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

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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

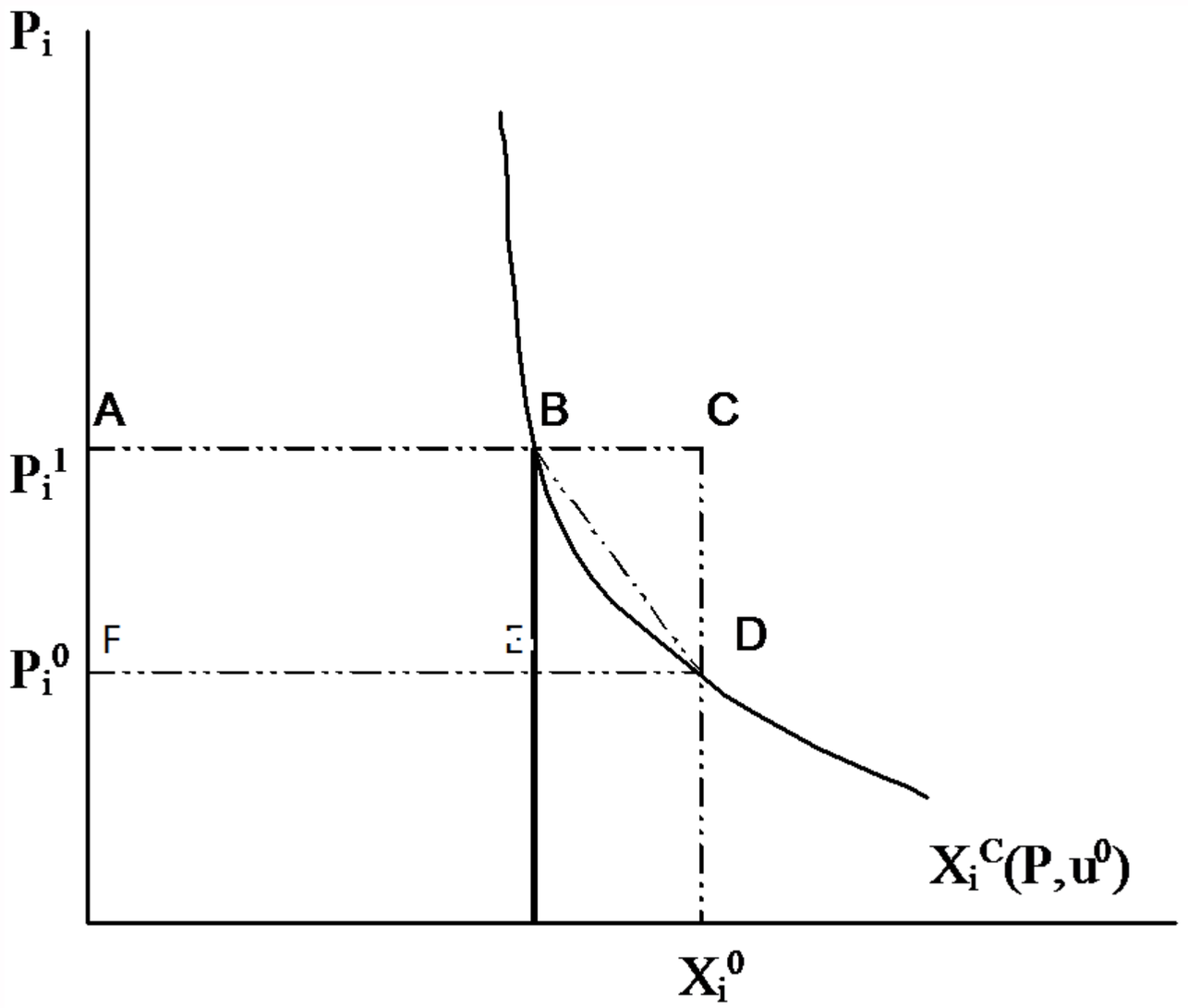
- Consider an indirect tax or subsidy
- What is the value of that tax or subsidy to an individual?
- The compensating variation

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

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

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

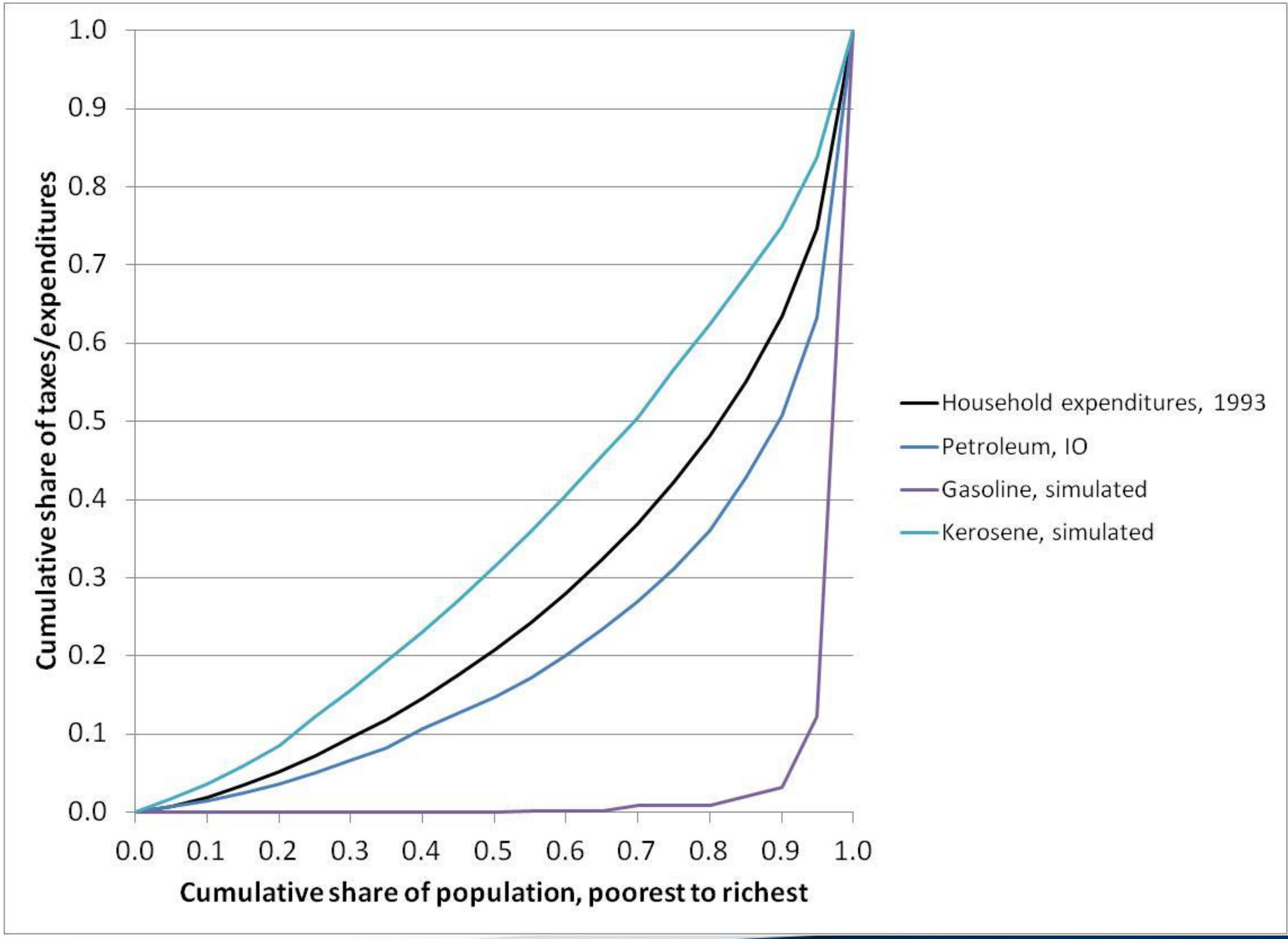
Ignoring General Equilibrium Effects

- 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

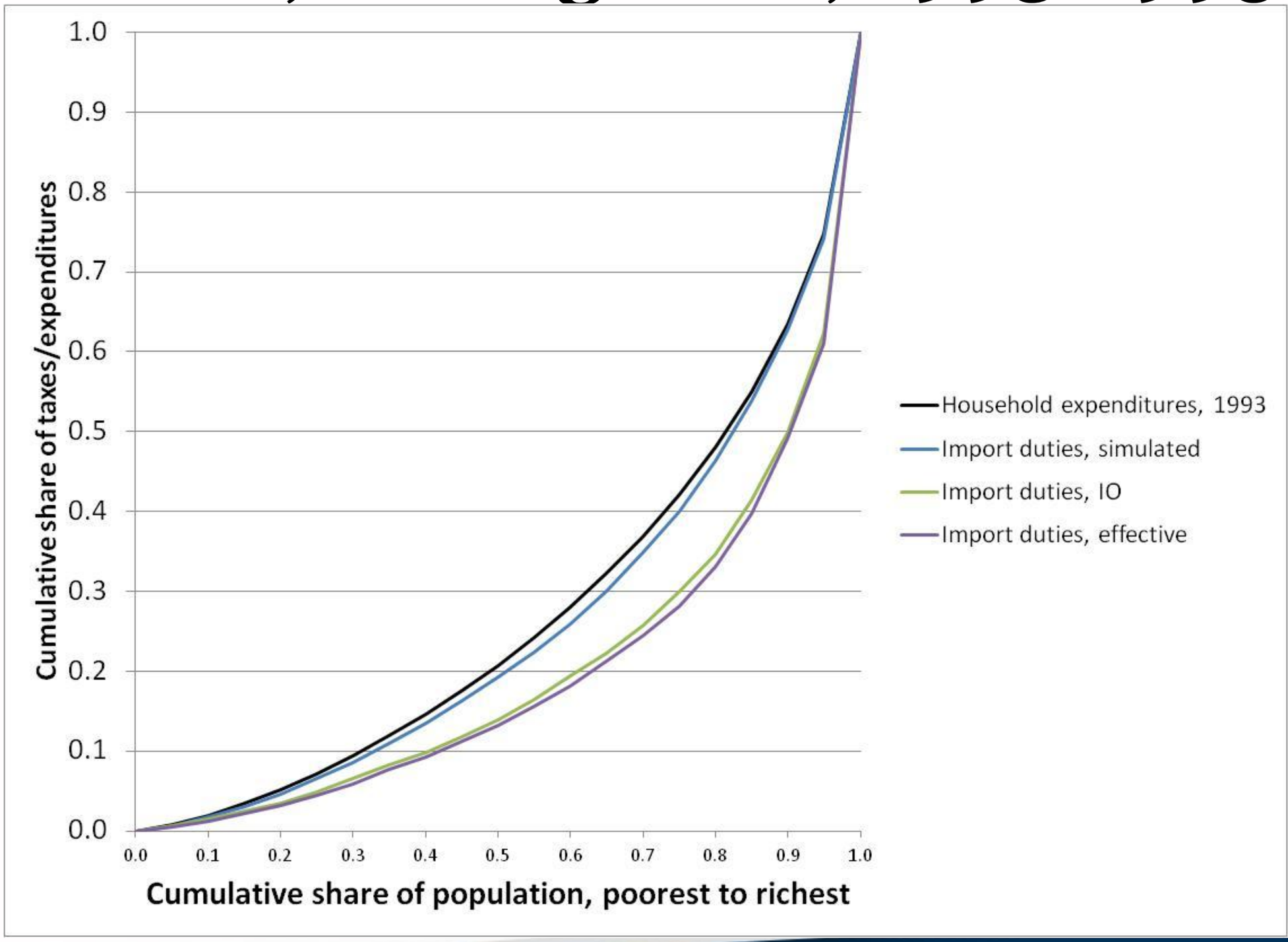
Well, OK, Here's an Example

- 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

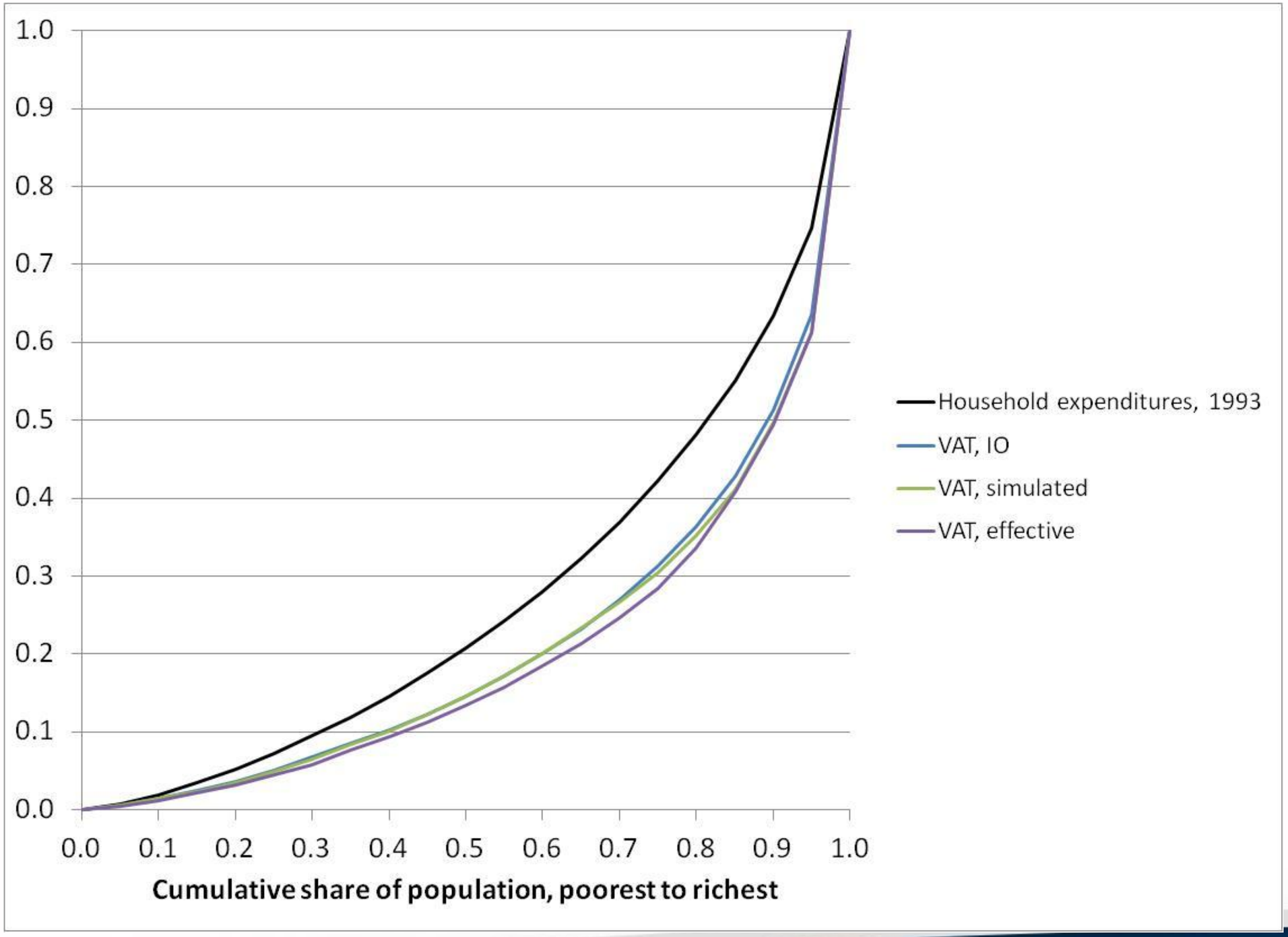
Concentration Curves for Petroleum Excises, Madagascar, 1993-1995



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

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%

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 …

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