TAX EXEMPTIONS IN CHILE'S INCOME TAX

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INTRODUCTION

DURING THE LAST TWO DECADES INCOME inequality has remained high in Chile, despite rapid economic growth and poverty reduction.[1] According to the UN 2009 Human Development Report, Chile ranks 21 worldwide in income inequality. On the expenditures side, the impact of government-targeted transfers on reducing poverty has been largely documented, even though an impact on reducing inequality has been expected too. One of the main questions in the public, and also academic, debate has been what role taxes can play in reducing inequality. Specifically, the question is about the role of income taxes and its degree of progressivity on reducing income inequality.

The evidence for the U.S. is that revenue-neutral tax reforms can make the income tax more progressive and reduce after-tax income inequality. For example, using data from the 1994 Consumer Expenditure Survey, Gilbert (1998) shows that a tax reform in which environmental taxes equal to 10 percent of federal receipts collected has a negligible impact on the income distribution when the funds are rebated to households through reductions in the payroll tax and personal income tax. More specifically, a refundable $150 tax credit for each exemption taken in the personal income tax and exempting from the OASDI payroll tax the first $5000 of the tax base for each worker increases the progressivity of the payroll tax measured by the Suits index (increased of 0.36 and 0.23 in the index, respectively). On the contrary, an across-the-board income tax cut of four percent reduces the progressivity of the income tax (reduction of 0.13 in the Suits index). Similarly, Altshuler et al. (2010) estimate, for the U.S., the distributional effects of a revenue-neutral tax reform that lowers the corporate tax rate (a regressive tax cut) while increasing individual taxation of capital gains and dividends (a progressive tax increase). The net effect of this reform is progressive.

Even though the empirical evidence supports the idea of progressive taxes reducing income inequality, it is important to mention that there is also some evidence of large responses to taxes of total reported income, at least for high-income families. Lindsey (1987) shows that the top rate cut in the Economic Recovery Act of 1981 (from 70 percent to 50 percent) is associated with a large increase in the share of income reported by the top one percent of the income distribution. Feenberg and Poterba (1993) also show that the steady increase in the share of adjusted gross income (AGI) received by the top 0.5 percent of households since 1970 is consistent with a behavioral response to the reductions in the tax rate on high-income families over the period. The time series analysis of Slemrod (1996) attempting to isolate non-tax causes of inequality shows consistent evidence with a tax-driven increase in the taxable income of the high-income families.

In the particular case of Chile, there are several characteristics of the income tax system that can explain the limited role it has played in reducing inequality (Engel et al.,1999). The income tax in Chile represents around a third of the total tax revenue and, even though it integrates income of all sources, it taxes corporate income and personal income differently. Corporate income pays only corporate taxes, usually at a lower tax rate than the corresponding marginal personal income rate of each shareholder, while it is not distributed.[2] Once profits are distributed, the corporate tax previously paid constitutes a credit against the personal income tax.[3] If all profits were distributed, then this should not generate any complaint of horizontal inequity. However, it has been documented that only around 30 percent of the annual profits are distributed each year (Jorrat, 2009). Furthermore, there are two special tax regimes under which only distributed income is taxed.[4] The goal of these tax regimes is to provide cash to finance investments in small firms.[5] However, it is used by small investment companies owned by couples or small groups of family members who shift their personal income to corporate income. The empirical evidence is that around 52 percent of retained profits under these tax regimes belong to these types of family firms, which belong mostly

to the top decile of income households (Jorrat, op.cit.).[6]

A second characteristic of the Chilean income tax system is the high exemption level, which is set way above the average wage income. This level, together with the skewed income distribution, implies that only a small number of taxpayers actually pay the personal income tax. In 2009, 82.68 percent of taxpayers had annual income below the exemption level. Therefore all personal income tax exemptions and credits only benefit the 18 percent richest taxpayers. Despite this fact, there are a number of tax incentives in the tax code that reduce income taxes paid by the few taxpayers facing a positive rate.

Tax expenses are projected to be 5.72 percent of GDP in 2010 and most of them (4.9 points) are generated through the income tax. The main source of tax expenses (4.03 percent) is precisely tax deferrals of the corporate income tax, which is almost the same amount that is collected on income taxes.

In this paper we describe and analyze the aggregated impact of four income tax exemptions on the degree of progressivity of the after-income tax in Chile using tax administrative data. The exemptions analyzed are tax deferrals of the corporate income tax, exemption of voluntary pension savings, exemption of interest payments on mortgages, and exemption to mutual funds. Using tax data provided by the Chilean IRS, aggregated by thousandths of pretax income, we show how these tax exemptions have little effect on the progressivity of the personal income tax.

The remainder of the paper is organized as follows. Section two describes the Chilean income tax system, with emphasis on the income tax exemptions we analyze. Section three describes the data set used and presents the main descriptive statistics for the analysis. In section four we analyze the distributive impact of the income tax system. Finally, section five summarizes the main findings.

THE CHILEAN TAX SYSTEM

Tax revenue constitutes the main funding source for the State, providing on average around 70 percent of all government income in Chile. In 2009, the net tax revenue in Chile reached 14.6 percent of the GDP,[7] of which 52.4 percent is collected from value added tax, 9.7 percent from specific commodity taxes (fuel, alcohol, tobacco) and 28.9 percent from the income tax.

The corporate income tax rate is 17 percent, but this rate does not directly determine the tax burden because corporate and income taxes are integrated. Generally, corporate income taxes over accrued profits are paid monthly, but once profits are distributed they constitute personal income that pays taxes according to the personal income tax bracket.[8] Corporate income taxes paid constitute a credit against the personal income tax of the owners in proportion to their shares. Retained profits pay the 17 percent tax rate, and the payment of the personal income tax is postponed until the profits are withdrawn. Tax expenses for 2010 are estimated at 5.72 percent of GDP, and the postponing of tax described constitutes its main source, estimated at 2.01 percent of GDP in the same year (DIPRES, 2009).

Personal income tax has seven brackets plus an exemption level with positive marginal tax rates ranging from five percent to 40 percent. The income exemption level is such that 82.68 percent of taxpayers are exempted;[9] furthermore 11.36 percent are in the first income bracket paying the marginal tax rate of five percent. This implies that only 5.95 percent of taxpayers face a marginal tax rate of 10 percent or higher and only 0.22 percent pay the top marginal tax rate of 40 percent. Graph 1 shows the marginal tax rates and the number of taxpayers in each tax bracket. Not surprisingly, empirical simulations have found that the Chilean income tax system does not have redistributive power and, overall, the tax system is slightly regressive (Engel, et al., 1999).[10] Even though the government can affect the income distribution through taxes and government expenditures, Chile has chosen, in practice, to redistribute income mostly with the latter, aiming to collect tax revenue in the most efficient way.[11]

As in many countries, the Chilean tax system has tax credits and exemptions with multiple objectives. As previously mentioned, the most expensive exemption is the tax deferral of corporate income (2.01 percent of GDP). This is followed in magnitude by exemptions to mandatory pension savings (0.94 percent of GDP). Then, all the following items in the ranking of tax expenses have magnitudes below 0.35 percent of GDP. We focus our analysis on the three tax exemptions on the personal income tax aimed to increase savings: the first with the objective of increasing voluntary retirement savings, the second with the purpose of stimulating savings to invest in hous-

ing, and the third with the purpose of investing in mutual funds to deepen the financial market. It is important to keep in mind that the high-income tax exemption level implies that, in practice, these preferential tax treatments have distributive effects only on the higher 18 percent of the income distribution.

Voluntary Pension Savings

Chile has a mandatory defined contribution pension system, with a mandated contribution rate of 10 percent up to an income cap.[12] Contributors can choose the pension fund manager and, within it, the risk of the funds where they want to have their pension investment among five different type of funds. This mandated contribution is tax-exempted.

The low replacement rate of pensioners with this system (39 percent for females and 58 percent for male, Bernstein et al, 2006) encouraged the creation of a tax incentive for additional contributions to retirement accounts (Ahorro Previsional Voluntario, APV) in 2002. Individuals using this benefit choose between two alternative options of tax benefits. In the first option, savings are tax-exempted (with a cap) and only enter the personal income tax base once they are withdrawn. If the withdraw happens after the retirement age, then the tax rate is the regular statutory personal income tax, but if savings are withdrawn before this age there is an additional tax penalty of three to seven percent. In the second option, these additional voluntary pension savings are not tax-exempted, but when funds are withdrawn the tax base is only what corresponds to the savings' returns and individuals can be eligible to a matching contribution of 15 percent (with a cap) from the government. The two options aim at two different types of taxpayers: individuals who pay and who do not pay income taxes when making the contributions respectively. The later modality was created in 2008.

Given that marginal taxes increase with income, the tax benefit of APV also increases with income up to the cap: the tax benefit is the marginal tax rate by the APV. Therefore, if we compare individuals with different income levels, but same voluntary pension savings, the tax benefit as a fraction of their income is the marginal tax rate, as long as their savings are below the cap and they do not switch to lower brackets. For example, if savings are Ch$200,000 (about US$450), then the tax savings are Ch$10,000 for an individual in the five percent bracket and Ch$80,000 for an individual in the 40 percent MTR bracket. By definition, an individual who does not pay income taxes (about 82 percent of the Chilean workforce) does not benefit by the tax exemption.

In 2008 there were 1,584,218 APV accounts with an average balance of Ch$286,223 (US$500 approx.). Tax expenses on APV are projected to be 4.1 percent of personal income tax revenue.

Mortgages

There are two tax exemptions in the Chilean tax law aimed to increase housing investment. The first (Article 55 bis) establishes that interest paid on mortgages can be deducted from the personal income tax base (with a cap of approximately US$7,000). The exemption level depends on personal income: 1) If the annual income is less than approximately US$81,000, the exemption is for the full interest with the US$7,000 cap; 2) If the annual income is between US$81,000 and US$135,000, the exemption is the result of interest*[224,502-1.667*Income]; 3) If annual income is higher than US$135,000, there is no tax exemption.

The second tax exemption (mortgages for new housing units according to DFL2/59 and law 9.622/99)[13] is for mortgages of medium size houses (DFL2)[14] bought between 1999 and 2001. The monthly cap of the exemption varies from US$225 to US$750 depending on the year of purchase.

Mutual Funds

This exemption deducts from the personal income tax base 20 percent of the investment in mutual funds acquired before 1993.

DATA

We use tax data provided by the Servicio de Impuestos Internos (SII) specially constructed for this project. However, the SII does not provide individual level data, but only aggregated level.[15] The SII calculated thousandths of individual pretax income and computed the total exemptions associated with voluntary pension savings and mortgages for each thousandth of pretax income.

Table 1 shows descriptive statistics of the administrative tax data. There are 7,422-7,423 taxpayers in each income thousandth. We have aggregated data for each of these 1,000 income bins. The average

Table 1
Descriptive Statistics Tax Data

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Number of Taxpayers	1,000	7,422	0	7,422	7,423
Withdrawals (art. 14 and 14 bis)	1,000	3,790,000,000	53,300,000,000	0	1,670,000,000,000
Dividends (art. 14 and 14 bis)	1,000	268,000,000	2,460,000,000	0	70,600,000,000
Rejected expenses	1,000	970,000,000	13,600,000,000	0	421,000,000,000
Presumpted Income	1,000	296,000,000	675,000,000	0	13,400,000,000
Income from simplified accounting	1,000	247,000,000	883,000,000	0	18,100,000,000
Honoraries	1,000	2,880,000,000	6,750,000,000	0	125,000,000,000
Capital Income	1,000	157,000,000	785,000,000	0	19,600,000,000
Exempted Income	1,000	36,600,000	344,000,000	0	10,300,000,000
Income of art. 42 (wage, pension, etc)	1,000	8,500,000,000	27,100,000,000	0	440,000,000,000
Corporate Income Increase	1,000	692,000,000	10,400,000,000	0	325,000,000,000
Corporate and Property Tax Paid	1,000	962,000,000	13,100,000,000	0	405,000,000,000
Capital Losses	1,000	65,000,000	254,000,000	0	5,750,000,000
Partner Pension Contribution	1,000	2,774,558	16,300,000	0	286,000,000
Mortgage	1,000	429,000,000	1,020,000,000	0	6,150,000,000
Muntual Funds and PVS	1,000	38,300,000	186,000,000	0	2,230,000,000
Global Complementary Tax Base	1,000	14,500,000,000	46,700,000,000	0	826,000,000,000
Mutual Funds	1,000	255,079	2,023,752	0	52,600,000
PVS	1,000	37,900,000	184,000,000	0	2,220,000,000
57 bis credit	1,000	5,185,888	38,900,000	0	957,000,000
Global Complementary Tax	1,000	-59,100,000	3,070,000,000	-3,230,000,000	89,500,000,000
Computed Tax Base	1,000	16,300,000,000	93,500,000,000	0	2,700,000,000,000
Computed Tax Base without PVS Exemption	1,000	16,400,000,000	93,600,000,000	0	2,700,000,000,000
Computed Tax Base without Mortgage Exemption	1,000	16,800,000,000	93,900,000,000	0	2,700,000,000,000
Computed Tax Base without PVS, Mortgage and Mutual Funds Exemption	1,000	16,800,000,000	94,000,000,000	0	2,700,000,000,000

Table 1 (continued)
Descriptive Statistics Tax Data

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Computed Tax Revenue	1,000	223,685	4,271,979	0	134,000,000
Computed Tax Revenue without PVS Exemption	1,000	224,642	4,276,319	0	134,000,000
Computed Tax Revenue without Mortgage Exemption	1,000	228,280	4,276,243	0	134,000,000
Computed Tax Revenue without PVS, Mortgage and Mutual Funds Exemption	1,000	229,284	4,280,735	0	134,000,000
Average Computed Personal Tax Rate	999	0	0	0	0
Average Computed Tax Rate without PVS Exemption	999	0	0	0	0
Average Computed Tax Rate without Mortgage Exemption	999	0	0	0	0
Average Computed Tax Rate without PVS, Mortgage and Mutual Funds Exemption	999	0	0	0	0
PVS Exemption	999	0	0	0	1
Mortgage Exemption	999	0	0	0	5
PVS + Mortgage + Mutual Funds Exemption	999	0	0	0	5

Note: Values in Chilean pesos.
Source: Author's calculation based on tax return information.

computed tax rate is 0.37 percent, with a maximum of 36.77 percent. The low average is explained because a large fraction of taxpayers (income bins) do not pay personal income taxes. The average increases to 0.378 percent, 0.39 percent, and 0.392 percent when the voluntary pension saving, mortgage, and mutual fund exemptions are eliminated.

EMPIRICAL RESULTS

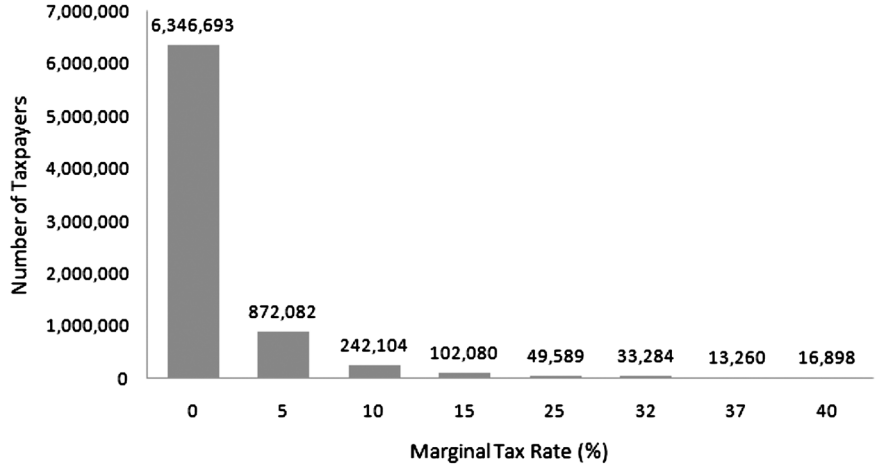
We analyzed the distributional effects of voluntary pension savings and mortgage exemptions using the tax data separated by thousandths of individual income provided by the Chilean IRS. In both cases, as Metcalf (1999) and Altshuler et al. (2010) did, we assume that individual taxes on wages are borne by the individual and corporate taxes are borne by the owners of capital.[16] It is important to mention that this assumption about corporate tax incidence affects the degree of progressivity of the corporate tax, not whether a corporate tax is progressive or regressive (Harris, 2009).

The potential distributive effect of these exemptions depends on the income tax schedule. Graph 1 shows the small fraction of the distribution that pays income tax in Chile: if we divide the pretax personal income distribution in 1,000 equally sized bins, only bins 924 and above have a positive average tax rate; this is 92.4 percent of individuals do not pay personal income taxes. The average tax rate in the population is 0.38 percent, which increases to 4.9 percent when the sample is restricted to those that pay income taxes. The maximum average tax rate is 36.8 percent.

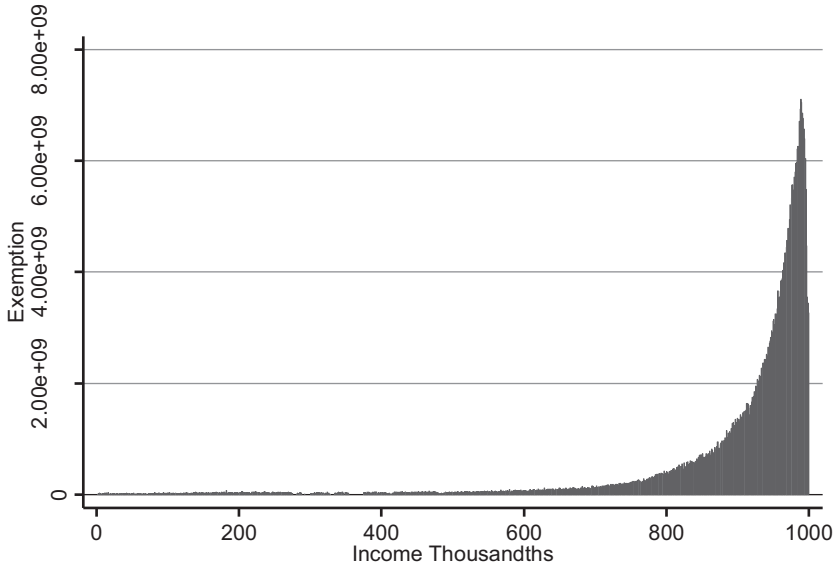
Then, graphs 2 and 3 show the aggregated effects of the voluntary pension savings, mortgage, and mutual funds exemptions. Graph 2 shows that the effect is close to zero in the first 800 bins, and it becomes positive at the income level where the average tax rate is positive. Graph 3 shows the aggregate exemption as a fraction of the taxable income. Graph 2 shows, as expected, that the use of these tax exemptions increases with income. Consistently, the distribution shows that all these tax exemptions are mostly used by individuals who pay personal income taxes. Additionally, it is interesting to notice that there is a reduction on the average exemption in the top income levels which might be the result of the cap becoming an active constraint for high-income taxpayers.

Therefore, the use of tax exemptions by income level implies that their elimination could potentially increase the progressivity of the income tax, but their magnitude (as fractions of taxable income) would limit its distributional effect. In fact, table 2 shows the Suits index of the income tax with and without this exemption. Considering all these exemptions simultaneously, the Suits changes from 0.630 to 0.627 when they are all eliminated. A change that is statistically significant, but economically irrelevant in terms of increasing the progressivity of the income tax.

Graph 1: **Number of Taxpayers by Tax Bracket**



Graph 2: **Mortgage, VPS, and Mutual Fund Exemption**



Graph 3: **Mortgage, VPS, and Mutual Fund Exemption as Income Share**

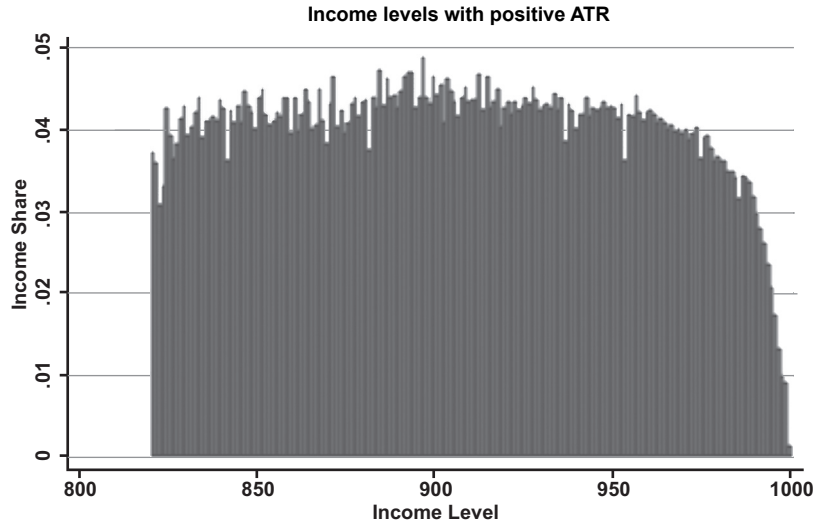


Table 2
Suit Index

	Suits Index	*Difference between Suits*	*Confidence Interval*	
Base Case	0.6306728			
Without Volunary Pension Saving Exemption	0.6298682	-0.0008045	-0.00080454	-0.00080448
Without Mortgage Exemption	0.6280711	-0.0026017	-0.00260191	-0.00259990
Without VPS, Mortgage and Mutual Fund Exemption	0.6272593	-0.0034135	-0.00341374	-0.00341173

Source: Author's calculation based on tax return information

CONCLUSION

In this paper we use novel tax administrative data, even though not disaggregated at the individual level, to study the distributional impact of tax exemptions to the personal income tax. We document that the income tax schedule in Chile is such that 92 percent of taxpayers do not pay personal income tax. In this context, we find that the more important exemptions (voluntary pension savings and mortgages) have no effect on the progressivity of the tax burden. Although wealthier taxpayers are the main users of these tax exemptions, and the amounts used increases with wealth. The small magnitude of the exemptions relative to their income, and the few taxpayers that use them, implies that their elimination does not affect tax progressivity.

These results provide an important framework to understand the Chilean Tax System. First, the fact that only eight percent of taxpayers pay a positive income tax automatically implies that any tax exemption to personal income taxes would benefit wealthier individuals. This should shed light on the convenience of establishing incentives on the tax code, given that only a small fraction of individuals can rationally respond to them and that those who are potentially favored are the richer taxpayers. Secondly, given the small fraction of taxpayers, only a tax exemption of large magnitude will have an effect on tax progressivity. Third, the distributional effect of the income tax does not imply that the personal income tax cannot redistribute, but that, in the Chilean context, redistribution can only occur if changes in taxes are substantial.

There are a number of extensions of this paper where viability depends on the provision of tax data from the Chilean tax authorities. We have focused the analysis on the tax exemptions that were in the public discussion as potential sources to finance the reconstruction after the earthquake of 2010. There are a number of tax credits whose distributive impact could be analyzed too, at an aggregated and individual level. However, the framework of the Chilean income tax system, particularly the small fraction of taxpayers with positive average tax rate, will also limit the impact of these tax credits.

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Notes

[1] Between 1986 and 2005, per capita GDP in Chile grew by 203 percent. Poverty rates fell from approximately 39.4 percent in 1987 to 15.1 percent in 2009; indigence rates also fell dramatically during this period, from approximately 14.2 percent to 3.7 percent, but the Gini coefficient was 0.547 in 1987 and 0.546 in 2003.

[2] The corporate tax rate is 17 percent flat, while there are eight personal income tax brackets with rates ranging from 0 percent to 40 percent. Therefore, the corporate rate might be higher or lower than the personal income rate depending on the bracket. However, most shareholders are in tax brackets with rates above 17 percent.

[3] Contrary to Chile, in the U.S the income of equity owners is first taxed under the corporate profits tax and then distributions are taxed again as dividend income to shareholders. A fraction of retained earnings is also taxed again when shareholders realize capital gains arising from those retained profits.

[4] Articles 14bis and 14Ter of the Income Tax Law.

[5] Firms with annual sales lower than Ch$127 million (equivalent to around US$2.5 million in November 2010) or equity lower than Ch$7.5 million (equivalent to around US$15,600 in November 2010) are allowed to use these tax regimes.

[6] 77.9 percent of all retained profits belong to the top income decile.

[7] In 2008 it was 18.5 percent and the average for the period 2004-2008 was 17.4 percent, which implies that tax revenues were particularly low in 2009.

[8] For small firms there is no withholding of corporate taxes and income taxes are paid only when profits are distributed.

[9] The exemption level is above the average income.

[10] The lack of effect of the current Chilean income tax to the income distribution has been interpreted as a constraint on the potential effect on income taxes (Engel et al., 1999). However, as shown by Cantallopts et al. (2007), radical reforms on the Chilean tax system can have substantive effect on the income distribution.

[11] The 2009 Socioeconomic Survey (CASEN, 2009) shows that the Gini coefficient of per capita autonomous income is 0.55, but after government cash transfers it decreases to 0.53. The 2006 data shows that the 20/20 income ratio is 13.1, 11.2 and 6.9 for autonomous, monetary and total income respectively, where total income includes imputed values for government services.

[12] Pension Fund Administrators apply fees over this mandatory contribution. For a description of the system see Superintendencia de Pensiones (2003).

[13] See http://www.sii.cl/renta/suplemento/2008/pag_n066.pdf.

[14] DFL housing units are defined as units smaller than 140 square meters and not older than 10 years.

[15] The SII has claimed, for many years, that the Chilean law prevents them from releasing individual tax data, even in anonymous form.

[16] Similarly, Althsuler et al. (2010) assumed that the higher tax rates on capital gains and dividends are borne directly by those taxpayers who report these types of income on their tax returns.

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