at children and adolescents who live in socioeconomic vulnerability. In order to receive the benefits, beneficiaries must be registered and attend school, public or private. They also must receive the necessary medical checkups corresponding to their age. For those with a disability, they must receive

a medical review every three years once they are 18 years or older. Finally, the guardian of the beneficiary must live in Uruguay.

Those with rights to participate and benefit from the program include people who attend primary school up to the age of 14 years of age. If a person has not completed primary school due to illness or the fact that they live in rural areas more than 5 km from the nearest educational center, they are eligible for the benefit up to 16 years of age. If the student attends secondary school, the benefit is available up to 18 years of age if they are a beneficiary of the disability pension.

Finally, children with disabilities who do not have the right to disability pension can also participate in the Plan de Equidad for life, but they must request it before reaching the age of 18 years old. The benefit is given to the legal guardian of the child. However, if there is more than one person who meet this condition, the woman is granted the benefit. The amount of the benefit varies based on the number of beneficiaries per household, the level of education, and whether a beneficiary has a disability. As of January 2019, the basic monthly values were as follows. The first beneficiary if less than five years of age and in school would receive UYU\$1,615.23. The first beneficiary at the intermediate level receives UYU\$692.25. Beneficiaries with disabilities receive UYU\$2,307.48. Each beneficiary enrolled full time in an Instituto del Niño y el Adolescente Uruguayo (INAU) facility receives UYU\$1,615.23 (BPS, 2019). The maximum number of recipients per family is seven children (ECLAC). The benefit initiates when the beneficiary family places the request, while it is also possible to receive a retroactive payment up to 12 months (BPS, 2019).

There are two targeting methods. The first is a proxy means test of families living in poverty according to the Critical Deficiency Index (ICC). Poverty here is calculated based on information provided by the family in an application form. The second is categorical, where the impoverishment of households is verified and determined by members of the Social Security Bank (BPS) (ECLAC).

## **Education**

Uruguay's education system is highly centralized. It is governed by an autonomous department called the National Public Education Administration (Administración Nacional de Educación Pública (ANEP)). The ANEP is responsible for regulating and administering a portion of the early childhood and pre primary education, all of primary and secondary school, teacher training at the tertiary level, and technical/professional education at the secondary/tertiary levels. All policy is developed by the ANEP (OECD, 2016b, p. 44-45).

There are four stages of education in Uruguay. Each stage has public and private education options. Some of the lower levels of education even private options that include public funding. The first is early childhood education aimed at students aged three and under (Primera Infancia (ISCED)), and pre primary education targeting students from three to five years (Educación Inicial (ISCED 02)). Early childhood education is voluntary, while pre primary education is compulsory at the age of four, although three year olds can attend voluntarily.

Private school is dominant for early childhood education. Although the majority of schools are privately run, but publicly funded. Public school is dominant for pre primary

education. Following pre primary, students attend primary education, which includes grades one to six, for students aged six to 11 years (Educación Primaria (ISCED 1)). There are many modalities of this level of education with varying factors influencing the offerings.

In urban areas, students have more options for schooling. The Common (Común) is a regular operating half day where students attend school for four hours in the morning or four hours in the afternoon. Full-time (or Tiempo completo) is for students who attend the full day of 7.5 hours. Extended-time (or Tiempo extendido) provides four hours of regular school with extended time for extra activities. Practice (or Práctica) offers students the chance to go to school for four hours a day with only teacher's in training (i.e. teachers currently in training) as their teachers. Finally, Aprender or "Learning," is similar to the four hour module but is located in areas where students are of lower socioeconomic status with options to receive additional support.

In rural areas, the modality is different. Although the catchment area for rural schools contains about half of the country's primary education centers, enrollment is extremely low. For example, in 2013, rural schools accounted for 52% of all public primary schools in the country, while enrollment accounted for 4.7% of Uruguay's total enrollment. On average, teaching in rural schools spans five hours per school day.

Lower secondary school represents grades seven to nine for youth between 12 and 14 years of age (Educación Media Básica (ISCED 2)). There are three program options for lower secondary. General programmes (or Ciclo básico de secundaria) is the program that the majority of the students enroll in. The second is Technical programmes (or Ciclo básico

tecnológico), and the third consists of all basic professional training programs (or Formación profesional básica) aimed at students 15 and older. Formación profesional básica generally has the lowest share of enrollment across the three programs.

Upper secondary education accounts for students ages 15 to 17 and includes grades 10 to 12 (Educación Media Superior (ISCED 3)). Similar to lower secondary, upper secondary education also contains three levels. General programs (educación media general) is geared for students seeking a continuation of studies at the tertiary level. Technical programs (educación media tecnológica) are geared toward students looking to go directly into the labor market or continuing to study at the tertiary level. Finally, professional training programs (educación media profesional) offer students two years of technical training and one year of general education. The majority of students enter the general program. Education from ages four through upper secondary are compulsory (OECD, 2016b, p. 44 – 58).

## **Health**

In 2007, Law 18, 211 established the Integrated National Health System (SNIS) and the National Health Insurance (SNS) (PAHO, 2017d and Arbulo, Castelao, Oreggioni, and Pagano, 2015, p. 5). The SNIS is composed of both a public sector and a private sector (Aran and Laca, 2013, p. S268). SNIS is responsible for the organization and functional structure of the network, which includes all public and nonprofit private services. This marked the beginning of the structural transformation of the country's health system with the goal of achieving universal access and coverage and improving the organization and

operation of the health system. In general, the management and care changed from a curative model to a preventative model based on the primary health care principles.

While the changes have been ambitious, several setbacks have prohibited the country from meeting its goals. Insufficient funding for incentives to encourage a model with uniform quality of care for all Uruguayans has plagued access and limited the effect on health outcomes. Also, despite restructuring to improve access to providers (a goal of SNIS), assigning users to providers remains very slow, impacting the speed at which citizens can receive and access care (PAHO, 2017d).

The main service provider for public health services is the Administración de Servicios de Salud del Estado (ASSE). In addition, specific service providers exist to support different groups. For example, la Sanidad de las Fuerzas Armadas receives its health services from the Ministerio de Defensa, while the Sanidad Policial receive health services from the Ministerio del Interior. El Banco de Previsión Social (BPS) provides maternal and child services for mothers and children up to the age of six years of age who do not have private sector coverage. In rural areas, municipalities are responsible for providing the health services. Private services are also available and provided by the Asistencia Médica Colectiva (IAMC). This organization consists of associations of private non-profit professionals that offer care to the social security beneficiaries and for those with the capacity to pay who wish to have private health insurance. The ASSE, the IAMC, and some of the private insurance companies provide a comprehensive basket of services known as the Comprehensive Health Care Plan (Plan Integral de Atención a la Salud (PIAS)). In 2008, the SNIS created universal health care coverage through SNS. The main beneficiaries of SNIS are workers in public or private employment who contribute to the



system based on their income. Additional beneficiaries include spouses and common law spouses, as well as children of the aforementioned workers under the age of 18. Children with disabilities older than 18 remain eligible for benefits. Children ages 18 to 21 who pay a differential fee can receive coverage as well. Finally, retirees whose income does not exceed 2.5 months of the Base de Prestaciones y Contribuciones (BPC) (Aran and Laca, 2013, p. S268-S269).

There is also a non-contributory program for beneficiaries of the SNIS, and their families, who are employed in the informal sector, who are unemployed, or who fall outside the labor market. The ASSE provides protection to those who do not contribute to social security and who cannot afford private insurance. The ASSE is financed with funding from the national budget (Aran and Laca, 2013, p. S270).

The funding model is a mandatory pooled public fund, where the National Health Fund (FONASA) is a central part. The total funding is derived from the insured contributing based on income, employers contributing based on wages paid, and the government providing supplemental income for the remainder. Together, this provides the Comprehensive Health Care Plan (PIAS) to the entire population (PAHO, 2017d). FONASA is financed by mandatory contributions of workers, employers, contributions from the government, and retirees' contributions. Employers contribute 5% of the total, worker contributions equal 6% (for those whose monthly wages exceed a minimum threshold), 4.5% (for those who do not exceed the threshold), and 3% for those with lower incomes regardless of whether or not they have children. Workers in the informal sector and those who are unemployed do not contribute, but still receive the SNIS benefits (Aran and Laca, 2013, p. S270).

### **Contributory and Non-contributory Pensions**

Uruguay has a mixed pension system. The system utilizes earnings brackets to receive contributions and grant benefits (OECD, 2014, p. 169). One part of the system is the Intergenerational Solidarity Retirement Scheme (RSI), which is a defined-benefit pay-as-you-go scheme. The other component is the Individual Savings Retirement Scheme (RAI), which is a defined-contribution, mandatory individual retirement savings (OECD, 2014, p. 169 and Acuña, 2014, p. 191). All workers receive funds from the RSI. The funds that they are eligible for is dependent on the amount a person contributes. There are three income brackets that are adjusted for contributions. As of 2014, workers who earned up to UYU\$35,516 on a monthly basis had to contribute to the pay-as-you-go scheme. Workers receiving between UYU\$35,516 and UYU\$106,549 monthly must contribute to the pay-as-you-go scheme up to UYU\$35,516 and into the RAI for anything that exceeds it. All workers who earn above UYU\$106,549 monthly can contribute voluntarily into the RAI based on their wages over that amount. All employers must contribute to the pay-as-you-go scheme. However, regardless of these guidelines, all workers who have incomes within the first bracket also have the possibility of opting for the RAI system. They can contribute 50% of their base income (Acuña, 2014, p. 191). Also, for those who earn less than the minimum wage and who are also elderly, there is a non-contributory scheme (OECD, 2014, p. 169-171).

To receive the pension, men and women must be 60 years old, with 30 years of contributions. The benefit is equal to 45% of contributed earnings, plus 1% for each year of contributions over 30 years, but not more than 35 years. After 35 years of contributions,

an additional .5% is added, up to 2.5%. If the beneficiary defers their retirement, the pension is increased by 3% for each year beyond age 60, up to 30%. Early retirement is only possible if the person is fully and permanently disabled from a work-related disability. The calculation on the earnings is equal to the monthly average of eligible earnings from the last 10 years. However, if the average of the 20 years of the highest earnings is more favorable to the beneficiary, then this calculation will be used. If low-income pensioners opted to distribute their contributions between the defined benefit and defined contribution scheme, they receive an increase of 50% of eligible allocations in the public scheme (OECD, 2014, p. 169-171).

There are two non-contributory benefits for those who do not meet the minimum requirements. The first is old-age assistance. This is for individuals who do not have the means to cover basic needs and who live in substandard conditions and who are older than 65, but younger than 70 (OECD, 2014, p. 171). In order to determine if the person is eligible for this pension, the household's income, the living conditions, the composition of the household, the characteristics of the household members, and the household's sanitation are all taken into consideration. The second is called old-age or disability pension, which was provided for in Law No. 16,713 (OECD, 2014, p. 171 and Acuña, 2014, p. 189). It is for both individuals who cannot cover their basic needs who are 70 years or older, and for people who are fully disabled, no matter their age, who therefore cannot work (OECD, 2014, p. 171). The beneficiary cannot have income from any source exceeding the amount of the non-contributory pension (Acuña, 2014, p. 189).

**Table 47: Transfer Programs in Latin America**

Country	Program Name	Year Implemented	Target Population	Conditions	Benefit Amount	Payee	Cash Benefit Variation by Gender
Brazil	<i>Bolsa Família</i>	2003 <sup>9</sup>	Families must be classified as “poor” by having an income between R \$89.01 and R\$178 per month. Or, extremely poor if they have an income up to R\$89 per month.  Have pregnant person or a child between 0-17 years of age. <sup>8</sup>	Health: Children 0-6 years: vaccines, health checkups, growth monitoring Pregnant/Lactating Women: Prenatal/postnatal checkups, participation in education health/nutrition seminars  Education: School enrollment of all children ages 6-17 85% of each month daily school attendance Participation in parent-teacher meetings <sup>2</sup>	As of 2018:  Basic Bonus: R\$89 per month  Variable Bonus: Min: R\$41 per month Max: R\$205 per month  Variable Bonus for Adolescents: Min: R\$48 per month Max: R\$96 per month  Variable Bonus for Pregnant Women: Min: R\$41 per <sup>9</sup>	Mother <sup>2</sup>	No <sup>2</sup>
	<i>Brazil Sem Miséria</i>	2011 <sup>10</sup>	People living in extreme poverty, especially in rural areas <sup>10</sup>	Aimed at extreme poor, direct cash transfers without conditions. Eligibility dependent on income.	Provide a range of services like assistance with documentation, electricity, literacy, medical, dental care, eye care, day care, and sanitation. Other benefits include efforts to increase production, for example, seed distribution and technical and commercial support for rural beneficiaries. <sup>10</sup>	Mother	No
	<i>Bolsa Verde (part of Brasil sem Miséria)</i> <sup>11</sup>	2011 <sup>11</sup>	Households living in extreme poverty engaged in conservation of natural resources.	Perform and meet criteria for natural conservation work, cannot enter into other environmental conservation programs	R\$300 per month  Minimum per capita amount: R\$77  Maximum per household per month: R\$300 <sup>11</sup>	Head of household	No
Colombia	<i>Programa de Familias en Acción</i>	2001 <sup>2</sup>	Extremely poor families (SISBEN Level 1 or those on Sole Registry for Displaced Populations) <sup>2</sup>	Health: Attend Growth and Development Controls (Families with 1 or more children under the age of 6 receive one health incentive.)  Education: 4-18 years of age: attend 80% of classes and cannot miss more than two years of school  18 or 19 years of age: must be in at least 10 <sup>th</sup> grade	Nutrition Subsidy: COL68,150-79,500  Education Subsidy: COL 11,375-62,475  Minimum Amount Per Capita: COL 2,708  Maximum Amount Per Household: COL 266,925 <sup>3</sup>	Mother <sup>2</sup>	No

				<p>20 years of age: must be in at least 11<sup>th</sup> grade<sup>1</sup></p> <p>(Families who have students between 1<sup>st</sup>-11<sup>th</sup> grades can only receive a maximum of three participants per family.<sup>1</sup></p> <p>Children cannot fail more than 2 school years.<sup>3</sup>)</p>			
	<b>Jóvenes en Acción</b>	2005	Poor and vulnerable youth (must be registered with SISBEN III, in the Red UNIDOC network, the RUV, or be in the census list as in indigenous youth, or registered with ICBF)	<p>Attend training/education program.</p> <p>Attend a participants workshop.</p> <p>Attend a conference on financial enrollment.<sup>4</sup></p>	<p>COL 200 per month<sup>5</sup></p> <p>Additional benefits depend on the program in which the student is enrolled. For example, beneficiaries can receive 400,000 pesos every two months for enrollment and permanence in a SENA program.<sup>6</sup></p>	N/A	No
	<b>Ingreso Social</b>	2007	Families of the Red UNIDOS – to acquire skills and develop work/team habits to help generate income. One family member between the ages of 18 to 35 years of age can enter with a grade level of 5 <sup>th</sup> to 11 <sup>th</sup> grade. The person must be a household head or a spouse. <sup>6</sup>	Enroll, attend, and pass formal training courses for secondary school. Comply with program related tasks, attend require meetings, maintain contact with support network (a social worker, a community leader, and an employment counselor) <sup>6</sup>	\$300,000 pesos per month <sup>6</sup>	Mother	No
	<b>Subsidio Familiar</b>	2005	Workers who do not have a lot of resources and their families.	Must be under the income threshold (under 4x the legal minimum wage as a monthly household income)	<p>Monetary quota for the dependents of the beneficiary, a housing allowance, discounts on education programs, discounts on recreation sports, and tourism programs.</p> <p>Unemployed beneficiaries receive contributions to the worker's health and pension plans, monetary fee for dependents, a monetary benefit for severance savings, training, and job search support<sup>7</sup></p>	Mother	No
<b>Dominican Republic</b>	<b>Progresand o con Solidaridad</b>	2004  2012: program rebranded and expanded <sup>12</sup>	Living in moderate or extreme poverty (as identified by the SUIBEN), have a national identity card <sup>12</sup>	Regular visits to health centers for exams, growth and development monitoring, and immunizations every two months for babies under one year of age and every four months for children 1-5 years old. <sup>12</sup>	<p>Comer es Primero: RD\$825 per month</p> <p>Incentivo a la Asistencia Escolar (ILAE): Min: RD\$150, Max: RD\$600</p>	Household head <sup>2</sup>	No <sup>2</sup>

				<p>Children between the ages of 6-16 must attend school at least 80% of the school days per year.<sup>13</sup></p> <p>Household head and spouse must attend capacity building session every four months.<sup>12</sup></p>	<p>Bono Escolar Estudiando Progreso (BEEP): Min: RDS\$250, Max: RDS\$500</p> <p>BonoGas Hogar: RDS\$228</p> <p>BonoLuz Hogar: Min: RDS\$4.44, Max: RDS\$444</p> <p>Minimum amount per capita: RDS\$394</p> <p>Maximum amount per household: \$4,397<sup>13</sup></p>		
<b>Mexico</b>	<b><i>Prosperity. Social Inclusion Program</i></b>	2014-2019 (successor of Oportunidades)	Households below the food poverty line	<p>Health: All household members must attend scheduled medical check ups</p> <p>Food: Use food support and take nutritional supplements</p> <p>Other: Attend health counseling</p> <p>Education: 85% school attendance</p>	<p>2018:</p> <p>Apoyo Alimentario: 335 pesos per month</p> <p>Apoyo Educacion: Min: 175 pesos Max: 1,350 pesos</p> <p>Apoyo Útiles Escolares: Min: 350 pesos Max: 440 pesos</p> <p>Jóvenes con Oportunidades: Min: 489 Max: 4,890</p> <p>Apoyo Adultos Mayores: 370</p> <p>Apoyo alimentario “Vivir mejor” 140</p> <p>Apoyo infantil “Vivir mejor”: Min 120 Max 360</p> <p>Min per capita: 166.7 Max per household: 2,470</p>	Mother	Yes <sup>18</sup>
<b>Uruguay</b>	<b><i>Asignacion es Familiares – Plan Equidad</i></b>	2008 <sup>15</sup>	Children and adolescents from vulnerable households <sup>15</sup>	<p>Education: School Enrollment and Attendance</p> <p>Health: Receiving regular health check ups<sup>15</sup></p>	<p>Minimum Amount per capita: UYU\$1,496</p> <p>Maximum per capita: UYU\$2,137</p> <p>Maximum per Household: \$10,473<sup>15</sup></p>	Legal Guardian of child, with preference to mother <sup>16</sup>	No

**Sources:** 1 Prosperidad Social, 2016a, 2 Fiszbein and Schady, 2009, 3 ECLAC 2018a, 4 Prosperidad Social, 2016c, 5 Prosperidad Social, 2016d, 6 Prosperidad Social, 2016e, 6 Prosperidad Social, 2016f, 7 Mintrabajo, 8 Caixa, 9 ECLAC 2018b, 10 Portal Brasil 2011, 11 ECLAC 2018c, 12 World Food Programme 2014, 13 ECLAC 2018d, 14 ECLAC 2018e, 15 ECLAC 2018f, 16 BPS 2019, 17 2018g, 18 Orozco Corona and Gammage, 2017, p. 8

## **Appendix 2**

### **Repository of CEQ Harmonized Microdata by Gender**

Appendix 2 is a repository of the CEQ Harmonized Microdata by Gender that was created as a result of this dissertation. It is also available upon request. It is available online via Box using the following link: <https://app.box.com/s/yj5sb7e7u8rhgo5enmdrof1hua5kib7g>

## **Appendix 3**

### **Gendered Fiscal Incidence Analysis**

#### **A Review of the Literature<sup>51</sup>**

#### **Summaries of the Literature**

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<sup>51</sup> This Appendix 3 was originally prepared as Annex A of a version of this paper was previously completed and published as CEQ Working Paper 76 with Professor Nora Lustig. However, it was determined that rather than pairing it down, this dissertation benefitted from its comprehensiveness and therefore the paper was kept intact. CEQ Working Paper 76 can be accessed here:

<http://repec.tulane.edu/RePEc/ceq/ceq76.pdf> Appendix 3/Annex A was authored by me. Also, the paper was originally prepared for the World Bank Poverty Reduction and Economic Management Network (PREM) Gender and Development Group (PRMGE). Elisa Gamberoni, Lucia Hanmer and Erwin Tiongson gave extremely helpful suggestions in the preparation of this review.



**Akram-Lodhi, A Haroon & van Staveren, Irene. (2003). *A Gender Analysis of the Impact of Indirect Taxes on Small and Medium Enterprises in Vietnam*. The Hague, the Netherlands: International Institute of Social Studies (ISS) of Erasmus University Rotterdam.**

Akram-Lodhi and van Staveren (2003) showed how the VAT system in Vietnam contributes to five implicit gender biases related to female-owned small and medium enterprises (SMEs). First, the authors demonstrated how male-owned enterprises gain unpaid family labor over women-owned enterprises as women do not have access to additional unpaid family labor. Second, women are more likely than males to have the value of their SME overestimated, which leads higher VAT payments. Third, the VAT structure privileges men, resulting in male- and female-owned SMEs having different after-tax profitability. The authors also argue that gender bias is not driven by the fact that female-owned SMEs face higher rates of VAT. It is not the case that women experience lower profits than male-owned SMEs but rather that the bias is not recognized in the data. Fourth, female-owned enterprises are more likely to be exempt from VAT because of their lower income criterion, however they are less likely than males to be granted an exemption as more female-owned enterprises are unregistered. Finally, female-owned SMEs pay a higher amount proportionally for inputs because of their smaller scales but receive no redemption for VAT payments, which impacts their profits. Unsurprisingly, since the VAT system fails to recognize gender-based differences, female-owned enterprises are taxed higher than male owned enterprises. Overall, the authors found Vietnam utilizes a regressive tax system in regard to gender with implicit gender bias represented in the VAT system.

**Austen, Siobhan, Castro, Monica, Sharp, Rhonda & Elson, Diane. (2013).  
“Expenditure Incidence Analysis: A Gender-Responsive Budgeting Tool for  
Educational Expenditure in Timor-Leste? *Feminist Economics*. doi  
10.1080/13545701.2013.830187**

The primary goal of the Austen et al. (2013) study was to illustrate how benefit incidence analysis, which the authors refer to as “expenditure incidence analysis” (EIA), could be used as a tool for assessing the gender responsiveness in public sector budgets and fiscal policies. Public expenditure on all levels of education in Timor-Leste during 2006-2007 is used as a case study. Timor-Leste is currently a lower-middle income country in the East Asia and Pacific region<sup>52</sup>. To show how EIA can be used as a tool to support gender responsive budgeting, the authors included quantitative benefit incidence analysis, as well as a qualitative study focusing on 29 individuals to determine perspectives on benefit incidence analysis. The benefit incidence analysis is composed of two main parts. First, an accounting approach is used comparing school attendance rates of boys and girls from different socio-demographic groups. Second, a behavioral response model is implemented to explore the likelihood of girls attending school related to household and personal circumstances. The authors’ primary research question asked, “How can the potential of gender-disaggregated EIA, as a tool for GRB, be realized?” (p. 5). In addition, the authors also attempted to indirectly explore questions such as: How school attendance of boys compares to that of girls in Timor-Leste; How government spending on education of boys compares to that of girls in Timor-Leste; and what determined school attendance, especially for girls, in Timor-Leste.

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<sup>52</sup> According to the World Bank’s World Development Indicators (WDI) for 2013, Timor-Leste is categorized as a lower middle country. The data used for Austen et al.’s (2013) study was from 2006-2007, which might have corresponded to placing Timor-Leste under a different category. For more information about the WDI’s visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

Data from the 2007 Timor-Leste Living Standards Survey (TLLSS) supported the completion of the study. TLLSS collects data on household and individual characteristics including demographic information, housing conditions, access to facilities, durable goods for household consumption, educational outcomes and access to services, health status and performance of the health system, employment conditions and the labor market, social capital, and self-reported perceptions of welfare. The survey launched on March 27, 2006 and reached a cross-sectional sample of 4,500 households, 2% of the country's total households at the time. Secondary source data also helped determine the government spending on education, which was collected from the Annual Financial Report and Accounts Fiscal Year 2006/7 from the Timor-Leste Ministry of Finance, National Directorate of Treasury 2007.

To incorporate gender into their methodology, the authors examine the share of actual educational expenditure during 2006-2007 for groups of boys and girls for each level of education. They also assess expenditure by geographic location of rural versus urban areas. The paper does not specify a unit of analysis and whether they targeted only households or individuals. To assess the impact of the in-kind education transfers, the authors used a monetized value of the transfer per student. The indicator used was concentration shares.

Using the accounting method of benefit incidence analysis, the study found that total education expenditure shares favored boys in Timor-Leste. Also, girls and boys in rural areas were much less likely to attend school than those in urban areas, while girls in rural areas were less likely to attend than boys. Therefore, boys in urban areas received the most government spending on education and girls in rural areas received the least. When

examining spending by educational level, the authors determined that substantial gender differences exist at the pre secondary school level. Girls in rural areas received a lower share of education expenditure by more than 6% relative to the total population of girls that age. This same pattern was true at the secondary school level.

For the second part of the benefit incidence analysis portion of the study, the authors used a behavioral response model, for which they used a probit regression to determine the likelihood of a girl's attendance at school as related to a range of household and personal characteristics. The findings showed that girls' attendance was more likely to increase if there were more adults in the household who had attended school, and if the language "Tetum" was spoken in the household, which is Timor-Leste's national language. On the other hand, girls were less likely to attend school as they got older, and if they lived in a household that was below the consumption poverty line.

Following the benefit incidence analysis portion of the study, Austen et al. (2013) used a qualitative approach to determine the circumstances in which a gender-disaggregated benefit incidence analysis could illicit more gender-sensitive policies within budgeting decisions and processes with the hope that they could use in gender responsive budgeting. This study included 29 semi-structured interviews and a focus group discussion. The results of the interviews revealed how many participants recognized a need for gender-disaggregated data to help inform the budgetary process. However, interviewee' responses were not positive relative to the authors' gender-disaggregated benefit incidence analysis. Many resisted the use of the TLLSS household survey data. Also, some believed the data, which was from 2006-2007, merely reflected on the previous government's performance. Stakeholders were unfamiliar with the benefit incidence analysis methodology. They also

discovered how the timing of the gender-disaggregated incidence analysis had to correspond with timing of the budgeting process. Overall, the authors explained that narrow engagement of women in their study, such as a lack of non-governmental organization involvement, the results of the gender-disaggregated benefit incidence analysis skewed and failed to transform into feminist knowledge.

Although the results of the qualitative portion of Austen et al.'s (2013) study did not demonstrate that a gender-disaggregated benefit incidence analysis was received positively by interviewees, the authors concluded that it "demonstrates that gender analysis cannot stand alone, but must be supported by a strategy to be integrated into the budget decision-making processes so that it influences politics and their funding" (p. 17). They also explain that gender responsive budgeting is equally a political process as it is a technical exercise. Overall, the integration of gender-disaggregated analysis into policy and budget decisions depends on the credibility of the sources of information, the strategies used to present the findings, the political context, and the roles and identities of key players in institutional structures.

Overall, this study is interesting for several reasons. The authors discussed that a large number of gender-disaggregated benefit incidence studies have not been completed. This confirms the limited number of studies in which the search for studies to include in this literature review resulted. Also, this study shows how gender-disaggregated benefit incidence analysis could inform gender-responsive policy and budget decisions, which is, in short, an effort to combine academic analysis with more practical policymaking. However, the conclusions of Austen et al. (2013) that gendered incidence analysis cannot stand alone were difficult to believe due to the fact that many of the policymakers that were

interviewed seemed to have such a negative connotation of the idea. Also, the incidence analysis only examined public expenditure on the entire population rather than by quintiles.

**Bird, Richard M. & Miller, Barbara Diane. (1989). The Incidence of Indirect Taxes on Low-Income Households in Jamaica. *Economic Development and Cultural Change* 37(2), 393–409.**

Bird and Miller (1989) was one of the first tax incidence studies to integrate gender. The authors use a partial, standard tax incidence analysis to assess the impact of indirect taxes on low-income households in Jamaica, which is currently an upper middle-income country<sup>53</sup>. It can be inferred that the questions that Bird and Miller (1989) set out to answer regarding indirect taxes on the poor included: What is the proportion of indirect taxes paid by the poorest in Jamaica, including couple-headed versus female-headed households and households in urban and rural areas?, which is a question that addresses horizontal equity and Do couple-headed or female-headed households bear the same burden of indirect taxes by consumption category?

To gain answers to these questions, as well as more general questions about indirect tax incidence on the poor in Jamaica, the authors used the “JTSEP Low-Income Household Expenditure Survey”, conducted from November 1983 to June 1984 (Bird & Miller, 1989). The survey was designed to provide information about the burdens of taxes on low-income households (Miller & Stone, 1985). The goal of the survey was “to obtain high-quality, longitudinal data on 90 items of expenditure as a basis for analysis of the households’ tax burdens” (Bird & Miller, 1989, p. 394). Using purposive sampling, the authors selected

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<sup>53</sup> According to the World Bank’s World Development Indicators (WDI) for 2013, Jamaica is categorized as an upper middle-income country. The data used for Bird and Miller’s (1989) study was from 1983, which might have corresponded to placing Jamaica under a different category. For more information about the WDI’s visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

145 low-income households included in the survey. Using this survey of low-income households allowed the authors to focus on questions of horizontal equity (“are people of equal income taxed equally?” (Bird & Miller, 1989, p. 394)). Bird and Miller (1989) divided the 145 households from the survey into six expenditure groups: three in rural areas and three in urban areas. The first expenditure group represented poorest-low income households, while the second group was medium level-low income households, and the third was the slightly higher low-income households. The authors also distinguished between couple-headed and female-headed households. An adult consumption equivalent unit (ACE) was applied as the authors felt that the age composition of households would have important effects on patterns of consumption. The equivalized scale was composed of two groups: children under the age of 15 who were considered to constitute .5 ACE and adults 15 and older who constituted 1 ACE. Once the basic ACE calculations were made, households were placed into ACE groups based on the number of people living in the home, which ranged from 1 to 9. According to Bird and Miller (1989), the ACE groups “were derived from the annual household expenditure per ACE calculated for the all-Jamaica 1975 Household Expenditure Survey” (p. 396). The authors do not explain why they elected to use the 1975 Household Expenditure Survey. Although, they indicate that the ACE groups for low-income household survey are very close to the corresponding figures calculated from the 1975 survey. However, it should be noted that the low-income survey over-represented larger households and under-represents smaller households as the average size of households measured in ACT terms is larger in the low-income sample than the entire population.

To complete the assessment of tax burden on the poor, Bird and Miller (1989) used incidence as their indicator. The poor are broken out and placed in one of three low-income expenditure groups that represent the poorest-low income households, the medium level-low income households, and slightly higher low-income households. Households were chosen to be included in the survey based on the purposive sampling. Bird and Miller (1989) found “first, that the indirect tax system as a whole accounts for only about 6% of total expenditure of this low-income sample, and second, that these taxes are probably best characterized as roughly proportional within the low-income sample in terms of expenditure” (p. 399). They explain that in their view, indirect tax burden is not as great on the poor as previous studies that used income (as opposed to expenditure) have shown. Bird and Miller (1989) also find that the estimated burden of indirect taxes in 1983 was more than 60% greater on the population as a whole than estimated for the low-income household sample in the study. They do not identify much, if any, regressivity within the low-income sample. They also explain a modest degree of progressivity by expenditure groups. Bird and Miller (1989) do not state how they define regressive or progressive in their paper.

Although the indirect tax burden on the poor that Bird and Miller (1989) discerned was lighter than other studies found regarding Jamaica, there was still a heavy burden. The effect of the indirect tax incidence on the poor was larger than their expenditure on transportation and almost twice as large as their household fuel expenditure. Taxes on food were regressive, which is important to note because food constituted a large proportion of consumption expenditure of the poorest groups in Jamaica. Alcohol and tobacco accounted for 16.5% of estimated taxes paid by the low-income groups in the country although they



accounted for only 2% of these groups' expenditure. The poor spent 8% of their expenditure on alcohol, tobacco, and fuel, which accounted for 43.6% of all taxes paid by the poor.

In terms of geographic location, the authors found that the total burden of indirect taxes was nearly equal for both urban and rural areas. Contrastingly, food taxes accounted for 43% of the total tax burden on rural households compared to a lesser 32% for urban households. Also, taxes on transportation accounted for 36% of urban households burden, but only 20% of the burden for rural households.

When Bird and Miller (1989) examined gender specifically, they do not control for income. Instead of looking at couple-headed versus female-headed households in each of the three expenditure groups, they compared the couple-headed households from all of the expenditure groups to the female-headed households from all of the expenditure groups. There were 83 couple-headed households and 62 female-headed households. Interestingly, the authors conclude that indirect taxes were a heavier burden on couple-headed households than on female-headed households. They explain this is likely a selection issues, attributing it to the fact that most female-headed households were in urban areas and had slightly higher weekly expenditures, and couple-headed households in rural areas were more likely to be low-income than the female-headed households. In urban areas, 26% of female-headed households were in the lowest ACE group, while only 20% of couple-headed households were. Although indirect tax burden is greater for couple-headed households than female-headed households, female-headed households endured a greater burden on items like dry goods, housing, fuel, entertainment, transportation, and education.

Bird and Miller (1989) conclude that any attempt to reform indirect tax policies to a more progressive approach would be futile as the gains in vertical equality would likely be offset by increased horizontal inequality on households from the same income levels with different expenditure patterns. The authors do not explicitly discuss this conclusion in regard to gender, however it is an important conclusion to consider when discussing the indirect tax burden on men and women. Overall, Bird and Miller (1989) suggest an adoption of a VAT system in Jamaica to improve efficiency and equity, as long as the appropriate basic food items remain exempt.

**Browne, James. (2011). *The impact of tax and benefit reforms by sex: some simple analysis* (IFS Briefing Note 118). London: Institute for Fiscal Studies.**

Browne (2011) used a standard fiscal incidence analysis to examine tax and benefit reforms to be introduced in the United Kingdom (UK), a high income OECD country<sup>54</sup>, between 2010-2011 and 2014-2015. The UK's "Equality Act 2010" required the government to provide "due consideration" to how its policies affect gender inequalities" (p. 1). For this, Browne's (2011) paper hopes to show ways in which the government could assess how tax and benefit reforms impact men and women using household level data. The reforms include increased insurance benefits, tax reliefs, increases in some taxes, and changes in requirements for social assistance programs and tax credits. A full list of the tax and transfer reforms are included in the appendix of Browne's (2011) paper. It can be inferred that Browne (2011, p. 1) seeks to answer through his analysis if the UK tax and benefit system treats otherwise-identical males and females equally, do men lose more than

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<sup>54</sup> According to the World Bank's World Development Indicators (WDI) for 2013, the United Kingdom is categorized as a high income OECD country. For more information about the WDI's visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

women from the forthcoming tax and benefit reforms due to characteristics like income, time use, and family structure that differ systematically between the genders.

Browne (2011) used data already available to show ways where the government could assess tax and benefit reforms. This data included the Family Resources Survey, which is representative of the entire population at the time, with a sample size of approximately 25,000 households. The analysis also utilized the Expenditures and Food Survey, which is also representative of the entire population at roughly 6,000 households. Although the sample size of each survey is substantial enough to complete analyses of various subgroups accurately, there are a few groups that were relatively small, and thus the conclusions could not be made about them.

Browne (2011) used incidence as the indicator in the study. In regard to assessing the impact of these reforms on gender, he pointed out how the report “does not constitute a full gender impact assessment” as the tax and benefit microsimulation model of the Institute of Fiscal Studies, which was used for this study, does not properly assign each benefit to a particular person of a couple (p. 2). Therefore, the analysis examined the distributional effects at the household level. Using the household level data, Browne (2011) first looked at the impact of these reforms on single-adult households by the adult’s gender, which was also disaggregated to whether or not the adult had children. Second, Browne (2011) assessed the impacts on couple households according to the gender of the highest earner, and it included whether the spouse worked and if so, part time or full time, and if they had children. Finally, the impact of these reforms on men and women’s incentive to work was assessed.

The results show that reforms introduced between 2010-2011 and 2014-2015 caused a larger loss for households with a single adult female than a single adult male because of “the particularly large loss for lone parents from these reforms, over 90% of whom are women” (Browne, 2011, p. 19). Relating to the analysis of the distributional impact by gender for single-adult households, Browne (2011) determined reforms for 2012-2013 did not impact single-adult households “significantly” according to gender. However, single women, especially those with children, would experience more of the burden of the reforms to be introduced between 2012-2013 and 2014-2015. Browne goes on to explain and show that there is little difference in the distributional effect of the tax and benefit reforms between men and women single earner couple households, nor does a large difference in two-earner households exist according to the gender that makes the higher salary. Dual-earner couples experience a smaller loss than single earner couples. The reform package also slightly lessens the incentives for both men and women to do paid work on average and to increase their earnings.

**Casale, Daniela. (2009, January). *Indirect Taxation and Gender Equity: Evidence from South Africa*. Durban, South Africa: School of Development Studies, University of KwaZulu-Natal.**

Casale (2009) is a paper assessing partial, standard tax incidence analysis and indirect taxes in order to understand explicit and implicit forms of gender bias in the tax system of South Africa, an upper middle-income country<sup>55</sup>. The paper is part of multi-

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<sup>55</sup> According to the World Bank’s World Development Indicators (WDI) in 2013 (i.e. shortly after the paper was released) South Africa is categorized as an upper middle-income country. While the data used for Casale’s (2009) paper was from 2000, which might have corresponded to placing South Africa under a different category, the country’s economic status was relative for the time period. For more information about the WDI’s visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

country project titled “Making Tax Reforms Work for Women: Mobilizing Taxes for Gender Equality and Women’s Empowerment.” The objective of the project is to assess explicit and implicit forms of gender bias in tax systems in several countries with different development levels. Casale (2009) explains that, “explicit bias arises due to specific provisions in the tax law that treat women and men differently” (p. 3). On the other hand, implicit bias “occurs when provisions of the tax law have a differential impact on women and men due to gendered social or economic behavior, even though the tax law contains no explicit bias” (p. 3). Explicit biases are typically found in direct taxes while implicit biases are typically found in indirect taxes.

Casale (2009) focused on the indirect taxes and therefore generally implicit biases, while a paper by Budlender and Valodia (2007) focused on the personal income taxes and therefore explicit biases of South Africa. Together these issues are important to study because over the past two decades, it is generally understood that tax reforms have improved gender bias significantly in South Africa. In particular, examining implicit bias in the indirect tax system is important in regard to gender because men and women have different spending patterns and therefore bear the tax burden differently. Casale (2009) aimed to examine the following inferred questions: What are the explicit and implicit forms of gender bias in indirect taxes in South Africa?; what are the gender impacts of the indirect tax system (VAT, excises, and fuel levies) of South Africa, particularly the impact on poorer women, and women living with children?; and who ultimately bears the burden of indirect taxes?

The data used to answer these questions was from the Income and Expenditure Survey (IES) from 2000. The IES is a household survey conducted every five years among

a nationally representative sample of about 30,000 households. The survey includes detailed information on the spending patterns of households, with face-to-face interviews that collect data on about 500 expenditure items. The survey is used primarily to update the CPI weights. The tax rate and price information that were used to calculate the tax incidence per item were gathered from various government sources like the National Treasury Budget Review 2000, the South African Revenue Services VAT Guide for Vendors, and the Statistics South Africa retail price survey for 2000.

Casale (2009) estimated the amount of taxes paid by households indirectly by examining information on spending behavior. Consumption expenditure was used rather than income because the tax literature suggests that it is a better measure of wellbeing if households have consumption smoothing and because not all countries in the multi-country project had reliable income data. Casale (2009) explained that the biggest methodological challenge was to determine how to estimate the gender incidence of indirect taxes because gender is an individual characteristic while expenditure data is collected at the household level. Expenditure was not weighted because there was not sufficient information on intra-household allocation of resources to decide how to properly weight it. However, assuming equal sharing in the household and calculating an individual incidence did not seem satisfactory for a study regarding gender impact on taxes. Therefore, an alternative approach was used, which the author also points out was a feasible approach to be used for a comparative, cross-country study. The approach first ranked households as “more female” or “more male” and then tax incidence on individuals within the households was analyzed using incidence as the indicator. Three definitions were used to classify households as being "male-type" or "female-type." The first takes into account the presence

of male and female adults 18 years and older in the household. The three groups within the presence of adult category were: adult male majority, adult female majority, and equal number of adult males and females. The second takes into account gendered spending power by adding the dimension of control over resources, which is measured through employment status. The employment status category was divided into sub-categories of: male breadwinner, female breadwinner, dual earner, and no employed adults. The third definition also takes into account gendered spending power by adding the dimension of control over resources, but it is measured using household headship. The headship category is then divided into the sub-categories of male-headed and female-headed. The survey, from which the data for this paper was derived, required that a household head be identified. If the couple claims to be equal heads of household then the oldest person is chosen as the household head. The most important limitation of the study is the fact that Casale (2009) could not estimate individual incidence for men and women since there is no expenditure or consumption information available at the household level. Although the author determined this alternative approach, which refers to the implicit bias in favor or against male-type households, she also points out that, “it is important to recognise that women living in those households will also bear part of the tax burden” (Casale, 2009, p. 15).

The results of Casale’s (2009) study show that the total indirect tax incidence was lower in female-type households than in male-type households by around a full percentage point. This was also true for all individual categories of indirect taxes: VAT, excise, and fuel levies. The incidence among households with no employed members was similar to female-type households. Dual-earner and equal adult households resembled the male-type

households. The largest gender gap was found in excise and fuel taxes. When households were divided by urban/rural, the total indirect tax incidence was higher in male-type and dual-earner households compared to female-type and households with no employed members. The indirect tax incidence was higher in urban areas than rural areas for the households of male-breadwinner, female-breadwinner, and no employed members. When the households were examined by race, for all four groups (African, White, Colored, Indian) the male-breadwinner households bore a larger tax burden than female-breadwinner households. Indian and Colored households had a higher indirect tax incidence than African and White households.

When the households were grouped by quintile, regardless of which quintile they were in, female-breadwinner households and those with no employed members bore a lower tax incidence than male-breadwinner and dual earner households. Total indirect tax fell most heavily on the middle quintiles, where the poorest quintile paid a smaller share of expenditure on tax than any other quintile. For VAT and excise taxes the incidence was predominantly on the middle quintiles, while the fuel levy was strongly progressive. When disaggregated by the presence of children, the incidence of excise taxes was more regressive and the VAT more proportional for male-breadwinner and female-breadwinner households without children than households with children. Overall, in regard to gender, the female-breadwinner households and those with no employed members experienced a lower incidence of total indirect taxes and all individual categories of indirect taxes than male-breadwinner and dual-earner households regardless of children being present in the home. Within each household category, households with children bore a lower total indirect tax burden than those without children.



When the tax incidence was assessed by consumption category, female households experienced a greater tax incidence on food, utilities, children's clothing, personal care items, fuel for household use, and education. Male breadwinner households experienced greater tax incidence on meals out, non-alcoholic beverages, alcoholic beverages, tobacco, adult's clothing, private transport, fuel for transport, medical expenditure, communication, and recreation.

Through a simulation Casale (2009) found that the biggest income equity gains had already been exhausted through the government's "zero-rating" of basic food items and paraffin. Zero-rating baby food, other sources of fuel for household use, and children's clothing provides the largest relative gender and income equity benefits. But there would also be potential negative implications of zero-rating these items.

Overall, the study found that in South Africa there was no implicit bias against female-type households, those in the lowest quintiles, or those with children. Instead there was an implicit bias against male-type households and those without children due to the high taxes on alcohol, tobacco, and fuel. Implicit bias against female-type households only existed when the results were disaggregated into different consumption categories.

**Castro-Leal, Florencia. (1996, December). *Who Benefits from Public Education Spending in Malawi?* World Bank Discussion Papers. Washington, DC: The World Bank.**

Castro-Leal (1996) used benefit incidence analysis to determine who benefits from public education spending during 1990-1991 and 1994-1995 in Malawi, a low income<sup>56</sup>

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<sup>56</sup> According to the World Bank's World Development Indicators (WDI) for 2013, Malawi is categorized as a low income country. The data used for Castro-Leal's (1996) paper was from 1990-1991 and 1994-1995, which might have corresponded to placing Malawi under a different category. For more information about the WDI's visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

country in Sub-Saharan Africa. The time period was particularly important as of education reforms in 1994 in Malawi more than tripled government spending on education in real terms compared to the level in 1991 as well as eradicated primary school fees. The main question that the Castro-Leal (1996) intended to answer is reflected in the title of the study, “Who Benefits from Public Education Spending in Malawi?” (p. 1). It can be inferred that the author also aimed to answer the following questions: How well are public education services targeted to different socioeconomic groups, regions, and genders? And did the recent education reforms of 1994 impact household and student responses to education enrollment in Malawi?

To answer these questions, data from several sources was used. First, school enrollment data was obtained from the 1990-1991 Household Expenditure and Small-Scale Economic Activities (HESSEA) survey, conducted by the National Statistical Office of Malawi. The sample size of the survey was not included in the paper and was not easily found through an internet search. The Ministry of Education (MOE) provided education enrollment levels for 1992-1993 and 1994-1995, and public spending information. The authors then computed per capita public education spending by income quintiles in 1990-1991 and 1994-1995 using the data from HESSEA and MOE. The author explained that, “*Per capita primary* education spending for 1994/5 cannot be calculated as straightforward as those in 1990/1. In 1994/5 there was no household survey data available, this information on primary-level enrollments by socioeconomic group had to be derived on the basis of enrollments by regions provided by the MOE (1995) and taking HESSEA data as our baseline” (p. 42-43). This is a limitation because the enrollment levels from one year were estimated while the formula for the rate of enrollment increase did not distinguish by

gender.

The author explains, "the incidence of public spending is the result of: (i) public policy decision, the *allocation* of public expenditures to and within each sector, and (ii) a private decision, the *behavior* of households" (p. 23). For this, enrollment was examined to show the behavioral response of households, as well as the allocation of education spending. The study found that there were major increases in gross enrollment rates in the 1994-1995 school year at every income level as compared to 1990-1991. However, there were half as many children from the poorest quintile enrolled in primary school as those from the richest quintile. Gender disparities in gross enrollment rates increased for all income groups. Girls in the poorest quintile had the lowest gross enrollment rate in both years. But in 1994-1995, the gross enrollment rate of girls in the poorest quintile was only 69%, while it was 100% for boys.

In regard to targeting of public education spending, the study found that from 1990-1991 to 1994-1995 targeting of education spending to the poor increased substantially. The 1994-1995 distribution of all education resources was lightly pro-poor, but the primary level spending was strongly pro-poor. The study showed that the most effective way of increasing the equity of public spending was to increase the total education spending percentage allocated to the primary education level. These improvements were important because in 1990/1991 the public spending at the primary and secondary levels were only lightly pro-poor. Despite targeting of spending toward the poor, gender inequality did not improve over the time period. Girls received about half the spending that boys did in both 1990-1991 and 1994-1995. The gender differences were not wide at the primary level, but they were much larger at the secondary level, and the widest at tertiary education levels.

The poorest income quintile had the widest gender inequalities where the poorest quintile of girls received only two-thirds of the primary level spending received by the poorest quintile of boys. Although the authors did not disaggregate gender and region, they did find that in regard to region, education resources were smaller in the rural Center and rural South, which they attribute to the enrollments being much lower than the other regions.

**Demery, Lionel, Chao, Shiyun, Bernier, Rene & Mehra, Kalpana. (1995, November). *The Incidence of Social Spending in Ghana*. PSP Discussion Paper Series 19704. Washington, DC: Poverty and Social Policy Department, Human Capital Development and Operations Policy, The World Bank.**

Demery et al. (1995) used a partial benefit incidence analysis to examine education and health spending in 1992 in Ghana, a lower middle income country<sup>57</sup> in Sub-Saharan Africa, in 1992. To observe changes over time, the incidence of spending on different income quintiles, on men and women, and on people living in different regions in 1992 was compared to those of 1989. The authors aimed to answer many research questions. A few of the general questions include: “Do the poor benefit from public education and health spending?” (p.3), “To what extent is public funding on such services targeted to the poor in Ghana?” (p. 5), and “What changes in targeting have been observed in recent years?” (p. 11).

To answer these research questions the accounting method of incidence analysis was used. The quantitative, microdata was from the Ghana Living Standards Surveys (GLSS) 1989 and 1999, which had sample sizes of 3,200 and 4,565 households

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<sup>57</sup> According to the World Bank’s World Development Indicators (WDI) for 2013, Ghana is categorized as a lower middle income country. The data used for Demery et al.’s (1995) paper was from 1989 and 1992, which might have corresponded to placing Ghana under a different category. For more information about the WDI’s visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

respectively. The GLSS data cover topics such as income, expenditure, location, illness and injury, actions households take to seek care, and what type of care they seek. There were comparability issues between the 1989 and 1992 datasets, but the authors adjusted the data appropriately based on methods developed by both the World Bank (1995) and Coulombe and McKay (1995). To assess the transfers, a monetized value of the service was used, which in the case of healthcare was converted from the number of medical visits that individuals reported receiving in the GLSS. The average benefits were assessed as well as the marginal benefits because of the change over time that was examined. The welfare indicator used was per capita expenditure. However, to show the importance of the type of welfare indicator being used the authors also examined the per equalized unit. This was the only study that used multiple welfare indicators. The authors' indicators included per capita public spending on education and health to assess inequality and concentration shares, concentration curves, and enrollment (coverage) to assess how equitable spending on and access to public services was.

In regard to education, the study found that in 1992, primary level education subsidies were well targeted to the poor but secondary level subsidies were not. There were also greater gender inequalities at the secondary level. Girls received only 40% of the total subsidy and this was even more noticeable for the poorest two quintiles. The tertiary education subsidy was much more regressive than the other levels in general. The authors did not define their use of the word regressive. Gender inequality at the tertiary level was also much greater, with girls only receiving 37% of the subsidy. Over time, from 1989 to 1992, the authors found that the public education expenditure incidence remained stable. The targeting of primary level expenditures did not change over time and the regional and

gender shares were mostly unchanged. The targeting of secondary level education declined over time where 17% went to the poorest quintile in 1989 and 15% in 1992. The distribution of the tertiary level spending was stable over time. The female bias remained largely unchanged over time where females gained about 40% of the total subsidy. To examine behavioral influences, the authors also found that demographic factors had a large role in determining the distribution of the primary subsidy. The welfare indicator also had an impact. When the authors compared the per capita distribution to the per adult equivalent unit they found that using per adult equivalence made the primary subsidies significantly less targeted to the poor, while secondary and tertiary subsidies were better targeted. Also, the authors recognized that in regard to education, one limitation was that they could not capture quality of education services and also, they had to assume that a unit cost of education was the same across regions, while in reality there are most likely large differences across regions.

In regard to health subsidies, the authors found that expenditures were distributed less equally than education subsidies when examining the subsidy only by quintile. The poorest quintile gained about 12% of the total subsidy while the richest quintile gained about 30%. There was also an unequal pattern regionally where urban areas gained much more than the rural areas. In 1992 the urban areas, which represented only 32% of the population, gained 48% of the total health budget. There were also gender differences, where women were more likely to benefit from health services. In 1992, women received 56% of the overall health spending. However, the poorest women were not as likely to benefit from health services, where in 1992 they gained only 44% of the subsidy compared to men who gained 56%. When comparing the data over time, the study showed that from

1989 to 1992 health spending was persistently unequal, and was more unequal in 1992 than 1989. The pro-urban bias increased over time. The gender differences were about the same over time. Since behavioral factors are important for health, the authors examined demographic influences on the health subsidy. They found that there was very little variation from the actual subsidy. Therefore, demographic factors were not particularly important on health spending.

The authors also compared the incidence of public sector social spending to other developing countries based on the percentage share of subsidy going to the poorest and richest quintiles. The authors found that the distribution in terms of the share going to the poorest and richest quintiles in Ghana was similar to Brazil, Colombia, Indonesia, and especially Kenya. Education spending was better targeted to the poor in Uruguay and Malaysia. In regard to health targeting, Ghana had similar targeting to the poor as Indonesia, Vietnam, and Kenya. But of these countries, Ghana had the lowest share going to the poor and the highest to the richest. In Colombia, Malaysia, and Uruguay, the health spending was highly targeted to the poor. Unfortunately, the authors did not examine gender when they compared spending in these countries.

The authors also compared how much the family must spend in order to gain access to these services. The authors found that about 6% of total non-food expenditure was spent on publicly provided education by households. About 18% of household education spending was spent on tuition and school fees despite that primary education was supposed to be free. Overall, the analysis showed that the household contribution to education increased by quintile and urban households contributed more than rural households. Also, the relative contribution of households decreased from 1989 to 1992. In regard to how

much a family must spend on healthcare, the authors found that the poorer quintiles spent less per visit on medication and transportation but more on consultation fees. Also, the cost to attend a consultation in a rural area was much greater than an urban area. This section of the study did not examine gender.

One limitation of this study is that there seemed to have been a small sample size for some quintiles. This is apparent in the tables in the Annex, particularly in Tables A1 and A2 where there are large differences in the shares of public spending allocation between 1989 and 1992. This could be because of the small sample size from 1989 in certain quintiles.

**Demery, Lionel, Dayton, Julia & Mehra, Kalpanna. (1996). *The Incidence of Social Spending in Côte d'Ivoire, 1986-95*. Working Paper 65701. Washington, DC: Poverty and Social Policy Department, The World Bank.<sup>58</sup>**

Demery et al. (1996) used a partial, benefit incidence analysis that examined the use of and government spending on public health and education services during 1995 in Côte d'Ivoire<sup>59</sup>, a lower middle income country located in Sub-Saharan Africa. The authors also compared the results from 1995 to data from 1986 to show how access and government spending on health and education had changed over time. Each item was assessed by quintile, gender, and geographic location (urban vs. rural). The main questions that the study sought to answer included: "To what extent has the reliance upon internal adjustment

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<sup>58</sup> This paper was included in our literature review by recommendation of Erwin Tiongson who had included it in his co-authored paper Davoodi et al. (2010) "Benefit Incidence of Public Education and Health Spending Worldwide: Evidence from a New Database."

<sup>59</sup> According to the World Bank's World Development Indicators (WDI) for 2013, Côte d'Ivoire is categorized as a lower middle income country. The data used for Demery et al.'s (1996) paper was from 1986 and 1995, which might have corresponded to placing Côte d'Ivoire under a different category. For more information about the WDI's visit: <http://data.worldbank.org/data-catalog/world-development-indicators>



penalized social spending in Côte d'Ivoire, and led to a deterioration in the targeting of such spending to the poor?" (p. 2), "Does the evidence suggest that the poor have adequate access to human capital-enhancing services, so that any future recovery in economic growth will be broad based?" (p. 2), and "What additional income would households need if they had to pay for services?" (p. 13)

To answer these questions, the authors used data for health expenditures from the public-sector recurrent health disbursements from 1986 and 1995. The data for the education expenditures was from the Living Standards Measurement Study 1986, which had a sample size of 1,600 households and the Social Dimensions of Structural Adjustment Priority Survey (PS) 1995, which was implemented by the Institut National de la Statistique in April 1995 for which a sample size was not disclosed.

The methods used included a standard incidence analysis. Per capita total household consumption was used to rank the individuals so that the incidence of government spending could be assessed for each quintile, for males and females, and for rural versus urban areas. The indicators used were concentration shares and concentration curves.

First, in regard to health care services and expenditures, the study found that there were some gender differences in service use patterns. For example, women, especially those in urban areas, were more likely to seek medical care than men and less likely to seek private care. However, the authors point out that this does not signify equity since women have different health care needs from men. Furthermore, they point out that since men are more likely to seek private care, which is not greatly used in Côte d'Ivoire, there could be a bias favoring men in decisions to treat illness if it is assumed that private care is better

than public. The incidence of health expenditures by quintile showed that in 1995 only 11% of the total health subsidy benefited the poorest 20% of the population. In terms of the expenditures by health care level, the health center subsidy was much more equally distributed than the hospital subsidy. Overall, the authors suggested that all health expenditures were relatively pro-poor and more equitably distributed than all expenditures in Côte d'Ivoire. The inequality in regard to health expenditure in 1995 was due to the fact that the non-poor used public health services more than the poor and that the poor used primary care services most frequently, which were cheaper than hospital services. When examining health care expenditures over time, the authors found that the targeting of the health services to the poor had worsened from 1986 to 1995. Overall, public health care services in Côte d'Ivoire emphasized the richer, urban populations, while offered little to the rural poor.

Second, in regard to education usage and enrollment, the authors found that in 1995 the gross primary enrollment rates were overall low, 75%. But gross enrollment rates were particularly low for certain groups. For example, the poorest quintile's gross enrollment rate was 39%, while the richest quintile's was 88%. Furthermore, the gross enrollment rate for girls was 69%, while it was 79% for boys. Also, the gross enrollment rate for urban areas was 92%, and only 63% in rural areas. Although girls' enrollments at the primary education level have increased faster than boys, they still lag behind. The authors also showed that the incidence of the education subsidy revealed that the education subsidy was very unequally distributed across the population in 1995. This was due to the fact that rural areas received less than half of the per capita subsidy that rural areas received, poorer groups gained less than the better off, and females gained only about one third of the total

education subsidies with greater inequality among the lower quintiles. Demery et al. (1996) explained that, "On average the per capita education subsidy to boys is almost twice that to girls, and this appears to be similar in both urban and rural areas" (p. 25). However, the concentration curve of all education expenditures in 1995 showed that education expenditures were more progressively distributed in the population than was wealth and could therefore have mild redistributive effects. When comparing the results of educational expenditures from 1986 to 1995, the authors found that the targeting improved over time. The share of public education subsidy going to the poorest quintile increased from 7% in 1986 to 16% in 1995 respectively.

**Demery, Lionel & Gaddis, Isis. (2009). *Social spending, poverty and gender equality in Kenya: a benefit incidence analysis*. Nairobi, Kenya: Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH Support to Public Finance Management Reforms.**

Demery and Gaddis' (2009) partial, standard benefit incidence analysis examined health and education benefits in Kenya, a low-income country<sup>60</sup>. According to the authors, "The Kenya(n) government devotes a significant proportion of its resources to investments in human capital—in health-care and education" (p. 6). The government dedicated more than one-third of its budget to these two sectors in 2006-2007. For this, Demery and Gaddis (2009) conducted an empirical evaluation to assess if social spending benefits the poorer sections of Kenyan society, including poor females.

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<sup>60</sup> According to the World Bank's World Development Indicators (WDI) for 2013, Kenya is categorized as a low-income country. The data used for Demery and Gaddis' (2009) paper was from 2005-2006, which might have corresponded to placing Kenya under a different category. For more information about the WDI's visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

Demery and Gaddis (2009) use the Kenya Integrated Household Budget Survey (KIHBS) from 2005-2006 to complete this study. The Kenya National Bureau of Statistics conducted the KIHBS, which is a large-scale household survey. Over 13,000 households were sampled on a variety of issues including household characteristics, economic activities, consumption, and other measures of wellbeing. The survey was particularly useful for a benefit incidence study because it obtained data on household member use of government provided health and education services. The study used consumption data, where all participation behavior was defined by per capita terms. Also, participation was normalized on the total population rather than just target populations.

The authors used average benefit incidence to determine, “how spending by the government is distributed across the groups on average” (p. 9). One problem with average benefit incidence analysis is that if there are changes in spending, it is not certain that they would be distributed in the same way. Therefore, marginal benefit incidence analysis was also used to show “who would benefit from an expansion (or contraction) in the services subsidized in a particular sector” (p. 9). The authors defined their average participation rate as, “the proportion of the population of a particular group (here quintile or male/female quintile) that participates in a government sponsored program” (p. 9). The marginal odds of participation were defined as, “the change in the quintile enrollment rate divided by the change in the overall enrollment rate” (p. 9). Both grouped and individual level data was used, which is presented in quintiles. Both incidence and concentration shares are used as indicators. To value the government service, the binary approach is used whereby a person who is currently enrolled in school is assigned a one, and if they were not, a zero. In terms of valuing health services, the number of visits to the public health facility is used.

In some cases, Demery and Gaddis (2009) found that social spending in Kenya benefits the poorer population, and in some of the data, even poorer females. In regard to receiving education subsidies, overall there were more biases against girls than boys. At the primary education level, boys only had a slight advantage over girls, where they received 50.9% of subsidies. Regarding distribution, subsidies were progressive at the primary level, meaning that relative to income the poor gained more from education subsidies than the rich. However, at the secondary level boys received 52.7% of the subsidies, and at the tertiary level 62.3%. The subsidies for these levels were regressive, meaning that relative to income the poor benefited less than the rich. A driving factor to the gender inequality in secondary education is the fact that the girls in the second and third quintiles were particularly disadvantaged. Despite these apparent gender gaps, the authors shared that education spending overall did not seem to subject to great gender inequality because of an emphasis on primary education in the Kenyan budget, which was where there were minimal gender differences between genders and between quintiles.

In regard to health benefits, females received more health spending than males. Females got almost 60% of the health subsidy. However, the authors recognize that this does not necessarily indicate that there is a bias against men, as women need more healthcare than men. The study also showed that poor women did not fare as well in comparison to better off women. Women in the poorest quintile received the lowest amount of health subsidies, particularly referral hospital care. Poor males received more benefits from the referral hospital subsidy than poor females, but poor females fared better than poor males in the remaining health subsidies, which were the regional hospital subsidy and

the primary subsidy. Women who were richer received more of each type of subsidy than better off males.

If social services were expanded, which was measured through an analysis of marginal benefits, Demery and Gaddis (2009) found that overall, poor girls could benefit from increased spending on primary education and poor females would benefit from increased spending on primary healthcare, but not hospital-based care. More specifically, in regard to education, if the primary schooling per capita amount was increased by KSh 100, the poorest quintile would benefit by KSh 135 on average, while the richest would only get an average of KSh 58. However, if the same KSh 100 subsidy were increased for secondary schooling, the poorest quintile would benefit the least, while the richest would benefit the most. Therefore, the poor quintiles benefit more at the margin from primary school spending and less for secondary education, which policy reform suggestions should take into consideration. The same patterns apply when disaggregated by gender but most of the differences were not statistically significant. Despite this, there do seem to be larger gains for poorer girls than boys. When examining the results in shares, the poorest quintile is predicted to benefit greatly from increased primary education spending, and particularly the poorest girls. For this, the authors recommend continued free primary schooling.

As for healthcare at the margin, Demery and Gaddis (2009) discerned similar results to the average benefit analysis, where the poorest groups were expected to use primary health care facilities as much as the richest, especially poor females. However, poor males gained the least. Also interesting is that although the poorest females gain from an expansion in health care, those in the fourth quintile would benefit the most. The poorest groups would gain the least from an expansion in spending on hospital-based care, while

females in the richest quintile would gain by far the most. Overall, the authors found that the same inequality patterns emerged in the average and marginal measures of health spending. Expanding primary health care spending would benefit everyone, even the poor women. However, increasing the hospital-based services would continue the pattern of inequality, where rich women would benefit the most.

**Esim, Simel. (2000, April 26-27). *Impact of Government Budgets on Poverty and Gender Equality*. (Paper prepared for the Inter-Agency Workshop on Improving the Effectiveness of Integrating Gender Into Government Budgets.) London, UK: Commonwealth Secretariat.**

Esim (2000) offers several potential tools and methodologies that can be considered when focusing on gender sensitive budget initiatives. First, Esim (2000) discusses public expenditure, which includes transfers, subsidies, and services. To analyze the public expenditure side of the budget, benefit incidence studies, public expenditure for time use, and decentralization of expenditure on gender equality is used. The next section discusses revenues, which include taxes, user charges, and other funds. Up to the point of this paper Esim (2000) mentions that it was more common for the expenditure side of the budget to be studied than the revenue side. However, the revenue side is important to include. The revenue side can be analyzed using tax incidence studies. The paper offers good summaries of each and gives examples of why and how each could be implemented in a country. The paper also includes limitations of each tool/method, which are typically due to data availability, etc. Another important point that the author addresses is the impact of globalization on revenue. It should also be noted that although Esim (2000) does discuss the methodology that can be used for each topic, the suggestions are very broad-based.

**Figari, Francesco, Immervoll, Herwig, Levy, Horacio, Sutherland, Holly. (2007, December). *Inequalities Within Couples: Market Incomes and the Role of Taxes and Benefits in Europe*. (SOEPpapers on Multidisciplinary Panel Data Research 74). Berlin: German Institute for Economic Research and the German Socio-Economic Panel Study (SOEP).**

Figari et al. (2007) uses a partial tax and benefit incidence analysis in nine countries of the European Union to assess inequality within couples. These countries, which are all high income<sup>61</sup>, are: Austria, Finland, France, Germany, Greece, Italy, the Netherlands, Portugal, and the United Kingdom. The authors examine inequality within couples in the European Union by answering the following questions: “How much does the tax-benefit system contribute to the equalisation of the distribution of resources between men and women and hence with the within-households distribution of welfare?,” “How much of the within-household redistribution that is implied by pooling is accomplished through the tax-benefit system and how much (by implication) by intra-households transfers between men and women themselves?,” and “What is the potential effect on activity patterns of tax and transfer policies that serve to reduce gender inequalities?” (p. 1-2).

To answer these questions Figari et al. (2007) used the EUROMOD dataset. The EUROMOD, which is comprised of micro-data from 12 different sources for 15 countries, is a European Union tax-benefit microsimulation model. It simulates tax liabilities and benefit entitlements for the household populations of member states. Although the exact taxes and benefits included in the study are not clear, Figari et al. (2007) do examine more specifically the marginal effective tax rates (METRs) and earnings, women’s participation

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<sup>61</sup> According to the World Bank’s World Development Indicators (WDI) for 2013, these countries are all categorized as high income. The data used for Figari et al. (2007) was from 1993/1994-2001 depending on the country, which might have corresponded to placing these countries under different categories. For more information about the WDI’s visit: <http://data.worldbank.org/data-catalog/world-development-indicators>



tax rates (PTRs), the within-household gender differences in work incentives, and incentives for women to work as second earners. To assess these characteristics, the authors examine the differences in pre and post tax and benefit income. Their outcome measure is disposable income, which is defined as gross market income less income taxes and contributions, plus cash benefits. In order to account for gender, the authors quantify the difference in independent income generated within a household by male and female partners who are under the age of 65 and neither are receiving income from pensions. Any household that includes other adults were excluded. Other adults were defined as individuals over the age of 25, and 16- to 25-year-olds with their own income sources that are not in a couple themselves and do not have children. After quantifying the difference in independent income between the genders, Figari et al. (2007) measure any gap and how much of the gap is due to taxes and benefits.

Overall, Figari et al. (2007) discern that Austria, Finland, the United Kingdom, and France have tax-benefit systems that do the most to equalize couple incomes. In regard to work incentives, the authors found that the pre tax and benefit incomes are more equally distributed and the countries that achieve the most equalization are Austria, Finland, the United Kingdom, and the Netherlands. In these countries, the income tax system, which is an individual tax system in each case, contributes particularly to couple equalization. In the joint tax countries, France, Germany, and Portugal, there is a disadvantage through the tax-benefit system to women who work compared to their male partners who also work. The fact that women earn less than men is what drives the within-couple work incentive differences. When this is viewed as a couple-decision about who should work more, there are clear advantages to the man working more. Overall, the design of the tax-benefit

systems does not appear to offer any systematic tradeoff between the gender equalizing properties and their effects on incentives to increase the amount of paid work in any of the countries. The trade-off is only relevant for the decision of a whether a woman is to work at all.

**Glick, Peter, Saha, Rumki, & Younger, Stephen D. (2004, May). *Integrating Gender into Benefit Incidence and Demand Analysis*. (Food and Nutrition Policy Program Working Paper 167). Ithaca, NY: Cornell University. Retriever from <http://www.cfnpp.cornell.edu/images/wp167.pdf>**

Glick et al. (2004) is a collection of three gendered incidence analyses, which are preceded by a careful and comprehensive discussion of incidence analysis methodologies and a literature review of existing research. Overall, the authors aim to answer two main questions: “To what extent does public spending mitigate or exacerbate gender inequities?” and “How can existing allocations of public expenditure be changed to improve gender inequities?” (p.1). This study was innovative and provided an important contribution to the fiscal incidence field because it examined welfare level *and* gender together. One way of succinctly phrasing the question of examining these two concepts simultaneously is, “How do gender gaps in benefits vary across distribution of income?” (p.1). Each of the three incidence analyses and the corresponding results according to how they answer these questions will be discussed below.

*Benefit incidence analysis:*

Glick et al.’s (2004) first incidence analysis is a partial, standard benefit incidence analysis of health, education, public employment, and time spent in water collection in nine countries. The countries are: Bulgaria, Ghana, Jamaica, Madagascar, Mauritania, Pakistan,

Peru, Uganda, and Vietnam. For each of the topics the authors examine the shares of benefits by quintile and gender as well as coverage rates by gender and expenditure quintile for two points in time for each country. In most cases, the same household survey was used within a 5 to 12 year timeframe. The health analysis includes medical visits and public vaccinations, while the education analysis includes public primary school, public secondary school, and public post secondary school. The majority of the surveys used consumption, except for Bulgaria (1995), Jamaica (1989, 1999) and Peru (1997), which used income. The authors used the per capita approach rather than equivalized scales. Glick et al. (2004) acknowledged the issues with assuming that all members of the household enjoy an equal share of the resources. However, they concluded that there were no household surveys that separated welfare measures for each member of the household that were suitable for benefit incidence analysis. In regard to valuing the services, they used the binary approach where if the person received the service they are assigned a 1 and if they did not, a 0. All results are ranked by quintiles.

Glick et al. (2004) found no consistent correlations between gender gaps and welfare by per capita expenditures no matter which method of measurement they applied for health, education, or time spent collecting water. However, they did find large gender gaps which showed to increase with expenditures for public employment. They attribute the finding to few poor people being employed in the public sector.

Although public spending can exacerbate gender inequalities, Glick et al. (2004) showed that it did not occur as frequently as one would likely anticipate. The authors found that secondary education, public employment, and time spent collecting water have the largest gender gaps. In public secondary school there were statistically significant gender

gaps in 42% of the quintiles in both the first and second years of surveys. Bulgaria, Jamaica, and Peru had almost no gender gap, and in the case of Bulgaria in 2001, the gender gap favored girls in quintiles 1 and 3. Overall, the authors conclude the secondary education gender gaps are not universal, but where they do exist they almost always favor boys, and they are not declining as much as they should over time. This is the same conclusion that can be made for primary education, except there were fewer gender gaps.

The authors found that in regard to public employment, there is a gender gap in every country except Bulgaria. In regard to time spent collecting water in Uganda and Madagascar, the study showed a large gender gap exists in both countries, especially Madagascar.

The authors did not find striking or significant gender gaps in regard to health benefits. When examining the incidence of shares of public medical visit benefits by quintile and gender, they found that in all nine of the countries the gender gap favors women in almost all quintiles. Despite these gaps, Glick et al. (2004) point out that it is difficult to judge the extent to which women may get more medical benefits being due to their greater need of medical care, especially for reproductive care. To take this into consideration, the authors repeated the analysis where they examined medical visits for children under 12 years old and adults over 45 years of age, thus removing women of reproductive age. They found that there were no gender gaps for either age group. A similar pattern emerged for public vaccinations, where in all nine countries, benefits were almost always similar for boys and girls in all quintiles.

These results show that overarching policy recommendations cannot be made since the findings were often different for each country as well as inconsistent with some of the

literature. The authors conclude that each country must be examined separately to determine how the allocation of public expenditures could be changed to improve gender inequalities.

### *Demand Analysis*

The second incidence analysis by Glick et al. (2004) was a gender differentiated demand analysis of education and health services in Madagascar and Uganda. Glick et al. (2004) explain that, “The main focus on the analysis is the testing for gender differences in response to changes in provider quality, availability (distance), and cost” (p. 85). To determine the demand for services, they were most interested in the interaction of gender and the level of household resources. To do this, the authors estimated separate models for males and females and then tested for statistical differences by gender. Only one year for each country was analyzed for this incidence analysis. The countries and years were chosen because community surveys accompanied the household surveys that included necessary information like education and health facility characteristics.

Interestingly, Glick et al. (2004) explain that their findings conflicted with conventional understanding showing opposite results from what the literature suggests. They did not find gender differences in either country in the effects of the quality related indicators or in provider cost indicators. Also, their null hypothesis (which stated that an equal demand for services existed between the genders) was rejected, which they attribute a stronger demand by the males. Not surprisingly, the distance to education and health facilities was frequently a deterrent to use the services, but there were no significant differences in gender. This is particularly important to note in the case of schooling because it is often thought that girls’ access to education is more restrained by distance than boys’

access. There also were no significant differences in gender in regard to the monetary costs of services. The majority of the non-monetary quality indicators did not have many significant impacts except for primary public school characteristics in Madagascar. The level of household resources did influence schooling and health care utilization in both countries. The gender differences that emerged included that boys' enrollments in primary school education in Madagascar and secondary education in Uganda were more responsive to the expenditures than girls'. Girls' demand of formal health care visits, however, increased with expenditure.

The authors suggest that policies could impact the demand of health and education services but would likely have to target gender since there are so few supply side factors that affect the demand for service for either gender. In Madagascar's health and education services and Uganda's health services the findings indicate little gender bias while policy variables do not impact men and women differently. Therefore, the authors determine that improving the school and health care quality and availability will not cause gender inequality to emerge. Finally, the authors were able to determine that an initiative to provide childcare services could help increase girls' school enrollment in both countries because they often have to stay home to care for younger siblings. This is an example of a finding outside the social service realm that the authors were able to suggest.

#### *Water Infrastructure and Time Allocation*

In Madagascar and Uganda, the most developing countries of the study, the burden of time spent collecting water falls disproportionately on females. Glick et al. (2004) used an econometric model in one year in each country to address the question of, "Will public investments in water supply serve to reduce the work burden on women of water collection

and of work overall, both in absolute terms and relative to men?” (p. 134). The authors found that water infrastructure investments could only have limited impacts, and explain that in each country, in rural settings, having a water well present did not impact the water collection times. In rural Uganda, having a public tap available did reduce water collection time for girls/young women. However, the authors do not feel that implementing public taps in all rural areas is a feasible policy option because so few public taps existed at the time of the paper. In urban areas in both countries, having an interior public tap consistently led to time saving in areas where taps were available, which only amounted to a few hours. In Uganda, in urban areas exterior public taps also led to similar time saving. Although time could be saved if policies were introduced that would induce the use of households having interior taps, like free installation, the authors did not find that there would be a reduction in overall housework or work time. The authors conclude that these results could likely be due to the fact that in both of these countries there are close enough water sources that a significant amount of time is not spent collecting water as compared to other countries.

**Grown, Caren & Valodia, Imraan (Eds.). (2011, December). *Taxation and Gender Equity: A comparative analysis of direct and indirect taxes in developing and developed countries*. New York, NY: Routledge.**

Grown and Valodia’s (2011) edited volume examined gender dimensions of tax policies and reforms in eight countries: Argentina, Ghana, India, Mexico, Morocco, South Africa, Uganda, and the United Kingdom. The three goals of the project were, “(1) to advance the understanding of the gender impacts of tax policies and tax reforms in countries at various levels of development; (2) to engender and improve current tools and techniques for analyzing tax policies and reforms; and (3) to influence tax policy-makers

in the focus countries and internationally” (Grown & Valodia, 2011, p. xxiii). The edited volume begins with an explanation of their conceptual model followed by a discussion of the methodologies used. Each country case study is examined in its own chapter. The volume ends with a concluding chapter that also offers policy recommendations. For the purposes of this literature review, a summary of the methodology used will be discussed below, followed by three country case study summaries. The country case studies chosen were Ghana, India, and Uganda, all developing countries.

**Grown, Caren & Komatsu, Hitomi. (2011, December). Methodology and comparative analysis. Chapter 2 in Caren Grown & Imraan Valodia (Eds.), *Taxation and Gender Equity: A comparative analysis of direct and indirect taxes in developing and developed countries* (pp. 23-63). New York, NY: Routledge.**

Grown and Komatsu (2011) developed the tax incidence analysis methodology to be used by all country case studies in the edited volume by Grown and Valodia (2011). Each case study was a partial standard tax incidence analysis and examined the incidence of the personal income tax system (PIT) as well as the indirect tax system in a particular country. Different methods were used for the PIT and indirect tax systems, which will be explained below.

To examine the incidence of the PIT system each country team first analyzed the PIT laws to determine if there were implicit gender biases created through exemptions and allowances. They evaluated if provisions were made for dependent children and non-earning spouses or other adults. The effects of inflation were also considered to determine if fiscal drag occurred.

This survey of PIT laws was followed by the incidence analysis, which examined vertical and horizontal inequality. To do this, first the “country’s PIT rates were applied to



individual income, which was then summed for the following household types:” *male-breadwinner household*, which is composed of one male earner who has a financially dependent wife and two dependent children; *single-parent household*, which is an employed single male or female with two dependent children; and *dual-earner household*, which is a married couple where the husband and wife work but the male earns more than the female, and they have two dependent children (p. 30). Single-person households were excluded from this analysis. To examine vertical equity, the three household types examined were at half the median income, the median income, and twice the median income. The differences across the three household types at each of the three income levels were examined to determine the horizontal equity.

The methodology used to assess indirect taxes was more complex. The main taxes that were considered were VAT, excise taxes, and fuel levies. Grown and Komatsu (2011) explain that, “The goal of the indirect tax incidence analysis is to determine the proportion of before-tax income paid by different groups” (p. 33). To do this, the groups were defined by a welfare measure of consumption expenditure and ordered by quintiles. Then, for each tax, a portion of the revenues that were collected was imputed as tax paid by each quintile. To be able to make cross-country comparisons, 33 expenditure categories<sup>62</sup> were grouped into main categories to have a classification system for expenditure items. The following items were omitted from the expenditure categories: home-produced goods, remittances, donations, direct taxes, investments, pension contributions, savings, repayments, dowries, and net losses of self-employment. After deriving these categories of expenditure, the per

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<sup>62</sup> For a full list of the 33 categories of expenditures please see page 34 of Grown and Komatsu (2011) in Grown and Valodia (2011). A more detailed list of each category can be found in the Annex of Chapter 2 on pages 52-62.

capita approach was used to sort individuals into quintiles based on per capita household expenditure. Grown and Komatsu (2011) adopted the per capita approach because it was less arbitrary than the equivalence-scale approach. Next, households were classified into categories based on gender relations. Female and male household headship were used as the baseline and then two richer gender categories were developed. The first category was based on the sex composition of adults in each household, which distinguished between households with a greater number of adults by gender compared to households with equal numbers of adults by gender. This was used as a proxy for the underlying gender relations that produced different expenditure patterns for men and women. The second category was constructed by employment status of the adults in the household as a proxy for bargaining power. This distinguished female-breadwinner households (with no employed males), male-breadwinner households (with no employed females), dual-earner households and households with no employed adults. For both of these additional gender groups the households were then disaggregated by those with and those without children. Finally, scheduled tax rates were applied to the reported expenses and estimated tax paid on each expenditure item.

Now that the methods that were applied to each case study are understood, the results and findings from the Ghana, India, and Uganda studies are discussed in the next section.

**Aryeetey, Ernest, Osei-Akoto, Isaac, Oduro, Abena D., & Osei, Robert Darko. (2011, December). An investigation into the gender dimensions of taxation in Ghana. Chapter 6 in Caren Grown & Imraan Valodia (Eds.), *Taxation and Gender Equity: A comparative analysis of direct and indirect taxes in developing and developed countries*. (pp. 151-178). New York, NY: Routledge.**

Aryeetey et al. (2011) is a country case study of Ghana in the edited volume by Grown and Valodia (2011). To complete a partial tax incidence analysis of this lower middle-income country,<sup>63</sup> Aryeetey et al. (2011) followed the methodology developed by Grown and Komatsu, which is found in Chapter 2 of the book and which was discussed above. Aryeetey et al. (2011) sought to answer three questions through their analysis, “(1) do the personal income tax laws in Ghana ensure formal and substantive equality for women and men? (2) who bears the burden of indirect taxes in Ghana? and (3) what can be learnt about the gender dimensions of tax burden in Ghana?” (p. 151).

The authors used the Ghana Living Standards Survey from 2005-2006 (GLSS 5). The GLSS 5 included a total of 8,687 households, of which 5,048 were rural and 3,589 urban. Of the 8,687 households surveyed, 8,637 reported that they had purchased at least one of the items in the survey, which was important for the indirect tax incidence analysis. Additional data that the authors used to complete the study included tax rate data from the Ministry of Finance and Economic Planning, the Valued-Added Tax Services (VAT), Internal Revenue Service (IRS), and Customs, and the Excise and Preventive Service (CEPS). Although the authors did not examine specific reforms in their incidence analysis, they did mention that since reforms had been instituted in Ghana it was important to evaluate the tax system to see if these reforms had impacted gender equity. The reforms include the Internal Revenue Act 591, enacted in the year 2000, which “amended and consolidated laws relating to income tax, capital gains tax and the gift tax” (p. 153). Also,

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<sup>63</sup> According to the World Bank’s World Development Indicators (WDI) for 2013, Ghana is categorized as a lower middle-income country. The data used for Aryeetey et al.’s study was from 2005-2006, which might have corresponded to placing Ghana under a different category. For more information about the WDI’s visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

the Taxpayers Identification Number Law, which was introduced in 2002; the Large Taxpayers unit, which was established in 2003; and finally, VAT reform, which occurred in 1995 and then was reintroduced in 1998.

The authors find that in Ghana, the PIT system does not explicitly disadvantage men or women. However, they explain that PIT laws tended to affect a larger proportion of men because men earn more than women. But according to the *ability to pay principle*, since men had a higher share of taxable income, their share of taxes should have been higher than women's. Furthermore, the source of which income was taxed, where men are typically wageworkers and women own-account workers, was not discriminated against. Concessions on income tax from farming also did not discriminate against either gender. Since taxes were filed individually and they did not vary based on marital status, women and men paid the same amount of taxes if they earn the same amount.

However, Aryeetey et al. (2011) did point out that, “while there is formal gender equality in the Ghanaian personal income tax system, there is not always substantive gender equality,” which the following examples demonstrate (p. 158). Despite inflation rates of 15% in 2002 and 23% in 2003, the tax brackets were not changed from 2000 to 2004, when they were adjusted by 25%. This resulted in fiscal drag and was particularly burdensome for low-income earners. Also, a larger proportion of women were pushed into the higher tax bracket than men.

Overall, personal income taxes were progressive in Ghana, but households with two earners paid lower taxes than single-earner households. Women were more likely to qualify for marriage/responsibility relief for dependent children than men, which was of great value especially to divorced, separated, or widowed low-income household heads.

In regard to indirect taxes, Aryeetey et al. (2011), found that in Ghana male-type households without children bore the indirect tax burden more so than female-type households. The social dimensions of the indirect tax incidence depended on the consumer items that the family chose because there were not differential indirect tax rates for women and men and there were no exemptions for female expenditure items. More male-headed households reported expenditures on tobacco and alcohol than female-headed households. Also, the total indirect tax burden was higher for male-type households and households that had male and female employed individuals without children than those with children. Indirect taxes were proportional for male-breadwinner households in all quintiles except the third, which had a lower total incidence. For female-breadwinner households, the indirect tax incidence was higher for those in the first and fifth quintiles (for households with children) and the second quintile (for households without children). Whether or not male-breadwinner households have children, excise taxes were regressive. For female-breadwinner households with children, excise taxes were regressive but the incidence rate for those without children was proportional. In regard to taxes on specific commodities, male-type households bore a higher burden on fuel for transport and in general the fuel tax tended to fall on the middle and richest households. Taxes on household fuel were perfectly regressive though. Male-type households and male-earner households had a higher incidence rate for clothing expenditures than female-type households. However, female-earner household bore the highest burden of taxes on children's clothing and footwear. The incidence of excise taxes fell on poorer households with the exception of male-earner households.

The authors completed two simulations to determine which policy reforms could potentially be worthwhile and to learn more about the gender dimensions of the tax burden in Ghana. They discerned that zero-rating taxes on children's clothes and footwear would reduce the indirect tax incidence for all gender household types by less than 3%, but would reduce incidence rates for poorer households more than richer. There would not be a large difference in impact on male-headed and female-headed households. The second simulation showed that a reduction of kerosene taxes would have less impact on tax incidence. There were little or no gender differences and the average reduction in tax incidence would be about 1.9%. The poor would have a higher relative benefit though as the tax incidence for the poorest quintile on average would be 5.8% and 1% for the fifth quintile. If tax rates on tobacco and alcohol were doubled, male type households would be impacted more than female households but poorer households would be impacted more than the richer households. Introduction of a 6% communication service charge across-the-board would have little impact on total indirect tax incidence and there would be no gender differences. The results of the simulations show that these policy options would be attractive in reducing poverty and gender inequality.

**Chakraborty, Pinaki, Chakraborty, Lekha, Karmakar, Krishanu, & Kapila, Shashi M. (2011, December). Gender equality and taxation in India: An unequal burden? Chapter 4 in Caren Grown & Imraan Valodia (Eds.), *Taxation and Gender Equity: A comparative analysis of direct and indirect taxes in developing and developed countries*. (pp. 94-118). New York, NY: Routledge.**

Chakraborty et al. (2011) is a country case study of India in the edited volume by Grown and Valodia (2011). To complete a partial tax incidence analysis of this lower

middle-income country<sup>64</sup>, Chakraborty et al. (2011) followed the methodology developed by Grown and Komatsu, which is found in Chapter 2 of the book and which was discussed above. It can be inferred that Chakraborty et al. (2011) sought to answer the following questions through their analysis: Is India's affirmative action tax policy towards women effective and does it advance women, particularly the poor? and What are the likely impacts of the introduction of an integrated goods and services tax in the fiscal year 2010/2011 on women and on the poor?

The 61<sup>st</sup> round of the National Sample Survey from 2004-2005 was used to complete this study. This national household survey collected consumer expenditure data on household characteristics, demographic details, and household-level expenditure of almost 400 items. There was a 30-day recall for items frequently purchased and a 365-day recall for those that were infrequently purchases. The values and quantity were collected for some items, while only value was collected for other items. The 365-day recall was used for the consumer durables. For the indirect tax incidence analysis, Chakraborty et al. (2011) used a sample size of 7,877 rural and urban households from the state of West Bengal. The authors also used a sub-sample of combined estimates based on all rounds of the National Sample Survey, from 1950-2005, for the indirect tax incidence analysis.

It is important to point out that Chakraborty et al. (2011) explain that India was one of the few countries included in the volume by Grown and Valodia (2011) that had a tax system that provided such positive discrimination for women. In regard to PIT, the

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<sup>64</sup> According to the World Bank's World Development Indicators (WDI) for 2013, India is categorized as a lower middle-income country. The data used for Chakraborty et al.'s study was from 2004-2005, which might have corresponded to placing India under a different category. For more information about the WDI's visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

definitions and computation of taxable income were the same for both genders and there were no provisions for joint filing. Non-labor income was also treated in a gender-neutral fashion and all joint property and income were assessed according to who earned that income. Following a series of reforms since 2001, the minimum non-taxable income for women was much higher than for the general threshold. Most deductions and exemptions were gender-neutral and gender-blind, where they were available to both men and women. The PIT provided preferential treatment to women because of the higher basic exemption limit. Also, the tax system was individual, where the family size and number of dependents did not matter. The PIT incidence did differ significantly in dual and single-earner households though because of the basic exemption. Despite that the tax system gave preference to women, the policy had limited effectiveness because only 2.7% of the population fell within the income tax net in the entire country, of which women constituted less than 3%. The higher threshold may have shifted some property ownership from men to women, but other than that there was little evidence that the higher tax threshold had positively impacted women.

As for indirect taxes, Chakraborty et al. (2011) found that the mean tax incidence was much greater on poorer households in urban and rural areas in the state of West Bengal. This regressivity was also higher in urban households than rural. Furthermore, the VAT incidence was higher than the fuel and excise taxes incidences. The excise tax was regressive, but the fuel tax was progressive. However, not surprisingly, the household fuel tax was regressive. Overall, the urban poor bore a high incidence of indirect taxes due to the VAT. The incidence of excise and fuel taxes was greater in male-headed than female-headed households. The aggregate tax incidence was highest in male-dominated



households, followed by households with equal numbers of males and females, and was lowest for female-dominated households. Interestingly, in urban areas male-headed households bore a higher indirect tax incidence, while in rural areas female-headed households bore a higher incidence. In regard to whether or not the households have children, the tax incidence was the highest for male-dominated households without children. When examining specific commodities, the tax incidence was much higher in the lowest expenditure quintile due to the high incidence of taxes on basic goods.

Since basic necessity goods was one of the main reasons for the regressive indirect tax incidence, the authors conducted two policy experiments. These experiments, first, examined the outcome of zero-rating all food items in the consumption basket that attracted VAT and second, examined the outcome of doubling the tax rate on tobacco products. They found that zero-rating food would not change the pattern of tax incidence but it would reduce the overall burden in all household categories. The rates of tax incidence in male-headed households would become higher than female-headed households if tobacco tax rates were doubled. The findings of the simulations suggest that the integrated goods and services tax that the Indian government was considering introducing in 2010-2011 would place an undue burden on women and on poorer households unless the rate structure or tax design were properly calibrated.

**Ssewanyana, Sarah, Bategeka, Lawrence, Guloba, Madina, & Kiiza, Julius. (2011, December). Gender equality and taxation in Uganda. Chapter 9 in Caren Grown & Imraan Valodia (Eds.), *Taxation and Gender Equity: A comparative analysis of direct and indirect taxes in developing and developed countries*. (pp. 233-260). New York, NY: Routledge.**

Ssewanyana et al. (2011) is a country case study of Uganda in the edited volume by Grown and Valodia (2011). To complete a partial tax incidence analysis of this low-income country<sup>65</sup>, Ssewanyana et al. (2011) followed the methodology developed by Grown and Komatsu, which is found in Chapter 2 of the book and which was discussed above. It can be inferred that the authors sought to answer the following questions through their analysis: What shifts in the burden of taxation from a gender perspective have resulted from reforms in Uganda since the 1990s? and What is the differential impact that tax policies and tax reforms have had on men and women, particularly on poor women?

The data used to complete this study was from the Uganda National Household Survey of 2005-2006 (UNHS III). Administrative data from the Uganda Revenue Authority (URA) was also used (Ssewanyana et al., 2011, p. 233). The UNHS III is a household survey that collected information on socioeconomic characteristics at the household and community levels. Agriculture information was also collected. The sample size was 6,800 households. The main objective of the survey was to have data that could be used to monitor development performance. The five modules of the survey were: socioeconomic, agriculture, community, price, and a qualitative module.<sup>66</sup> It is also

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<sup>65</sup> According to the World Bank's World Development Indicators (WDI) for 2013, Uganda is categorized as a low-income country. The data used for Ssewanyana et al.'s (2011) study was from 2005-2006, which might have corresponded to placing Uganda under a different category. For more information about the WDI's visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

<sup>66</sup> For more information on the UNHS III please visit: <http://www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/UNHSReport20052006.pdf>

important to point out that although the authors do not specifically examine recent reforms in their study, they do recognize the following reforms that had been implemented since the 1990s: the Income Tax Act of 1997; the abolition of the Graduated Tax in 2005, which was a local government head tax that was paid by all economically active adults ages 18-60; the Local Service Tax (LST) in 2008, which taxed individuals to recover some of the losses from the abolition of the Graduated Tax; the VAT in July 1996, which replaced sales tax on goods and the Commercial Transaction Levy (CTL) on services; and finally, excise taxes were altered significantly in 2005-2006.

In regard to the PIT system, Ssewanyana et al. (2011) focused on the Pay-As-You-Earn (PAYE) and the Local Service Tax (LST). They found that the PAYE is a progressive direct tax, where the incidence on single-male-earner households was almost twice that of single-female-earner households. The LST followed similar patterns. The direct tax system did not contain explicit gender biases because men and women with the same income level were treated the same under the Income Tax Act. The authors did find implicit gender biases though. These biases included that no adjustments were made to the tax thresholds and brackets to compensate for inflations. Also, the fact that households could have children or dependents was not accounted for; where all households that earn the same amount pay the same amount. The authors feel that PIT policies have not addressed gender issues. Deductions and allowances have not been put into place to account for the fact that women are more vulnerable to living in poverty than men. Tax exemptions benefit males more than females. Also, pension income is exempt from tax, from which men benefit the most because there are fewer women with pensions. Fiscal drag also causes implicit gender bias because more women than men have been burdened. Despite these implicit gender

biases, Ssewanyana et al.'s (2011) analysis of the tax impact on households by earner shows that the PIT is progressive in income terms and could be considered progressive in gender terms. Progressive was described earlier in the book as, "those with lower incomes should pay lower average tax rates than those with higher incomes" (Grown & Valodia, 2011, p. 11). The authors also found that the PIT was vertically equitable but not horizontally.

As for the indirect tax system, Ssewanyana et al. (2011) found that the burden was much greater for male-type households than for female-type households. Female-type households had a significantly lower incidence than male-type households within each quintile. When goods consumed were examined, gender differences were apparent according to the household type. Female-majority households had a higher incidence of indirect tax burden on food, children's clothing and footwear, and fuel. Male-type households had a greater incidence on alcohol, tobacco products, transportation, communication, and adult clothing and footwear. Lower income households paid a higher percentage of their income on paraffin tax, which was not surprising because of their higher consumption levels. The water and electricity tax was somewhat progressive. But female-headed households in the second quintile had a higher incidence than male-headed households. Communication tax was also progressive and male-type households bore a much greater burden than female.

In order to determine potential policies that could be used to reduce gender inequality, the authors performed two simulations on consumption. One was to explore if changes in salt taxes would affect male versus female household heads differently. The second was to see the impact of changes in kerosene/paraffin taxes. Removing the salt sales

tax would have little impact on progressivity because almost all households consume salt, but households in the lower quintile would benefit more proportionally. Also, the greatest beneficiaries would be the poorest households with female heads because VAT declines as a percentage of consumption expenditure more in female-headed households than male-headed. The authors explain that if the paraffin tax were cut in half the overall impact on the indirect tax incidence would be small, and male-headed households would benefit more. However, these two policy recommendations would have a negative impact on the government mobilizing domestic resources. Therefore, Ssewanyaya et al. (2011) conclude that the government should revise its budget priorities and introduce cost-saving measures in regard to public administration expenditures.

**Mogues, Tewodaj, Petracco, Carly, & Randriamamonjy, Josee. (2011, December). *The Wealth and Gender Distribution of Rural Services in Ethiopia: A Public Expenditure Benefit Incidence Analysis. (Ethiopia Strategy Support Program II (ESSP II) ESSP II Working Paper 33). Addis Ababa, Ethiopia: Development Strategy and Governance Division, International Food Policy Research Institute (IFPRI)-Addis Ababa.***

Mogues et al. (2011) is a partial, standard benefit incidence analysis that assesses components of the Food Security Program (FSP), drinking water supply, and agricultural services in rural Ethiopia, a low income country.<sup>67</sup> As outlined in the paper, the study attempts to answer the following questions: How have agricultural and other rural public expenditure services impacted gender inequality?, To what extent do different social and economic groups in rural areas tend to access public investments and services?, and How

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<sup>67</sup> According to the World Bank's World Development Indicators (WDI) for 2013, Ethiopia is categorized as a low income country. The data used for Mogues et al. (2011) was from 2008-2009, which might have corresponded to placing Ethiopia under a different category. For more information about the WDI's visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

are the benefits from the provision of other, not overly targeted, public services distributed between women and men, or between different wealth groups?

To answer these questions Mogues et al. (2011) used two surveys. The first survey was the Ethiopian Economic Policy Research Institute (EEPRI) and International Food Policy Research Institute (IFPRI) Gender and Rural Services survey. This survey, administered in 2009, was an individual, household, and *kebele*<sup>68</sup> level survey conducted jointly by EEPRI and IFPRI. The researchers randomly stratified the population to gain a sample size of 1,120 households, of which 1,118 were kept after the data was cleaned. Each *kebele* included 35 households. The questionnaire was administered separately to the household head and the spouse, with a few questions relating to general household information administered only to the household head. The *wereda*, or districts, selected in this survey were the same as those in the Wereda/City Benchmarking Survey dataset, which was also used. This was important because it allowed the datasets to be linked. The Wereda/City Benchmarking Surveys were financed by the World Bank, managed and administered by Gesellschaft für Technische Zusammenarbeit (GTZ) and implemented by Selam Consult in 2008.

Mogues et al. (2011) used four indicators to examine the wealth incidence of the FSP, drinking water supply, and agricultural extension services in rural Ethiopia. First, concentration curves were used to examine each service. The second type of analysis was the incidence of each service by quintile. The third type used a framework of demand- and supply- side factors that considers the correlates of each service. Finally, the average

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<sup>68</sup> A *kebele* is a the sub-district administration unit that is more clearly defined as a collection of villages.

incidence and marginal incidence of each service were compared. According to Mogues et al. (2011), average incidence “refers to the way that overall benefits from, say, services and programs are distributed across different wealth groups and gender” (p. 18). This was compared to the marginal odds ratio of participation, which is “the increment in the program participation rate of a given quintile when there is a change in aggregate participation” (p. 19).

For the standard incidence analyses Mogues et al. (2011) used an asset value approach to capture the welfare of each household rather than using consumption data. The three main types of wealth that were included in the wealth measures were livestock; other agricultural assets like tools and equipment; and consumer assets like furniture, radios, and iron. The assets were aggregated in value based on prices from each asset type at the *kebele* level. Interestingly, Mogues et al. (2011) discuss other types of assets that exist in Ethiopia and why they were not included. For example, land value is perceived to be too difficult to assess because of an absence of land markets in the country. Also, crops held in storage have too high of variability to be included. Household wealth and household per capita wealth were examined by quintile. Also, the household wealth and household wealth per capita were examined by female-headed households and male-headed households, which allows for a calculation of the head-gender gap ratio. Finally, wealth levels were also calculated by *wereda*.

In regard to the agricultural extension services incidence analysis, Mogues et al. (2011) found that the concentration curves showed that the provision of agricultural extension services was relatively progressive and that the progressivity varied by type of extension service. The incidence analysis by quintile showed that the public spending

incidence doubles from the poorest quintile to the second poorest quintile and also doubles for the second from highest quintile to the highest quintile. Although overall the incidence is progressive, this shows that there is not a consistent pro-poor trend. The demand- and supply-side factors framework showed that there is no correlation between wealth and extension services. However, when location effects were not controlled for the results show that the placement of the extension services in different geographic locations could be driving the wealth incidence. The comparison of the average and marginal benefits shows that although service expansion would benefit the less well off, the poor would benefit less. When examining the incidence of agricultural extension services by gender, Mogues et al. (2011) found that women receive the services at about half the rate of men with a ratio of .53. The authors explain, “this is capturing two dynamics—both a gender element and a head-status element—as women are less likely to be household heads than men” (Mogues et al., 2011, p. 60). Also, men receive 31% more benefits from public investments in agricultural extension than they would if there were perfect gender equity.

The analysis of the FSP illustrates that no matter which indicator is used, participation in the program is progressive for the entire wealth spectrum. The finding explain and confirm that incidence of participation in the public works component of the FSP program is also progressive, but there is no clear progressivity in the direct support component. The incidence of the cash plus in-kind receipts from the FSP’s transfers is progressive for beneficiaries and non-beneficiaries. Participation and transfer value incidence show that households in *weredas* that have been declared food insecure are lower income than households in the remaining districts. When the remaining districts are removed, the paper shows how concentration curves for participation and value show a less



progressive distribution. Also, the marginal and average benefits comparison shows that an extension of the program would benefit the poor on average but not on the margin, while the opposite would occur for the higher quintiles. The FSP is almost gender equitable where the benefit-to-population odds ratio of public spending on the program is .95 for female-headed households and 1.02 for male-headed households. However, when the individual components of the program are evaluated, the public works participation ratio is .64 for female-headed households and 1.14 for male-headed households. The benefit-to-population odds ratio for the direct support service shows that the incidence is strongly in favor of female-headed households with a ratio of 2.77 and only .29 for male-headed households.

In regard to the benefit incidence of drinking water, Mogues et al. (2011) found that there are not any clear distinctions between the wealth of households and drinking water quantity. The incidence of drinking water quality favors poorer households, which is likely because poorer households use improved water sources at a greater rate than wealthier households. However, when exclusive use of safe water is measured more comprehensively, there is a less progressive incidence. There is also no distinct difference between the comparison of average and marginal incidence. In regard to gender, female-headed households are more likely to travel farther distances to their main source of water and they are more likely to access safe water than male-headed households. This is similar to the findings by quintile, which is likely because female-headed households are poorer than male-headed households.

**Rashid, Mansoor, Dorabawila, Vajeera, Adams, Richard. (2001, May). *Household Welfare, the Labor Market, and Social Programs in Albania*. World Bank Technical Paper No. 503. Washington, DC: Human Development Unit, Europe and Central Asia Region, The World Bank.**

Rashid et al. (2001) is a study that examined household welfare, described the labor market, and evaluated the equity and efficiency of social programs in Albania outside of the Tirana region during 1996. Albania is currently an upper middle income country<sup>69</sup> located in the Europe and Central Asia region. This paper only used incidence analysis to assess education. Therefore, only the education section of the paper will be discussed. A previous incidence analysis study that also examined education and gender was that of Dorabawila and Rashid (1998) titled "Poverty Profile for Albania." However, this paper was not available. Since the study by Rashid et al. (2001) had two of the same authors, it seemed as though this paper was likely a follow up to the 1998 paper, which is why we included it in the literature review even though the entire study was not an incidence analysis. This section of the paper that assessed the incidence of education spending aimed to answer the following question: "What are the reasons for the failing rates of school enrollment in Albania?" (p. 36). It can also be inferred that the authors aimed to answer this question: How has public spending on education impacted different socioeconomic groups, and how has it impacted girls versus boys?

Since the study did not focus on incidence analysis, the methodologies that the authors used were not discussed in detail. However, it was clear that the standard,

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<sup>69</sup> According to the World Bank's World Development Indicators (WDI) for 2013, Albania is categorized as an upper middle income country. The data used for Rashid et al. (2001) was from 1996, which might have corresponded to placing Albania under a different category. For more information about the WDI's visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

accounting incidence analysis method was used to assess how social spending impacted education. The quantitative microdata used was from the Albania Living Standard Measurement Survey 1996, which was executed by the Ministry of Labor and Social Affairs. The survey, which was a household survey with a sample size of 1,500 households, represented all areas of the country except Tirana.<sup>70</sup> Since Tirana was not represented, the survey cannot be considered nationally representative. To assess the education subsidies a monetized value of per capita expenditure was used.

The study found that the net enrollment rate for basic education in 1996 was 82%. However, it was only 25% for secondary age students. These differences were due to the fact that almost 35% of secondary school age students were enrolled in basic education, which was a lower education level as dictated by their age. When the incidence of public spending was examined by region, enrollment rates varied between urban and rural areas at all levels. For basic education, the rural areas had higher enrollment rates for the lowest quintile and the third quintile, which was interesting. However, there was a much greater gap for secondary and tertiary education levels, where there were many more students enrolled in urban than rural areas. The study also found that government spending on basic education was pro-poor for both females and males in the lowest quintile. Also, girls in the lowest quintile received more basic education spending than girls in any other quintile, especially the richest quintile. This is because there were more poor children enrolled in basic education than rich children. The secondary and tertiary levels followed a different

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<sup>70</sup> Since the authors did not disclose information about the household survey, it was found on the World Bank's website. The information can be accessed here: <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTLSMS/0,,contentMDK:21369063~pagePK:64168445~piPK:64168309~theSitePK:3358997,00.html>

pattern though. In the secondary level, males received a greater percent of the total expenditure in the lowest, fourth, and highest quintiles. Also, the highest quintile for both genders received more of the total expenditure. The majority of tertiary spending went to males in the highest quintile.

One limitation of this study is that the number of households in each quintile is not revealed. Since the household survey only had a sample size of 1,500 households it is possible that there is a low sample size in some of the quintiles. Also, the lack of explanation of methods was a limitation.

**Siddiqui, Rizwana. (2007, April). *Modelling Gender Dimensions of the Impact of Economic Reforms in Pakistan*. (MPIA Working Paper 2007-13). Gender Challenge Fund, Poverty and Economic Policy (PEP) Research Network.**

Siddiqui (2007) is a partial incidence analysis that uses a gender aware computable general equilibrium (CGE) model to assess the impact of economic reforms on poverty in the lower-middle income<sup>71</sup> country of Pakistan. These economic reforms include a simulation of tariff reductions as well as a reduction in government expenditures. The questions that Siddiqui attempted to answer included: What is the impact of trade liberalization on gender in Pakistan?, How do economic reforms impact gendered poverty (measured by FGT, capability, and relative time poverty)?, How does the introduction of disaggregating labor by gender and education impact the measure of the effects on trade liberalization on gender?, and How does the introduction of intra-household allocation to

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<sup>71</sup> According to the World Bank's World Development Indicators (WDI) for 2013, Pakistan is categorized as a lower middle-income country. The data used for Siddiqui's (2007) was from the early 1990s, which might have corresponded to placing Pakistan under a different category. For more information about the WDI's visit: <http://data.worldbank.org/data-catalog/world-development-indicators>

disaggregate household consumption by gender impact the measure of the effects of trade liberalization on gender?

To gain answers to these questions, Siddiqui (2007) used a social-accounting matrix (SAM) developed by Siddiqui (2004), which was extended by disaggregating sectors, characteristics, and individuals using data from various sources. These data sources included a 1990 Supply and Use Table, prominent features of an existing SAM for Pakistan, an agriculture census, a 1991 household integrated economic survey (HIES), and a 1990-1991 labor force survey (LFS). Data regarding social reproduction services for women was from the LFS, while the data for the participation of men in reproductive services was taken from the gender planning network survey (GPN-survey) and a small rural households survey. The SAM is a survey that includes distinct features like the fact that labor income is adjusted for implicit own account worker remuneration and that female participation rates are based on improved data collection methods. The LFS, GPN, and small rural household survey were used to create a matrix of time allocation between market, social reproduction, and leisure activities for 8 types of labor. The activities were defined as: productive (market), non-productive (social reproduction), and leisure. Siddiqui's (2007) methods examined changes in poverty based on the unit of analysis of the household level. Consumption was used as the welfare indicator, where the household resources were divided between women and men using two ratios to determine the shares of each gender respectively, which also took into account the number of adult equivalent males and females in each household.

It is also important to understand the CGE model that Siddiqui (2007) used. It has 6 blocks of equations: income and saving, production, demand, prices, trade, and

equilibrium. There are 9 types of households and each household type has 2 non-market production sectors: social reproduction and leisure. Therefore, the model has 20 market sectors and 18 non-market sectors with 8 types of labor identified by gender and education level. The model assumes that men and women labor are imperfect substitutes in the production process. Keeping low elasticities of substitution between men and women's labor introduces gender rigidities. The model also assumes that non-market sectors behave like productive sectors and produce goods consumed by the household. In household labor it is assumed that male and female labor can be substituted and that leisure can also be substituted. It is assumed that men and women have the same consumption preferences within a household.

The indicators that Siddiqui (2007) used were FGT indices including the head count ratio, poverty gap, and poverty severity; capability poverty, which included changes in infant mortality (IMR) and the literacy rate (LR); and time poverty, which was change in female leisure time relative to the base period and relative to male leisure time. Siddiqui (2007) explains that IMR and LR “are the most appropriate capability indicators for a gender impact analysis” (p. 14). The IMR measures the satisfaction of four of six basic needs, which are nutrition intake, health services, shelter with safe drinking water, and sanitation facilities. The LR measures the basic need for education.

Siddiqui (2007) found that hidden market and non-market work of women in Pakistan increases their wages to 50% and 21% of the total wage bill respectively. GDP also increased by 5%. The division of labor is biased against women, which was revealed from the work-leisure matrix. Men spend 60% of their time working and women 80%. Household resources are also prioritized for men and boys in poorer households. As shown

in the microsimulations, trade liberalization reduces the gender wage gap. Migration also helps reduce poverty because female-headed households incomes increase significantly due to remittances. However, gender division of labor remains unequal after time is reallocated after trade liberalization. There is a reduction in absolute poverty but the gendered poverty gap increases. Reducing government expenditures has more negative impacts on women's market employment than on men's and it is biased against the poor. The FGT indices all indicate a reduction in poverty among urban and rural households, except for the illiterate urban households. The intra-household allocation of resources was important to include because it shows that women's consumption is more adversely affected than men's (except in rich households). In regard to the capability poverty indicators, this shows that prosperity helps reduce the gender gap and women's improved bargaining power also improves their condition. The most important variable in Pakistan to improving ones' status is education.

**Stotsky, Janet G. (1997, June 9). Gender Bias in Tax Systems. *Tax Notes International Magazine*, 1913–1923.**

Stotsky (1997) is a methodological paper that examines several different types of taxes and discusses how each type impacts gender inequity through an examination of explicit and implicit gender bias. According to Stotsky (1997) explicit biases are “specific provisions of the law or regulations that identify and treat men and women differently” (p. 1913). Implicit biases “are provisions of the law and regulations that, because of typical social arrangements and economic behavior, tend to have different implications for men than for women” (ibid., 1997, p. 1913). The discussion in the paper is divided by tax type: personal income taxes, second, commodity taxes, trade taxes, and corporate income taxes.

In regard to personal income taxes, Stotsky (1997) explains that since personal income taxes apply to individuals or other family units, they are more likely to treat individuals differently according to their gender. This means that explicit gender discrimination is more typically found in personal income tax. Implicit gender bias is more difficult to identify in general, but probably most easily to discern in personal income taxes. Global personal income taxes have typically been the source of gender bias more so than scheduler tax systems. In regard to individual versus joint personal income tax filing, Stotsky (1997) explains that gender bias can still occur in countries where the individual is the filing unit because of the allocation of non-labor or business income, the allocation of tax preferences, and tax rates. When couples are forced to file as a unit, gender bias can still occur but explicit discrimination does not occur as frequently as under an individual filing system. Discrimination against secondary workers is an implicit gender bias because it applies equally to husbands and wives. Stotsky (1997) offers examples of reforms of explicit gender bias from Continental Europe, United Kingdom and Ireland, United States, and several developing countries.

In regard to commodity taxes, Stotsky (1997) explains that they typically do not show explicit gender bias and the implicit bias is not frequently acknowledged. Implicit bias can occur through broad-based commodity taxes, differential consumption, differential application to taxpayers, and through selective commodity taxes.

Trade taxes may have a gender bias against men, but the implicit bias is harder to establish because they vary more from country to country.

Corporate income taxes tend not to have explicit gender bias but it could be possible to establish a pattern of implicit bias. This would depend on the perceived incidence and



behavioral effects of the corporate income taxation.

Stotsky (1997) concludes that although many countries have strived to eliminate explicit and implicit gender bias, some countries have not made progress. Eliminating gender bias will likely occur on a case-by-case basis by country because of variation in cultural norms that continue to lead to differences in views of what constitutes discrimination.

## Glossary

B	Benefit
CCT	Conditional Cash Transfer
CEQ	Commitment to Equity
CGE	Computable General Equilibrium
CI	Consumable Income
CIT	corporate income taxes
EAP	East Asia & Pacific
ECA	Europe & Central Asia
ECLAC	Economic Commission for Latin America and the Caribbean
EEPRI	Ethiopian Economic Policy Research Institute
ESSP	Ethiopia Strategy Support Program
EU	European Union
FES	Family Expenditure Survey
FGT	Foster Greer Thorbecke
FONASA	Fondo Nacional de Salud
FSP	Food Security Program
GLSS	Ghana Living Standards Survey
GPN-Survey	Gender Planning Network Survey
GSOEP	German Socio-Economic Panel
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HESSEA	Household Expenditure and Small-Scale Economic Activities survey
HH	household
HI	High Income: OECD (Organisation for Economic Co-operation and Development)
HIES	Household Integrated Economic Survey
IAMC	Instituciones de Asistencia Medica Colectiva (IAMC)
IES	Income and Expenditure Survey
IFPRI	International Food Policy Research Institute
IFS	Institute for Fiscal Studies
IMF	International Monetary Fund
IMSS	Instituto Mexicano del Seguro Social (Mexican Social Security Institute) (The Mexican Civil Service Security and Services Institute)
IMR	infant mortality rate
IRB	Institutional Review Board
ISS	International Institute of Social Studies
ISSSTE	Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado
KIHBS	Kenya Integrated Household Budget Survey
LAC	Latin America & Caribbean

LFS	Labor Force Survey
LI	Low Income
LMI	Lower Middle Income
LST	Local Service Tax
LR	literacy rate
LSMS	Living Standards Measurement Survey
MENA	Middle East & North Africa
MI	Market Income
MOE	Ministry of Education
MWB	Master Workbook
OECD	Organisation for Economic Co-operation and Development
PAYE	Pay-As-You-Earn
PDI	Pensions as Deferred Income
PGT	Pensions as Government Transfer
PIT	personal income taxes
PPP	purchasing power parity
PREM	World Bank Poverty Reduction and Economic Management Network
PRMGE	World Bank Poverty Reduction and Economic Management Network Gender and Development Group
PS	Social Dimensions of Structural Adjustment Priority Survey
PTR	Participation Tax Rates
SA	South Asia
SAM	Social Accounting Matrix
SME	small and medium enterprises
SSA	Sub-Saharan Africa
SSA	Secretaria de Salud
SEP	Socio-Economic Panel Survey (Sociaal-economisch panelonderzoek)
SHIW	Survey of Households Income and Wealth
TLLSS	Timor-Leste Living Standards Survey
UK	United Kingdom
UMI	Upper Middle Income
UNDP	United Nations Development Programme
UNHS	Uganda National Household Survey
USD	United States Dollar
VAT	value added tax
VLSS	Vietnam Living Standards Survey

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**Note:** “\*” signifies that the reference was included in the survey of the literature on gendered incidence analysis (Chapter 1).

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## **Biography**

Samantha Greenspun earned her B.A. degree from Gettysburg College in Pennsylvania, majoring in Political Science and minoring in Spanish. Before enrolling at the Roger Thayer Stone Center for Latin American Studies at Tulane University, Samantha served as a Pro Bono Coordinator and Special Projects Manager for Greenspun Shapiro, PC in Fairfax, Virginia, during which one of her tasks was working to facilitate communication and provide services to Spanish-speaking clients. Samantha served as an AmeriCorps VISTA for the Louisiana Green Corps, a non-profit organization in New Orleans seeking to train disadvantaged 18 to 24 year old in green jobs skills. Prior to enrolling in the PhD program, Samantha received her M.A. from the Stone Center focusing on poverty, inequality, and social assistance programs. She also completed the Global Health Certificate Program from the Office of Global Health at the Tulane University School of Public Health and Tropical Medicine.

When enrolled at Tulane, Samantha was awarded a summer field research grant from the Stone Center and the Tinker Foundation to research social assistance programs in Mexico. She received the Tulane 34 Award upon graduating from her M.A. She also received the William J. Griffith Award for Outstanding Teaching Assistant in Latin American Studies and was a invited presenter at Ignite Tulane.

Samantha has worked for Professor Nora Lustig and the CEQ Institute in various capacities throughout her career at Tulane. She has also had consultancies with the World Bank, the Instituto Centroamericano de Estudios Fiscales (ICEFI), and the Inter-American Development Bank.