Simulating Tax Reform in MEXICO

PREM 2011
Knowledge and Learning Forum
April 25, 2011
1. Background

2. The 2010 fiscal reform in MEXICO

3. Challenges of micro-simulating distributional impacts in MEXICO

4. Main results

5. Further activities
In December 2009, the World Bank approved a US$ 1,504 million DPL to MEXICO.

The DPL aimed at supporting Economic Policies in Response to the Global Crisis.

The policy matrix had four policy areas: Fiscal policy, Financial access, Labor markets and Trade integration.

The fiscal policy area addressed the 2010 budget proposal from the Secretaría de Hacienda y Crédito Público (SHCP).

Particularly, the DPL objective was to support the implementation of fiscal policies during 2009 while adopting measures to enhance medium-term fiscal sustainability for 2010 and beyond.
After approval, the board requested a PSIA of the fiscal area, given the importance of the reform that the SHCP was proposing and its potentially important distributional consequences.

This request meant an opportunity for addressing current challenges in the study of distributional impact of fiscal policies in developing countries in general and in Mexico in particular.

In this regard, this PSIA report may serve several purposes:
- study the distributional impact of the Mexican fiscal reform;
- address some of the technical challenges for this type of studies in developing countries;
- promote institutional building in Mexico
- promote further analysis on the distributive impact of fiscal policies in developing countries
Given the multi-purpose of the task, several units engage in the project in order to address different parts of the project.
People involved in the project:

Samuel Freije-Rodríguez (senior economist, LCSPP)
José Antonio Cuesta (senior economist, PRMPR)
Joost Draaizma (senior country economist, LCSPE)

Héctor Villareal (Centro de Investigación Económica y Presupuestaria, Mexico City)

David Phillips (researcher, Institute for Fiscal Studies, London)
Laura Abramovsky (researcher, Institute for Fiscal Studies, London)
Orazio Attanasio (senior researcher, Institute for Fiscal Studies, London)
THE 2010 TAX REFORM IN MEXICO
In 2009 the Mexican government debt to gross domestic product (GDP) ratio stood at 35.6%, while the government deficit was 2.32% of GDP.

Although these figures are low relative to the position of most developed countries, they hide a substantial imbalance: government revenues from general taxation account for only 9.5% of GDP, while expenditure stands at 26.1% of GDP.

The difference between these figures is mainly covered by oil revenues, which therefore play an important role in guaranteeing the long-term solvency of the Mexican government.

However, given the volatility of oil prices and the fact that proven reserves of Mexican oil are expected to last less than 10 years, there is an urgent need to consolidate government finances, both in terms of expenditure and in terms of revenue.

In 2009, in response to the short-run reduction in fiscal revenues, the Mexican government approved a modest fiscal tightening starting in 2010 (from now on referred to as the 2010 tax reforms).

The reform approved by Mexican Congress differs in several aspects from the reform proposal submitted by the Executive.
### Item | Status-quo | 2010 tax reform *proposed* by the Executive power | 2010 tax reform *approved* by the Congress and implemented

1. **Income tax**: both personal and corporate (Impuesto sobre la Renta – ISR).
   - Top three marginal rates are 19.94%, 21.95% and 28%.
   - Top three marginal rates increase to 21.36%, 23.52% and 30% in 2010, 2011, 2012, with a phased reduction to 28% in 2014.
   - Individuals earning up to 4 minimum wages are not affected.
   - The annual upper threshold of income band 3 (lower threshold of income band 4) decreases from 88,793.04 $ (mex) to 79,964.16.

2. **VAT** (Impuesto al Valor Agregado - IVA)
   - General rate of 15%, and 10% in border areas
   - General rate of 16%, and 11% in border areas

3. **Excise duties** (Impuesto especial sobre la producción y servicios – IEPS)
   - 3.a. Tobacco 160% rate
     - Additional flat-rate of 0.04 for each cigarette or 0.75 grams of snuff; to be increased to 0.10 by 2014.
   - 3.b. Beer 25% rate
     - 28% rate
       - 26.5% rate (temporary)
   - 3.c. Lottery 20% rate
     - 30% rate
     - 30% rate
   - 3.d. Drinks with alcohol content greater than 20% by volume 50% rate
     - Additional minimum charge per litre of 3 pesos
     - 53% rate
   - 3.e. Telecommunications None
     - 4% rate
     - 3% rate, except for Internet connexions

4. **New expenditure tax** *(Contribucion para el Combate a la Pobreza)*
   - Introduction of a 2% expenditure tax on all goods and services (with the exception of the purchase of government licenses and donations to charity)
   - Rejected

5. **Tax on cash deposits**
   - 2% rate of balance
   - 3% rate of balance
   - 3% rate of balance
The objective of the study is to answer the following questions:

1. What is the distributive impact of the fiscal reform approved by the Mexican Government?

2. What is the distributive impact of the fiscal reform approved by the Mexican Congress in comparison with the original proposal submitted by the Executive?

Other objectives of the task are:

1. Address some methodological challenges in the micro-simulation of distributive impact of fiscal policies in developing countries

2. Promote and enhance the discussion of distributive aspects of fiscal policies within the Mexican society
THE MICRO-SIMULATION MODEL
In these micro-simulations of tax policy for MEXICO we address the following analytical challenges:

1. Datasets from surveys are severely constrained by misreporting of income sources while administrative data from tax collection agencies are not currently available.

2. Behavioural responses to taxes on
   1. Tax incidence (Pass-through)
   2. Labor supply (extensive and intensive margins)
   3. Consumption demand

Each of this topics is addressed through MEXTAX
The MEXTAX simulator is a flexible simulator, which has been designed by IFS researchers to be a public tool for analyses of future tax reforms. The MEXTAX simulator:

- Builds on previous efforts to assess the distributional impact of these reforms by CEFP (2009) and Absalón and Urzúa (2009) that have used the same data source.

- Uses the 2008 ENIGH as the source of micro-data.

- Is written in STATA code and is designed so that users do not need to edit the main simulation code but can instead make changes to an interface module (which defines input and output files and whether to run behavioral response modules) and system parameters modules (which define the basic structure and rates of the baseline and reform tax systems).
In this case, MEXTAX has been used to simulate the following tax policy changes:

<table>
<thead>
<tr>
<th>Initially proposed in 2009 (Proposed)</th>
<th>Approved and implemented in 2010 (Approved)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• introduction of 2% expenditure tax (the <strong>CCP</strong>) on all goods and services</td>
<td>• increase in <strong>VAT</strong> rate from 15% to 16%, abstracting from differences in border areas</td>
</tr>
<tr>
<td>• increase in the <strong>IEPS</strong> tax rate</td>
<td>• increase in the <strong>IEPS</strong> tax rate</td>
</tr>
<tr>
<td>– on alcohol drinks +20%, modelled as increase in rate from 50% to 53%</td>
<td>– on alcohol drinks +20%, modelled as increase in rate from 50% to 53%</td>
</tr>
<tr>
<td>– on beer from 25% to 28%</td>
<td>– on beer from 25% to 26.5%</td>
</tr>
<tr>
<td>– on tobacco, modelled as increase in rate from 160% to 164%</td>
<td>– on tobacco, modelled as increase in rate from 160% to 164%</td>
</tr>
<tr>
<td>– on lottery games from 20% to 30%</td>
<td>– on lottery games from 20% to 30%</td>
</tr>
<tr>
<td>– on telecommunications services from 0% to 4%</td>
<td>– on telecommunications services from 0% to 3%</td>
</tr>
<tr>
<td>• increase in the top three rates of income tax (ISR)</td>
<td>• increase in the top three rates of income tax (ISR)</td>
</tr>
<tr>
<td>– from 28% to 30%, 21.95% to 23.52% and 19.94% to 21.36%. Reduce 16% threshold</td>
<td>– from 28% to 30%, 21.95% to 23.52% and 19.94% to 21.36%</td>
</tr>
<tr>
<td>– Only the part of tax paid on employment income is considered</td>
<td>– Only the part of tax paid on employment income is considered</td>
</tr>
</tbody>
</table>
RESULTS
We classify the main results of this exercise as follows:

**Baseline**
- By deciles of income distribution vs deciles of expenditure distribution

**Misreported incomes / expenditures**
- 9 simulations based on different assumptions about under-reported and omitted incomes

**Behavioral response**
- 3 simulations based on different assumptions about pass-through, labor supply elasticities and system of demand equations
**BASELINE:** Relative incidence due to proposed reforms across the income distribution; by type of tax
BASELINE: Relative incidence due to proposed reforms across the income distribution; TOTAL
BASELINE: Relative incidence due to approved reforms across the income distribution; by type of tax
BASELINE: Relative incidence due to approved reforms across the income distribution; TOTAL
BASELINE: Comparison of Relative incidence between proposed and approved reforms across the income distribution; totals
BASELINE: Relative incidence due to **proposed** reforms across the expenditure distribution; by type of tax
BASELINE: Relative incidence due to proposed reforms across the expenditure distribution; total
BASELINE: Relative incidence due to approved reforms across the expenditure distribution; by type of tax
BASELINE: Relative incidence due to approved reforms across the expenditure distribution; by type of tax
BASELINE: Comparison of Relative incidence between proposed and approved reforms across the expenditure distribution; totals
## Estimated revenue changes from reforms

**Annual Revenue ($ millions Mex)**

<table>
<thead>
<tr>
<th>Reform</th>
<th>MEXTAX Estimate</th>
<th>CEFP Estimate (based on National Accounts)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISR</td>
<td>8,470</td>
<td>72,990</td>
</tr>
<tr>
<td>IVA</td>
<td>38,000</td>
<td>74,520</td>
</tr>
<tr>
<td>IEPS</td>
<td>4,210</td>
<td>18,930</td>
</tr>
<tr>
<td>Total</td>
<td>50,680</td>
<td>166,440</td>
</tr>
<tr>
<td><strong>Approved</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISR</td>
<td>5,990</td>
<td>62,780</td>
</tr>
<tr>
<td>IVA</td>
<td>10,800</td>
<td>33,550</td>
</tr>
<tr>
<td>IEPS</td>
<td>3,190</td>
<td>13,810</td>
</tr>
<tr>
<td>Total</td>
<td>19,980</td>
<td>110,140</td>
</tr>
</tbody>
</table>
Summary baseline results

- Approved reform: progressivity overall and for each of the tax changes (IEPS, IVA and ISR), when living standards are measured either by total expenditure or income.

- Proposed reform: progressivity overall only when living standards are measured by total expenditure.

- Amendments to the proposed reforms:
  - If using expenditure distribution: Households gain around 1% of their net expenditure across the whole expenditure distribution (virtually neutral).
  - If using income distribution: Overall poorer households gain more than richer households due to the rejection of the CPP (progressive). Note that welfare programs are not modelled (devolution of CPP expansion of anti-poverty programs).

- Revenues changes are under-estimated due to missing income and expenditure and the fact that we do not model taxation on non-labour income.
• Sensitivity analysis to misreported incomes....

• Sensitivity analysis to behavioral response...

(TO BE COMPLETED)
NEXT STEPS
• Dissemination seminar in Mexico City (May 19th, 2011) with audience from Academic, Non-governmental and governmental institutions

• Dissemination seminar in Washington, D.C. (June 10)

• Training seminar for staff of Secretaría de Hacienda y Crédito Público.

• Further suggested research:
  • Better data
  • Labor markets
Regarding better data...

We have tested the sensitivity of results to different assumptions about missing income and expenditure. The lesson we draw is the need for better micro-data:

• Improving coverage of high income households  
  • Sampling weights adjusted by comparing with administrative data  

• Link survey data to administrative data  
  • Publish tabular data (e.g. number of taxpayers by income band) as a minimum  

• Otherwise microsimulation models of only limited value  
  • Particularly for revenues  
  • Altimir factors not appealing for non-proportional taxes
Regarding Labor markets...

We highlight several areas of research in the field of labor supply that we think should be priorities and suggest ways in which this research may be pursued:

• Developing the taxable income elasticity approach
• Non-separabilities between leisure and consumption
• Given elasticity of supply, more inelastic demand means consumers bear more of the tax
• How is the part not borne by consumers distributed across workers and firm-owners?
THANKS !