Essays on Public Finance

A Thesis on Behavioral Responses to Public Policies

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PhD thesis supervisor: Prof. Dirk Foremny PhD awarding institution: Universitat de Barcelona School of Economics

- Trade-off Equity vs. Efficiency.
- Income inequality can harm societies¹ Progressive redistribution.
- Economic efficiency might suffer from increasing tax progressivity.
- Empirical question what are the behavioral responses of taxpayers to tax changes? How do vulnerable people respond to public spending policies?
- Results of this PhD thesis Precommendations for policy reforms to mitigate inequalities while distorting the less the efficiency of the economy.

¹See Alesina and Perotti (1996), Stiglitz (2012), and Pástor and Veronesi (2021).



Motivation

- Effectiveness of taxation in reducing inequalities (i) degree of progressivity and (ii) taxpayers' behavior.
- Incentives for entrepreneurs to become incorporated income shifting (i) between PIT bases and (ii) between PIT and CIT.
- Evidence on it using data from Spain.
 - Spanish public finance system follows outlined global trends.
 - Tax decentralization (many different regional tax schemes changing over years)
 sources of quasi-experimental time and cross-regional variation.
 - New very rich administrative tax micro-dataset.



Background & Contribution

- Entrepreneurs facing PIT rate increase might behave differently.
 - Output reduction (increase) ② "real" response ③ downwards (upwards) in income distribution ⑤ lower average tax rate (higher average tax rate but same net resources remaining after tax bill) ⑥ drop (gain) in economic efficiency.
 - Transferring personal income into a corporation income shifting same output (real income constant) sheltering income from taxation.

Income Shifting Mechanism - Entrepreneurs

- PIT as self-employed ② transfer business income into corporation ③ CIT taxes on corporate profits ③ transfer corporate after-tax income into personal income as dividends (financial capital income) and convenient salaries (labor income).
- Given dual PIT dividends enter PIT in capital tax base (lower and less progressive PIT schedule than labor tax base) combined CIT and PIT burden can be lower than declaring all income as self-employment labor income.



Background & Contribution

- Literature on income shifting (1) choice of organizational form^a, (2) choice to remunerate business owners^b, (3) moving income between spouses within marriage^c, (4) timing to realize dividend payments or capital gains^d.
- Literature on elasticity of taxable income (ETI), which is not only capturing "real" economic behavior^e ◆ contribute to estimates of Almunia and Lopez-Rodriguez (2019) and depict the ETI part driven by income shifting in Spain.
- Crucial results for debate on optimal marginal tax rates sestimated effects of income shifting on relocation, welfare, economic activity, redistribution, tax revenue, inequality and loss of tax progressivity.

^a See Gordon and MacKie-Mason (1994), Gordon and Slemrod (1998), and Thoresen and Alstadsæter (2010). In Spain, Domínguez Barrero and Laborda (1999), Domínguez Barrero et al. (2003), Domínguez Barrero and Laborda (1999), Laborda et al. (2014), and López-Laborda et al. (2018).

^b See Alstadsæter and Jacob (2016), and Harju and Matikka (2016).

^CSee Stephens and Ward-Batts (2004).

^d See Alstadsæter and Jacob (2016), Chetty and Saez (2005), Kari et al. (2008), le Maire and Schjerning (2013), Auerbach et al. (1998), Jacob (2016), and Jacob (2018).

^e See Pirttilä and Selin (2011), Slemrod (2001), Gruber and Saez (2002), Chetty (2009), Saez et al. (2012), Harju and Matikka (2016), and Bergolo et al. (2022).



Identification, Methodology & Data

- Identify causal effect of tax changes on income shifting.
 - Variation tax policy changes across regions and over time on PIT and CIT.
 - Data ◆ Administrative tax panel micro-data for the period 1998-2019.



- Techniques **new difference-in-difference** and event study methods.
- Treatment individual specific threshold at which each entrepreneur would be indif**ferent** between either way of taxation. Learn more
- Identify **potential shifters** \odot Corporation owners \odot $\frac{ssc}{vlab} > 6.4\%$,
 - where ssc are social security contributions and ylab is gross labor income.
 - Corporation owners can also deduct employer SSC in PIT return. 6,4% is the normal percentage applied to gross salary to compute the employee SSC.



Identification, Methodology & Data

- This **novel identification** overcomes limitations of earlier approaches.
- Estimate part of taxpayers' response to tax changes (ETI) attributed to (1) "real" economic-activity responses and to (2) income shifting.
- Counterfactual analysis tax revenue loss.
- Quantify tax progressivity loss and effects on income (and wealth) inequality.

Preliminary Evidence

- # of identified potential shifters rise and occupy a larger proportion of the total taxpayers during years with higher marginal PIT rates (2012-2014).
- Responses to taxation are not completely "real", but include income shifting implications for efficiency and inequality.



Motivation

- Income supplementation programs **3** alleviate poverty and inequality.
- Emergence of new social needs vs. increasing budgetary resources.
 - Crucial need evaluation of minimum income how do people receiving it behave in short- / long-term?
- Spain multiple and co-existing minimum income programs.
 - As of 2007 regional governments own and differing minimum income schemes • "Rentas Mínimas Autonómicas".
 - With COVID-19 central government national minimum income program minimum income minimum minimum income minimum mi
 - New very rich administrative tax micro-dataset.
- Quantitatively evaluate effects of the Spanish minimum income programs on poverty, inequality, labor inclusion, and education gap, among others.



Objective & Expected Contribution

- Descriptive work implementation & sufficiency to alleviate poverty and inequality, fitting and overlapping within complex benefit system, non-take-up analysis, etc.^a
- Quantitative empirical evaluation address questions net yet analyzed in the literature (or studied in a limited way).
 - Incentives for those receiving it to get better socio-economic conditions.
 - Insurance against transitory income shocks.
 - Potential undesirable effects arising.
- Many policy recommendations.

^a My work will contribute to descriptive literature on minimum income: Nelson (2008), Nelson (2010), Marx and Nelson (2013), Wang and van Vilet (2016), Natili (2017), Crepaldi et al. (2017), and Coady et al. (2021). In Spain, Noguera (2019), Natili (2019), Aguilar-Hendrickson and de Durana (2020), and Berjón and Gorjón (2021), among others. It will be also linked with works on non-take-up like Goedemé and Janssens (2020). Reiinders (2020). Lucas et al. (2021). and Svivia et al. (2022).

^b The paper will be contributing to the non-developed literature on quantitative evaluations of the minimum income schemes, e.g. Saboia and Rocha (2002), It will be entering on top of the specific empirical literature focused on Spain covered so far by Hernández et al. (2020), Gambau-Suelves and Nuria (2020) and Ayala et al. (2021).



Methodology & Data

- Identify causal effect of minimum income policy changes on several outcomes (poverty, income and social inequality, labor inclusion, education gap, etc.).
 - Variation **(2)** minimum income policy changes across regions and over time.
 - Data Administrative tax panel micro-data for the period 1998-2019 not only on income, but also on wealth and other socioeconomic characteristics not only PIT fillers, but for the whole population household composition.
 - Quasi-experimental ② new diff-in-diff or regression discontinuity design.
- Treatment (a) individuals receiving the minimum income quantity.
- Control those with similar characteristics not receiving it not small group papers
 Spanish minimum income programs define some very strict requirements on legal issues not based on income or social status.^a

^aIt is key here to note that non-compliance of legal issues (those not related with socio-economic status) is equally distributed among those potentially eligible for accessing the minimum income amount when only observable-in-data socio-economic characteristics are taken into account, which prevents individuals in the control group from self-selection bias.



Motivation & Expected Contribution

- Ageing Sustainability of the public pension system.
- Concentration of housing wealth, depopulation, agglomeration around big cities prising price of rental housing.
- Taxable income deductions in PIT.
 - Contributors to private pension plans fefects on private savings decisions and form of complementary pension savings.
 - Owners offering housing assets in rental market for primary residence effects on rental prices, private rental housing supply, or income concentration.
- Relevant to inequality 🗗 holders/savers occupy higher parts of income distribution.
- Literature on tax benefit evaluations through micro-simulation techniques and causality analyses related to rental pricing and fiscal treatment of public pension plans.^a

^a Tax benefit evaluation: Spadaro (2005) and Roca (2010). Rental pricing: Jappelli and Pistaferri (2007), Cummings and DiPasquale (2010), Williamson (2011), and McClure (2018). Fiscal treatment of public pension plans: Cymrot (1980), Whitehouse (1999), and Varga (2018).



Methodology & Data

- Identify causal effect of tax benefits on several outcomes (housing supply, rental prices, income and social inequality, savings decision on pension plans vs. other savings instruments, tax revenue, or social security balance).
 - Variation PIT benefit policy changes over time and across regions.
 - Data Administrative tax panel micro-data for the period 1998-2019 not only on income, but also on wealth and other socioeconomic characteristics whole population covered + household composition match landlord-tenant/renter.
 - Quasi-experimental new diff-in-diff or regression discontinuity design.
- Individuals experiencing a marginal tax rate change due to tax benefit policy changes (treatment) vs. those with similar characteristics not facing it (control).





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Panel de hogares 2016-2019, Insituto de Estudios Fiscales (IEF) (2022b) ²

Base data (AEAT & INE)

- Panel de declarantes del Impuesto sobre la Renta de las Personas Fisicas 1999-2016, Insituto de Estudios Fiscales (IEF) (2022a).
- Longitudinal sample of individual PIT returns ② amount and source of income, personal characteristics (e.g., age and gender), fiscal residence, etc. ② 15 of 17 Spanish autonomous communities (+ Ceuta & Melilla).³

New Data (AEAT & INE)

PIT records from 1998 to 2019 of for 2016-2019 (i) richer income information, (ii) not only PIT fillers, but whole population (6,1% of Spanish population), (iii) household composition & structure, (iv) new rich data on wealth and other socioeconomic characteristics.



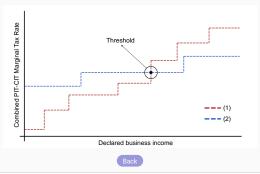
 $^{^2}$ A detailed description of the already published and open-access dataset is provided in Pérez López et al. (2022).

³Only data for regions in the Common Fiscal Regime. Regional governments of Basque Country and Navarre do not disclose data.



Entrepreneur indifferent between:

- 1. Declaring all business income as self-employed in labor PIT base.
- Transferring business income into corporation + CIT on its profits + dividends (entering capital PIT base) and convenient salaries (entering labor PIT base) from corporation to the person.⁴



⁴ It is also considered that creating a company has certain expenses (which might vary between regions and municipalities) and requires at the same time greater documentary and formal obligations than self-employment. It also takes into account whether or not the company provides greater legal coverage, mainly for the person's private assets. The threshold provided can also considerably vary depending on the personal characteristics of each individual or company.