Assessing the Impact of the 2006 Tax Reform on Poverty and Inequality in Uruguay

Research Proposal presented to PEP Network

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Outline

• Motivation
  ▪ Context
  ▪ The 2006 Tax Reform

• Core research objectives

• Methodology and data

• Main contributions

• Policy relevance
Motivation

- The context: Sharp rise in poverty incidence in Uruguay since the end of the last decade...

......and worsening of inequality.

......and worsening of inequality.
Motivation

• A Tax Reform was approved by the present government (that took place in 2005), and will be enforced by next month

• First structural tax reform after 30 years

• The Uruguayan government considers the redistribution effects of this tax reform are strategic for the redesign of the social protection system
Motivation

The **explicit goals** of the Tax Reform, as exposed by the Uruguayan government are:

- to promote greater **equity** and progression in the tax structure
- to promote greater **efficiency** of the tax scheme
- to **stimulate investment** and employment
Motivation

Why using tax structure as an instrument of redistribution in Uruguay?

• Regressive actual tax structure (Grau & Lagomarsino, 2002; Perazzo, Robino & Vigna, 2002))

• Rigidity of public expenditure: aprox. 20% of the 31 points of GDP are committed to Social Security (esp. pensions) (14) and interest payments (6).
Actual Tax Structure: High participation of indirect taxes
Motivation

Tax payments related to income

<table>
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<th>IMESI</th>
<th>IRP</th>
<th>TOTAL</th>
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Source: Grau and Lagomarsino, 2002
Main features of the 2006 Tax Reform

- Introduction of a **direct income tax** on households (*Impuesto a la Renta de las Personas Físicas, (IRPF)*, which affects differently capital and labour income (dual tax), elimination of existing direct tax on wages (*IRP*)

- Changes in the tax base and rates of the **value added tax** (*VAT*) (broader base, smaller rates)

- Changes in **direct taxes on enterprises** *Impuesto a la Renta de las Actividades Económicas (IRAE)*, with a broader base and changes in rates related to re-investment of profits

- Modifications on **labour factor tax**, through the uniformization of the employer contribution rate to the social security across economic activities (sectoral equity)
Core research objectives

• To assess the joint and separate effects on poverty and inequality of the introduction of IRPF, of changes in VAT, of changes in IRAE and of uniformization of labour factor tax across sectors, taking into account general equilibrium effects through time

• To develop a useful tool that allows evaluating possible future tax modifications or alternative designs
Methodology

Our proposed methodology has two main components:

• a recursive dynamic computable general equilibrium model

• a microsimulation model to evaluate the effects on poverty and inequality taking into account the full income distribution
Methodology


The MAMS model has three modules:


b) A dynamic recursive process where some parameters are updated (factor supply, population, productivity, etc.) on the basis of exogenous trends or past values of endogenous variables obtained as a result of the first module.

c) The MDG module. Not relevant for the research we propose, except for the evolution of labour force qualification over time (education module).
Methodology: Characteristics of the two first modules of the MAMS application for Uruguay

- Production: Value added and intermediate inputs are combined with fixed coefficients (Leontieff technology); production factors are combined through a constant elasticity of substitution function (CES).

- Domestic and imported goods are imperfect substitutes following an Armington specification. In turn, production is sold to the domestic market or exported following a constant elasticity of transformation function (CET).

- Small country assumption
Methodology: Characteristics of the two first modules of the MAMS application for Uruguay

- Household consumption is derived from a Linear Expenditure System (LES)

- Private capital is mobile (perfect mobility assumption) among sectors but public enterprises use specific capital

- Population growth is exogenous, and follows official projections

- Debt accumulation is considered in the model. Households buy government bonds. Government also borrows from the rest of the world
Methodology: Characteristics of the two first modules of the MAMS application (cont.)

• Labour force participation varies with school progression (people at working-age that continue studying, graduate or quit school) and retirement from the labour force. No modeling of leisure-work choices

• The labour market is segmented by workers qualification (years of schooling). Labour force is mobile across sectors.

• Both wages and unemployment are endogenous in each segment, but neither of them can fall below a given (minimum) level. The “minimum” wage level depends on the employment rate, per capita consumption (as a proxy for the standard of living) and average real factor returns.
Methodology: Changes to be introduced in this proposed research

Dissagregation an tax issues:

• Sectors of activity: more dissagregation of private sector, less dissagregation on MDG related sectors

• An account will be open for enterprises and households will need more detail (i.e. according to groups defined on the basis of income)

• Disaggregation of taxes. In particular, we will add more detail in direct taxation on enterprises, in employers’ contribution to the social security system and direct taxation to households. Issues on VAT modeling, IRPF effective tax rates to be obtanied by micro analysis (Amarante et al, 2007)
Methodology: Changes to be introduced in this proposed research

Changes in the **modeling of the labour market** (main channel through microsimulations), attempting to:

- Admit some degree of substitution between labour with different qualifications
- Incorporate informal sector, taking into account progress made by Terra et al (2006)
Microsimulations methodology


Follows a non parametric technique, assuming that occupational shifts may be proxied by a random selection procedure within a segmented labour market structure.

The global approach is a “Top-down” type: imposing the simulated labour market and income structure that results from the simulations with the CGE model, into micro data of household surveys, to obtain poverty and inequality indicators consistent with that simulated structure, assuming no additional feedback effects.

In each simulation, the incidence, depth and severity of poverty and the Gini coefficient of the distribution of both per capita income and labour income will be calculated.
Microsimulations model


The labour market structure is defined in terms of:

- unemployment
- employment structure
- skill composition of labour
- remuneration structure
- general level of remuneration

Segments defined according to sectors of activities and types of individuals defined according to skill
Microsimulations model

Proposed modifications:

Segments defined according to sectors of activity and informality. Sectors of activity will be classified according to the changes implied by the tax reform on taxes they face (eg: industry vs services)

Types of individuals will be defined according to skill (same as previous model)

To evaluate: updating poverty line with changes in prices resulting from CGE model
We plan to improve the base data for our model, using updated information. Particularly we will elaborate a new Social Accounting Matrix (SAM), using:

- The last National Accounts Supply and Use Tables published last year by the Uruguayan Central Bank with data for 1997 (previous refers to 1983) / the corresponding I-O Matrix (Terra, 2007)

- Updated National Accounts data and complementary data about fiscal revenues

- Data from the 2006 Income and Consumption Household Survey (previous refers to 1994-95)
Main contributions

There has been progress in analysing possible effects of this tax reform on inequality by existing research in Uruguay, but:

– Has focused on evaluation of separate features of the reform, using partial equilibrium analysis (Amarante, Arim & Salas, 2007; Perazzo & Rodríguez, 2006)

– No economy wide effects or dynamics effects considered

– The consumption structure of households used is the 1994-95, provided by the last income and consumption household survey. We plan to introduce the data of the 2006 survey and new SAM

No research focused on tax policy evaluation within a dynamic general equilibrium framework in Uruguay. Thus, this work could be the basis for further research
Main contributions

Explicit consideration of economy wide effects, in a dynamic framework, accounting for indirect effects and temporal dimension

The model could provide a useful tool for the analysis of further modifications of the tax system

An updated SAM will be elaborated, using the last available data
Policy relevance

The study will allow to draw conclusions about the achievement of one of the Tax Reform’s central goals, namely, a more equal distribution of income and poverty reduction.

The potential use of the tool to be developed exceeds the evaluation of the current tax reform, as it could be used:

- To assess potential future modifications in tax structure (some already foreseen, not evaluated)

- As the basis for analysing other alternative design attaining the same goals. (Eg: equity and poverty impact of increasing the level of minimum non-taxable income, or the elimination of the employers’ contributions to the social security system)
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