



Analyzing the effects of fiscal policy on income inequality and poverty in Brazil

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Introduction

Historically, Brazil has had one of the highest levels of inequality in the world. In 1989, its Gini coefficient of 0.625 was second only to Sierra Leone's 0.629 (Ferreira, Leite, and Litchfield 2008). Over the last decade, however, Brazil has followed the Latin American trend of falling inequality (Lustig, López-Calva, and Ortiz-Juarez 2013). This is largely due to increased public cash transfers (Barros et al. 2010) and a more equal distribution of educational attainment resulting from expanded access in the 1990s (Gasparini and Lustig 2011).

In *The effects of Brazil's taxation and social spending on the distribution of household income* (Higgins and Pereira 2013), we estimate the redistributive effects of fiscal policy in Brazil. Specifically, we analyze the effects of taxation (direct and indirect) as well as cash transfers, indirect subsidies, and in-kind benefits on income distribution and poverty.

Background

Social spending accounts for 16 percent of GDP in Brazil when social security pensions are not included. This figure includes social assistance, health spending, and education spending at the federal, state, and municipal levels. If we also include spending on contributory pension payments, as is often done, social spending is 25 percent of GDP.

Direct transfers include conditional cash transfer programs such as *Bolsa Família*, non-contributory pension programs like *Benefício de Prestação Continuada*, unemployment benefits programs, food transfers, special circumstances pensions, and others. Education in Brazil is free at all education levels, including preschool and tertiary education. There is also free public daycare provided for poor families. Finally, through the Unified Health System (SUS), the government guarantees access to all types of health care for every citizen at public health facilities.

The Brazilian tax system is exceedingly complex, with more than eighty-five distinct taxes (Portal Tributário 2012). In 2009, total tax revenues were about 34 percent of GDP. Figure 1 provides an overview of tax revenues in 2009, by category. Direct taxes represent 45 percent of

the taxes levied by the government and indirect taxes represent 55 percent. The standard deduction is equivalent to 20 percent of the taxable income (marginal rates range from 15 to 27.5 percent). Because of the high exemption threshold and large informal sector, less than 10 percent of the economically active population pays income tax (Immervoll et al. 2009). Corporate taxable income is taxed at 25 percent. In addition, businesses must pay social contribution taxes on profits (9 percent on net taxable income).

The cascading effect, which is one of the Brazilian system's major distortions, derives from the fact that taxes levied at the federal, state, and municipal levels compound on each other (Amaral, Olineike, and Amaral 2007). This occurs because taxes are applied to the final sales price of the good (including taxes), not the pre-tax sales price. As we are analyzing the effects of fiscal policy on income inequality and poverty, the distortions created are even more important, considering the effects of indirect taxes on consumer purchasing power. Exemptions on consumption taxes are almost non-existent in Brazil (Corbacho, Cibils, and Lora 2013); hence, the effective tax rates paid on basic food products can be especially deleterious for the poor.

Figure 1: Brazilian Tax Revenue, 2009

Taxes	Billions of reais	% of total	% of GDP
<i>Federal</i>			
Corporate income tax (IRPJ)	124.6	11.4	3.9
Tax on goods/services to finance pensions (COFINS)	117.9	10.8	3.7
Individual income tax (IRPF)	67.1	6.1	2.1
Payroll tax collected from employers (FGTS)	54.8	5.0	1.7
Others	46.9	4.3	1.5
Contribution on net profit (CSSL)	44.2	4.0	1.4
Tax on industrialized products (IPI)	30.8	2.8	1.0
Tax to finance social services for workers (PIS)	31.8	2.9	1.0
Tax on financial transactions (IOF)	19.2	1.8	0.6
Imported Goods	16.1	1.5	0.5
Tax on technical services (CIDE)	4.8	0.4	0.2
Tax on rural properties (ITR)	0.5	0.0	0.0
Tax on bank account transactions (CPMF)	0.3	0.0	0.0
Fund for improvement of auditing (FUNDAF)	0.3	0.0	0.0
<i>State</i>			
Tax on movement of goods and services (ICMS)	229.4	20.9	7.2
Others	36.9	3.4	1.2
<i>Municipal</i>			
Tax on services (ISS)	31.1	2.9	1.0

Real estate tax (IPTU)	13.3	1.2	0.4
Contributions			
Contributions to federal pension funds	200.7	18.3	6.3
Contributions to state pension funds	20.3	1.9	0.6
Contributions to municipal pension funds	5.6	0.5	0.2
TOTAL	1096.5	100.0	34.4

Sources: Amaral et al (2011), Ministerio da Fazenda (2010, 2012), Ministerio de Trabalho (2010), and Ministério da Previdência e Assistência Social (2009).

Methodology

The data we used on household incomes, taxes, and transfers comes from the *Pesquisa de Orçamentos Familiares* (Family Expenditure Survey, POF), 2008-2009, and data on the use of public health services comes from the *Pesquisa Nacional por Amostra de Domicílios* (National Household Sample Survey, PNAD), 2008. The rich detail of our data set allows us to single out the effects of each direct transfer and tax without needing to simulate taxes or benefits. Unlike incidence studies based on microsimulation models, our study is based on what individuals *actually* pay and receive (assuming they report correctly), rather than what tax and program rules state that they *should* pay.

Assessment of the Impact of Taxes and Social Spending

To assess the impact of taxes and social spending, we measured inequality, poverty, the concentration of benefits received and taxes paid with respect to market income, and spending effectiveness. Figure 2 lists the Gini and Headcount Index for different income concepts in 2009. Clearly, market income inequality is very high in Brazil, with a Gini coefficient of 0.58.

Figure 2: Gini and Headcount Index for Different Income Concepts, Brazil 2009.

	Market Income	Net Market Income	Disposable Income	Post-fiscal Income	Final Income
<i>Benchmark scenario</i>					
Gini	0.579	0.565	0.544	0.546	0.439
Headcount index (%)					
\$1.25 PPP/day	5.8%	5.9%	2.7%	4.4%	--
\$2.50 PPP/day	15.1%	15.7%	11.2%	16.3%	--
\$4.00 PPP/day	26.2%	27.2%	23.2%	31.0%	--
70 reais per month	6.4%	6.6%	3.1%	5.2%	--
140 reais per month	16.5%	17.1%	12.7%	18.2%	--

Sensitivity analysis 1: Contributory pensions as a government transfer

Gini	0.600	0.594	0.541	0.543	0.434
Headcount index (%)					
\$1.25 PPP/day	9.3%	9.7%	2.7%	4.5%	--
\$2.50 PPP/day	20.7%	21.9%	11.3%	16.7%	--
\$4.00 PPP/day	33.0%	34.9%	23.8%	31.5%	--
70 reais per month	10.1%	10.6%	3.1%	5.2%	--
140 reais per month	22.4%	23.8%	13.0%	18.6%	--
<i>Sensitivity analysis 2: Special pensions and contributory pensions as market income</i>					
Gini	0.573	0.559	0.544	0.546	0.439
Headcount index (%)					
\$1.25 PPP/day	5.0%	5.1%	2.7%	4.4%	--
\$2.50 PPP/day	13.8%	14.3%	11.2%	16.3%	--
\$4.00 PPP/day	24.6%	25.6%	23.2%	31.0%	--
70 reais per month	5.6%	5.8%	3.1%	5.2%	--
140 reais per month	15.1%	15.7%	12.7%	18.2%	--

Source: Authors' calculations based on Pesquisa de Orçamentos Familiares, 2008-2009.

To measure the impact of fiscal policy on poverty in a middle income country, we use the international poverty lines proposed by the World Bank.¹ Analysis of the Headcount Index, which measures the proportion of the population with income below a pre-defined poverty line, indicates that ultra poverty is reduced by 54 percent by direct transfers (net of any direct taxes paid), extreme poverty by 26 percent, and moderate poverty by just 11 percent. However, when indirect taxes are considered, the reduction in ultra poverty is significantly tempered, while extreme and moderate poverty actually *increase* when one compares market income with post-fiscal income. The moderate success of direct transfers at reducing poverty can be attributed to high coverage of the poor: 85 percent of the poor live in households receiving at least one direct transfer, and the figure is even higher among the extreme poor (93 percent) and the ultra poor (98 percent).

Our results show that in comparison to the other countries included in the region, Brazil has relatively high taxation and spending, but poor targeting of direct transfers overall, and low inequality and poverty reduction relative to its spending. Figure 3 lists the concentration coefficients and budget sizes for specific programs in Brazil in 2009. The data indicates that some programs, such as *Bolsa Família* and *Benefício de Prestação Continuada*, are well-targeted, but they make up a small share of social spending. Others, such as unemployment benefits and special circumstances pensions, are large and progressive only in relative terms. While public health spending is progressive in absolute terms for each type of care, tertiary education spending is almost neutral in relative terms, indicating that the better-off receive most of the benefits.

¹ US\$1.25 PPP per day (ultra poverty), US\$2.50 PPP per day (extreme poverty), and US\$4.00 PPP per day (moderate poverty).

Figure 3: Concentration Coefficients and Budget Sizes for Selected Programs, Brazil 2009^a

Program	Concentration coefficient with respect to benchmark case market income	Concentration coefficient with respect to sensitivity analysis 1 market income	Concentration coefficient with respect to sensitivity analysis 2 market income	Budget size (percent of GDP)
Special circumstances pensions	0.20	0.04	--	2.28
Unemployment benefits	0.18	0.25	0.17	0.58
BPC (Non-contributory pensions)	-0.48	-0.49	-0.48	0.53
Bolsa Família (CCT)	-0.58	-0.51	-0.59	0.39
Other direct transfers ^b	0.15	0.21	0.15	0.26
Scholarships	0.28	0.31	0.28	0.11
Milk transfer program	-0.35	-0.33	-0.36	0.01
<i>Direct transfers excluding special circumstances pensions</i>	-0.22	-0.18	-0.23	1.87
<i>Direct transfers including special circumstances pensions</i>	0.03	-0.05	--	4.16
Contributory pensions	--	0.06	--	9.06
<i>Direct transfers plus contributory pensions</i>	--	0.02	--	13.21
Preschool	-0.33	-0.25	-0.34	0.30
Primary Education	-0.31	-0.25	-0.32	2.36
Secondary Education	-0.21	-0.16	-0.22	0.38
Tertiary Education	0.44	0.42	0.44	0.82
<i>Total Education Spending</i>	-0.15	-0.11	-0.16	5.31
Primary Care	-0.16	-0.11	-0.16	1.05
In-patient Care	-0.11	-0.16	-0.09	2.56
Preventative Care	-0.15	-0.19	-0.13	0.29
<i>Total Health Spending</i>	-0.11	-0.16	-0.10	5.21
Energy subsidies	-0.27	-0.30	-0.27	0.05
<i>Social spending excluding special circumstances pensions</i>	-0.15	-0.11	-0.15	13.89
<i>Social spending including special circumstances pensions</i>	-0.09	-0.09	--	16.17
<i>Social Spending plus contributory pensions</i>	--	-0.04	--	25.23

- a. All concentration coefficients are statistically significant from zero at the 1% significance level. The table including standard errors is available from the authors upon request.
- b. Other direct transfers include assistance from PIS/PASEP, Bolsa Escola, Auxílio Gás, other auxílios, Child Labor Eradication, minimum income programs, and the Basic Food Basket program.

Source: Authors' calculations based on Pesquisa de Orçamentos Familiares, 2008-2009.

Conclusion

Overall, direct taxes and transfers reduce the Gini coefficient by 6 percent, and in-kind transfers are particularly effective at improving equality: the reduction between the market income and final income Gini is 24 percent. Although Brazil's market income Gini is substantially higher (by at least 5 percentage points) than that of many other countries in the region, its final income Gini is lower than Bolivia's and Peru's. Indirect taxes have a deleterious effect on post-fiscal income and often result in post-fiscal income poverty being higher than market income poverty.

Bolsa Família, BPC, and milk transfers are well-targeted to the poor and highly progressive in absolute terms, but other much larger direct transfers are progressive only in relative terms. Brazil is also a relatively high spender on health and education compared to other countries in the region. With the exception of tertiary education, all components of public health and education spending are progressive in absolute terms. On the tax side, there is a substantial deleterious effect of indirect taxes on poverty. In many cases, the benefits of transfer programs and indirect subsidies are offset by indirect taxes. A reform of the indirect tax system—especially with respect to taxes on basic food items—or larger, well-targeted compensating transfers to offset the costs of indirect taxes for the poor, must be a high priority.

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