Value Added Tax policy and the case for uniformity: empirical evidence from Mexico

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  - One efficiency reason not discussed much is the differential opportunities for tax evasion and home production across commodities.

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  - VAT only accounts for 20% of revenues - although all commodity taxes account for 55%

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    - 2014:

        - Approved: Increase VAT base by removing some few exemptions/zero-rates to certain commodities (chewing gum, internatonal transport services, pet food); remove border rate differentiation

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- Looks at efficiency implication of Mexico's VAT non-uniform structure

    - Use a QUAIDS demand system built-in in MEXTAX
    - Quantify efficiency gains of introducing a revenue-neutral VAT uniform system
    - Discuss qualitatively assumptions underlying standard QUAIDS model: in particular, formal/Informal consumption in certain sectors could affect the optimal VAT structure

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Assessing the distributional effects of the 2010 reforms

- MEXTAX - static household model
    - Income tax, indirect taxes, soc sec contrib. & cash transfers

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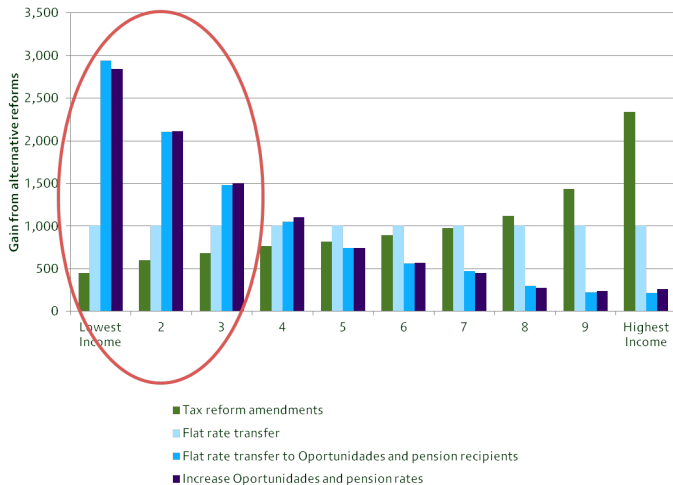
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- Data
  - ENIGH 2008 (household income and expenditure)
  - Informal/underground transactions: observe over 10 types of vendors
    - Informal if : 1 Street market ; 2 Mobile Stall; 3 Hawker
  - Assume incidence of tax is on purchases from formal vendors
    - Does not capture tax evasion by formal vendors, underestimates tax evasion

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Gains from the replacement of the CCP with a VAT increase

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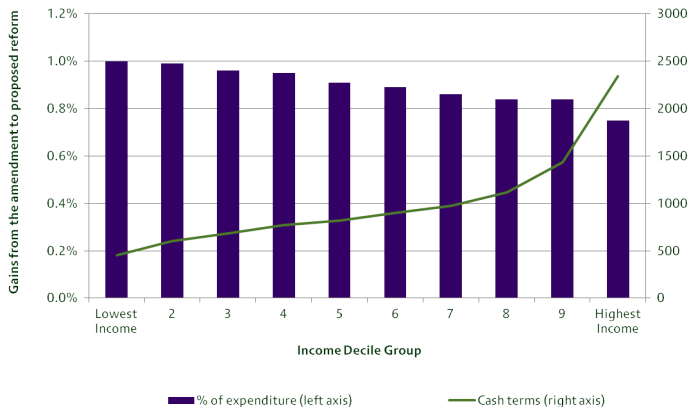
Absolute cash gains from alternative ways of spending the revenue foregone due to the 2010 amendments

Legend:
- Tax reform amendments
- Flat rate transfer
- Flat rate transfer to Oportunidades and pension recipients
- Increase Oportunidades and pension rates

Y-axis: Gain from alternative reforms

X-axis: Lowest Income, 2, 3, 4, 5, 6, 7, 8, 9, Highest Income

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    - equal substitutability with non-taxed forms of procurement such as home production and informal transactions across commodities [Sandmo 1990, Piggott and Whalley 1998, Kleven et al 2000]

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- Unlikely to completly hold, but the idea that non-uniform VAT rates are distortionary is well established

  - informs policy proposals in developed [Mirrlees et al 2011] and developing [Ebrill et al 2001] countries

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Assess quantitatively the efficiency gains of moving towards uniformity

- The MEXTAX QUAIDS model

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- 12 categories - comprises all commodities and grouped according to functionality and tax treatment.

  - Behavioural response comes from substitution between these categories
  - Assume no within-category substitution if relative prices within the category change - consistent with how prices changes are modelled in static (non-behavioural) version of MEXTAX

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Price variation and elasticities

- Use geographic and time varation in prices at the city/region-month level (Bank of Mexico)

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- Elasticities of substitution and income elasticities make sense:

  - Food on which VAT is not levied (e.g. tortilla) is most inelastic and a necessity
  - Food & drinks & meals out on which VAT is levied (coke can) is more elastic and a luxury

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Effect of VAT rate structure on expenditure patterns

Expenditure category	Share of good in total expenditure	
	2008 VAT rate structure	Uniform 7.86% VAT rate
1) Food on which no VAT is levied	26.9%	28.3%
2) Food on which VAT is levied and meals out	12.9%	12.7%
3) Alcoholic Drinks and Tobacco (VAT and duties levied)	0.6%	0.5%
4) Clothing and footwear (VAT levied)	7.2%	7.0%
5) Household goods, services and communications (VAT levied, duties sometimes levied)	21.6%	21.4%
6) Household goods, services and communications (no VAT levied)	1.6%	1.6%
7) Transport and vehicle fuels (VAT levied, duties sometimes levied but not modelled)	7.3%	7.1%
8) Public Transport and other transport on which no VAT levied	6.3%	6.2%
9) Health and Education goods (no VAT levied)	3.2%	3.2%
10) Health and personal goods and services (VAT levied)	7.6%	7.4%
11) Leisure and hotel services (VAT sometimes levied)	4.1%	4.0%
12) Other services	0.6%	0.6%

Notes: Reported shares are shares of aggregate household expenditure.
Source: ENIGH 2008 and authors' calculations using Bank of Mexico price indices and MEXTAX

Gains/losses across the income distribution under a revenue neutral uniform VAT [use compesating variation]
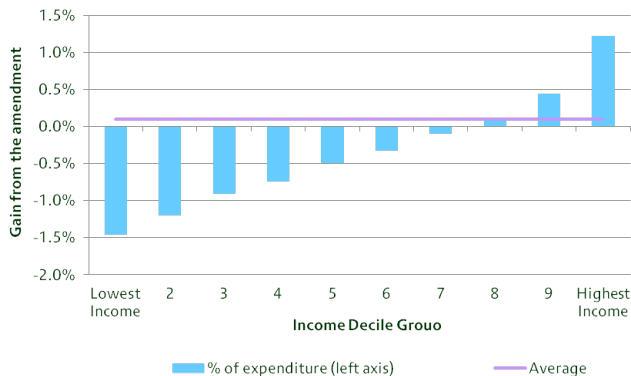
Informality/tax evasion and optimal VAT rate structure

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- Focus on commodities procured from the informal market on which tax is not paid

  - If substitutability between formal and informal varies across commodities (e.g. due to technology)
  - Argument to tax less heavily those commodities for which taxable expenditure is more elastic wrt to VAT rate

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    - Argument to tax less heavily those commodities for which taxable expenditure is more elastic wrt to VAT rate
- Relevant for Mexico - there is variation in share of 'informal' expenditure in monetary expenditure across commodities
    - E.g. higher in food (20%) and clothing (24%)

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Intuition: simple example with 3 goods

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- 10bn total expenditure: 3.75 in informal food, 3.75 in formal food and 2.5 telecoms
- Raise 1bn in VAT revenues, 10% of total expenditure or 16% of taxable expenditure (same 16% rate)
- Raise 1bn in VAT revenues, but now 10% on food formal and 20% on telecoms

    - 10% VAT on food formal increases tax base and now 5bn formal and 2.5 informal food
    - effective tax rate on taxable expenditure is smaller at 13%

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Summary of results...

- Distributional results

  - Amendments to 2010 reforms made reforms more progressive as share of income or expenditure; but not in absolute terms (cash terms).
  - Amendments weakly targeted to poorer households: simpler universal cash transfers or expanding existing instruments would have been more progressive than amendments

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- Efficiency results

  - Under standard assumptions: deviation from uniformity have a notable effect on spending patterns but very small effect on aggregate welfare (0.1% of total expenditure)
  - Not clear what would happen if assumption equal evasion across commodities is removed

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    - in the case of Mexico raise more revenue from VAT by broadening tax base and redistribute using better instruments

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  - Zero-rates to foods is often supported on distributional grounds

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  - However, applying lower rates to food may be supported by efficiency considerations if more prone to substitution between formal and informal provision relative to other sectors

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Next steps

- Model evasion and revisit efficiency implications of VAT rate structure

  - Estimate elasticity of substitution between the formal and informal goods to say how efficiency gains from revenue-neutral uniform reform may change given this
  - Two main empirical challenges - variation in formal/informal prices exogenous, definition of informal in ENIGH is a rough proxy

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