POSTGRADO
ECONOMÍA Y NEGOCIOS
UNIVERSIDAD DE CHILE

Business Creation, Income Sheltering and Individual Tax Planning: Evidence from Special Tax Regimes for Small Businesses in Chile

Tesis para optar al grado de Magíster en Economía

ALUMNO: Damián Vergara Domínguez

PROFESOR GUÍA: Eduardo Engel

COMISIÓN: Claudio Agostini y Andrea Repetto

Santiago de Chile, Septiembre 2016

BUSINESS CREATION, INCOME SHELTERING AND INDIVIDUAL TAX PLANNING: EVIDENCE FROM SPECIAL TAX REGIMES FOR SMALL BUSINESSES IN CHILE*

AUTHOR: Damián Vergara Domínguez†

September 5, 2016

Abstract

In 2013, the Chilean tax system was characterized by the presence of several special tax regimes for small businesses (STRs). Given system's complexity, the particularities of the different STRs raised concerns about their potential usage as tax avoidance channels for high income taxpayers. This paper addresses that issue by asking if those regimes were associated with a strategic tax planning decision at the individual level. Descriptive statistics account for three stylized facts about STRs usage who suggest the existence of a strategic behavior: STRs were massively used, were mainly used by high income taxpayers, and usage made by high income taxpayers appeared to be part of a businesses portfolio. After rationalizing the stylized facts with a simple analytic model, an econometric analysis is carried out in order to provide formal evidence about strategic behaviors regarding

*I would like to thank my advisor, Eduardo Engel, and the members of my thesis committee, Claudio Agostini and Andrea Repetto, for their immense support and guidance given along the whole process. This paper also benefited from helpful comments from my classmates. I am grateful to the Ministry of Finance of Chile, specially Paula Benavides, Alejandro Micco and Francisca Pacheco, and to the Internal Revenue Service of Chile, specially Conrado Canales, Pamela Castellón, Boris González, Francisco Henríquez, Sandra Luckheide, Eduardo Pantoja and Carlos Recabarren, for helping me to get access to valuable data. I acknowledge financial support from CONICYT through the fellowship for national master programs and the project "Income Inequality and the Tax System in Chile" (DPI20140108). The data provided by the Division of Studies of the Internal Revenue Service of Chile consist in selfreported forms and therefore, represent only an approximation of real economic data. The Internal Revenue Service of Chile does not assume any responsibility for the accuracy of the data, neither warranties its validity or completeness. All mistakes are my own.

†Universidad de Chile. Email: damian.vergara.d@gmail.com

STRs usage. Results confirm model's predictions: after a reform that made a special STR more restrictive, incomes from businesses subscribed to that STR reported at the individual level decreased, and income from alternative sources increased, resulting in higher taxable incomes given the more restrictive scenario for avoiding taxes. According to the model presented, evidence support the existence of strategic behaviors regarding tax planning at the individual level.

Keywords: Special Tax Regimes, Small Businesses, Individual Tax Planning, Tax Avoidance, Income Sheltering, Behavioral Responses to Tax Policy, Horizontal Inequity
JEL Code: D31, H24, H25, H26, K34

Contents

List of Figures

List of Tables

1 Introduction

In 2013, the Chilean tax system was characterized by the presence of several special tax regimes for small businesses (henceforth STRs), whose original objective was to simplify the computation of small firms' tax liabilities. Following Jorratt (2012), the existence of STRs had two justifications. First, as the Chilean system was highly complex, STRs induced progressiveness by helping small businesses to reduce their compliance costs. Second, as taxes paid by small businesses represented a small proportion of total tax revenue, STRs helped the tax authority by reducing the monitoring costs over these tax units.

Nevertheless, given system's complexity, the particularities of the different STRs raised concerns about their potential usage as tax avoidance channels for high income taxpayers. Concretely speaking, taxpayers could create small businesses (or split large businesses into several small firms) to shelter personal income and take advantage of the different tax benefits the STRs offered. This potential usage contradicted the original intentions of the STRs. In that line, this paper analyzes whether or not these STRs worked as tax avoidance channels for high income taxpayers by asking if those regimes were associated with a strategic tax planning decision at the individual level.[1]

This work uses a novel dataset provided by the Internal Revenue System of Chile that allows to characterize the relationship between individual taxpayers and STRs. Three stylized facts arise from a simple descriptive analysis (see Section 3). First, STRs were massively used. Between 2008 and 2013, they represented about one fourth of total businesses. Second, STRs were mainly used by high income taxpayers. While 30.71% of taxpayers belonging to the richer 0.1% had proprietorship over a business subscribed to a STR in 2013, only 2.60% shared that condition in the bottom 90%. More important, 44.38% of total profits generated by businesses subscribed to STRs in 2013 were attributed to taxpayers belonging to the richer 1%. Only 19.55% flowed

[1] This issue is relevant, as tax avoidance has implications for horizontal inequity, vertical inequity and efficiency costs (Slemrod and Bakija, 2004). Moreover, as social preferences about those normative issues matter for the design of optimal tax systems, this in turn is important for tax policy design (Mirrlees, 1971; Diamond, 1998; Saez, 2001; Saez and Stantcheva, 2016).

to the bottom 90%. Third, STRs usage made by high income taxpayers appeared to be part of a businesses' portfolio. In fact, the higher the income, the higher the probability of having simultaneous proprietorship over several businesses (specially when being related with businesses subscribed to STRs), of owning several businesses subscribed to the same STR, and of simultaneously having proprietorship over businesses subscribed to different STRs. These stylized facts constitute suggestive evidence of strategic behaviors regarding high income taxpayers and STRs.

After rationalizing the stylized facts using a simple analytic model (see Section 4), an econometric analysis is carried out in order to provide more formal evidence about strategic behaviors regarding STRs usage (see Section 5). The identification strategy exploits a reform promulgated in 2012 that made a special STR more restrictive (i.e. it became more difficult to subscribe businesses to that regime).[2] According to the model, if it is true that the STR was strategically used by high income taxpayers for tax planning purposes, then the reform should have induced a strategic reaction. Concretely, incomes reported at the individual level from businesses subscribed to that STR should have decreased, and incomes reported through alternative income sources should have increased, resulting in higher taxable incomes given the more restrictive scenario for avoiding taxes.

Results confirm the model's predictions. Using information from the most important form in Chile to report annual incomes at the individual level (Form 22), differences-in-differences estimations show that taxable incomes of the richer taxpayers increased between 4% and 7% after the reform. Substitution patterns previously described lied behind the reaction: while reported incomes from businesses taxed by the affected STR decreased, reported incomes from other kind of businesses (taxed by the general regime or by another STR) and incomes from independent work increased. Results are robust to several checks. Additionally, some evidence of heterogeneous responses across economic sectors and income levels is displayed. According to the model, results are consistent with the existence of strategic behaviors regarding STRs usage for tax planning purposes at the individual level.

[2] As it is shown along the paper, that STR was the most important in terms of its scope.

This paper contributes to the literature in four dimensions. First, to my knowledge, this is the first paper that studies the process of businesses' creation and regime subscription as part of a strategic decision of tax planning at the individual level. Moreover, the empirical strategy is novel as variation is not taken from the marginal income tax rate, as is usually done in this literature, but from the subscription requisites of STRs. Therefore, proposing a framework to understand the link between small businesses, STRs and strategic tax planning decisions at the individual level, can be understood as a contribution by itself.

Second, there exists scarce empirical evidence in countries different from the United States about tax evasion and tax avoidance related topics (Slemrod, 2007). The scarcity of evidence is mainly explained by the empirical difficulties associated: in general, rich data is not available and, if available, tax planning behaviors are hardly identifiable as they are usually unobservable. This is particularly true for developing economies. For Chile, there are few works that provide general evasion estimates (Jorratt and Serra, 2000; Jorratt, 2007; Jorratt, 2012; SII, 2012) and Value Added Tax (VAT) evasion estimates (Serra, 1991; Engel, Galetovic, and Raddatz, 1998; Engel, Galetovic, and Raddatz, 2001; Pomeranz, Marshall, and Castellón, 2014; Pomeranz, 2015). Regarding businesses taxation, with a special consideration on STRs, the only existing evidence for Chile is provided by Agostini (2012), whose results are discussed in Section 2 after describing the Chilean system in detail.

Third, albeit this work's estimates are not precisely elasticities, results are closely related with the taxable income elasticity literature.[3] The literature has estimated a wide range of elasticities, concluding that individuals effectively react to tax policy changes.[4] Nevertheless, as the taxable income elasticity comprises all possible reactions (Feldstein, 1999), different behavioral mechanisms may lie behind the estimated responses. As the estimated elasticity is usually higher for high income taxpayers and lower for broader definitions of income (Gruber and Saez, 2002;

[3]For a survey, see Saez, Slemrod, and Giertz (2012).

[4]Empirical works have found that the elasticity is different from zero, but possibly lower than one (see Lindsey, 1987; Feldstein, 1995; Auten and Carroll, 1999; Goolsbee, 2000; Gruber and Saez, 2002; Saez, 2003; and Saez, 2004).

Saez, 2004), and it depends on the tax environment in which agents operate, being lower for larger tax bases (Slemrod and Kopczuk, 2002; Kopczuk, 2005), it has been suggested that income sheltering behaviors are important for understanding reactions to tax policy changes. In that sense, this paper contributes to this literature by showing novel evidence regarding income sheltering behaviors induced by tax policy changes. Specifically, it sheds light about an specific income sheltering mechanism: the use of STRs.

Finally, recent works have found that (mainly small) businesses also show behavioral responses to tax policy.[5] Different behavioral reactions have been suggested. By studying the European tonnage taxes, Elschner (2013) shows that STRs affect businesses' organizational form choice. On the other hand, Slemrod, Collins, Hoopes, Reck, and Sebastiani (2015) show that asking for additional information reports to US small firms (concretely, about payment card sales) made taxpayers more likely to declare businesses' income and incremented small businesses' tax compliance. Strategic behaviors have also been found regarding different eligibility thresholds. While Almunia and Lopez-Rodriguez (2015) shows that firms may act strategically to avoid stricter tax enforcements, Kanbur and Keen (2014) argues that thresholds may induce responses associated with non-compliance behaviors. Moreover, by analyzing the VAT threshold in Japan, Onji (2009) shows that large firms had incentives to *masquerade* themselves into several small businesses in order to be eligible to tax benefits. As small businesses usually have few owners, firms' behavior may be shaped by owners' individual strategic decisions. In that sense, this paper contributes to this literature by proposing a framework that links businesses' behavior to strategic decisions regarding tax planning at the individual level.

The paper is structured as follows. Section 2 describes the main features of the Chilean tax system that were valid in 2013. The emphasis is on STRs. Section 3 presents novel descriptive statistics that support the stylized facts previously mentioned. Section 4 proposes a simple model which accounts for the stylized facts and derives testable equations for the empirical application,

[5] As was said before, this depends on the global complexity of the tax system. In that sense, Engelschalk (2005) argues that in transition economies, tax policy design problems have led STRs to lack transparency, thus creating room for tax evasion and tax avoidance behaviors through small businesses usage.

which is carried out in Section 5. Finally, Section 6 concludes.

2 Overview of the Chilean Tax System

This section describes the main features of the Chilean tax system that were valid in 2013. System's description is followed by a brief discussion about the potential strategic usage associated with the tax scheme for businesses, with a special emphasis on STRs.

2.1 System's Description

Regarding taxation of entrepreneurial profits, Chilean system was characterized by four main aspects. First, the system was fully integrated. This means that taxes paid by businesses worked as credit for the payment of the income tax at the individual level. Second, retained profits faced a preferential tax treatment. In concrete, undistributed earnings paid only the corporate tax (20%) and were added to the individual tax base of the proprietors only when profits were withdrawn from the firm, regardless the moment of their accrual. Given the fully integration of the system, profits withdrawn only paid the differential tax rate between the corporate tax and the corresponding marginal income tax rate. Third, the ownership structure allowed businesses to be registered as owners of other businesses. Therefore, rents could flow several times between enterprises before arriving to a natural person.

Fourth, there existed several STRs who sought to simplify the computation of small businesses' tax liabilities (i.e. accounting profits). Given the complexity of the system, the original intention of the STRs was to reduce the compliance costs for small businesses, while reducing the monitoring costs for the tax authority, given their low importance regarding total tax revenue (Jorratt, 2012). The four most important, in terms of their scope, were the *14 bis* regime, the *14 ter* regime, the *14 quáter* regime and the *Renta Presunta* regime.[6]

[6]In addition to them, there existed other special regimes associated with specific economic activities whose scope was very limited. For more details see Jorratt (2012).

The *14 bis* regime (henceforth 14B regime) allowed businesses to pay taxes based only on their withdrawals. Under this regime, enterprises were exempted of carrying a detailed internal accounting and, therefore, tax authority managed no information about retained profits. To accede to the 14B regime, in addition to some administrative requirements, businesses which had initiated activities had to have annual sales lower than 317,775 USD, on average, for the last three years.[7] For new businesses, initial capital could not be higher than 63,555 USD and annual sales had to be lower than 444,885 USD, in addition to the requisites stated for existing enterprises.

The *14 ter* regime (henceforth 14T regime), consisted in the tax payment based only on the cash flow, without being necessary the computation of detailed accounting profits. To accede to the 14T regime, businesses had to be VAT taxpayers, have annual sales lower than 317,775 USD and have an initial capital lower than 381,330 USD.

The *14 quáter* regime (henceforth 14Q regime), which began operating in 2011, considered a tax-free amount of up to 91,520 USD. The remaining profits were taxed by the general scheme. To accede to the 14Q regime, in addition to some administrative requirements, businesses had to report annual sales lower than 1,779,540 USD and an own capital lower than 889,770 USD. For computing annual sales, there were added all related businesses' sales.[8]

Finally, the *Renta Presunta* regime (henceforth RP regime) allowed businesses from four different sectors to compute their tax liabilities based on the fiscal value of specific fixed assets instead of calculating accounting profits.[9] Sectors considered were agriculture, mining, freight transportation and passengers transportation. Each sector determined differently the way in which the tax base was computed, and defined particular requisites needed for subscription (additional to belonging to the sector).

[7] Subscription requisites were legally detailed in different units of account, generally using inflation adjusted units. Throughout all the paper, values will be expressed in dollars using exchange rates valid for December 31, 2015.

[8] In short, *related businesses* refer to other businesses on which proprietors had at least 10% of ownership. The complete definition, contained in Article 20 of the tax law, was a little bit more complex as it depended of the on the legal nature of the business, and also considered the related businesses of the related businesses.

[9] *Renta Presunta* means *Imputed Income*.

In the agricultural RP regime, tax base was equal to 10% of the fiscal value of the land in case of being owner, 4% in case of being tenant. For subscribing, annual sales had to be lower than 508,440 USD. In the mining RP regime, tax base was a percentage of the net sales of minerals. It was an increasing function of the price, ranging from 4% to 20%. For subscribing, annual sales had to be lower than 1,525,320 USD or the volume sold had to be lower than 36,000 tons. Finally, in both transportation RP regimes, tax base was equal to 10% of the fiscal value of the vehicles of the business. For subscribing, annual sales had to be lower than 190,665 USD. In all RP regimes, annual sales were computed by adding the sales of all related businesses within the sector.

Table 1 summarizes the main characteristics of the STRs described.

Table 1: Main Characteristics of STRs (2013)

	General Regime	**14B**	**14T**	**14Q**	**RP**
Benefit	Special treatment for retained profits	Tax liabilities based only on withdrawals	Tax liabilities based on the cash flow	Tax-free income of up to 91,520 USD	Income imputed from fiscal value of certain assets
Sales Limit (USD)	No limit	317,775	317,775	1,779,540	From 190,665 to 1,525,320
Calculated over	No limit	The business at issue	The business at issue	All businesses related	All businesses related within the sector

Note: Values calculated using exchange rates valid for December 31, 2015.

2.2 Discussion: STRs and Potential Strategic Behaviors

In order to motivate the strategic behavior conjecture associated with businesses' taxation, the following paragraphs develop a brief critical discussion of the 2013's Chilean tax system. Em-

phasis is put on STRs and their potential participation in optimal portfolio choices for tax planning purposes.

First of all, it can be argued that the system was complex, as there existed several regimes and exemptions, each one with different potential subscribers, benefits and requisites. This was particularly true for the income tax scheme. In fact, following Jorratt (2012), in 2011 there were 133 active tax expenditures, of which 105 were associated to the income tax.[10] Author calculations show that the fiscal cost of tax expenditures tagged to the income tax represented 3.59% of GDP. Moreover, 40.05% of total fiscal cost was attributed to exemptions associated with *incentives for saving at the business level*.[11]

Therefore, as Slemrod (1989) argues, the complexity of the Chilean system could have led to tax avoidance behaviors as it hampered the correct understanding of the tax law, decreased the audit capacity of the tax authority, increased the compliance costs for taxpayers and offered greater opportunities for manipulating the tax system. And given that Chilean tax exemptions tended to favor entrepreneurial income, it should be expected an strategic usage of businesses for income sheltering purposes. Indeed, Jorratt (2012) suggests that around 20% of the enterprises that were active in 2011 were created solely for tax planning purposes. In the same line, Zee (1998) argues that the Chilean scheme encouraged the over creation of businesses, thus generating horizontal inequity and important economic inefficiencies.

One important inefficiency created by the system were the incentives for over-retaining profits inside businesses. The narrative is that, given the preferential tax treatment for undistributed earnings, it was profitable to save money through an enterprise as it permitted the deferral of tax payments and the saving of taxes paid over the interests of the interests.[12] More important,

[10] A tax expenditure is defined as *a transfer of public resources that is achieved by reducing tax obligations with respect to a benchmark tax, rather than by a direct expenditure* (OECD, 2004).

[11] Taxation of capital gains was also complex, as it contemplated several deductions that encouraged income sheltering behaviors (Agostini, 2012).

[12] Sheltering personal income as entrepreneurial retained profits was profitable for high income taxpayers as the corporate tax rate was lower than the marginal income tax rate faced by the four highest tax brackets (40%, 35,5%, 30,4% and 23%, respectively).

the scheme encouraged the use of legal mechanisms to withdraw profits by sheltering income as investments or expenses, thus paying a lower effective tax rate (Agostini, 2012). This conjecture is consistent with evidence presented by Agostini (2012) and Jorratt (2012), which states that at 2011 around 70% of total profits was retained inside the businesses. Furthermore, around 50% of these undistributed profits was associated with investment companies.

This issue has important implications for vertical inequity. World Bank (2015) shows that, without considering the attribution of retained profits to individual taxpayers, the richest 5%, 1% and 0.1% of the Chilean population takes the 36.6%, 13.9% and 2.3% of total income, respectively. When considering the attribution of retained profits to the owners of the businesses, those shares increase to 51.5%, 33.0% and 19.5%, respectively. López, Figueroa, and Gutiérrez (2013) and Fairfield and Jorratt (2014) also find that income distribution worsens after considering retained profits. Therefore, this evidence suggests that preferential tax schemes associated with enterprises were used principally by high income taxpayers.[13]

It can be argued that STRs exacerbated the strategic opportunities already discussed. The 14B regime encouraged even more the retention of profits, as no taxes were paid for undistributed earnings. The 14Q regime considered a non-justified tax-free amount, even available for relatively big businesses. Moreover, the RP regime computed tax liabilities based on imputed incomes that were probably lower than real profits, if (for example) agents had the opportunity to fix the tax base on low-valued assets. Hence, taxpayers related with businesses subscribed to the 14B, 14Q or RP regimes, were possibly paying less taxes than equivalent taxpayers due to their potential strategic behavior. Conversely, the 14T regime seemed to be the unique STR in which the tax liability was relatively proportional to the real payment capacity, and therefore, was apparently well designed for helping small businesses. Nevertheless, even this regime could have encouraged strategic cash flow usages given the whole system's complexity.

[13]This is not only true for the retained profits scheme, but also for other tax exemptions: as the majority of taxpayers are free from tax payment, any tax deduction will only favor high income individuals. Agostini (2012) calculations suggest that exemptions only favored the richest 18% of the population, being the richest 6% the most benefited.

The later argument builds from the fact that the coexistence of several exemptions, and in particular of several STRs, may induce complementarities among their strategic potentialities. In fact, system's complexity reduced the monitoring capacity of the tax authority, thus making room for manipulating the use of the exemptions and requisites. Given that, businesses' portfolios could have arose due to strategic tax planning. Jorratt (2012) argues that STRs encouraged the fragmentation of large enterprises into multiple small businesses, thus allowing big companies to be eligible to the STRs. Furthermore, the sales' limits could have been innocuous, as taxpayers could have strategically determined their ownership percentages for bypassing relation norms. This can be worsened if other legal mechanisms were used to avoid subscriptions requisites.[14]

This storyline led Jorratt (2012) to recommend the derogation of all STRs except the 14T regime. Evidence presented in Agostini (2012) supports this policy recommendation. In concrete, using a stratified sample of taxpayers, he finds that 86,5% of profits associated with businesses subscribed to the RP regime can be attributed to the richest 10% of the taxpayers. 14B and 14Q regimes were also found to be regressive.[15] Simulations made by the author concluded that an hypothetical derogation of the 14B, 14Q and RP regimes would led to an improvement in aggregate efficiency, income distribution and horizontal equity.

Therefore, a high income taxpayer seeking to avoid taxes could have created several businesses for then subscribing them to different regimes in order to take advantage of the different tax benefits. This strategic behavior may have mimicked a portfolio choice of businesses consistent with tax planning decisions at the individual level. In the following section, descriptive statistics regarding STRs usage are shown. Three stylized facts arise from the data. Taken altogether, they are consistent with the potential strategic behaviors discussed.

[14] For example, high income taxpayers could register their daughters, sons or other tax-exempt relatives as owners of their businesses. This would allow them to withdraw profits without paying the corresponding taxes (for example, by distributing dividends to the relatives up to the tax-exempt income threshold) or to escape from the related businesses monitoring, as businesses would nominally have different owners and, therefore, the computation of sales of related businesses would be hindered.

[15] This can be considered a lower bound, as taxpayers below the richest 10% may be under-reporting income by sheltering earnings through businesses subscribed to STRs.

3 Three Stylized Facts About STRs Usage

The present section displays descriptive statistics that account for three stylized facts regarding STRs usage: 1) STRs were massively used, 2) STRs were mainly used by high income taxpayers, and 3) STRs usage made by high income taxpayers appears to be part of a businesses' portfolio.

Data was provided by the Division of Studies of the Internal Revenue Service of Chile. While descriptive statistics regarding the first stylized fact are built only using information about active businesses, three sources of information are used for computing the descriptive statistics that support stylized facts 2 and 3. In addition to the information about active businesses, it was provided a complete database of individual taxpayers (natural persons) and ownership shares of businesses.[16] These sources of information, which are available only for 2013, allow me to link natural persons with businesses through their shares of proprietorship and, therefore, permit a characterization of the owners of the businesses subscribed to the STRs.[17]

3.1 Stylized Fact 1: "STRs were massively used"

The first stylized fact is that STRs were massively used. Table 2 shows the number of businesses that were subscribed to each STR between 2008 and 2013. It can be seen that about one fourth of total businesses were subscribed to STRs in each year of the period analyzed, being the RP regime the most important (representing around 15% of total businesses) and the 14Q regime the less massive (representing less than 1% of total businesses).

[16] Both datasets were built by the Internal Revenue Service of Chile for the analysis made in World Bank (2015).

[17] As was said before, Chilean ownership structure is complex as legal persons can be registered as owners of other businesses and, therefore, it may be difficult to determine which natural persons are the real owners of certain businesses. I deal with that issue using a recursive procedure similar in spirit to the one implemented by Agostini (2012), Fairfield and Jorratt (2014) or World Bank (2015). The novel aspect of my implementation is that iterations are made over the ownership shares data rather than only attributing profits and, therefore, I can get a richer characterization of the relation between taxpayers and businesses.

Table 2: STRs: Share of Total Businesses

Year	14B	14T	14Q	RP	STRs (All)
2008	4.53%	5.08%	-	15.93%	24.42%
2009	4.09%	5.67%	-	15.69%	24.48%
2010	3.73%	6.23%	0.10%	15.41%	24.57%
2011	3.38%	6.70%	0.92%	15.09%	25.20%
2012	3.11%	7.29%	0.87%	14.81%	25.20%
2013	3.14%	9.24%	0.96%	15.29%	27.69%

Source: Author's calculation using Internal Revenue Service data. Shares are calculated over total active businesses in each year. STRs cells are not exactly the sum of the previous four columns, as there are firms who switched regime within a year and, therefore, may appear being subscribed to two different regimes in one period.

3.2 Stylized Fact 2: "STRs were mainly used by high income taxpayers"

The second stylized fact states that high income taxpayers were highly more associated with businesses subscribed to STRs. For doing the analysis, income groups are defined using the accrued income measure built by World Bank (2015). In that work, income thresholds for accrued income are estimated for determining the richest 0.1%, 1%, 5% and 10%. I use those thresholds to define income categories.[18]

Table 3 characterizes the relationship that the different income groups have with businesses subscribed to STRs. Panel A shows the share of taxpayers related with businesses subscribed to STRs (i.e. having proprietorship on at least one business). Panel B shows the share of total profits generated by businesses subscribed to the different STRs that can be attributed to each income group (rows sum 100%).[19] If STRs are used for tax planning purposes, then it should be expected a stronger usage by high income individuals as, given the income tax progressive scheme, they face higher incentives (and, also, more resources) to incur in strategic behaviors.

In fact, STRs usage appears to be highly concentrated on high income individuals as the richer the income group, 1) the higher the share of taxpayers having proprietorship over businesses

[18]The accrued income measure considers the attribution of retained profits to individual taxpayers. This consideration is important, given the over-retention of profits present in Chilean businesses (see Section 2).

[19]Real financial profits of businesses subscribed to STRs are not observable. Therefore, estimated profits are used in Panel B of Table 3. Estimations were done by the Internal Revenue Service using cash flow information reported by the firms through alternative forms. For more details, see Appendix A.

subscribed to STRs, and 2) the higher the attributed profits from these kind of businesses. In fact, while 30.71% of the richest 0.1% is associated with at least one business taxed by any STR, only 2.60% shares that position in the bottom 90%. Contrasts are specially strong in the 14B and RP regimes. Moreover, while 44.38% of total profits of businesses subscribed to STRs can be attributed to the richer 1%, only 19.55% goes to the bottom 90%. The RP and the 14Q regimes show the larger concentrations, as almost the half of total profits can be attributed to the richer 1%.

Table 3: Taxpayers' Relation With STRs

A: Taxpayers Related with Businesses Subscribed to STRs

Regime	0.1%	0.1%-1%	1%-5%	5%-10%	>10%
14B	5.42%	1.81%	0.73%	0.42%	0.34%
14T	6.76%	3.26%	1.81%	1.18%	0.94%
14Q	2.34%	1.57%	0.83%	0.35%	0.08%
RP	21.24%	10.34%	3.95%	2.50%	1.34%
STRs (All)	30.71%	15.45%	6.87%	4.21%	2.60%

B: Share of Profits Attributed to each Income Group

Regime	0.1%	0.1%-1%	1%-5%	5%-10%	>10%
14B	8.74%	27.57%	28.68%	11.76%	23.26%
14T	5.26%	22.93%	27.07%	13.27%	31.47%
14Q	10.04%	36.63%	36.18%	9.18%	7.98%
RP	13.94%	34.41%	24.00%	9.98%	17.67%
STRs (All)	12.11%	32.27%	25.57%	10.49%	19.55%

Source: Author's calculation using Internal Revenue Service data. Information is valid for 2013. Shares of Panel A are calculated over total taxpayers in each income group and shares of Panel B are calculated over total profits by regime. In Panel B, each row has to sum 100%. Profits of businesses subscribed to STRs were estimated by the Internal Revenue Service using cash flow information.

3.3 Stylized Fact 3: "STRs usage made by high income taxpayers appeared to be part of a businesses' portfolio"

Finally, the third stylized fact argues that STRs usage made by high income taxpayers appeared to be part of a businesses' portfolio. This suggests that richer individuals' relationship with STRs might be part of a strategic decision rather than being characterized by an usage consistent with STRs original purpose: the simplification of businesses' tax liabilities computation.

Table 4 shows the share of taxpayers of the different income groups that were associated simultaneously with more than 10 businesses, conditional on being related with entrepreneurial activity.[20] To look for heterogeneous patterns, analysis is also made conditioning on being related with businesses subscribed to the different STRs. It can be seen that high income taxpayers were related, in average, with considerable more businesses that the rest of taxpayers: while only 9.03% of the bottom 90% is associated with at least one businesses (through ownership shares), and when being associated, only 0.70% is simultaneously related with more than 10 firms, 97.45% of the richest 0.1% is associated with businesses and 55.74% of them is simultaneaosly related with more than 10 firms.[21]

More surprising, when conditioning on being related to businesses subscribed to STRs, shares in the richer fractiles increase: 77.38%, 75.71%, 63.70% and 63.24% of taxpayers belonging the richest 0.1% which were associated with at least one business subscribed to the 14B, 14T, 14Q or RP regime, respectively, had ownership over more than 10 businesses. Therefore, high income taxpayers seemed to include their businesses subscribed to STRs in larger businesses' portfolios.

Table 4: Share of Taxpayers Related With More than 10 Businesses

Conditioning on being related with	**0.1%**	**0.1%-1%**	**1%-5%**	**5%-10%**	**>10%**
At least one business	55.74%	16.75%	4.52%	1.76%	0.70%
At least one business subscribed to the 14B	77.38%	35.07%	10.07%	3.11%	0.79%
At least one business subscribed to the 14T	75.71%	24.34%	5.46%	1.85%	0.35%
At least one business subscribed to the 14Q	63.70%	21.19%	4.95%	1.46%	0.53%
At least one business subscribed to the RP	63.24%	21.45%	5.45%	1.51%	0.31%
Share of taxpayers related with businesses	97.45%	71.40%	37.38%	19.77%	9.03%

Source: Author's calculation using Internal Revenue Service data. Information is valid for 2013. Shares are calculated over total taxpayers in each income group, conditioning of being associated with at least one business subscribed to the regime specified.

Finally, Table 5 looks deeper in the specific relationship between taxpayers and the different STRs. Panel A shows the share of taxpayers which had ownership over three or more businesses subscribed to the same STR, conditioning on being related with at least one business of the regime, and Panel B shows the share of taxpayers which simultaneously had ownership

[20] Table 11 of Appendix B shows the disaggregated data.

[21] In fact, conditional on relation, 83.18% (10.68%) of the bottom 90% was related with only one (two) businesses (see Table 11 of Appendix B).

over businesses subscribed to different STRs, conditioning on being related with at least one business subscribed to any STR.[22] It can be seen that while the majority of taxpayers seem to concentrate their proprietorship over businesses subscribed to STRs on only one or two firms, more complex patterns arise in the richer fractiles. In fact, 6.31%, 5.80%, 4.27% and 12.39% of taxpayers belonging the richest 0.1% had ownership over three or more businesses subscribed to the 14B, 14T, 14Q and RP regimes, respectively, conditional on being related with at least one. Those percentages were 0.03%, 0.05%, 0.21% and 0.12% in the bottom 90%.[23] The same is true for STRs usage combinations: the share of taxpayers simultaneously associated with businesses subscribed to different STRs increases monotonically with income, from less than 5% in the bottom 90% to around 15% in the richest 0.1%.

Table 5: STRs: Usage Complexity

A: Individuals Owning 3 or more Businesses of one STR

Regime	0.1%	0.1%-1%	1%-5%	5%-10%	>10%
14B	6.31%	1.84%	0.40%	0.43%	0.03%
14T	5.80%	2.16%	0.54%	0.24%	0.05%
14Q	4.27%	2.35%	0.58%	0.33%	0.21%
RP	12.39%	5.12%	1.43%	0.54%	0.12%

B: Combinations of STRs Usage

Regime	0.1%	0.1%-1%	1%-5%	5%-10%	>10%
One	84.80%	90.52%	93.56%	94.16%	95.90%
Two	14.14%	9.18%	6.35%	5.78%	4.07%
Three	1.03%	0.29%	0.08%	0.06%	0.03%
All	0.03%	0.01%	0.00%	0.00%	0.00%

Source: Author's calculation using Internal Revenue Service data. Information is valid for 2013. Shares of Panel A are calculated over total taxpayers in each income group, conditioning of being associated with at least one business subscribed to the regime. Shares of Panel B are calculated over total taxpayers in each income group, conditional of being associated with at least one business subscribed to a STR. Combinations refers to simultaneously having proprietorship over businesses subscribed to different STRs.

Adding up, descriptive statistics show that STRs usage was important, and was concentrated (and with more complex patterns of usage) in high income groups. As was discussed in Section

[22] Table 12 of Appendix B shows the disaggregated data of Panel A. Table 13 of Appendix B shows the disaggregated data of Panel B.

[23] As Table 12 of Appendix B shows, the number of businesses of the same regime an agent owns can reach surprising levels. For example, there are taxpayers belonging to the richer 0.1% who had proprietorship over 41 businesses subscribed to the 14B regime, over 19 businesses subscribed to the 14T regime, or over 22 businesses subscribed to the RP regime.

2, the original purpose of STRs was to help small businesses by reducing their compliance costs, at the time of reducing monitoring costs on the tax authority given the low importance of small businesses regarding total tax revenues. Nevertheless, stylized facts show a different characterization of STRs usage, possibly associated with a strategic decision of high income taxpayers. With that in mind, next section presents a simple model that attempts to account for the stylized facts and derives testable equations which are empirically explored in Section 5.

4 A Model of Tax Planning and Small Businesses Creation

This section presents a simple model which accounts for the stylized facts presented in Section 3 and derive testable equations which are empirically explored in Section 5. The model illustrates the portfolio decision regarding a strategical possession of businesses that has been discussed along the paper.

The model is structured as follows. Consider a static model. The agent receives an exogenous income flow, Y, which faces an income tax rate, τ. The objective of the agent is to maximize income after taxes, Z. In a benchmark scenario (no available mechanisms for sheltering income), Z is given by $Z = (1 - \tau)Y$. Nevertheless, there exists a preferential tax regime designed for small firms (PR) that may induce a strategic behavior on the agent, given the possibility of lowering the tax burden through its usage.

Income reported through businesses subscribed to the PR faces a preferential tax rate, t, with $\tau > t$. If businesses want to accede to this regime, income reported through them must be lower than L. The agent has the option of creating businesses, subscribing them to the PR, and shifting part of the exogenous income flow to them in order to pay fewer taxes. There exists a cost of creating and managing the new businesses, $g(S)$, with $g(0) = 0$, $g' > 0$ and $g'' > 0$, where $S \in \mathbb{R}^+ \cup \{0\}$ is the number of businesses an agent owns.[24]

[24]Costs associated with the creation and management of businesses subscribed to preferential tax regimes can be motivated by the hiring of accountants that are required to fill special forms, meet the administrative requirements, etc. Evidence shown in Table 5 is consistent with the convex nature of g.

In 2013's Chilean system existed different tax regimes, and the preferential tax treatments associated with them were far more complex and diverse than a simple reduction in the tax rate. For example, the 14B regime allowed agents to pay fewer taxes by saving through the business, or the RP regime permitted an agent to reduce tax liabilities when being capable to fix the tax base in a relatively low valued asset. Nevertheless, the general idea of the model is that, regardless the concrete benefit, attractiveness for taxpayers derived from STRs lies in the possibility of paying lower effective tax rates for incomes associated with businesses subscribed to those regimes.

Said that, the problem the agent faces is defined by

$$\max_{Y_0,Y_p,S} Z = (1-\tau)Y_0 + (1-t)SY_p - g(S) \quad \text{s.t.} \quad Y_0 + SY_p = Y, \tag{1}$$

$$Y_p \leq L, \tag{2}$$

where Y_0 is the income reported as personal income, Y_p is the income reported through firms subscribed to the PR, and S is the number of businesses the agent owns. Given S, the value function is always increasing in Y_p, being optimal to set $Y_p = L$. Then, from (1) follows that $SY_p = SL = Y - Y_0$ and, therefore, the problem can be reduced to

$$\max_{Y_0} Z = (1-\tau)Y_0 + (1-t)(Y - Y_0) - g\left(\frac{Y - Y_0}{L}\right). \tag{3}$$

First order condition is given by

$$\begin{aligned} \frac{\partial Z}{\partial Y_0} &= (1-\tau) - (1-t) + g'\left(\frac{Y - Y_0}{L}\right)\frac{1}{L} = 0, \\ \Rightarrow \quad S^* &= \left(\frac{Y - Y_0^*}{L}\right) = (g')^{-1}\left(L(\tau - t)\right). \end{aligned} \tag{4}$$

From (4), it can be seen that when the marginal benefit from sheltering income, $(\tau - t)$, increases, S^* increases through a decrease in Y_0^*.[25] Considering that Chile has a progressive tax scheme, and therefore τ is an increasing function of reported income, the model predicts a more intensive

[25] The analysis considers that the inverse function of an increasing function is also increasing.

usage of preferential tax regimes by high income taxpayers (in terms of income sheltered and number of enterprises). That issue is consistent with stylized facts presented in Section 3.

This simple setting can be used to explore potential reactions of taxpayers regarding exogenous changes in the key parameters. Concretely, consider a reform that makes the PR less attractive for avoiding purposes (i.e., it increases t and/or reduces L). Agents will respond with a re-optimization of Y_0^* and S^*. From (4), a reduction in L implies a reduction in S^* through an increase in Y_0^*. Regarding t, reaction proceeds in the way described in the previous paragraph.

Two testable predictions arise from the analysis. First, given the more constrained scenario, income after taxes has to be lower after the reform, as by definition the new optimal portfolio is sub-optimal in the original context. As income is exogenous, this implies that taxable income has to increase after the reform. Second, income reported through the regime affected by the reform has to fall, as now it is less attractive for avoidance purposes. Both hypothesis are tested in the next section.

It is important to note that there are other possible reactions valid for the Chilean tax structure that the simple setting cannot account for. Concretely, given the existence of different avoidance mechanisms, taxpayers could substitute between them when policy changes affect only a subset of them. For exploring these alternative reactions, consider the existence of N different PRs. Each regime is characterized by a reported income threshold, L_i, and a preferential tax rate faced, t_i, $\forall i = 1, ..., N$. The cost function now depends on $\sum_{i=1}^{N} S_i$, where S_i is the number of businesses subscribed to regime i that the agent owns. As benefits from sheltering income remain being lineal and, therefore, corner solutions will hold regarding regimes election, intuition of testable equations from the simple model is unaffected by the extension proposed. Nevertheless, this slightly more general version of the model allows to rationalize that after a reform affecting a subset of PRs, agents may reallocate sheltered income by using different alternatives.

If there exists heterogeneity in the avoidance technology (i.e. g is allowed to vary across individ-

uals and/or t_i is allowed to depend on individual characteristics), then it should be expected the existence of heterogeneity in individual exposure to the different PRs (and consequently, in the potential substitution patters induced by a reform).[26] Taking advantage on initial exposure heterogeneity, and using a reform that affects only a subset of PRs as exogenous variation, testable equations and substitution patterns can be empirically addressed.

Estimations carried out in Section 5 follow that strategy. In 2012, the RP regime was reformed. Changes made the regime less attractive for income sheltering purposes. Therefore, according to the model proposed, after the reform 1) taxable incomes should have increased, 2) incomes reported at the individual level through businesses subscribed to the RP regime should have decreased, and 3) alternative income sources should have increased. These hypothesis are tested in the following section.

5 Empirical Evidence of Strategic Behaviors

In this section, model's predictions are tested. In order to do that, I take advantage of a reform made on the RP regime in 2012 that added restrictions for subscribing. According to the model, higher restrictions should have implied a reoptimization of exposed individuals, resulting in higher taxable incomes with smaller rents coming from businesses subscribed to the RP regime and larger earnings from alternative income sources.

I follow a differences-in-differences strategy to assess the question, comparing taxpayers that perceived rents from businesses subscribed to the RP regime with taxpayers perceiving other entrepreneurial incomes, before and after the reform. As the treatment status is not exogenous, sample corrections and complementary robustness checks are carried out. Finally, two sources of heterogeneity are explored: differential reactions due to differences in economic sectors and reported income.

[26] For example, individuals related with RP regime associated sectors should be more exposed to the use of the regime, as it is possibly less costly for them to meet the subscription requisites. Heterogeneity in STRs usage is consistent with stylized facts showed in Section 3.

5.1 Identification Strategy

In 2012, an important reform regarding the RP regime was introduced. First, a sales limit was set on passengers transportation RP regime (190,665 USD, as was mentioned in Section 2), since no sales requirement existed before 2012. Second, the way in which sales were computed to assess the sales limit requirements also changed. Before the reform, only the sales of the businesses analyzed were considered to assess the limit requirement. After the reform, sales of all related businesses within the sector began to be considered. Changes induced by the reform started operating in 2013.

In terms of the model, the reform may be interpreted as a reduction in L_{RP} (given the change in passengers transportation income threshold) and/or an increase in t_{RP} (given the new requisites for computing sales). Therefore, according to the model, taxpayers exposed to the reform (i.e. taxpayers who were perceiving rents from businesses subscribed to the RP regime before the reform) should have experienced an increase in their taxable income, explained by a reduction in rents coming from businesses subscribed to the RP regime and an increase in other substitute income sources. On the other hand, comparable taxpayers who were not exposed to the RP regime before the reform should not have reacted to the RP regime changes.

Based on that intuition, treatment and control groups are defined for then estimating a differences-in-differences model. A taxpayer (natural person) is considered in the treatment group if before the reform, i.e. in year 2012, declared to perceive positive rents from businesses subscribed to the RP regime, and is considered in the control group if before the reform declared to perceive entrepreneurial rents (for example, withdrawals or dividends) from businesses taxed by regimes different from the RP regime.[27]

[27] As it is argued by Saez (2003), it is important to define treatment and control groups that are highly comparable when analyzing behavioral responses to tax policy changes, as reactions could be heterogeneous across individuals. In fact, Imbens and Rubin (2015) strongly emphasize in the importance of the comparability between control and treatment groups when implementing impact evaluation exercises. That is why taxpayers who are not related with entrepreneurial activity are excluded from the control group, as their behavioral responses will possibly be guided by a different model. Other sample corrections made for assessing balance between groups are discussed in Section 5.2.

Form 22 is used for defining the groups. Form 22 is a form managed by the Internal Revenue Service of Chile which allows taxpayers to declare annual earnings in order to determine their tax liabilities. Filling is not mandatory to every natural person, as there exist alternative ways for declaring earnings in some particular cases. Nevertheless, Form 22 is by far the most used mechanism for declaring earnings to the tax authority, specially for taxpayers associated with entrepreneurial activity. In Form 22, annual income declared is decomposed between different income sources. One of them is related with incomes perceived from businesses subscribed to the RP regime. Taxpayers were considered in the treatment group if they declared a positive value in that cell in 2012. On the other hand, there are other cells that comprise income sources associated with other entrepreneurial earnings. Taxpayers were considered in the control group if they declared a positive value in at least one of those cells, simultaneously with no declaring positive income from businesses subscribed to the RP regime, in 2012.

Said that, the equation to be estimated is

$$\log(Y)_{it} \quad = \quad \alpha + \beta T_i + \delta D_t + \gamma T_i D_t + X'_{it}\theta + \varepsilon_{it}, \tag{5}$$

where $\log(Y)_{it}$ is the (log of the) outcome variable of interest (taxable income or rents perceived from different income sources) of individual i in period t, T_i is a dummy variable which takes value 1 if individual i is in the treatment group, D_t is a dummy variable which takes value 1 if $t = 2013$, $T_i D_t$ is the interaction between both variables, X_{it} is a set of control variables that may include sex, age, place of living (commune), economic sector and lagged income variables, and ε_{it} is the zero-mean non-observable random component. The coefficient of interest is $\hat{\gamma}$, which represents the percentage change of the outcome variable with respect to the regulation change. If businesses subscribed to the RP regime were effectively associated with income sheltering behaviors at the individual level, as the model of Section 4 argues, $\hat{\gamma}$ should be positive regarding taxable income and alternative income sources and negative regarding rents from businesses subscribed to the RP regime.

Equation (5) can be estimated by OLS. I use panel data for controlling for changes in the income distribution (Saez, 2004). That strategy also allows to cluster standard errors at the individual level. As a robustness check, equation (5) is also estimated using a fixed-effects model and incorporating periods previous to 2012, in order to control for previous tendencies (leads).

Sample is restricted to taxpayers over 18 years old belonging to the higher four tax brackets. The justification is that only those brackets face marginal income tax rates higher than the corporate rate (20%) and, therefore, have incentives for 1) using the preferential tax treatment of retained profits for deferring tax payment, and 2) looking for alternative ways for withdrawing profits from businesses in order to pay fewer taxes at the individual level. Moreover, marginal income tax rates faced by the fifth, sixth and seventh brackets are considerable lower, thus having fewer incentives for incurring in tax avoidance behaviors. Hence, the higher four brackets constitute a better approximation of the group of taxpayers that probably will act according to the model presented in Section 4. As a robustness check, estimates are also carried out considering the higher five, six and seven tax brackets.[28]

5.2 Assessing Balance in Covariates

Before proceeding to the estimations, a small discussion regarding sample's characteristics is developed. When working with non-experimental data, treatment and control groups' covariates should be enough balanced in order to assure a credible empirical comparison. If not, treatment effects would rely too much on extrapolation, thus severally affecting the internal validity of the estimation. Imbens and Rubin (2015) emphasize the importance to work with balanced samples and propose ways for assessing and improving balance between non-experimental treatment and control groups.

For assessing balance in covariate distributions, the authors propose four statistics to measure the differences between treatment and control group covariate distributions. Normalized dif-

[28] Makes no sense to consider the eighth bracket (the lower one), as it is tax exempt and, therefore, reactions to tax reforms will probably be guided by models different from the one presented in Section 4.

ferences, ND_{tc}, is a scale-free statistic for measuring differences in distributions' locations. The logarithm of the ratio of standard deviations, Γ_{tc}, is a statistic for measuring differences in distributions' dispersion. Finally, the fraction of the treated (control) observations whose covariate values are in the tails of the other group's distribution, π_t^α and π_c^α, are statistics for looking whether the comparison between groups will rely too much on extrapolation.[29] Technical details about the statistics and their empirical implementation ($\hat{ND}_{tc}$, $\hat{\Gamma}_{tc}$, $\hat{\pi}_t^{0.95}$ and $\hat{\pi}_c^{0.95}$) are discussed in Appendix C.

As a rule of thumb, values larger than 0.25 for $\hat{ND}_{tc}$ and $\hat{\Gamma}_{tc}$, and larger than 0.1 for $\hat{\pi}_t^{0.05}$ and $\hat{\pi}_c^{0.05}$, may imply sensitivity to specification in linear regression methods.[30] When treatment and control groups are unbalanced, Imbens and Rubin (2015) suggest a simple method that may be useful for improving balance. The method consists in estimating a propensity score for the treatment status, for then excluding observations which its probability of being treated is *too small* or *too high*. As a rule of thumb, it is suggested the exclusion of all observations whose estimated propensity score is below 0.1 of above 0.9. This correction may affect the external validity of the analysis, but should considerably increase its internal validity.

The four measures are calculated for a large set of covariates that are assumed to be relevant for the analysis. Table 6 shows the statistics for the sample before and after the propensity score correction. All covariates are measured in the pre-reform year, i.e. 2012. By construction, the only variables that are importantly unbalanced are the ones associated with the RP regime. In fact, RP earnings are used to define the treatment status and, therefore, are expected to be different between groups. In general, other covariates do not show several differences. Moreover, balance improves considerably after the sample trimming: leaving aside RP related variables, no covariate shows significant unbalances regarding distribution means, and only three covariates display modest differences regarding distribution dispersion.

This allows to conclude that balance between groups is not problematic for the empirical anal-

[29] α accounts for the level of confidence, i.e. defines the *tails* of the distribution.
[30] See Imbens and Wooldridge (2008) and Imbens and Rubin (2015).

Table 6: Assessing Balance: Four Measures

	Full Sample				Trimmed Sample			
	$\hat{ND}_{tc}$	$\hat{\Gamma}_{tc}$	$\hat{\pi}_C^{0.05}$	$\hat{\pi}_T^{0.05}$	$\hat{ND}_{tc}$	$\hat{\Gamma}_{tc}$	$\hat{\pi}_C^{0.05}$	$\hat{\pi}_T^{0.05}$
Taxable Income	0.09	**0.14**	0.05	0.06	0.07	**0.17**	0.05	0.05
L.Taxable Income	**0.11**	0.06	0.09	0.06	0.07	0.09	0.07	0.04
Age	**0.27**	-0.03	0.08	0.05	0.07	0.05	0.04	0.06
Sex (1=Female)	**-0.15**	-0.08	0.01	0.01	0.02	0.02	0.00	0.00
RP Sector	**0.69**	**0.69**	**0.24**	**0.20**	**0.64**	**0.52**	0.00	0.00
RP Earnings	**0.56**	-	**1.00**	**1.00**	**0.89**	-	**1.00**	**1.00**
Withdrawals	**-0.14**	**0.46**	0.02	0.03	-0.05	**0.28**	0.02	0.04
Dividends	0.01	**-0.66**	0.03	0.02	0.01	**0.22**	0.03	0.02
14T Earnings	0.09	**0.12**	0.02	0.04	0.06	-0.08	0.02	0.03
Ind. Work Earnings	0.03	**0.31**	0.02	0.03	-0.03	0.01	0.02	0.03
Dep Work Earnings	0.07	-0.02	0.02	0.03	-0.01	-0.01	0.03	0.02

Note: Red bold is assigned to values above 0.25 (0.1), in absolute value, for the two first (last) statistics. Black bold is assigned to values between 0.1 and 0.25 (0.05 and 0.1), in absolute value, for the two first (last) statistics. *Trimmed Sample* stands for the sample that excludes propensity score tails. *L.Taxable Income* is the lag of the taxable income. $\hat{\Gamma}_{tc}$ is not computable for *RP Earnings* as sample variance of the control group is 0.

ysis. Table 7 presents summary statistics for the full and trimmed samples. It can be seen that, although the propensity score improves the balance between the two groups, differences in the descriptive statistics between samples is not dramatic.[31] Therefore, the potential loss of external validity should not be a concern when using the trimmed sample in the empirical analysis.

Table 7: Descriptive Statistics

	Full Sample			Trimmed Sample		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Treatment	144,500	0.15	0.36	78,260	0.20	0.40
Taxable Income	144,500	2679.43	3519.37	78,260	2684.03	2804.54
Age	143,510	53.28	13.92	78,260	56.80	12.47
Sex (1=Female)	143,372	0.30	0.46	78,260	0.19	0.39
RP Sector	116,968	0.10	0.30	78,260	0.14	0.34
RP Earnings (UF)	144,500	53.64	470.67	78,260	61.49	253.44
Withdrawals (UF)	144,500	889.81	1588.93	78,260	554.92	907.60
Dividends (UF)	144,500	130.34	1084.79	78,260	144.73	688.06
14T Earnings (UF)	144,500	76.36	417.36	78,260	92.12	419.21
Ind. Work Earnings (UF)	144,500	262.96	1212.05	78,260	393.79	1430.08
Dep. Work Earnings (UF)	144,500	1035.28	2208.45	78,260	1256.17	2215.58

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. *UF* is an inflation adjusted unit of account.

[31] The average observation of the trimmed sample has a higher probability of being treated, a lower probability of being female, and is slightly older.

5.3 DID Specification Assumption: Parallel Tendencies

Finally, for the differences-in-differences approach to be valid, the parallel tendencies assumption must be met (Angrist and Pischke, 2009). The parallel tendencies assumption states that tendencies of the outcome variable have to be parallel between treatment and control groups in the absence of treatment. While the assumption is not directly testable, different things can be done in order to dismiss potential concerns.

First, if tendencies have something to do with observable characteristics, the good balance between groups should suggest the absence of important differences. Second, and more important, D shows the previous tendencies of all dependent variables used. It can be seen that previous tendencies tend to be highly parallel, and when not being parallel, differences go in favor of the results. Moreover, every variable shows a shift consistent with the expected behavior according to the model presented between 2012 and 2013. Finally, equation (5) is also estimated using longer periods (in order to control for previous tendencies) and a fixed-effects model (which do not rely on the parallel tendencies assumption). As results are robust to alternative specifications, no concern should exist regarding the validity of the empirical strategy used.

5.4 Results

Using the full and trimmed samples, several estimates are carried out for testing the predictions of the model presented in Section 4. For presentation matters, only the coefficient associated with the interaction, $\hat{\gamma}$, is displayed. Equation (5) is estimated considering different sets of control variables, namely (1) no controls, (2) sex, age, commune fixed effects and economic sector fixed effects, and (3) the same control variables plus lagged taxable income and (when being different) lagged dependent variable.

An important remark has to be done regarding the incomes reported at the individual level from businesses subscribed to the RP regime. As was argued before, the only information the Internal Revenue Service manages about businesses subscribed to that regime is the fiscal value of the

fixed assets needed to compute the tax liabilities. Given that, no information exists about profits or withdrawals and, therefore, incomes reported at the individual level from those businesses are completely self-reported (and, by no mean, audited). Then, it is reasonable to be wary about the validity of that variable. To address that concern, I use the tax credits available from businesses subscribed to the RP regime as the dependent variable associated with RP rents. This information is expected to be correlated with RP earnings and, more important, is more reliable, as tax credits are based on asset's fiscal values on which the tax authority effectively manages information (and, contrary to the previous case, can be potentially audited). While results using both variables are reported in order to check for consistency in sign and significance, only the point estimates associated with the tax credit variable are considered for the analysis.

Dependent variables used for estimating equation (5) are (1) taxable income (TI), (2) income from businesses subscribed to the RP regime, using the noisy measure ($RP(1)$), (3) income from businesses subscribed to the RP regime, using the tax credit variable ($RP(2)$), (4) withdrawals from businesses subscribed to the 14B regime, 14Q regime or the general regime (W),[32] (5) dividends (i.e. withdrawals from S.A. corporations) (D), (6) income from businesses subscribed to the 14T regime ($14T$), (7) income from independent work ($Ind.Work$), and (8) income from dependent work ($Dep.Work$). According to the intuition given by the model, when (1), (4), (5), (6) and (7) are used as dependent variables, $\hat{\gamma}$ is expected to be positive; when (2) and (3) are used as dependent variable, $\hat{\gamma}$ is expected to be negative; and when (8) is used as dependent variable, $\hat{\gamma}$ is expected to be zero (placebo test).

Table 8 presents the main results. They confirm the model's predictions: due to a reform that made the RP regime less attractive for income sheltering purposes, income from businesses subscribed to the RP regime decreased and alternative income sources for redistributing sheltered income increased, leading to an aggregate increase of the taxable income. Given previous discussion, estimations made with the trimmed sample are preferred. Thereby, RP rents decreased between 10% and 15%, giving way to a redistribution that made taxable incomes to increase

[32] It would be interesting to use withdrawals from businesses subscribed to different regimes separately. Unfortunately, Form 22 clusters all withdrawals in a unique cell.

between 4% and 7%.

Substitution patterns tested suggest that withdrawals from other businesses, dividends and independent work earnings, were previously sheltered in businesses subscribed to the RP. Hence, the reform encouraged high income taxpayers to look for alternative ways for reporting that income: withdrawals increased between 13% and 27%, dividends increased between 11% and 17%, income from businesses taxed by the 14T regime increased between 15% and 26%, and income from independent work increased between 8% and 10%. Regarding incomes from dependent work, estimates are highly erratic, allowing to conclude that the placebo test is satisfied.

Table 8: Main Results

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0697***	0.0699***	0.0956***	0.0462***	0.0465***	0.0680***
	(0.00711)	(0.00794)	(0.00856)	(0.00807)	(0.00812)	(0.00880)
$\hat{\gamma}_{RP(1)}$	-0.556***	-0.560***	-0.878***	-0.588***	-0.585***	-0.903***
	(0.0161)	(0.0176)	(0.0201)	(0.0191)	(0.0191)	(0.0215)
$\hat{\gamma}_{RP(2)}$	-0.0804***	-0.0851***	-0.136***	-0.101***	-0.0973***	-0.158***
	(0.00792)	(0.00900)	(0.0128)	(0.00975)	(0.00977)	(0.0139)
$\hat{\gamma}_{W}$	0.189***	0.198***	0.415***	0.130***	0.129***	0.270***
	(0.0198)	(0.0225)	(0.0311)	(0.0244)	(0.0248)	(0.0346)
$\hat{\gamma}_{D}$	0.0818***	0.0627***	0.104***	0.115***	0.116***	0.170***
	(0.0137)	(0.0153)	(0.0223)	(0.0171)	(0.0174)	(0.0254)
$\hat{\gamma}_{14T}$	0.142***	0.137***	0.213***	0.158***	0.158***	0.264***
	(0.0151)	(0.0167)	(0.0244)	(0.0184)	(0.0186)	(0.0273)
$\hat{\gamma}_{Ind.Work}$	0.0426***	0.0607***	0.0514**	0.0839***	0.0829***	0.105***
	(0.0139)	(0.0165)	(0.0232)	(0.0179)	(0.0181)	(0.0257)
$\hat{\gamma}_{Dep.Work}$	-0.0416***	-0.0517***	-0.00637	-0.0151	-0.0171	0.0341*
	(0.0113)	(0.0131)	(0.0179)	(0.0136)	(0.0140)	(0.0186)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	144,500	115,703	114,672	78,260	77,982	77,982

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

As can be seen in Appendix E, results are robust to (1) changing the tax brackets considered for the estimations (5, 6 and 7 higher tax brackets), (2) excluding outliers (upper 1% and 5%),

(3) the use of a fixed-effects model (for periods of different length), and (4) the consideration of previous periods for controlling for previous trends (leads).

5.5 Heterogeneities

As was proposed in Section 4, initial exposure and strategic responses to the reform might vary across individuals if there exists heterogeneity in the avoidance technology. Two sources of heterogeneity are explored in this paper: economic sector and income level. For a matter of presentation, only estimates made with the trimmed sample are displayed.

Regarding economic sector, heterogeneous reactions might arise across taxpayers related with different sectors if taxpayers associated with the RP sectors face lower costs for using the RP regime given the sector belonging requirement. Under that assumption, they should be initially more exposed, thus experiencing a stronger increase in taxable incomes due to the reform. Table 9 shows the estimates by economic sector. It can be seen that, consistent with intuition, individuals associated with RP sectors showed stronger reactions: their taxable incomes increased between 20% and 24%, compared to an increase of between 4% and 7% for the rest of high income taxpayers. Moreover, substitution patterns also differed between groups. While taxpayers related with RP sectors appeared only to change their businesses' tax regime (and, therefore, all income was redistributed to other withdrawals and dividends), the remaining taxpayers' reaction is more complex (i.e. all alternative income sources were relevant for the redistribution). Again, for neither group independent work earnings were affected.

Finally, differential effects might arise by income level if income is, for example, correlated with entrepreneurial know-how, networking or accounting skills, thus being income sheltering costs lower for higher income taxpayers. More important, given the higher marginal tax rates, incentives for sheltering income should be higher for the richer tax brackets. Table 10 shows the estimates made by tax bracket. Contrary to the intuition, no clear pattern for explaining differences in reactions by income level emerge from results. While taxable incomes show no significant increase in the fourth bracket, the first three display increases around 5%. On the

Table 9: Heterogeneity by Economic Sector

	RP Sectors			Other Sectors		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.200***	0.201***	0.242***	0.0464***	0.0472***	0.0688***
	(0.0274)	(0.0281)	(0.0291)	(0.00908)	(0.00918)	(0.00999)
$\hat{\gamma}_{RP(1)}$	-0.578***	-0.574***	-0.897***	-0.635***	-0.632***	-0.991***
	(0.0337)	(0.0343)	(0.0385)	(0.0245)	(0.0246)	(0.0275)
$\hat{\gamma}_{RP(2)}$	-0.221***	-0.211***	-0.341***	-0.0460***	-0.0446***	-0.102***
	(0.0231)	(0.0236)	(0.0322)	(0.00990)	(0.00998)	(0.0146)
$\hat{\gamma}_{W}$	0.367***	0.376***	0.543***	0.114***	0.110***	0.288***
	(0.0516)	(0.0533)	(0.0723)	(0.0301)	(0.0304)	(0.0422)
$\hat{\gamma}_{D}$	0.0677*	0.0610*	0.0867*	0.110***	0.115***	0.164***
	(0.0350)	(0.0363)	(0.0516)	(0.0209)	(0.0211)	(0.0312)
$\hat{\gamma}_{14T}$	-0.00391	-0.00354	-0.0470	0.218***	0.216***	0.369***
	(0.0349)	(0.0359)	(0.0525)	(0.0229)	(0.0231)	(0.0337)
$\hat{\gamma}_{Ind.Work}$	-0.0391	-0.0467	-0.0543	0.0909***	0.0940***	0.110***
	(0.0283)	(0.0295)	(0.0426)	(0.0225)	(0.0228)	(0.0323)
$\hat{\gamma}_{Dep.Work}$	-0.0338	-0.0554	0.0322	-0.00234	0.00173	0.0307
	(0.0319)	(0.0340)	(0.0447)	(0.0157)	(0.0162)	(0.0216)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	10,634	10,591	10,591	67,626	67,391	67,391

Note: Estimations are made with the Trimmed Sample (i.e. the sample that excludes propensity score tails). *RP Sectors* are agriculture, mining and transportation. *Other Sectors* are the remaining sectors. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

other hand, while the first and third brackets gave a higher relative importance to dividends to redistribute income, the second and fourth ones showed relative larger increases in incomes from businesses subscribed to the 14T regime and independent work. This suggests that the relation between taxable income level and the strategic reaction is more complex, being needed additional information to address it better.

6 Conclusions and Discussion

This paper analyzes whether the STRs that were active in Chile in 2013 were associated with a strategic tax planning decision at the individual level. To my knowledge, this is the first paper that studies the process of businesses' creation and regime subscription as part of an individual

Table 10: Heterogeneity by Tax Bracket

	4th Bracket			3rd Bracket		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0203	0.0203	0.0216	0.0547***	0.0540***	0.0541***
	(0.0164)	(0.0166)	(0.0165)	(0.0151)	(0.0152)	(0.0152)
$\hat{\gamma}_{RP(1)}$	-0.650***	-0.645***	-0.943***	-0.607***	-0.600***	-0.918***
	(0.0370)	(0.0373)	(0.0402)	(0.0396)	(0.0399)	(0.0443)
$\hat{\gamma}_{RP(2)}$	-0.123***	-0.122***	-0.180***	-0.0987***	-0.0897***	-0.150***
	(0.0192)	(0.0195)	(0.0268)	(0.0194)	(0.0197)	(0.0274)
$\hat{\gamma}_{W}$	0.0780*	0.0666	0.0984	0.0966*	0.0857	0.224***
	(0.0455)	(0.0465)	(0.0637)	(0.0512)	(0.0523)	(0.0714)
$\hat{\gamma}_{D}$	0.0843***	0.0891***	0.0950**	0.151***	0.151***	0.204***
	(0.0313)	(0.0322)	(0.0459)	(0.0354)	(0.0362)	(0.0512)
$\hat{\gamma}_{14T}$	0.213***	0.217***	0.378***	0.194***	0.181***	0.263***
	(0.0318)	(0.0323)	(0.0483)	(0.0393)	(0.0400)	(0.0587)
$\hat{\gamma}_{Ind.Work}$	0.133***	0.140***	0.184***	0.0622*	0.0553	0.0616
	(0.0358)	(0.0366)	(0.0517)	(0.0360)	(0.0370)	(0.0529)
$\hat{\gamma}_{Dep.Work}$	0.0126	0.0135	0.0752**	0.00437	0.0146	0.0214
	(0.0269)	(0.0279)	(0.0362)	(0.0284)	(0.0300)	(0.0375)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	18,024	17,952	17,952	16,542	16,487	16,487

	2nd Bracket			1st Bracket		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0530***	0.0521***	0.0531***	0.0417**	0.0394*	0.0703***
	(0.0184)	(0.0186)	(0.0187)	(0.0210)	(0.0212)	(0.0225)
$\hat{\gamma}_{RP(1)}$	-0.523***	-0.519***	-0.813***	-0.575***	-0.574***	-0.891***
	(0.0486)	(0.0498)	(0.0556)	(0.0398)	(0.0403)	(0.0448)
$\hat{\gamma}_{RP(2)}$	-0.0644***	-0.0618**	-0.0916**	-0.0378*	-0.0284	-0.0917***
	(0.0233)	(0.0243)	(0.0362)	(0.0194)	(0.0196)	(0.0299)
$\hat{\gamma}_{W}$	0.0977	0.0966	0.197**	0.0237	0.0267	0.143*
	(0.0655)	(0.0672)	(0.0954)	(0.0535)	(0.0554)	(0.0767)
$\hat{\gamma}_{D}$	0.0784	0.0901*	0.141*	0.190***	0.192***	0.255***
	(0.0489)	(0.0506)	(0.0741)	(0.0396)	(0.0406)	(0.0578)
$\hat{\gamma}_{14T}$	0.192***	0.187***	0.358***	0.147***	0.147***	0.231***
	(0.0460)	(0.0476)	(0.0690)	(0.0419)	(0.0426)	(0.0586)
$\hat{\gamma}_{Ind.Work}$	0.170***	0.161***	0.206***	0.0304	0.0411	0.0252
	(0.0509)	(0.0526)	(0.0700)	(0.0399)	(0.0410)	(0.0578)
$\hat{\gamma}_{Dep.Work}$	-0.00570	-0.0151	0.0334	-0.00988	-0.0302	0.0485
	(0.0351)	(0.0368)	(0.0491)	(0.0283)	(0.0300)	(0.0411)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	10,090	10,059	10,059	18,602	18,530	18,530

Note: Estimations are made with the Trimmed Sample (i.e. the sample that excludes propensity score tails). Brackets are ordered such that *1st Bracket* is the richer one. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

strategic decision of tax avoidance. In addition, this paper complements the scarce evidence regarding developing countries about tax evasion and tax avoidance behaviors, and results presented are closely related with two different branches of the public finance literature: the taxable income elasticity literature and the recent research about behavioral responses of small businesses.

Results support the existence of strategic behaviors regarding STRs usage. First, descriptive statistics state that STRs were massively used, that were mainly used by high income taxpayers and that the usage made by high income taxpayers appeared to be part of a businesses' portfolio. The econometric analysis confirms the conjecture: after a reform that made the RP regime stricter, individual taxable incomes increased through a redistribution of reported incomes. In particular, income from businesses subscribed to the RP regime decreased, while other entrepreneurial incomes (both from businesses taxed by the general regime and other STRs) and independent labor earnings increased. According to the model presented, that behavior is consistent with STRs strategic usage for tax planning purposes at the individual level.

As was previously argued, the existence of strategic behaviors regarding STRs usage matters for public policy design. Tax avoidance has implications for horizontal inequity, vertical inequity and efficiency costs (Slemrod and Bakija, 2004). And social preferences about those normative issues should be incorporated in optimal tax systems design (Mirrlees, 1971; Diamond, 1998; Saez, 2001; Saez and Stantcheva, 2016). Therefore, the design, implementation and consequent evaluation of STRs functioning should consider that they can potentially be used for tax planning purposes. While helping small businesses to start and grow through tax policies might be desirable given social preferences, it is important to assess whether a specific policy effectively addresses its original objective and is not encouraging alternative (and counterproductive) behaviors.

In 2014, the Chilean government introduced a tax reform project that gave way to an important public discussion about businesses taxation, horizontal and vertical inequity, and evasion and

avoidance dynamics, among other topics. STRs took a significant part of the discussion, as little was known about their real economic effects and, therefore, about their success and desirability given public policy objectives. While evaluating the Chilean tax reform is beyond the scope of this paper, the evidence presented here is expected to serve as input for future tax policy design. As was argued before, the strategic behavior regarding tax planning associated with STRs should be taken into account for the analysis.

A Estimation of Financial Profits of Businesses Subscribed to STRs

As businesses subscribed to STRs are not forced to carry a detailed internal accounting, financial profits are not observed. Nevertheless, the Internal Revenue Service of Chile carried out a procedure for estimating financial profits for these businesses for year 2013. The following paragraphs make a brief description of the procedure carried out.[33]

The central assumption is that financial profits are proportional to the cash flow. Then, from other forms filled by the businesses, it is possible to compute a cash flow measure for every business i, CF_i, defined by

$$CF_i \quad = \quad S_i - E_i - R_i,$$

where S_i are the sales, E_i are the expenses, and R_i are all the remunerations paid. This is calculated for all businesses, regardless the tax regime associated., i.e. for the ones taxed by the general scheme and the ones subscribed to STRs.

Consider a set of businesses, A, which do not report accounting profits given their subscription to STRs. This set is defined by observables (for example, size or economic sector). Then, consider a set of businesses similar in observables, $\hat{A}$, which are taxed by the general regime and, therefore, report information about their real profits. For those businesses, it is possible to calculate a factor, $F_{\hat{A}}$, from the following relation

$$F_{\hat{A}} \quad = \quad \frac{\sum_{i \in \hat{A}} P_i}{\sum_{i \in \hat{A}} CF_i},$$

where P_i are real profits of enterprise i belonging to $\hat{A}$. Then, for businesses in A is possible to

[33] Businesses subscribed to the 14Q are excluded from this analysis, as the relevant information is available for those businesses.

estimate the accounting profits, P_i, from the following relation

$$P_i \;=\; F_{\hat{A}} CF_i, \quad \forall i \in A,$$

i.e. by assuming a proportional relation between real profits and the cash flow. The groups of businesses taxed by the general regime considered for calculating the factors for the different regimes are

- 14B regime: Businesses with sales under 317,775 USD
- 14T regime: Businesses with sole proprietorship legal status and sales under 317,775 USD
- Agricultural RP regime: Businesses of the agricultural sector
- Mining RP regime: Businesses of the mining sector
- Freight Transportation RP regime: Businesses of the freight transportation sector
- Passengers Transportation RP regime: Businesses of the passengers transportation sector

B Additional Tables for Stylized Fact 3

Table 11: Disaggregation of Table 4

A: 0.1% (97.45%)

Businesses	All Regimes	14B	14T	14Q	RP
1	5.68%	0.77%	1.48%	2.49%	2.28%
2	5.64%	1.23%	2.59%	2.85%	2.63%
3	5.65%	1.54%	3.08%	3.20%	4.35%
4	5.68%	2.31%	3.21%	4.98%	5.18%
5	4.46%	2.62%	2.71%	4.63%	4.32%
6	3.96%	2.15%	2.47%	4.27%	3.84%
7	3.99%	3.69%	3.33%	4.27%	4.43%
8	3.60%	2.15%	2.34%	3.91%	3.41%
9	3.03%	3.23%	1.60%	2.14%	3.22%
10	2.57%	2.92%	1.48%	3.56%	3.10%
11	2.72%	1.08%	2.84%	1.78%	3.10%
12	2.33%	1.85%	2.22%	4.27%	2.94%
13	2.33%	1.23%	1.73%	4.27%	2.67%
14	2.25%	1.38%	1.97%	2.85%	2.35%
15	1.91%	1.23%	0.99%	2.49%	2.08%
>15	44.21%	70.62%	65.97%	48.04%	50.10%

B: 0.1%-1% (71.40%)

Businesses	All Regimes	14B	14T	14Q	RP
1	24.97%	12.00%	17.67%	15.13%	14.34%
2	17.89%	9.04%	16.60%	14.66%	14.85%
3	11.63%	9.29%	11.01%	12.60%	12.46%
4	7.98%	8.32%	7.43%	10.54%	9.89%
5	5.82%	5.87%	5.99%	8.06%	7.99%
6	4.34%	4.95%	5.28%	5.65%	5.77%
7	3.44%	5.41%	3.69%	4.41%	4.44%
8	2.78%	3.62%	3.18%	2.77%	3.55%
9	2.30%	3.83%	2.58%	2.59%	2.65%
10	2.10%	2.60%	2.24%	2.41%	2.61%
11	1.71%	2.55%	1.79%	2.18%	2.18%
12	1.49%	2.65%	1.67%	1.82%	1.72%
13	1.29%	2.55%	1.70%	1.71%	1.65%
14	1.15%	2.45%	1.45%	1.41%	1.62%
15	0.95%	1.68%	1.02%	1.18%	1.31%
>15	10.16%	23.18%	16.71%	12.89%	12.97%

Continues on next page...

...comes from previous page.

C: 1%-5% (37.38%)

Businesses	All Regimes	14B	14T	14Q	RP
1	49.72%	41.44%	47.31%	38.82%	41.69%
2	21.82%	19.93%	22.09%	24.91%	23.31%
3	9.36%	10.52%	10.37%	12.56%	11.99%
4	4.95%	5.68%	4.91%	7.10%	6.67%
5	3.06%	4.07%	3.28%	4.15%	3.86%
6	2.13%	2.61%	2.32%	2.18%	2.39%
7	1.57%	1.89%	1.49%	1.75%	1.74%
8	1.17%	1.78%	1.23%	1.55%	1.26%
9	0.89%	1.12%	0.86%	1.08%	0.87%
10	0.83%	0.89%	0.67%	0.95%	0.76%
11	0.65%	0.98%	0.59%	0.73%	0.87%
12	0.50%	0.98%	0.55%	0.35%	0.62%
13	0.41%	0.66%	0.39%	0.58%	0.54%
14	0.33%	0.69%	0.41%	0.50%	0.42%
15	0.29%	0.49%	0.33%	0.28%	0.45%
>15	2.33%	6.28%	3.19%	2.53%	2.56%
Max	586	586	586	316	316

D: 5%-10% (19.77%)

Businesses	All Regimes	14B	14T	14Q	RP
1	66.48%	63.57%	68.79%	56.32%	65.00%
2	18.55%	19.10%	18.52%	24.67%	20.31%
3	5.88%	6.70%	5.37%	8.58%	6.48%
4	2.69%	2.80%	2.21%	3.96%	3.01%
5	1.51%	1.30%	1.05%	1.79%	1.39%
6	1.00%	1.14%	0.68%	1.42%	0.82%
7	0.77%	0.71%	0.69%	0.80%	0.61%
8	0.54%	0.63%	0.31%	0.42%	0.43%
9	0.40%	0.47%	0.35%	0.33%	0.30%
10	0.42%	0.47%	0.18%	0.24%	0.15%
11	0.28%	0.32%	0.20%	0.33%	0.29%
12	0.20%	0.16%	0.23%	0.09%	0.17%
13	0.17%	0.12%	0.13%	0.14%	0.10%
14	0.14%	0.16%	0.13%	0.42%	0.10%
15	0.11%	0.12%	0.08%	0.09%	0.10%
>15	0.87%	2.24%	1.09%	0.38%	0.75%

Continues on next page...

...comes from previous page.

E: >10% (9.03%)

Businesses	All Regimes	14B	14T	14Q	RP
1	83.18%	87.07%	90.10%	72.11%	82.07%
2	10.68%	8.36%	7.19%	18.66%	13.46%
3	2.61%	2.02%	1.33%	4.33%	2.50%
4	1.10%	0.65%	0.43%	1.81%	0.79%
5	0.60%	0.50%	0.22%	1.25%	0.35%
6	0.41%	0.25%	0.17%	0.64%	0.22%
7	0.30%	0.13%	0.08%	0.27%	0.12%
8	0.18%	0.09%	0.06%	0.23%	0.08%
9	0.14%	0.10%	0.03%	0.12%	0.07%
10	0.12%	0.04%	0.04%	0.03%	0.04%
11	0.09%	0.06%	0.06%	0.08%	0.06%
12	0.08%	0.03%	0.03%	0.02%	0.04%
13	0.05%	0.02%	0.03%	0.06%	0.02%
14	0.03%	0.01%	0.01%	0.02%	0.02%
15	0.03%	0.02%	0.01%	0.00%	0.02%
>15	0.42%	0.66%	0.21%	0.37%	0.14%

Source: Author's calculation using Internal Revenue Service data. Information is valid for 2013. Shares are calculated over total taxpayers in each income group, conditioning of being associated with at least one business subscribed to the regime specified in the first row. In each panel's title, number in parenthesis accounts for the share of taxpayers related with at least one business.

Table 12: Disaggregation of Panel A of Table 5

A: 0.1%

Regime	1	2	1+2	3-10	>10	Max
14B	81.54%	12.15%	**93.69%**	4.31%	2.00%	41
14T	83.97%	10.23%	**94.20%**	5.43%	0.37%	19
14Q	80.43%	15.30%	**95.73%**	4.27%	0.00%	6
RP	64.20%	23.42%	**87.61%**	11.68%	0.70%	22

B: 0.1%-1%

Regime	1	2	1+2	3-10	>10	Max
14B	91.07%	7.10%	**98.16%**	1.79%	0.05%	41
14T	91.38%	6.47%	**97.84%**	2.16%	0.00%	7
14Q	87.40%	10.24%	**97.65%**	2.35%	0.00%	8
RP	80.44%	14.43%	**94.88%**	4.95%	0.17%	41

C: 1%-5%

Regime	1	2	1+2	3-10	>10	Max
14B	96.07%	3.53%	**99.60%**	0.40%	0.00%	7
14T	94.86%	4.60%	**99.46%**	0.54%	0.00%	6
14Q	93.37%	6.05%	**99.42%**	0.58%	0.00%	4
RP	90.10%	8.47%	**98.57%**	1.41%	0.02%	14

D: 5%-10%

Regime	1	2	1+2	3-10	>10	Max
14B	97.40%	2.17%	**99.57%**	0.43%	0.00%	4
14T	96.78%	2.98%	**99.76%**	0.24%	0.00%	5
14Q	95.47%	4.20%	**99.67%**	0.33%	0.00%	5
RP	94.32%	5.14%	**99.46%**	0.54%	0.00%	10

E: >10%

Regime	1	2	1+2	3-10	>10	Max
14B	99.16%	0.81%	**99.97%**	0.03%	0.00%	4
14T	98.82%	1.13%	**99.95%**	0.05%	0.00%	4
14Q	97.42%	2.36%	**99.79%**	0.21%	0.00%	4
RP	97.74%	2.14%	**99.88%**	0.12%	0.00%	14

Source: Author's calculation using Internal Revenue Service data. Information is valid for 2013. Shares are calculated over total taxpayers in each income group, conditioning of being associated with at least one business subscribed to the regime specified in the first column. *Max* accounts for the larger value found in the dataset.

Table 13: Disaggregation of Panel B of Table 5

A: Combinations of Special Tax Regimes Usage

Regime	0.1%	0.1%-1%	1%-5%	5%-10%	>10%
Only 14B	10.64%	8.86%	8.96%	8.50%	11.98%
Only 14T	12.97%	15.04%	21.94%	23.83%	33.19%
Only 14Q	4.94%	8.27%	10.98%	7.80%	3.03%
Only RP	56.26%	58.34%	51.68%	54.03%	47.71%
14B+14T	1.93%	0.50%	0.24%	0.22%	0.11%
14B+14Q	0.24%	0.23%	0.16%	0.07%	0.03%
14B+RP	3.77%	1.85%	1.13%	1.20%	1.03%
14T+14Q	0.14%	0.25%	0.20%	0.11%	0.03%
14T+RP	6.16%	5.08%	3.94%	3.81%	2.76%
14Q+RP	1.90%	1.27%	0.68%	0.37%	0.10%
14B+14T+14Q	0.05%	0.01%	0.00%	0.00%	0.00%
14B+14T+RP	0.73%	0.24%	0.06%	0.04%	0.02%
14B+14Q+RP	0.24%	0.05%	0.02%	0.02%	0.01%
14T+14Q+RP	0.00%	0.00%	0.00%	0.00%	0.00%
All	0.03%	0.01%	0.00%	0.00%	0.00%

B: Summary (Considering 14T)

Regime	0.1%	0.1%-1%	1%-5%	5%-10%	>10%
One	84.80%	90.52%	93.56%	94.16%	95.90%
Two	14.14%	9.18%	6.35%	5.78%	4.07%
Three	1.03%	0.29%	0.08%	0.06%	0.03%
All	0.03%	0.01%	0.00%	0.00%	0.00%

C: Summary (Without Considering 14T)

Regime	0.1%	0.1%-1%	1%-5%	5%-10%	>10%
One	91.99%	95.70%	97.37%	97.76%	98.21%
Two	7.70%	4.23%	2.60%	2.21%	1.78%
All	0.31%	0.06%	0.03%	0.03%	0.01%

Source: Author's calculation using Internal Revenue Service data. Information is valid for 2013. Shares are calculated over total taxpayers in each income group, conditional of being associated with at least one business subscribed to a STR. Combinations are interpreted as having ownership shares over businesses subscribed to different STRs. Panel B summarizes the information considering the 14T regime in the potential combinations. Panel C summarizes the information without considering the 14T regime in the potential combinations.

C Statistics for Assessing Balance

In this section, details about the statistics proposed by Imbens and Rubin (2015) for assessing balance in covariates are discussed.

The first one, *normalized differences*, is a scale-free way for measuring the difference in locations of the distributions. It is defined by

$$ND_{tc} = \frac{\mu_t - \mu_c}{\sqrt{\left(\sigma_t^2 + \sigma_c^2\right)/2}},$$

where t and c denote treatment and control groups, respectively, and (μ_i, σ_i^2) are the population mean and variance of group i, for $i = t, c$, of a given variable X. This measure can be empirically implemented by

$$\hat{ND}_{tc} = \frac{\bar{X}_t - \bar{X}_c}{\sqrt{\left(s_t^2 + s_c^2\right)/2}},$$

where $\bar{X}_i = \frac{1}{N_i}\sum_{j\in i} X_j$ and $s_i^2 = \frac{1}{N_i - 1}\sum_{j\in i}\left(X_j - \bar{X}_i\right)^2$, with N_i denoting the number of observations belonging to group i, for $i = t, c$. Imbens and Rubin (2015) suggest that $N\hat{D}_{tc}$ is better than the t-statistic for looking for differences in distributions. The central point is that the idea behind assessing balance is not to look if there is enough information to assure that covariate means are different, but to analyze whether or not differences are large enough to invalidate a posterior econometric application. The scale-free nature of the statistic is beneficial for that purposes.

For looking for differences in distributions' dispersion, the authors propose the use of the logarithm of the ratio of standard deviations,

$$\Gamma_{tc} = \ln\left(\frac{\sigma_t}{\sigma_c}\right) = \ln(\sigma_t) - \ln(\sigma_c),$$

which can be empirically implemented by

$$\hat{\Gamma}_{tc} \quad = \quad \ln(s_t) - \ln(s_c).$$

Finally, the analysis can be complemented by calculating the fraction of treated (control) observations whose covariate values are in tails of the other group's distribution. The idea is to look whether the comparison between units of the different groups will rely too much on extrapolation. Fixing a confidence value α, the probability mass that is outside the tails of the other group's distribution is

$$\pi_i^{\alpha} \quad = \quad \left(1 - F_i\left(F_j^{-1}(1-\alpha/2)\right)\right) + F_i\left(F_j^{-1}(\alpha/2)\right),$$

where F_i is the cumulative distribution function for $i = t, c$ and j is the other group. With F unknown, this statistic can be empirically implemented using the empirical distribution functions

$$\hat{F}_i(x) \quad = \quad \frac{1}{N_i}\sum_{j \in i} 1_{X_j \leq x},$$

where $1_{X_j \leq x}$ is an indicator variable that takes value 1 if $X_j \leq x$, and

$$\hat{F}_i^{-1}(q) \quad = \quad \min_{-\infty < x < \infty} \left\{x : \hat{F}_i(x) \geq q\right\},$$

for $i = t, c$. Then, fixing $\alpha = 0.05$, statistics can be empirically implemented by

$$\hat{\pi}_i^{0.05} \quad = \quad \left(1 - \hat{F}_i\left(\hat{F}_j^{-1}(0.975)\right)\right) + \hat{F}_i\left(\hat{F}_j^{-1}(0.025)\right).$$

D Previous Tendencies for the Trimmed Sample

Figure 1: Previous Tendencies: Taxable Income

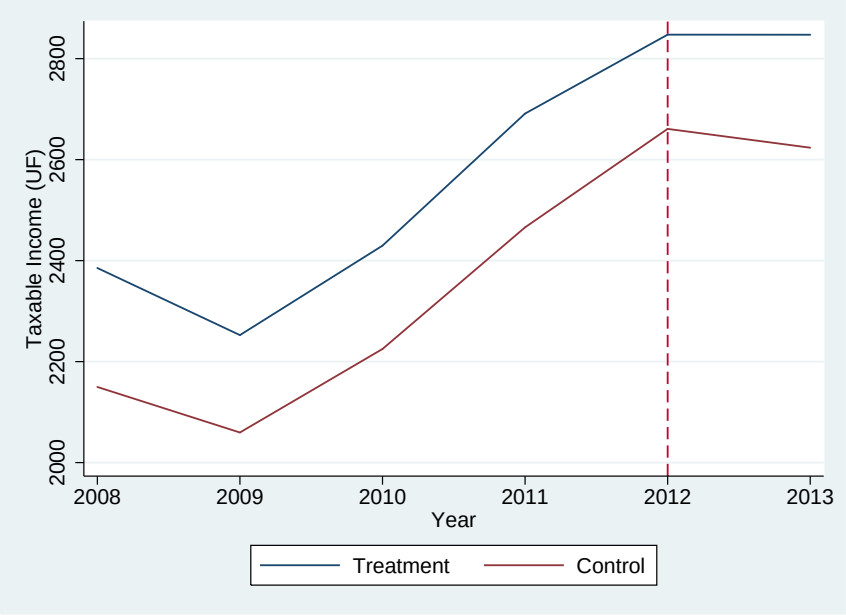


Figure 2: Previous Tendencies: RP Earnings

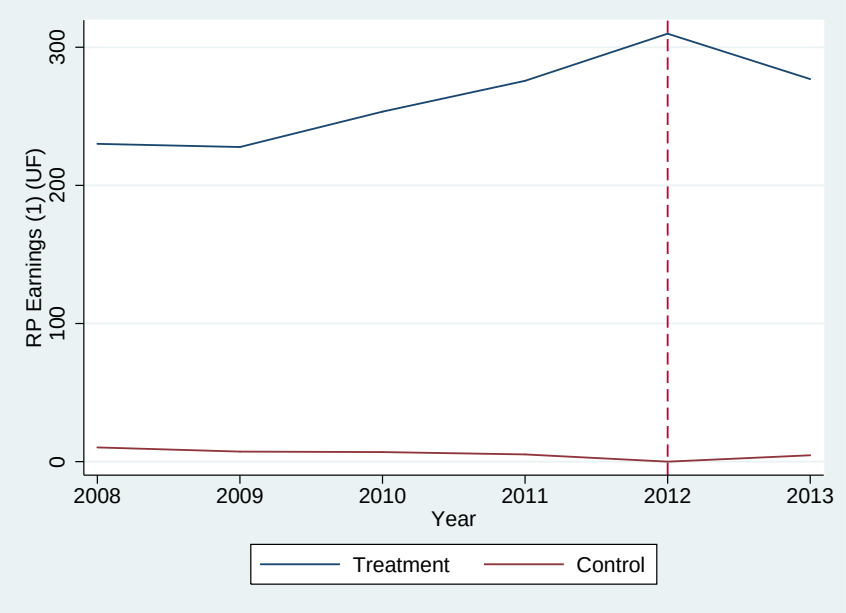


Figure 3: Previous Tendencies: Withdrawals

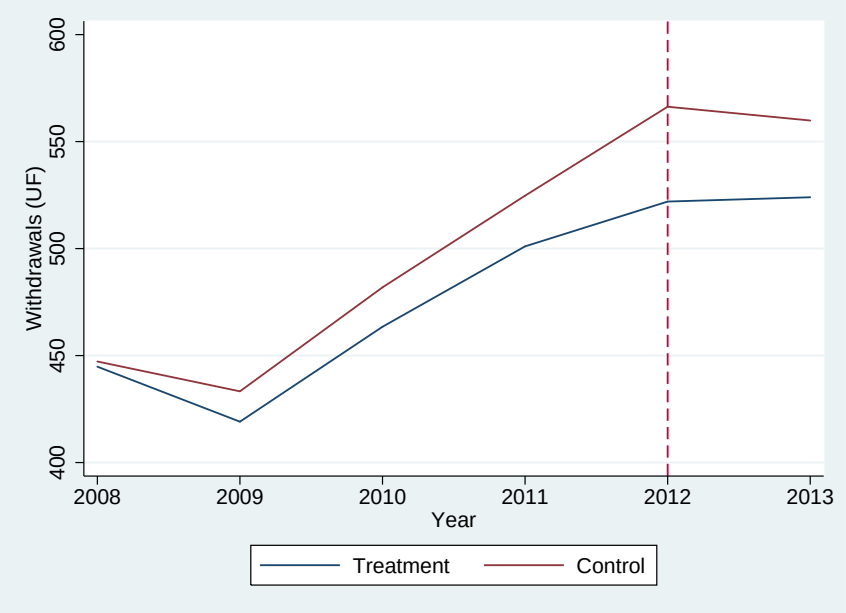


Figure 4: Previous Tendencies: Dividends

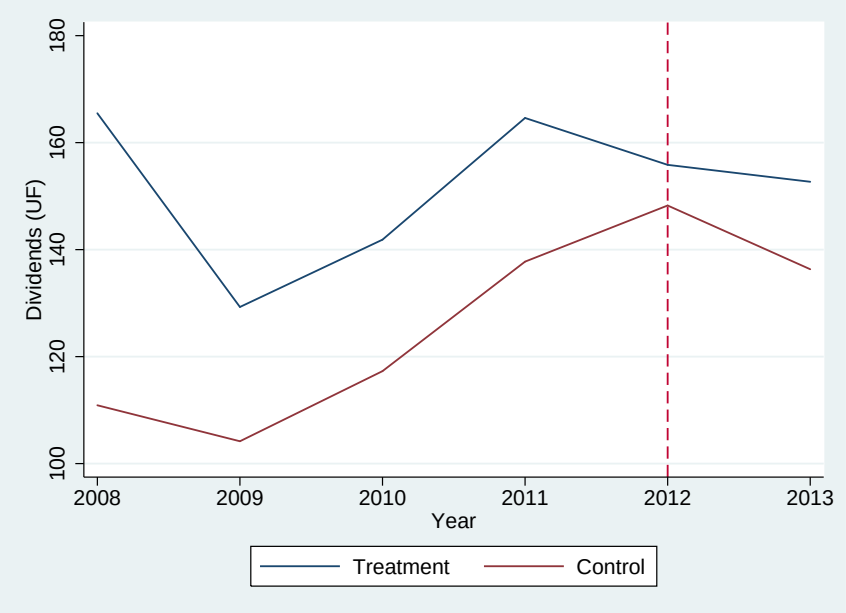


Figure 5: Previous Tendencies: 14T Earnings

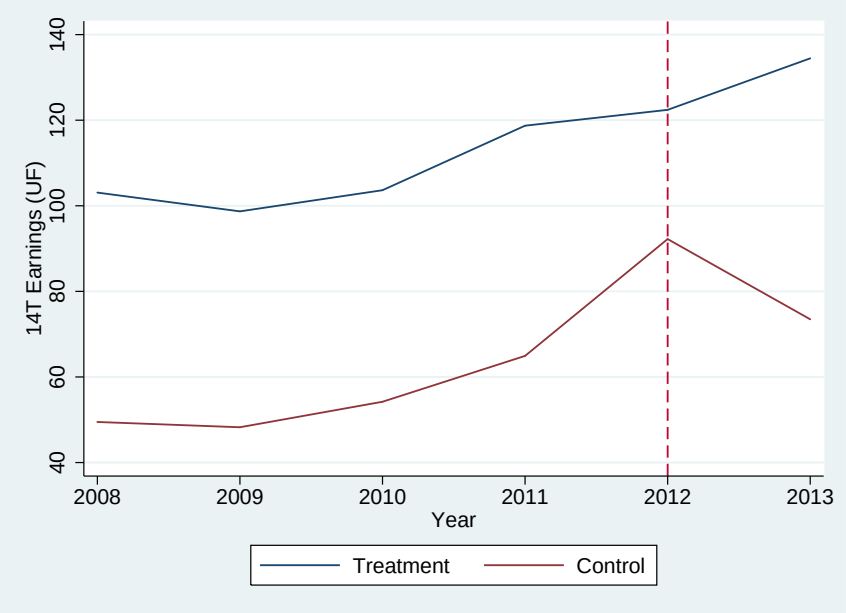


Figure 6: Previous Tendencies: Ind. Work Earnings

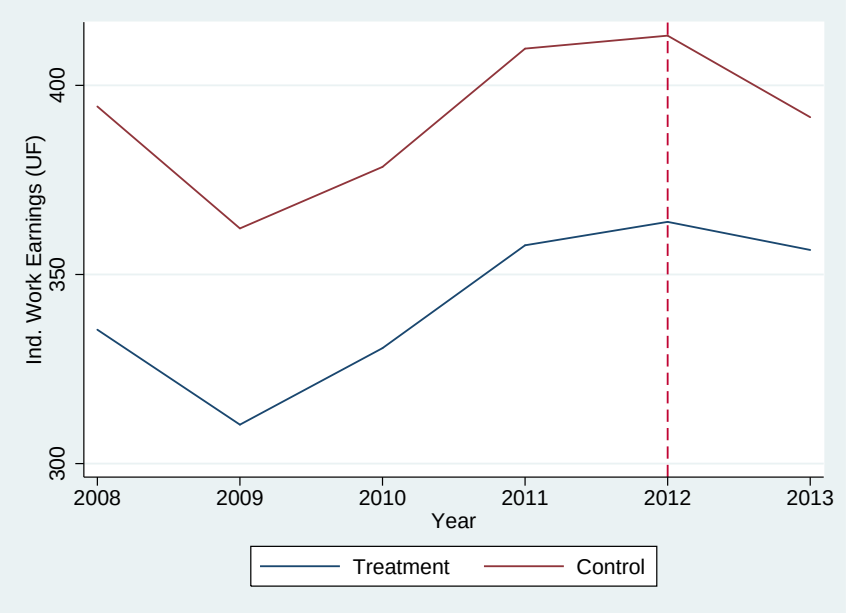
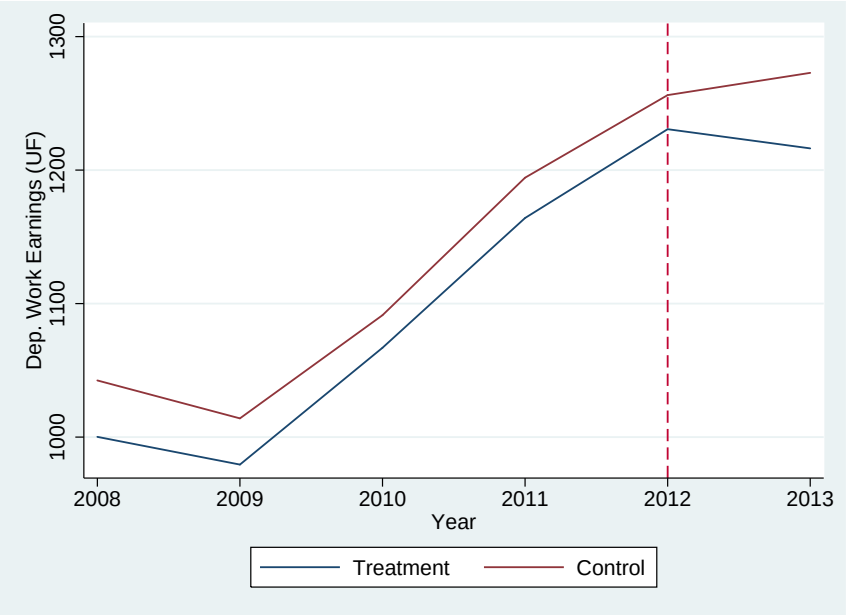


Figure 7: Previous Tendencies: Dep. Work Tendencies



E Robustness Checks for Main Estimates

E.1 Changing Sample

Table 14: Changing Sample: 5 Higher Tax Brackets

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0807***	0.0841***	0.115***	0.0555***	0.0550***	0.0811***
	(0.00595)	(0.00667)	(0.00725)	(0.00742)	(0.00745)	(0.00820)
$\hat{\gamma}_{RP(1)}$	-0.556***	-0.560***	-0.865***	-0.610***	-0.607***	-0.917***
	(0.0131)	(0.0142)	(0.0163)	(0.0166)	(0.0167)	(0.0186)
$\hat{\gamma}_{RP(2)}$	-0.0919***	-0.0984***	-0.147***	-0.113***	-0.109***	-0.170***
	(0.00662)	(0.00752)	(0.0107)	(0.00885)	(0.00888)	(0.0127)
$\hat{\gamma}_{W}$	0.237***	0.256***	0.497***	0.105***	0.107***	0.192***
	(0.0158)	(0.0179)	(0.0246)	(0.0209)	(0.0212)	(0.0294)
$\hat{\gamma}_{D}$	0.0534***	0.0422***	0.0920***	0.122***	0.121***	0.185***
	(0.0106)	(0.0117)	(0.0172)	(0.0145)	(0.0147)	(0.0217)
$\hat{\gamma}_{14T}$	0.127***	0.120***	0.195***	0.171***	0.170***	0.304***
	(0.0119)	(0.0131)	(0.0193)	(0.0160)	(0.0162)	(0.0238)
$\hat{\gamma}_{Ind.Work}$	0.0300***	0.0454***	0.0337*	0.0728***	0.0703***	0.0861***
	(0.0111)	(0.0132)	(0.0185)	(0.0156)	(0.0158)	(0.0227)
$\hat{\gamma}_{Dep.Work}$	-0.0551***	-0.0638***	-0.0350**	-0.0161	-0.0177	0.0149
	(0.00930)	(0.0108)	(0.0148)	(0.0120)	(0.0123)	(0.0166)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	234,050	187,794	185,651	89,596	89,272	89,272

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

Table 15: Changing Sample: 6 Higher Tax Brackets

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.105***	0.112***	0.154***	0.0755***	0.0754***	0.102***
	(0.00516)	(0.00578)	(0.00637)	(0.00703)	(0.00708)	(0.00792)
$\hat{\gamma}_{RP(1)}$	-0.557***	-0.554***	-0.854***	-0.615***	-0.611***	-0.923***
	(0.0104)	(0.0113)	(0.0129)	(0.0136)	(0.0137)	(0.0151)
$\hat{\gamma}_{RP(2)}$	-0.103***	-0.109***	-0.166***	-0.127***	-0.123***	-0.198***
	(0.00541)	(0.00611)	(0.00858)	(0.00742)	(0.00743)	(0.0105)
$\hat{\gamma}_{W}$	0.323***	0.349***	0.623***	0.125***	0.127***	0.174***
	(0.0123)	(0.0138)	(0.0191)	(0.0171)	(0.0172)	(0.0240)
$\hat{\gamma}_{D}$	0.0434***	0.0351***	0.0766***	0.128***	0.126***	0.160***
	(0.00784)	(0.00859)	(0.0126)	(0.0115)	(0.0116)	(0.0169)
$\hat{\gamma}_{14T}$	0.127***	0.116***	0.200***	0.178***	0.180***	0.343***
	(0.00922)	(0.0101)	(0.0149)	(0.0128)	(0.0129)	(0.0192)
$\hat{\gamma}_{Ind.Work}$	0.0364***	0.0514***	0.0480***	0.0763***	0.0717***	0.109***
	(0.00857)	(0.0100)	(0.0142)	(0.0127)	(0.0128)	(0.0186)
$\hat{\gamma}_{Dep.Work}$	-0.0551***	-0.0608***	-0.0489***	0.000585	-0.00212	0.0172
	(0.00756)	(0.00867)	(0.0123)	(0.0103)	(0.0106)	(0.0148)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	371,092	299,583	294,885	112,588	112,172	112,172

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

Table 16: Changing Sample: 7 Higher Tax Brackets

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.127***	0.144***	0.197***	0.0776***	0.0800***	0.102***
	(0.00439)	(0.00492)	(0.00559)	(0.00626)	(0.00629)	(0.00728)
$\hat{\gamma}_{RP(1)}$	-0.514***	-0.506***	-0.788***	-0.550***	-0.547***	-0.839***
	(0.00748)	(0.00805)	(0.00935)	(0.00960)	(0.00965)	(0.0108)
$\hat{\gamma}_{RP(2)}$	-0.105***	-0.109***	-0.180***	-0.131***	-0.124***	-0.213***
	(0.00413)	(0.00463)	(0.00649)	(0.00557)	(0.00559)	(0.00781)
$\hat{\gamma}_{W}$	0.393***	0.429***	0.740***	0.177***	0.182***	0.244***
	(0.00862)	(0.00959)	(0.0133)	(0.0121)	(0.0122)	(0.0171)
$\hat{\gamma}_{D}$	0.0391***	0.0270***	0.0437***	0.115***	0.114***	0.0891***
	(0.00523)	(0.00567)	(0.00831)	(0.00809)	(0.00819)	(0.0119)
$\hat{\gamma}_{14T}$	0.114***	0.101***	0.187***	0.136***	0.137***	0.283***
	(0.00647)	(0.00699)	(0.0104)	(0.00883)	(0.00890)	(0.0133)
$\hat{\gamma}_{Ind.Work}$	0.0327***	0.0471***	0.0355***	0.0749***	0.0726***	0.106***
	(0.00612)	(0.00705)	(0.0101)	(0.00931)	(0.00941)	(0.0136)
$\hat{\gamma}_{Dep.Work}$	-0.0687***	-0.0734***	-0.116***	-0.00614	-0.00827	-0.0310**
	(0.00596)	(0.00677)	(0.00989)	(0.00844)	(0.00861)	(0.0126)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	586,636	481,309	469,620	163,154	162,594	162,594

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

E.2 Excluding Outliers

Table 17: Excluding Upper 1%

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0712***	0.0720***	0.0934***	0.0478***	0.0481***	0.0659***
	(0.00705)	(0.00786)	(0.00831)	(0.00804)	(0.00809)	(0.00861)
$\hat{\gamma}_{RP(1)}$	-0.538***	-0.542***	-0.828***	-0.575***	-0.572***	-0.862***
	(0.0164)	(0.0180)	(0.0201)	(0.0194)	(0.0195)	(0.0216)
$\hat{\gamma}_{RP(2)}$	-0.0485***	-0.0500***	-0.0825***	-0.0709***	-0.0681***	-0.109***
	(0.00751)	(0.00862)	(0.0124)	(0.00940)	(0.00944)	(0.0135)
$\hat{\gamma}_{W}$	0.196***	0.207***	0.424***	0.133***	0.131***	0.274***
	(0.0198)	(0.0225)	(0.0311)	(0.0245)	(0.0248)	(0.0346)
$\hat{\gamma}_{D}$	0.0777***	0.0587***	0.0993***	0.112***	0.112***	0.164***
	(0.0137)	(0.0153)	(0.0222)	(0.0171)	(0.0173)	(0.0252)
$\hat{\gamma}_{14T}$	0.138***	0.134***	0.211***	0.148***	0.150***	0.251***
	(0.0150)	(0.0165)	(0.0240)	(0.0182)	(0.0183)	(0.0269)
$\hat{\gamma}_{Ind.Work}$	0.0443***	0.0633***	0.0550**	0.0868***	0.0862***	0.109***
	(0.0140)	(0.0167)	(0.0232)	(0.0180)	(0.0183)	(0.0258)
$\hat{\gamma}_{Dep.Work}$	-0.0377***	-0.0464***	-0.00281	-0.00933	-0.0110	0.0372**
	(0.0112)	(0.0130)	(0.0179)	(0.0134)	(0.0138)	(0.0186)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs. TI	143,058	114,579	113,554	77,476	77,198	77,198
Obs. RP (1)	143,062	114,427	113,405	77,348	77,072	77,072
Obs. RP (2)	143,040	114,295	113,267	77,120	76,843	76,843
Obs. W	143,060	114,551	113,523	78,070	77,792	77,792
Obs. D	143,064	114,664	113,638	77,402	77,125	77,125
Obs. 14T	143,130	114,727	113,713	77,354	77,108	77,108
Obs. Ind. Work	143,034	114,272	113,245	76,970	76,693	76,693
Obs. Dep. Work	143,050	114,677	113,660	77,306	77,028	77,028

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level. Number of observations vary across specifications as dependent variables can take values equal to 1% and 5% thresholds.

Table 18: Excluding Upper 5%

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0738***	0.0757***	0.0910***	0.0494***	0.0499***	0.0627***
	(0.00711)	(0.00788)	(0.00817)	(0.00817)	(0.00822)	(0.00854)
$\hat{\gamma}_{RP(1)}$	-0.422***	-0.437***	-0.628***	-0.464***	-0.463***	-0.650***
	(0.0176)	(0.0194)	(0.0212)	(0.0213)	(0.0214)	(0.0233)
$\hat{\gamma}_{RP(2)}$	0.0681***	0.0756***	0.0809***	0.0706***	0.0708***	0.0765***
	(0.00614)	(0.00741)	(0.00751)	(0.00790)	(0.00794)	(0.00809)
$\hat{\gamma}_{W}$	0.205***	0.217***	0.437***	0.146***	0.145***	0.291***
	(0.0202)	(0.0229)	(0.0316)	(0.0246)	(0.0249)	(0.0348)
$\hat{\gamma}_{D}$	0.0846***	0.0601***	0.0986***	0.110***	0.111***	0.156***
	(0.0133)	(0.0148)	(0.0212)	(0.0167)	(0.0169)	(0.0242)
$\hat{\gamma}_{14T}$	0.169***	0.162***	0.254***	0.166***	0.167***	0.269***
	(0.0141)	(0.0155)	(0.0208)	(0.0171)	(0.0172)	(0.0233)
$\hat{\gamma}_{Ind.Work}$	0.0434***	0.0616***	0.0531**	0.0851***	0.0827***	0.102***
	(0.0143)	(0.0171)	(0.0235)	(0.0186)	(0.0189)	(0.0261)
$\hat{\gamma}_{Dep.Work}$	-0.0382***	-0.0469***	-0.00443	-0.0104	-0.0124	0.0305
	(0.0115)	(0.0133)	(0.0183)	(0.0138)	(0.0142)	(0.0191)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs. TI	137,274	110,074	109,079	74,320	74,050	74,050
Obs. RP (1)	137,206	109,441	108,427	72,534	72,266	72,266
Obs. RP (2)	137,172	108,833	107,820	71,986	71,717	71,717
Obs. W	137,278	109,948	108,946	76,872	76,600	76,600
Obs. D	137,258	110,476	109,488	73,834	73,571	73,571
Obs. 14T	137,342	110,210	109,259	73,368	73,149	73,149
Obs. Ind. Work	137,178	108,548	107,543	71,920	71,654	71,654
Obs. Dep. Work	137,272	110,493	109,526	73,462	73,194	73,194

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level. Number of observations vary across specifications as dependent variables can take values equal to 1% and 5% thresholds.

E.3 Fixed-Effects Model

Table 19: Fixed-Effects Model: 2 Periods (2012-2013)

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0697***	0.0684***	0.0466***	0.0462***	0.0448***	0.0342***
	(0.00711)	(0.00795)	(0.00785)	(0.00807)	(0.00812)	(0.00801)
$\hat{\gamma}_{RP(1)}$	-0.556***	-0.560***	-0.424***	-0.588***	-0.585***	-0.447***
	(0.0161)	(0.0175)	(0.0167)	(0.0191)	(0.0191)	(0.0181)
$\hat{\gamma}_{RP(2)}$	-0.0804***	-0.0838***	-0.0696***	-0.101***	-0.0959***	-0.0794***
	(0.00792)	(0.00892)	(0.00865)	(0.00975)	(0.00971)	(0.00938)
$\hat{\gamma}_{W}$	0.189***	0.196***	0.109***	0.130***	0.126***	0.0713***
	(0.0198)	(0.0223)	(0.0216)	(0.0244)	(0.0245)	(0.0236)
$\hat{\gamma}_{D}$	0.0818***	0.0613***	0.0481***	0.115***	0.114***	0.0948***
	(0.0137)	(0.0152)	(0.0147)	(0.0171)	(0.0172)	(0.0166)
$\hat{\gamma}_{14T}$	0.142***	0.137***	0.0907***	0.158***	0.157***	0.101***
	(0.0151)	(0.0167)	(0.0157)	(0.0184)	(0.0185)	(0.0173)
$\hat{\gamma}_{Ind.Work}$	0.0426***	0.0623***	0.0664***	0.0839***	0.0857***	0.0781***
	(0.0139)	(0.0164)	(0.0160)	(0.0179)	(0.0179)	(0.0175)
$\hat{\gamma}_{Dep.Work}$	-0.0416***	-0.0474***	-0.0494***	-0.0151	-0.0153	-0.0164
	(0.0113)	(0.0129)	(0.0129)	(0.0136)	(0.0137)	(0.0137)
Commune FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	144,500	115,703	114,672	78,260	77,982	77,982

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

Table 20: Fixed-Effects Model: 3 Periods (2011-2013)

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0651***	0.0640***	0.0587***	0.0462***	0.0452***	0.0413***
	(0.00711)	(0.00795)	(0.00790)	(0.00807)	(0.00813)	(0.00808)
$\hat{\gamma}_{RP(1)}$	-0.553***	-0.558***	-0.550***	-0.588***	-0.586***	-0.579***
	(0.0161)	(0.0175)	(0.0172)	(0.0191)	(0.0191)	(0.0187)
$\hat{\gamma}_{RP(2)}$	-0.0809***	-0.0855***	-0.0841***	-0.101***	-0.0978***	-0.0967***
	(0.00795)	(0.00895)	(0.00889)	(0.00975)	(0.00971)	(0.00963)
$\hat{\gamma}_{W}$	0.184***	0.191***	0.174***	0.130***	0.127***	0.113***
	(0.0199)	(0.0224)	(0.0222)	(0.0244)	(0.0245)	(0.0242)
$\hat{\gamma}_{D}$	0.0811***	0.0623***	0.0594***	0.115***	0.116***	0.111***
	(0.0138)	(0.0153)	(0.0150)	(0.0171)	(0.0172)	(0.0169)
$\hat{\gamma}_{14T}$	0.137***	0.133***	0.121***	0.158***	0.158***	0.142***
	(0.0152)	(0.0167)	(0.0162)	(0.0184)	(0.0185)	(0.0178)
$\hat{\gamma}_{Ind.Work}$	0.0467***	0.0659***	0.0639***	0.0839***	0.0849***	0.0840***
	(0.0140)	(0.0164)	(0.0164)	(0.0179)	(0.0179)	(0.0179)
$\hat{\gamma}_{Dep.Work}$	-0.0442***	-0.0514***	-0.0451***	-0.0151	-0.0163	-0.0111
	(0.0113)	(0.0129)	(0.0131)	(0.0136)	(0.0138)	(0.0139)
Commune FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	211,776	170,542	169,190	117,390	117,025	116,253

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

Table 21: Fixed-Effects Model: 4 Periods (2010-2013)

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0575***	0.0568***	0.0611***	0.0403***	0.0398***	0.0424***
	(0.00714)	(0.00797)	(0.00800)	(0.00804)	(0.00812)	(0.00814)
$\hat{\gamma}_{RP(1)}$	-0.556***	-0.561***	-0.628***	-0.589***	-0.587***	-0.658***
	(0.0162)	(0.0176)	(0.0179)	(0.0192)	(0.0192)	(0.0195)
$\hat{\gamma}_{RP(2)}$	-0.0807***	-0.0857***	-0.0925***	-0.101***	-0.0981***	-0.107***
	(0.00799)	(0.00897)	(0.00932)	(0.00976)	(0.00973)	(0.0101)
$\hat{\gamma}_{W}$	0.172***	0.181***	0.209***	0.122***	0.119***	0.133***
	(0.0201)	(0.0225)	(0.0233)	(0.0246)	(0.0247)	(0.0253)
$\hat{\gamma}_{D}$	0.0801***	0.0600***	0.0646***	0.112***	0.112***	0.117***
	(0.0140)	(0.0154)	(0.0158)	(0.0173)	(0.0174)	(0.0178)
$\hat{\gamma}_{14T}$	0.137***	0.131***	0.137***	0.155***	0.155***	0.164***
	(0.0153)	(0.0168)	(0.0172)	(0.0185)	(0.0186)	(0.0190)
$\hat{\gamma}_{Ind.Work}$	0.0446***	0.0603***	0.0555***	0.0777***	0.0774***	0.0793***
	(0.0140)	(0.0165)	(0.0171)	(0.0179)	(0.0180)	(0.0187)
$\hat{\gamma}_{Dep.Work}$	-0.0425***	-0.0519***	-0.0379***	-0.0150	-0.0174	-0.00477
	(0.0114)	(0.0130)	(0.0135)	(0.0137)	(0.0138)	(0.0142)
Commune FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	273,836	221,973	220,488	153,364	152,939	152,130

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

E.4 DID Model with Leads

Table 22: DID Model with Leads: 3 Periods (2011-2013)

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0651***	0.0645***	0.0962***	0.0462***	0.0465***	0.0719***
	(0.00711)	(0.00793)	(0.00870)	(0.00807)	(0.00811)	(0.00896)
$\hat{\gamma}_{RP(1)}$	-0.553***	-0.557***	-0.902***	-0.588***	-0.585***	-0.936***
	(0.0161)	(0.0176)	(0.0215)	(0.0191)	(0.0191)	(0.0233)
$\hat{\gamma}_{RP(2)}$	-0.0809***	-0.0852***	-0.137***	-0.101***	-0.0971***	-0.160***
	(0.00795)	(0.00901)	(0.0130)	(0.00975)	(0.00976)	(0.0141)
$\hat{\gamma}_{W}$	0.184***	0.191***	0.416***	0.130***	0.129***	0.273***
	(0.0199)	(0.0225)	(0.0313)	(0.0244)	(0.0248)	(0.0347)
$\hat{\gamma}_{D}$	0.0811***	0.0631***	0.105***	0.115***	0.116***	0.172***
	(0.0138)	(0.0154)	(0.0224)	(0.0171)	(0.0173)	(0.0254)
$\hat{\gamma}_{14T}$	0.137***	0.133***	0.214***	0.158***	0.158***	0.267***
	(0.0152)	(0.0168)	(0.0247)	(0.0184)	(0.0185)	(0.0275)
$\hat{\gamma}_{Ind.Work}$	0.0467***	0.0640***	0.0526**	0.0839***	0.0828***	0.105***
	(0.0140)	(0.0165)	(0.0233)	(0.0179)	(0.0181)	(0.0257)
$\hat{\gamma}_{Dep.Work}$	-0.0442***	-0.0543***	-0.00702	-0.0151	-0.0166	0.0368**
	(0.0113)	(0.0131)	(0.0179)	(0.0136)	(0.0139)	(0.0186)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	211,776	170,542	169,190	117,390	117,025	116,253

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

Table 23: DID Model with Leads: 4 Periods (2010-2013)

	Full Sample			Trimmed Sample		
	(1)	(2)	(3)	(1)	(2)	(3)
$\hat{\gamma}_{TI}$	0.0575***	0.0571***	0.0892***	0.0403***	0.0410***	0.0661***
	(0.00714)	(0.00794)	(0.00887)	(0.00804)	(0.00809)	(0.00910)
$\hat{\gamma}_{RP(1)}$	-0.556***	-0.559***	-0.925***	-0.589***	-0.585***	-0.961***
	(0.0162)	(0.0176)	(0.0224)	(0.0192)	(0.0192)	(0.0244)
$\hat{\gamma}_{RP(2)}$	-0.0807***	-0.0846***	-0.134***	-0.101***	-0.0966***	-0.157***
	(0.00799)	(0.00902)	(0.0130)	(0.00976)	(0.00976)	(0.0141)
$\hat{\gamma}_{W}$	0.172***	0.180***	0.396***	0.122***	0.121***	0.260***
	(0.0201)	(0.0227)	(0.0317)	(0.0246)	(0.0249)	(0.0350)
$\hat{\gamma}_{D}$	0.0801***	0.0610***	0.101***	0.112***	0.112***	0.165***
	(0.0140)	(0.0155)	(0.0226)	(0.0173)	(0.0175)	(0.0256)
$\hat{\gamma}_{14T}$	0.137***	0.132***	0.215***	0.155***	0.156***	0.265***
	(0.0153)	(0.0169)	(0.0249)	(0.0185)	(0.0186)	(0.0278)
$\hat{\gamma}_{Ind.Work}$	0.0446***	0.0592***	0.0460**	0.0777***	0.0762***	0.0959***
	(0.0140)	(0.0166)	(0.0234)	(0.0179)	(0.0182)	(0.0259)
$\hat{\gamma}_{Dep.Work}$	-0.0425***	-0.0528***	-0.000826	-0.0150	-0.0163	0.0383**
	(0.0114)	(0.0132)	(0.0180)	(0.0137)	(0.0140)	(0.0187)
Sex & Age	No	Yes	Yes	No	Yes	Yes
Commune FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	Yes	Yes	No	Yes	Yes
Lagged Vars.	No	No	Yes	No	No	Yes
Obs.	273,836	221,973	220,488	153,364	152,939	152,130

Note: *Trimmed Sample* stands for the sample that excludes propensity score tails. $\hat{\gamma}_X$ stands for the interaction estimated coefficient of regression (5) using X as dependent variable. *TI* stands for Taxable Income, *RP (1)* and *RP (2)* stand for the two measures of RP Earnings, *W* stands for Withdrawals, *D* stands for dividends, *14T* stands for 14T Earnings, *Ind. Work* stands for Independent Work Earnings, and *Dep. Work* stands for Dependent Work Earnings. *Lagged Variables* include lagged taxable income and, when being different, lagged dependent variable. In parenthesis: standard errors clustered at the individual level.

References

AGOSTINI, C. (2012): "Una Reforma Eficiente y Equitativa del Impuesto al Ingreso en Chile," Proyecto cep-cieplan.

ALMUNIA, M., AND D. LOPEZ-RODRIGUEZ (2015): "Under the Radar: The Effects of Monitoring Firms on Tax Compliance," Working Paper Series 245, Center for Competitive Advantage in the Global Economy.

ANGRIST, J. D., AND J.-S. PISCHKE (2009): *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press.

AUTEN, G., AND R. CARROLL (1999): "The Effect of Income Taxes on Household Behavior," *Review of Economics and Statistics*, 81(3), 681–693.

CARROLL, C. (2000): "Why Do the Rich Save So Much?," in *Does Atlas Shrug? The Economic Consequences of Taxing the Rich*, ed. by J. Slemrod. Harvard University Press.

CHETTY, R. (2009a): "Is the Taxable Income Elasticity Sufficient to Calculate Deadweight Loss? The Implications of Evasion and Avoidance," *American Economic Journal: Economic Policy*, 1(2), 31–52.

——— (2009b): "Sufficient Statistics for Welfare Analysis: A Bridge Between Structural and Reduced-Form Methods," *Annual Review of Economics*, 1, 451–488.

DIAMOND, P. (1998): "Optimal Income Taxation: An Example with a U-Shaped Pattern of Optimal Marginal Tax Rates," *American Economic Review*, 88(1), 83–95.

ELSCHNER, C. (2013): "Special Tax Regimes and the Choice of Organizational Form: Evidence from the European Tonnage Taxes," *Journal of Public Economics*, 97, 206–216.

ENGEL, E., A. GALETOVIC, AND C. RADDATZ (1998): "Estimación del IVA Mediante el Método de Punto Fijo," Mimeo, Servicio de Impuestos Internos.

——— (2001): "A Note of Enforcement Spending and VAT Revenues," *The Review of Economics and Statistics*, 83(2), 384–387.

ENGELSCHALK, M. (2005): "Creating a Favorable Tax Environment for Small Business Development in Transition Countries," Contributions to Economic Analysis 268.

FAIRFIELD, T., AND M. JORRATT (2014): "Top Income Shares, Business Profits, and Effective Tax Rates in Contemporary Chile," ICTD Working Paper 17, Institute of Development Studies, Brighton.

FELDSTEIN, M. (1995): "The Effect of Marginal Tax Rates on Taxable Income: A Panel Study of the 1986 Tax Reform Act," *Journal of Political Economy*, 103(3), 551–72.

——— (1999): "Tax Avoidance And The Deadweight Loss Of The Income Tax," *The Review of Economics and Statistics*, 81(4), 674–680.

GOOLSBEE, A. (2000): "What Happens when you Tax the Rich? Evidence from Executive Compensation," *Journal of Political Economy*, 108(2), 353–378.

GRUBER, J., AND E. SAEZ (2002): "The Elasticity of Taxable Income: Evidence and Implications," *Journal of Public Economics*, 84(1), 1–32.

IMBENS, G., AND D. RUBIN (2015): *Causal Inference for Statistics, Social, and Biomedical Sciences. An Introduction*. Cambridge University Press.

IMBENS, G., AND J. WOOLDRIDGE (2008): "Recent Developments in the Econometrics of Program Evaluation," NBER Working Papers 14251, National Bureau of Economic Research, Inc.

JORRATT, M. (2007): "La Medición y Control de la Erosión de las Bases Tributarias: Los Gastos Tributarios y la Evasión Tributaria," Documento preparado para la 40 asamblea general del ciat, florianópolis, brasil.

——— (2012): "Gasto Tributario y Evasión Tributaria en Chile: Evaluación y Propuestas," Proyecto cep-cieplan.

JORRATT, M., AND P. SERRA (2000): "Estimación de la Evasión en el Impuesto a las Empresas en Chile," Documentos de Trabajo 72, Centro de Economía Aplicada, Departamento de Ingeniería Industrial, Universidad de Chile.

KANBUR, R., AND M. KEEN (2014): "Thresholds, Informality, and Partitions of Compliance," *International Tax and Public Finance*, 21(4), 536–559.

KOPCZUK, W. (2005): "Tax Bases, Tax Rates and the Elasticity of Reported Income," *Journal of Public Economics*, 89(11-12), 2093–2119.

LINDSEY, L. B. (1987): "Individual Taxpayer Response to Tax Cuts: 1982-1984, with Implications for the Revenue Maximizing Tax Rate," *Journal of Public Economics*, 33(2), 173–206.

LÓPEZ, R., E. FIGUEROA, AND P. GUTIÉRREZ (2013): "La Parte del León: Nuevas Estimaciones de la Participación de los Súper Ricos en el Ingreso de Chile," Documento de Trabajo 379, Universidad de Chile, Departamento de Economía.

MIRRLEES, J. (1971): "An Exploration in the Theory of Optimum Income Taxation," *Review of Economic Studies*, 38(2), 175–208.

OECD (2004): "Best Practice Guidelines - Off Budget and Tax Expenditures," 25th annual meeting of senior budget officials, OECD.

ONJI, K. (2009): "The Response of Firms to Eligibility Thresholds: Evidence from the Japanese Value-Added Tax," *Journal of Public Economics*, 93(5-6), 766–775.

PIKETTY, T., E. SAEZ, AND S. STANTCHEVA (2014): "Optimal Taxation of Top Labor Incomes: A Tale of Three Elasticities," *American Economic Journal: Economic Policy*, 6(1), 230–71.

POMERANZ, D. (2015): "No Taxation without Information: Deterrence and Self-Enforcement in the Value Added Tax," *American Economic Review*, 105(8), 2539–2569.

POMERANZ, D., C. MARSHALL, AND P. CASTELLÓN (2014): "Randomized Tax Enforcement Messages: A Policy Tool for Improving Audit Strategies," *Tax Administration Review*, 36, 1–21.

SAEZ, E. (2001): "Using Elasticities to Derive Optimal Income Tax Rates," *Review of Economic Studies*, 68(1), 205–229.

——— (2003): "The Effect of Marginal Tax Rates on Income: A Panel Study of 'Bracket Creep'," *Journal of Public Economics*, 87(5-6), 1231–1258.

——— (2004): "Reported Incomes and Marginal Tax Rates, 1960-2000: Evidence and Policy Implications," NBER Working Papers 10273, National Bureau of Economic Research, Inc.

SAEZ, E., J. SLEMROD, AND S. H. GIERTZ (2012): "The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review," *Journal of Economic Literature*, 50(1), 3–50.

SAEZ, E., AND S. STANTCHEVA (2016): "Generalized Social Marginal Welfare Weights for Optimal Tax Theory," *American Economic Review*, 106(1), 24–45.

SERRA, P. (1991): "Estimación de la Evasión del Impuesto al Valor Agregado," Mimeo.

SII (2012): "Estimación de la Evasión en el Impuesto a la Renta en las Empresas," Discussion paper, Subdirección de Estudios, Servicio de Impuestos Internos.

SLEMROD, J. (1989): "Complexity, Compliance Costs, and Tax Evasion," in *Tax Payer Compliance: Social Science Perspectives*, ed. by J. Roth, and J. Scholz. University of Pennsylvania Press.

——— (1990): "Optimal Taxation and Optimal Tax Systems," *Journal of Economic Perspectives*, 4(1), 157–78.

——— (2004): "The Economics of Corporate Tax Selfishness," *National Tax Journal*, 57(4), 877–99.

——— (2007): "Cheating Ourselves: The Economics of Tax Evasion," *Journal of Economic Perspectives*, 21(1), 25–48.

SLEMROD, J., AND J. BAKIJA (2004): *Taxing Ourselves: A Citizen's Guide to the Debate over Taxes*. The MIT Press.

SLEMROD, J., B. COLLINS, J. HOOPES, D. RECK, AND M. SEBASTIANI (2015): "Does Credit-Card Information Reporting Improve Small-Business Tax Compliance?," NBER Working Papers 21412, National Bureau of Economic Research, Inc.

SLEMROD, J., AND W. KOPCZUK (2002): "The Optimal Elasticity of Taxable Income," *Journal of Public Economics*, 84(1), 91–112.

WORLD BANK (2015): "Chile: Efectos Distributivos de la Reforma Tributaria de 2014," Prácticas globales de macroeconomía y gestión fiscal, pobreza y gobierno, en cooperación con el ministerio de hacienda de chile, World Bank.

ZEE, H. (1998): "Revenue, Efficiency, and Equity Aspects of Major Taxes in Chile: A Preliminary Assessment," Documento de Trabajo 42, Banco Central de Chile.