Income Taxation in Uruguay
A Dataset for the 21st Century Based on Household Surveys

1. Background and Justification

A crucial yet unresolved challenge in the empirical literature of macroeconomic determinants and implications of tax policy is the construction of a complete dataset on personal income tax rate. To help overcome this data limitation, in this proposal we explain how to construct a comprehensive dataset on personal income tax rate for Uruguay based on household surveys, for the period 2001 – 2016, with national coverage and the possibility to subdivide the population across various dimensions.

Previous studies for Uruguay employing tax data have faced serious limitations for the lack of detailed datasets on the topic. Is the case of Mailhos and Sosa (2000), that evaluate the procyclicality of fiscal policy in Uruguay by looking at the relation between output growth and a few selected tax rates, among which we find the personal income tax. However, due to the lack of data on the historical evolution of all income tax rates, the authors look at the relation only for three different moments and do not take into account all income tax brackets. Other researchers have faced similar difficulties trying to evaluate the cyclicality of fiscal policy with cross-country comparisons. Talvi and Végh (2005) use the inflation tax to overcome the limitations, and Végh and Vuletin (2015) use the personal income tax rate, but only for the highest tax bracket.

Another strand of literature has employed household surveys data to evaluate the impact of tax policy on inequality in Uruguay. Burdín, Esponda and Vigorito (2014) use household survey data from 2009 to 2011 to assess the impact on inequality of a tax reform implemented in 2007; Bucheli, Lustig, Rossi and Amábile (2014) use data from the household surveys of 2006 and 2009 to evaluate the distributive effects of direct and indirect taxation in Uruguay; and Amarante, Bucheli, Olivieri and Perazzo (2011) use the household survey of 2008 to evaluate the distributive impact of alternative tax system structures.

2. Objective

In this project we will create a dataset with personal income tax information for Uruguay with national coverage and annual data for the period 2001 – 2016, that will allow to disentangle tax data for different subpopulations. In particular, it will allow to identify personal income tax data for rural and urban areas, for each of the 19 departments in which Uruguay is subdivided, and for each of the 62 cities of the country. For the capital, Montevideo, where roughly 50% of the population lives, the dataset allows to recover personal income tax information for the 62

neighborhoods in which the city is subdivided by the *Instituto Nacional de Estadística* (INE).

The main input to construct the dataset are the household surveys conducted yearly by the INE. We will also employ detailed, administrative data provided by the *Dirección General Impositiva* (DGI), the office in charge of the administration of the tax system in Uruguay. This data is useful to evaluate potential underreporting rates that household surveys may suffer.

3. Data and Methodology

The data employed to build the dataset comes from the Continuous Household Survey of Uruguay (ECH, for its acronym in Spanish), which is carried out by the INE. The ECH gathers socioeconomic and income data with annual periodicity at the individual and household level. At the household level the ECH includes a weighting factor that expands the results to the population level.

Since 2006 the ECH covers both urban and rural areas. From 2001 to 2005 the ECH covers only urban areas, that is to say, areas with at least 5.000 inhabitants. For the whole period the ECH allows to disentangle tax information for the 19 departments and 62 cities of Uruguay. For the capital of the country, Montevideo, the dataset includes the necessary information to recover personal income tax information for the 62 neighborhoods in which the city is subdivided by the INE.

Since 2014 the ECH questionnaire contains a very detailed set of questions related to the personal income tax and to the labor tax, both for salaried workers and for self-employed workers (see Table 1). The level of detail is enough to compute the amount assigned to these taxes with very minor methodological assumptions. For earlier versions, the ECH questionnaire contains an excellent level of detail that allows to compute personal income and labor taxes for salaried workers. However, to identify the tax paid by self-employed workers we should make certain assumptions. One possibility is to extrapolate backward parameters obtained with the ECH for the period 2014 – 2016, assuming that individual preferences did not change. Another possibility is to check for consistency with administrative data.

3a. General considerations

The Uruguayan tax system was modified in 2007 by Law 18.083 (known as the Tax System Reform) with the aim of promoting greater efficiency and equity. Among other elements, it could be highlighted that it introduced substantial changes in the direct taxation on personal income (with increasing marginal tax rates) and uniformized the criteria of the employer contribution to social

security for the different sectors of activity.

The taxable income is different depending on whether are the companies or the individuals the recipients, and if they are residents in Uruguay or not. On the one hand, the firms are taxed by Corporate Income Tax (IRAE) on net taxable income at a rate of 25%. On the other hand, for the personal taxation of non-resident individuals the Income Tax on non-residents (IRNR) is applied (ranging from 3% to 12%, depending on the income), while income from residents are subject to the Personal Income Tax (IRPF).

Since the Tax System Reform, the income tax in Uruguay is applied under a dual system that includes both income from work and capital factors. First, for the work productive factor, the IRPF establishes progressive rates for remunerations (of employees and self-employed workers), ranging from 10% to 36% related to an income scale. It is payed annually and liquidated in December of every year. There are non-taxable workers (those with annual incomes below approximately 9,860 USD) and some deductions are allowed: contributions to the public health insurance, retirement contributions from some specific social security institutions, contributions to the University of college graduates (graduated in the public University) throughout the *Fondo de Solidaridad*, a deduction per child of around 1,614 USD annually and a maximum annual deduction of 4,470 USD from the amounts paid from the mortgage loans. For the payment of the IRPF taxpayers may choose to pay it individually or considering wife and husband as a unit, differentiating in the income scale used. Second, income from capital subject to the IRPF includes those from the equity increase and the returns to investment, at rates ranging from 3% and 12%.

The labor payroll tax has a mixed system. It is mainly collected by the Social Security Administration (BPS, for the its Spanish acronym). The personal contribution is of 15% for the employee and of 7.5% for the employer. Additionally, there is a contribution for the national health insurance of 3% that is done by the employee and 5% by the employer. Finally, a rate of 0.125% for the *Fondo de Reconversión Laboral* for both the dependent and non-dependent workers is applied. Self-employed professional workers have alternatives social security institutions for their retirement contributions (Caja de Profesionales Universitarios, Caja Notarial, etc.).

As it was mentioned above the main data source to build the dataset is the ECH from 2001 to 2016. The next two sections describe the information contained in the different ECHs and the main assumptions to reconstruct the nominal income for each worker, which it will be an input of calculate the base of income used for the IRPF and thus, an income aggregated at the household level.

3b. Tax data

For the whole period, after-tax labor income is gathered for each household member aged 14 years or more, which is the legal working age in Uruguay. With ECH data is possible to identify whether the respondent is a salaried worker or a self-employed. Information is separately recorded for the main occupation and the remaining ones. The survey also gathers information on the contributory status of the labour force in each occupation.
Salaried workers are also asked on whether they contribute to the social security system for their whole earnings. For them, it is possible to recover all the variables included in the Personal Income Tax and in the Labor Tax subsections with minor assumptions.

3b.i. Labor Tax (Payroll)

Table 1 shows the available information related to PIT and labor payroll taxes from the ECH for the different years. Information is detailed according if the worker is self-employed or salaried and if it is available for the main job or also the secondary job activity. For the whole period, it is possible to identified which workers contributes to the social security. For the estimation of the payroll tax this information must be complemented with the identification of the social security institution in which the worker pays the contributions since they have different rates. This data it is not available for all the years, then we could identify the worker based on some assumptions, identifying the activity sector and the job category (using the CIIU and CIUO classifications) and then categorizing workers in different groups associated to the different social security institutions (e.g., a self-employed worker that is working in the private sector and is a notary, then it should be considered as a contributor of the Caja Notarial, etc.).

3b.ii. Personal Income Tax (PIT)

Table 1 (part C) shows also some of data that could be used for the identification of the IRPF taxpayers. The IRPF for both public and private salaried workers is mandatory for all the formal workers and it could be plenty identified. There is information about the IRPF for self-employed workers, only from 2014 onwards. Therefore, for self-employed workers, there is no need to make significant assumptions for the period 2014 – 2016. For earlier versions of the ECH, it is not asked if the self-employed is subject to corporate income taxation (IRAE). To overcome this difficulty we can extrapolate backward parameters estimated with the ECH for the period 2014 – 2016. Another possibility is to use administrative data, provided by DGI, to identify the magnitude of the burden imposed by IRAE, and then, extrapolate this information into the ECH data.

Table 1 – Description of some of the main information included in the estimation of the PIT and Labor payroll taxes in the ECH

	Urban		
		National	
	2001 - 2005	2006 - 2013	2014 - 2016
A- identification of workers that contribute to social security			
Main job			
Self-employed	X	X	X
Salaried worker	X	X	X
Other (secondary) jobs			
Self-employed	X	X	X
Salaried worker	X	X	X
B- Identification of the social security institution			
Main job			
Self-employed	Imputed	Imputed	X
Salaried worker	X	X	X
Other (secondary) jobs			
Self-employed	Imputed	Imputed	X
Salaried worker	X	X	X
C- Identification distinguishing different income taxes			
Main job			
Self-employed			X
Salaried worker	X	X	X
Other (secondary) jobs			
Self-employed			X
Salaried worker	X	X	X

3c. Non-Tax data

The ECH is subdivided into various sections. Each section contains many questions about a specific topic, that is addressed in deep. The ECH includes a section about Occupation Status, Section F, and another about Incomes, Section G. With the information gathered by the questions contained in both sections, is possible to construct the non-tax variables required for the dataset.

It is worth noting that CINVE has a long tradition of research on the Uruguayan economy at the microeconomic level. As a result, CINVE already has the comparable and systematized datasets and the codes at STATA needed to construct, from the ECH data, the non-tax data required in this project.

3c.i. Income variables

All income variables can be computed with questions included in Section G of the ECH

3c.ii. Employment variables

All employment variables can be computed with questions included in Section F of the ECH.

3c.iii. Income Distribution and Inequality Variables

The ECH do not include a Consumer Price Index for any area. The remaining variables required in this section can be computed using procedures already standarized by CINVE.

3d. Complementary materials

Three documents will be handled jointly with the dataset.

One document will include a detailed description of both the personal income tax and the labor tax. This document will be focused on the tax reform implemented in 2007 and the following updates to the norm.

A second document will describe the changes that both taxes have suffered during the period 2001 – 2016. The document will give special attention to how changes in taxes are translated into modifications.

A third document will contain a thorough report of the methodological steps needed to go from the raw data to the final version of the dataset.

4. Additional Comments

In 2007 Uruguay approved an ambitious tax reform to implement significant changes on its tax policy. The major modification to the tax structure of the country came with the introduction of a personal income tax, IRPF (*Impuesto a la Renta de las Personas Físicas*), with a progressive component, and the introduction of a capital income tax with a flat rate.

The Uruguayan tax reform inspired other tax reforms in Latin American countries in the last 10 years. Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, Panamá and Perú approved tax reforms with a progressive personal income tax rate and a capital income tax.

The team of researchers is willing to work with the countries mentioned in the above paragraph,

given the similar structure of their tax systems with Uruguay's.

Finally, the team of researchers would like to highlight that the team has accesss to administrative data provided by the *Dirección General Impositiva* (DGI), the office in charge of the administration of the tax system in Uruguay. This data is useful to evaluate potential underreporting rates that the ECH may suffer.

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