Fiscal Incidence Analysis in Theory and Practice

✕ part the second,

✕ in which Steve risks the opprobrium

✕ of all present at the workshop on

✕ The Distributional Impact of Fiscal Policy

✕ and excommunication from the

✕ American Economics Association

✕ Washington, DC – June 10-11, 2013

COMMITMENT TO EQUITY

ITHACA COLLEGE
School of Humanities and Sciences

Incidence Analysis and (Some of) Its Critics

- Standard incidence analysis is *descriptive* of the average state of affairs; the status quo

- Real economists do more sophisticated analyses; all the things in Nora's fourth slide

  - Behavioral responses to policies

  - General equilibrium consequences of policies

  - Marginal, not average, incidence for policy analysis

- My assignment today is to discuss these

- My starting point is: sophistication is not worth it

Ignoring Behavioral Responses

- Consider an indirect tax or subsidy
- What is the value of that tax or subsidy to an individual?
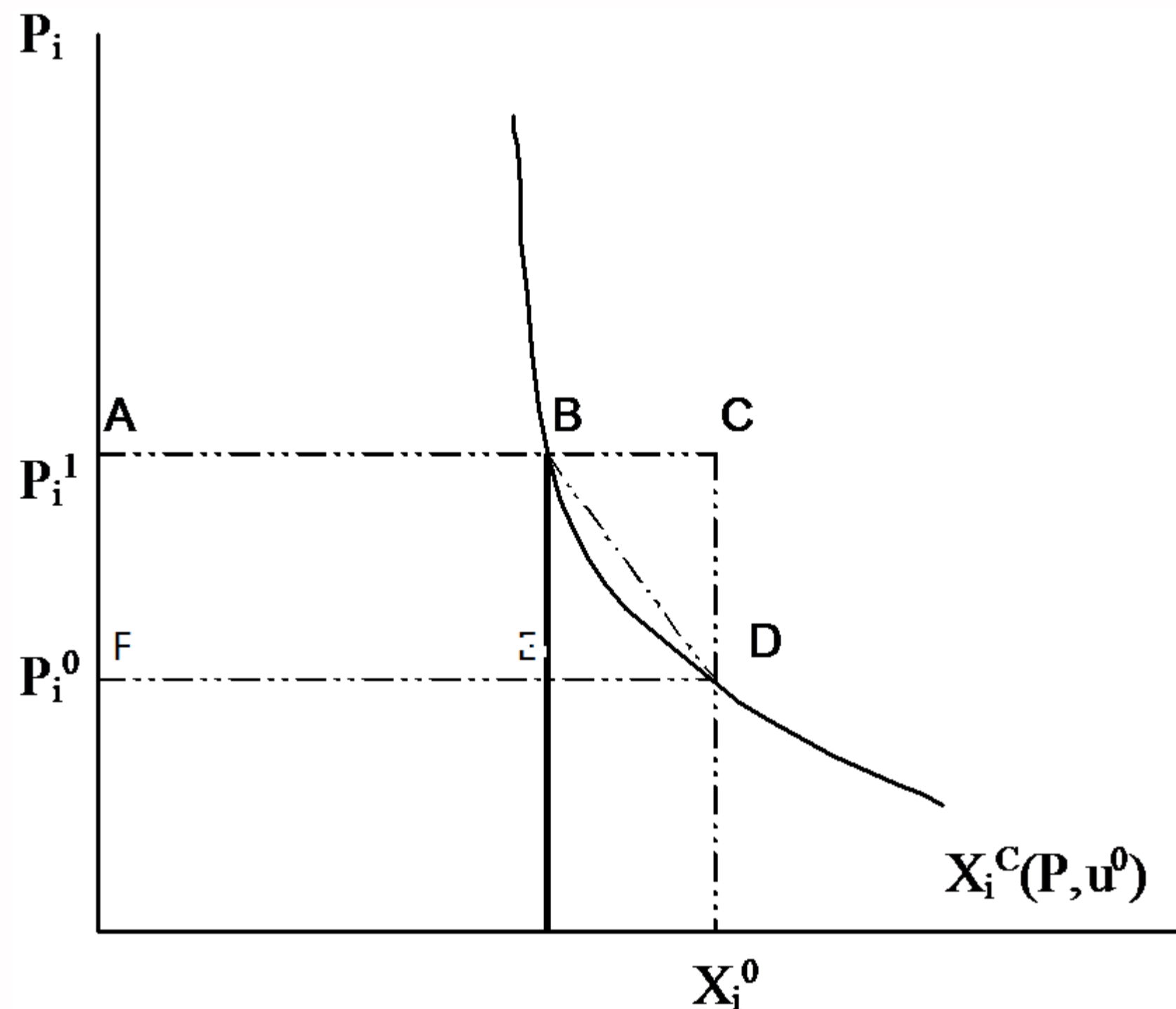- The compensating variation

$$CV = e(p^1, u^0) - e(p^0, u^0) = \int_{p_0}^{p_1} x_i^c(p, u^0) dp$$

$$CV \approx x_i^c(p^0, u^0) * \Delta p_i + \frac{1}{2} * \frac{\partial x_i^c(p^0, u^0)}{\partial p_i} * \Delta p^2 + \ldots$$

Ignoring Behavioral Responses

- A picture may help:

How Bad is a First Order Approximation?

- Depends on the size of the price change
  - almost perfect for small (marginal) changes
- For larger changes, it depends on the elasticity
- most of the elasticities that concern us will be small-ish
  - labor supply (for income taxes)
  - demand for food vs. non-food for a typical VAT
  - demand for education or health care
  - even most excises get levied on single goods with inelastic demand – alcohol, tobacco, petroleum products

Quintile Shares of Marginal Benefits to Secondary Schooling in Rural Peru

Quintile	CV, price change	$\partial\text{Prob}/\partial P$	Std BI, 0/1
1	0.13	0.15	0.10
	(0.010)	(0.010)	(0.014)
2	0.18	0.20	0.17
	(0.011)	(0.011)	(0.016)
3	0.21	0.22	0.23
	(0.012)	(0.012)	(0.019)
4	0.24	0.24	0.24
	(0.013)	(0.012)	(0.020)
5	0.24	0.20	0.26
	(0.015)	(0.012)	(0.022)

How Bad is a First Order Approximation- Take Two

- Most inequality measures use shares of income
- That means that any proportional error we make cancels out
- Look at the figure again: the second-order approximation is proportional to the first-order one
- caveats
  - This would not be true for *poverty* measures
  - Nor does it help for aggregations of several taxes or benefits
  - Heterogeneous demand elasticities

Summary on Behavioral Responses

- Taking them into account when valuing taxes/subsidies is difficult – requires demand estimation, at least

- For our project, the estimation approach and data would need to be similar

- The first-order approximation of a standard incidence analysis is much easier in general, and easier to make comparable across countries

- In most cases, it will be good enough

Ignoring General Equilibrium Effects

- Here, the idea is that a tax or subsidy on one good spills over to other markets, changing those prices, too

- So we need to calculate a set of compensating variations, one for each changing price, and add them up

- Here, I have to hang my hat on small elasticities

- That implies small spillovers

ITHACA COLLEGE

ithaca.edu

Well, OK, Here's an Example

- Taxes that fall on intermediate goods

- e.g. petroleum excises and, in some countries, import duties

- In such cases, looking at final consumption only could be misleading. Need to trace the effects through the input-output structure of the economy

- We tried this in Madagascar
  - Using only IO table, not behavioral responses (as in a CGE)
  - made a large difference in incidence estimates for petroleum excises but no other taxes
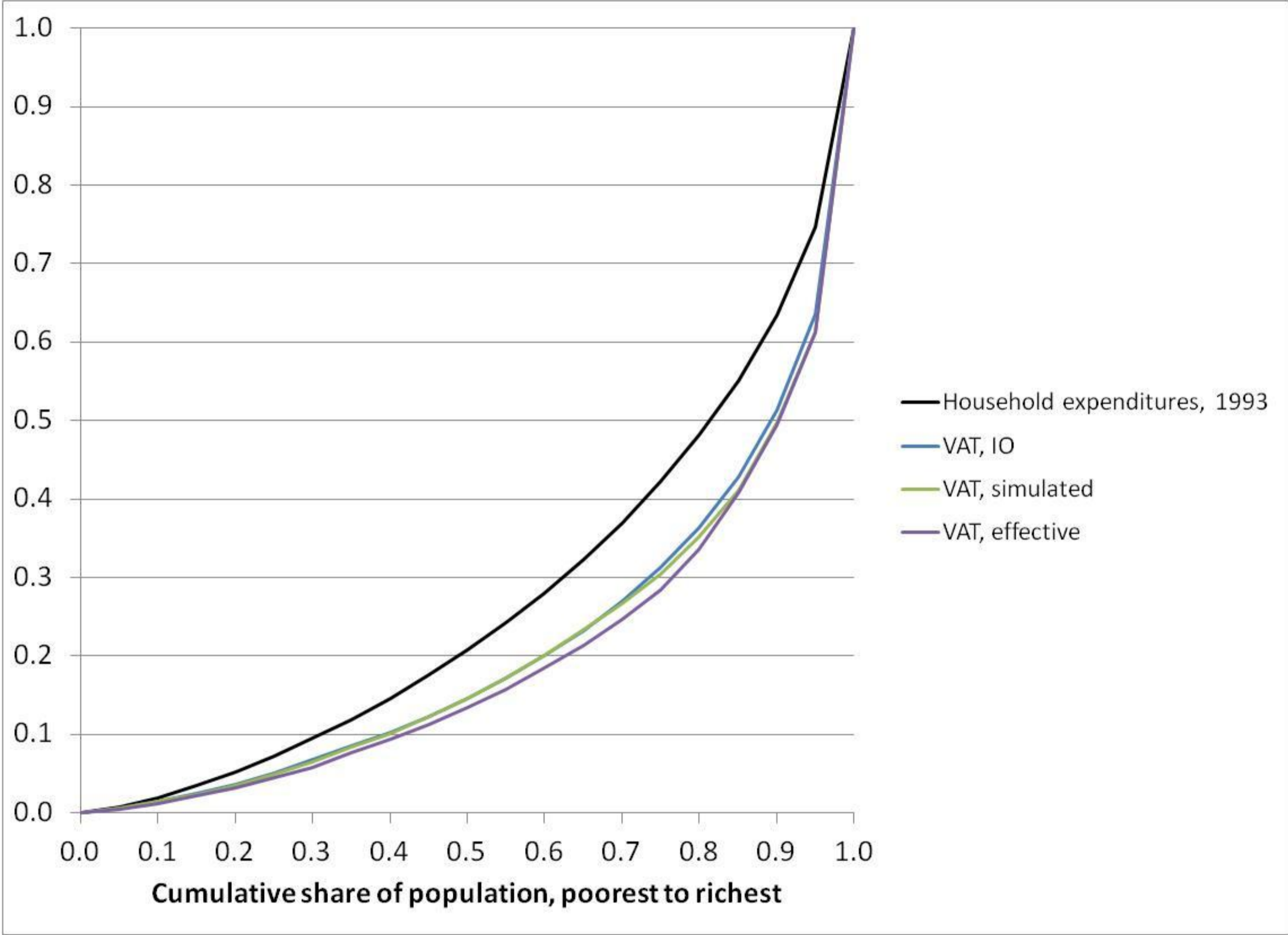
- Was not easy, and is still much simpler than a CGE

Concentration Curves for Petroleum Excises, Madagascar, 1993-1995
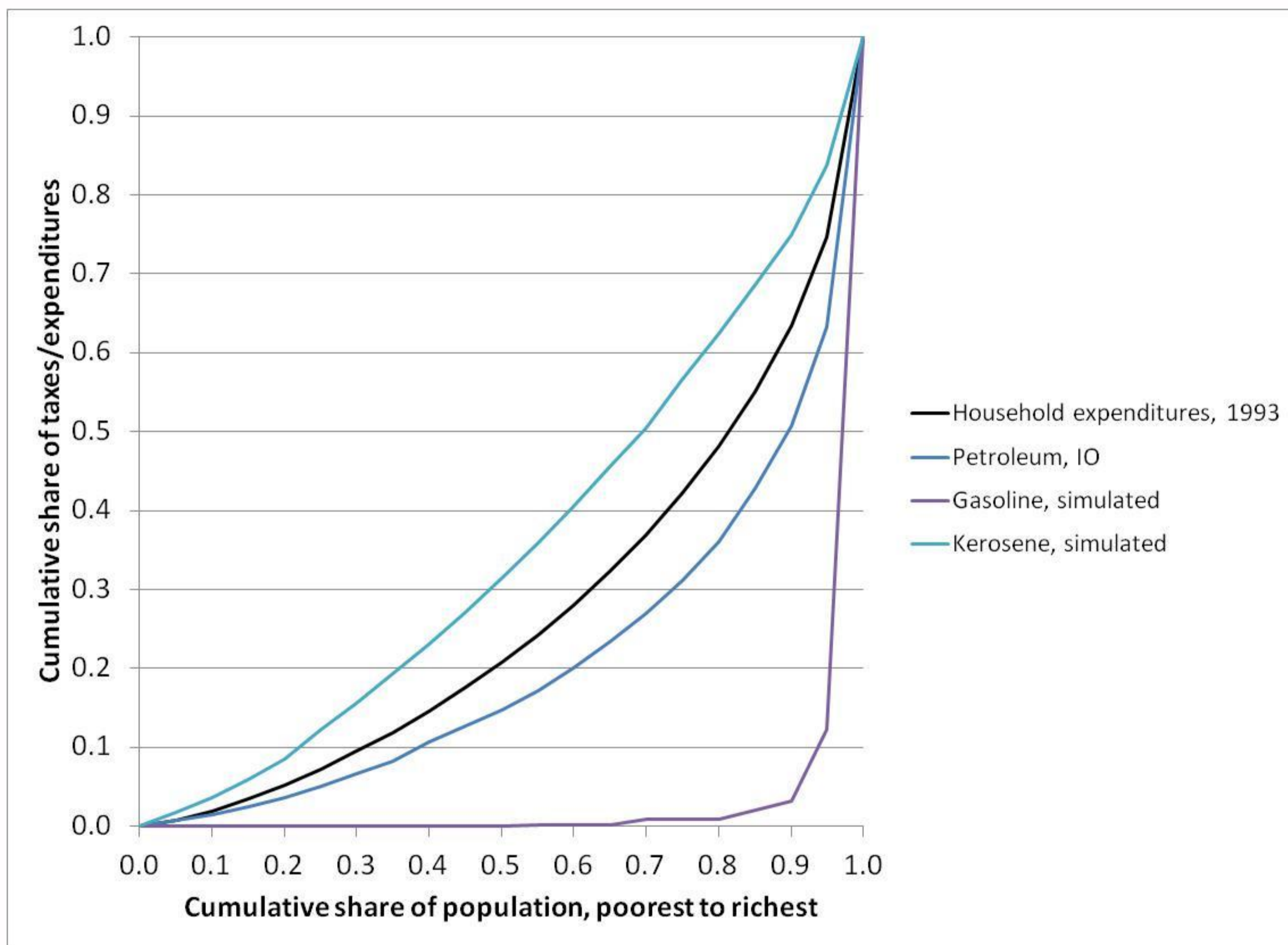
Concentration Curves for Import Duties, Madagascar, 1993-1995
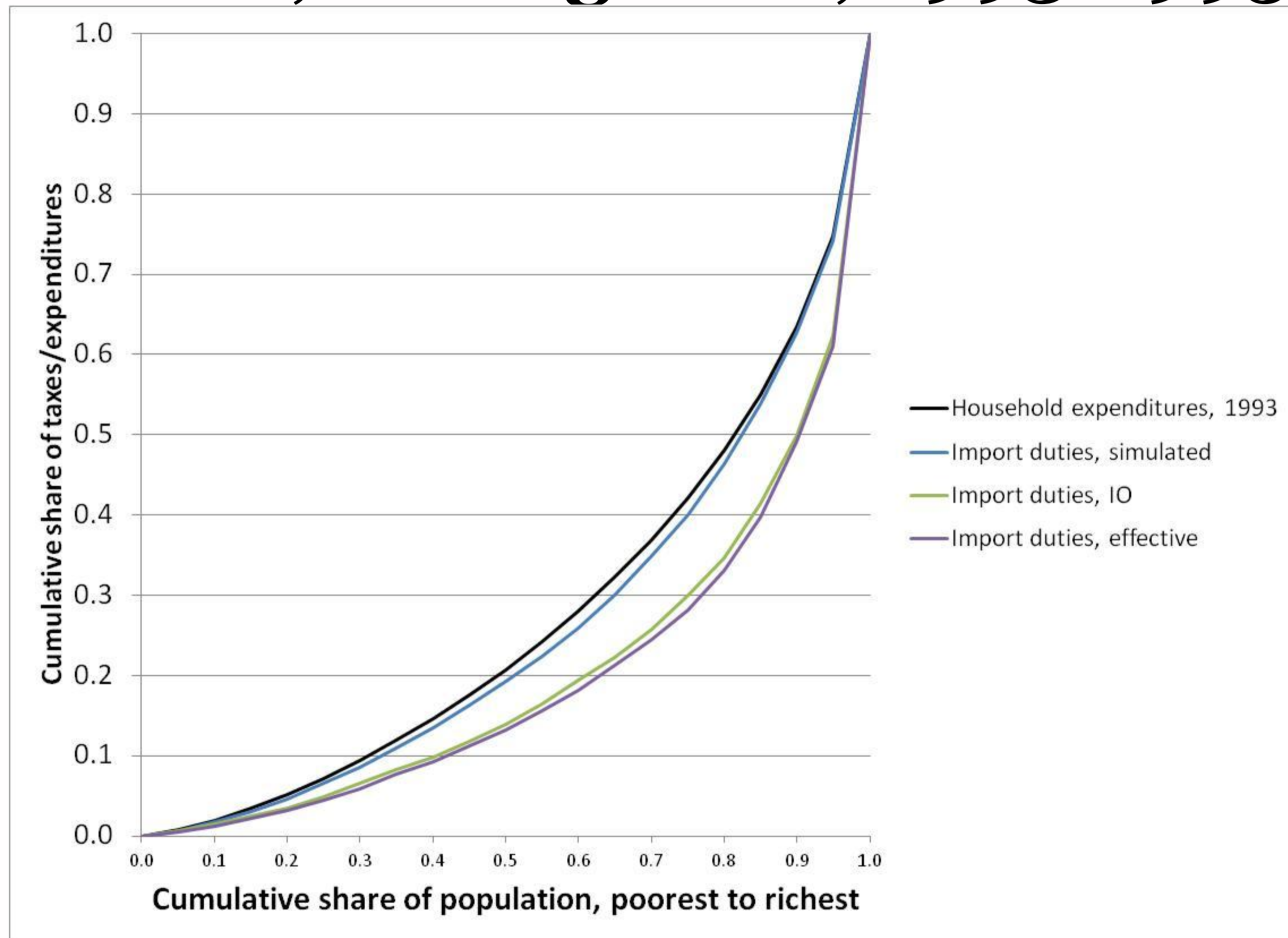
Concentration Curves for VAT, Madagascar, 1993-1995

Summary on General Equilibrium Effects

- Trying to account for these in a comprehensive way requires a CGE. That's hard.

- I remain to be convinced that it is worth the effort …

- … except that I do believe that these can change our valuation of the benefits/costs of taxes on intermediate goods

- Could/should our project account for that?
  - Import duties are certainly important in some poorer economies
  - Would need to have an IO table, and probably need to modify it with respect to the petroleum sector, tobacco, and alcohol

ITHACA COLLEGE

Average vs. Marginal Incidence

- Incidence analysis describes the status quo
  - We assign the benefits of schooling to those we see in school
  - We assign the costs of VAT to those we see consuming goods
- That is perfectly appropriate if the goal is to assess the distributional impact of the fisc, as CEQ does
- But most policy analysis makes more sense in terms of *marginal* changes:
  - increase VAT rate from 15% to 16%
  - increase vaccination rates from 90% to 95%

ITHACA COLLEGE
ithaca.edu

Average vs. Marginal Incidence

- Critics argue that this marginal incidence may be quite different from the observed average incidence
- This is most obvious in the case of public services that are only consumed once
    - Vaccinations
    - School attendance
    - Connections to the water or sewer mains
- Here, the existing beneficiaries that we observe in a survey are a poor guide to the marginal beneficiaries from a change in service provision
- So the simple descriptive methods won't do
- We seem to need demand analysis …

COMMITMENT TO EQUITY

ITHACA COLLEGE
ithaca.edu

Average vs. Marginal Incidence

- … or maybe not
- the "average" incidence is actually the intensive margin
- For example:
  - who benefits from a program to build new latrines in all the primary schools?
  - who benefits from adding a lab to all health clinics?
  - who loses from marginal increase in the VAT rate?
- Even for some extensive margins, we may be able to get away with simple descriptive methods
  - a program to build secondary schools in all towns that do not currently have one

Summary

- Traditional incidence methods are economically unsophisticated
- But moving beyond them requires considerably effort
  - Estimating demand systems
  - Building general equilibrium models
- There is a real opportunity cost to those efforts
- For the most part, I am not convinced that it's worth it
- A challenge to the real economists: give us examples where I'm wrong

COMMITMENT TO EQUITY

ITHACA COLLEGE

ithaca.edu