Inheritance and Gift Taxes, Liquidity and Wealth Mobility: Evidence from Spain

Isabel Micó-Millán[§]

Job Market Paper

November 18, 2022

Click here for the most updated version

Abstract

This paper studies the impact of inheritance and gift (IG) taxation on intragenerational wealth mobility by exploiting rich regional variation in tax rates in Spain. The regulation of the Spanish IG tax was decentralized to regional governments in 1996, resulting in substantial variation in effective tax rates across regions since the mid-2000s. Relying on official tax data, I construct novel effective IG tax schedules for all Spanish regions between 2002-2018. By combining these tax schedules with household panel data from the Spanish Survey of Household Finances, I document that higher IG taxes significantly reduce wealth mobility of heirs and donees in the lower part of the net wealth distribution. Lower liquid financial wealth and higher non-mortgage debt accumulation are the main explanatory forces behind these wealth mobility patterns. I argue that liquidity constraints at the time of the inheritance receipt, illiquidity of bequests and restricted access to financial instruments are the most reasonable explanations behind this financial market puzzle with serious detrimental consequences for bottom-wealth mobility.

Keywords: inheritance and gift taxation, net wealth, wealth mobility

JEL codes: G51, H24, H73, D63

[§]Universidad Carlos III de Madrid, imico@eco.uc3m.es; I am grateful to my advisors Evi Pappa and Juanjo Dolado for their excellent guidance in this paper. I thank Luigi Minale, Luis Bauluz, Philippe Weil as well as seminar participants at UC3M for useful comments and discussions. I am grateful to the Consejo General de Economistas for granting me access to their regional fiscal reports. I am also particularly indebted to Ángel de La Fuente for his advice on the construction of the effective tax rates, and to Cristina Barceló for helping me with some confidential codes of the EFF database at the Bank of Spain. I thank public notary Paz Juárez Olmos for enriching discussions that help me go through the complex details of the Spanish Inheritance and Gift Tax System. All errors are mine.

1 Introduction

At the heart of the ongoing debate on the sharp rise in wealth inequality is the use of inheritance and inter-vivos gift (IG, hereafter) taxation as one of the main available policy tools to redistribute wealth and guarantee equal opportunities. This is an important issue since, by 2021, IG taxes are still levied in 24 out of the 36 OECD countries[1]. Yet, empirical research on this topic is still very limited since isolating the causal impact of IG taxation from other factors affecting wealth distributional outcomes is rather challenging due to identification and measurement issues. First, inheritance and gift tax reforms that could be used in a quasi-experimental setting are rare. Second, even if they have occurred, rich administrative or survey data containing detailed information on heirs' and donees' wealth has often been unavailable to researchers. These empirical challenges are also aggravated by a stark theoretical ambiguity about the impact of wealth transfer taxation on wealth distributional outcomes. For example, the quantitative macroeconomic literature examining the distributional effects of estate taxation in the U.S. finds that the effects of suppressing this form of bequest taxation range from mild to substantial, depending on specific modeling assumptions. For instance, (Cagetti and De Nardi, 2009; Castaneda et al., 2003) find negligible effects of abolishing estate taxation on wealth inequality and mobility, while (Benhabib et al., 2011) finds rather sizable effects. In addition, recent developments in the theoretical literature on optimal bequest taxation (Brunner and Pech, 2012; Piketty and Saez, 2013) also argue in favor of a positive optimal inheritance tax rates but again its magnitude depends again explicitly on the modeling assumptions[2].

In this paper, I study the wealth mobility consequences of the Spanish IG taxation through heirs' and donees' net wealth accumulation responses. The Spanish setting serves as an ideal testing ground as it allows me to tackle the above-mentioned identification and measurement challenges. First, it provides rich survey household panel data on wealth from 2002 to 2018. The Spanish Survey of Household Finances (or EFF for its acronym in Spanish) contains detailed information on the wealth and debt of Spanish households, including information on pre-tax inheritances and inter-vivos gifts amounts and their asset composition. Second, Spain offers promising quasi-experimental variation in effective IG tax rates among its regions for any tax bracket.

[1] https://www.oecd-ilibrary.org/taxation/inheritance-taxation-in-oecd-countries_e2879a7d-en

[2] Piketty and Saez (2013) show that the optimal inheritance tax rate should be positive and large if the elasticity of bequests to the tax rate is low, bequest concentration is high, and society cares mostly about those receiving small bequests. Brunner and Pech (2012) show the introduction of the inheritance tax can have an ambiguous effect on welfare depending on whether the external effect related to altruism is accounted for in the social objective

The Spanish IG tax is designed at the national level. The law contemplates a progressive tax schedule with 16 brackets and tax rates ranging from 7.65% to 34%. In 1996, the administration and regulation of this tax were decentralized to regional governments which gave them regulatory power to introduce tax credits and deductions for any tax bracket as well as to modify the marginal tax schedule at their will. Regions started to exercise this right in the mid-2000s resulting in large regional cross-bracket variation in the effective tax rates due to differences in (i) the timing of the tax reforms, (ii) the number of tax brackets affected and (iii) the magnitude of the tax discounts introduced. At a first stage, I collect information on all regional IG tax reforms between 2002-2018 relying on different official data sources. Most of these tax reforms took the form of tax credits and deductions that targeted a tax burden relief for close heirs and donees (i.e., spouses, descendants older than 21, and ascendants) and were applicable to any asset included in the tax base. With this unexploited information at hand, I first construct an average effective IG tax rate series by bracket for all Spanish regions which was previously unavailable. Then, I combine these regional effective tax schedules with the panel structure of the EFF survey and estimate the effects of this novel source of IG cross-bracket variation on wealth mobility and net wealth accumulation of close heirs and donees.

I rely on an event-study to estimate the impact and the dynamics of the treatment effect of IG tax changes. In the absence of a pre-trend, the identifying assumption is that there is no systematic regional factor driving both IG tax rates and outcome variables. The most relevant threat to identification is that local economic shocks at the regional level simultaneously determine the IG tax setting and household wealth accumulation and mobility outcomes. In this respect, I show that IG tax changes do not react to past regional economic conditions or the state of regional public finances but only to the political orientation of the regional government. However, the ideology of the party in power happens to be uncorrelated with systematic differences in economic and fiscal performance across regions. This mitigates the concerns about biases in the estimates of the treatment effects due to these confounding factors. In addition, I argue that IG tax-induced regional mobility should not play a major role in this setting due to the specific design of the tax, as inheritance taxes are paid in the region of residence of the deceased person during the last 5 years and gift taxes are paid where assets being transferred are located.

By comparing heirs and donees who pay IG taxes in different regions, I find that higher taxes have a negative impact on net wealth mobility only at the bottom of the wealth distribution. Households placed at the bottom of the net wealth distribution (i.e. 10th to 40th net wealth deciles) who are subject to higher taxes are between 10 to 30% less likely

to improve their position in the net wealth distribution than those subject to lower taxes. Interestingly, this negative effect is persistent, remaining statistically significant during 3 to 6 years after the wealth transfer receipt for households placed in the two first deciles.

I argue that liquidity constraints at the time of the bequest receipt is a relevant factor in explaining the negative effect of IG taxation on wealth mobility at the lower part of the net wealth distribution. Despite getting smaller bequests in absolute terms, less-wealthy heirs and donees in Spain receive larger bequests relative to their stock of wealth than wealthier ones. More concretely, households below the 40th net wealth percentile in Spain receive on average wealth transfers as large as 2 times their gross wealth (or 38 times their liquid assets) at the time of their receipt[3]. The higher relative size of the bequests with respect to households' stock of liquid wealth at the left tail of the distribution is explained by bottom-wealth households inheriting a large proportion of illiquid assets in form of real estate property. This particular feature of Spain[4] increases the tax burden of the bottom-wealth households disproportionally, even after taking into account the corresponding tax discounts for real estate assets contemplated in the law. First, I explore the role of liquidity constraints in explaining these wealth mobility patterns by estimating the effects of a change in the relative size of tax liabilities with respect to households' stock of liquid wealth on bottom-wealth mobility. I find that a 1 p.p. increase in the tax liabilities relative to households' stock of liquid wealth upon receipt reduces the probability of households placed the first two deciles moving up the wealth ladder by 20 to 40%. These effects are larger compared to the estimates using the tax change as the treatment variable, suggesting that liquidity constraints might amplify the negative effects of IG taxation on bottom-wealth mobility. Second, I study the role of liquidity of inherited assets in explaining these wealth mobility effects by exploiting the information on the asset composition of bequests. I find that the negative effects of IG taxes on wealth mobility are more significant when bequests include a combination of cash and real estate assets compared to those involving only cash.

Next, I investigate more in deep the empirical drivers behind these wealth mobility dynamics by studying debt and gross wealth responses to IG taxation at the household level in the presence of liquidity constraints. I provide evidence that bottom-wealth households subject to higher tax liabilities with respect to their stock of liquid wealth accumulate on average 26% less gross wealth relative to similar households being subject to lower levels of IG taxation. Specifically, it is shown that the negative effect of IG taxes on gross wealth

[3]These averages are computed using a sample of EFF households with positive net wealth

[4]Home ownership rate for households below the 20th net wealth percentile in Spain amounts to almost 30%. This is a sizable rate compared to the one in France or Germany for bottom-wealth households, which is around 2% and 7% respectively. These averages have been obtained from the 2014 wave of Household Finance Consumer Survey of the Euro Area

accumulation for these households is mostly driven by a reduction in their financial wealth, particularly in liquid assets, such as bank deposits and savings accounts. This reduction in liquid financial wealth goes in parallel with a rise in the non-mortgage debt-to-wealth ratio by 0.66 p.p. In contrast, higher taxes do not seem to affect differently gross wealth and debt accumulation of heirs and donees placed above the 50th net wealth decile, besides a short-lived negative effect on financial wealth for middle-wealth households with no further consequences on gross wealth accumulation. Accordingly, this mechanism uncovers an important link between inheritance and gift taxes and household debt accumulation in the presence of liquidity constraints which the literature has so far overlooked and connects it with wealth mobility outcomes.

These results altogether suggest that the negative effects of IG taxes on bottom-wealth mobility are mostly explained by lower financial wealth accumulation and higher debt accumulation of liquidity constraint households. I argue that limited access to financial instruments and delays in selling real estate property could be potential explanations behind this financial puzzle with serious detrimental effects on bottom wealth mobility. First, the Spanish inheritance and gift tax law requires heirs to pay taxes in the next 6 months following the death event to obtain access to the deceased person's estate, which becomes frozen by the bank system and public registry on the same day of the death (including bank accounts and deposits). Relying on personal credit might be the only option for households with low liquid wealth to pay the corresponding tax liabilities, as the Spanish bank system does not allow heirs to put the yet-to-be inherited assets as collateral for loans. Second, delays in selling real estate property might reinforce this mechanism as might preclude households from cancelling their personal credit debt and improve their net wealth position. These delays in selling inherited real estate assets might arise from market conditions, but they can also be tax-induced: the Spanish inheritance tax deductions applicable to main dwellings have usually been contingent to heirs keeping the property of the inherited property during a certain amount of years.

Related literature. This paper contributes to several strands of the literature. First, it speaks to the scant literature exploring the empirical effects of inheritances on wealth inequality using rich individual data (Elinder et al., 2018; Nekoei and Seim, 2022). These two studies find that inheritances reduce wealth inequality upon receipt as heirs at the bottom of the wealth distribution receive larger inheritances relative to their pre-inheritance wealth than wealthier heirs do. In light of this empirical evidence, Elinder et al. (2018) also study the role of inheritance taxation by exploiting the Swedish tax repeal in 2005 finding that taxing inheritances dampens the equalizing effect that inheritances have at

the baseline. In turn, Nekoei and Seim (2022) discuss the potential role of inheritance taxation in that country by simulating different tax changes (expected vs unexpected) and tax revenues redistribution schemes. These authors highlight that the direct mechanical effect of inheritance taxation, which increases wealth inequality, is of first order compared to the behavioral effects. Their results suggest that taxation can play a role in mitigating rising wealth inequality by taxing only wealthy heirs who deplete their bequests at a slower pace due to higher returns on inherited wealth. My contribution to this empirical literature is to use Spain as an alternative laboratory to estimate the causal effects of IG taxes on wealth mobility. As already mentioned, this country provides a novel and more compelling source of variation in IG rates across regions and a more unequal distribution of bequests with respect to households' initial stock of wealth than other countries, including Sweden (see OECD (2021)). Different from these studies whose primary focus is to investigate the role of inheritances in shaping wealth inequality, I provide direct evidence on the effects of IG taxation on wealth and debt responses at the individual level. By doing so, I shed light on a yet unexplored empirical channel that associates debt accumulation of less wealthy heirs with higher IG taxation, highlighting the role of the liquidity constraints in deterring net wealth mobility at the bottom. In line with their results, my findings also underscore the distribution of wealth among the descendants as a key factor in explaining the negative effect of the IG taxes on bottom-wealth mobility.

Next, this paper is also related to the empirical research exploring the effects of wealth taxation on wealth accumulation (Jakobsen et al., 2020; Ring, 2020) and reported wealth (Agrawal et al., 2020; Brülhart et al., 2019; Seim, 2017). In a similar spirit as (Agrawal et al., 2020; Brülhart et al., 2019) who leverage regional variation in wealth taxes in Spain and Switzerland to study how reported wealth responds to changes in wealth tax rates, this paper also exploits regional cross-bracket differences in effective IG tax rates in Spain. However, rather than looking at wealth taxation which affects a very small share of households concentrated at the right tail of the wealth distribution (0.5% of the adult population in 2015), my contribution here is to pay attention to the effect of IG taxes, which is another form of wealth taxation that affects a much broader group of the population (25% of the adult population in 2015) more evenly distributed along the wealth distribution. Finally, this paper is further related to the empirical work studying the effects of taxation on household debt (Gruber et al., 2021; Poterba and Sinai, 2008). These studies have mainly explored the effects of property taxes or housing-related fiscal policy changes on household debt. Unlike them, I study the effects of IG taxation rather than property taxation and relate household debt accumulation to wealth mobility patterns across the wealth distribution.

The rest of the paper is organized as follows. Section 2 introduces the Spanish inheritance and gift tax system and describes the methodology used to construct the effective regional tax schedules. Section 3 describes the household survey data used in the paper. Section 4 presents the empirical model used to study the effects of inheritance and gift taxes on wealth mobility and net wealth accumulation of heirs and donees. Section 5 presents the empirical results and 6 discusses them. Section 7 presents the robustness checks exercises and Section 8 concludes. An Appendix gathers further Tables and Figures briefly discussed throughout the paper

2 Institutional Setting

The Spanish IG tax dates back to the 18th century when it was first introduced in the tax system during the reign of Charles IV. It suffered several modifications during the 19th and 20th centuries until it became finally regulated in 1987 (Law 29/1987) as part of one the major tax system reforms undertaken after the arrival of democracy in Spain. All regions are subject to this law except for the Basque Country and Navarre (the *Foral* regions) which, due to their special fiscal status, enjoy regulatory power to design most taxes, including the IG tax[5]

Differently from other countries, Spanish law regulates jointly inheritances and gift taxes. The Spanish IG tax is levied on heirs and donees and depends on their degree of kinship with the deceased or donor, respectively. The law distinguishes four groups of heirs/donees: (i) descendants younger than 21, (ii) descendants older than 21, spouses and ascendants, (iii) siblings, stepchildren, nephews/nieces, uncles/aunts, and (iv) more distant relatives and non-relatives. Heirs' tax base is defined as the sum of the individual portion inherited and life insurance benefits derived from the deceased's bequests[6] while donees' tax base is defined as the sum of assets transferred *inter vivos* by an alive donor. The net tax base is calculated after applying any eligible tax deductions. These depend on the degree of kinship with the deceased or donor as well as on the type of assets being inherited. If the net tax base is positive, a progressive marginal tax schedule is applied to obtain the net tax liability. The tax schedule defines 16 brackets with tax rates ranging from ax rates ranged from 7.65% to 34%. The final tax liability to be paid is obtained after considering any tax credit and the corresponding multiplying factor, which depends on the pre-bequest wealth of the taxpayer

[5]Notwithstanding this special status, these two regions have regulated IG tax rates similar to the rest of Spain. Appendix A provides a more detailed description of the institutional setting of these two regions.

[6]The inheritance tax base also includes those assets transferred to the heirs by the deceased in a short period before her death. An illustrative example are gifts made by the deceased to heirs during the four years preceding the moment of death.

and group.

The Spanish IG tax system establishes that inheritance taxes must be paid in the region of residence of the deceased person. By contrast, the region where gift taxes are paid depend on the type of assets transmitted. For example, inter-vivos transfers involving real assets are paid in the region where assets are located while taxes for gifts entailing any other type of asset are paid in the region of residence of the grantee.

2.1 Regional Inheritance and Gift Tax Credits and Deductions

The administration and regulation of the IG tax in Spain were decentralized in 1996. This meant that regions were awarded regulatory power to introduce tax credits and tax deductions as well as to modify the tax schedule or the multiplying factors at their will. I collect information on the inheritance and gift tax reforms introduced by regional governments contained in the regional tax books (*Libros de Tributación Autonómica*) published by the Spanish Ministry of Finance and the regional fiscal reports from the Spanish General Council of Economists (*Consejo General de Economistas de España*). I complement this data with the official tax codes and their successive modification of the Basque Country and Navarre.

It is worth noticing that, though IG taxes were decentralized to the regions since 1996, regional governments did not exercise this right until the beginning of the 2000s when they started to modify the IG tax code rather frequently. Most of these tax reforms take the form of tax credits and deductions, although some regions introduced their own marginal tax schedule or changed multiplying factors which turned out to work as implicit tax credits[7]. Interestingly, almost all of these tax discounts were designed to apply to *any asset* included in the tax base[8]

2.1.1 Close heirs and donees

The majority of these tax reforms were introduced to reduce the tax liability of close heirs and, to a lesser extent, of close donees with respect to the default. I refer to close heirs and donees as descendants older than 21, ascendants and spouses (group (ii)), and descendants younger than 21 (group (i)). Group (ii) is the largest group of taxpayers as it concentrates 86% and 93% of the total inheritance and gift taxpayers in Spain, respectively.

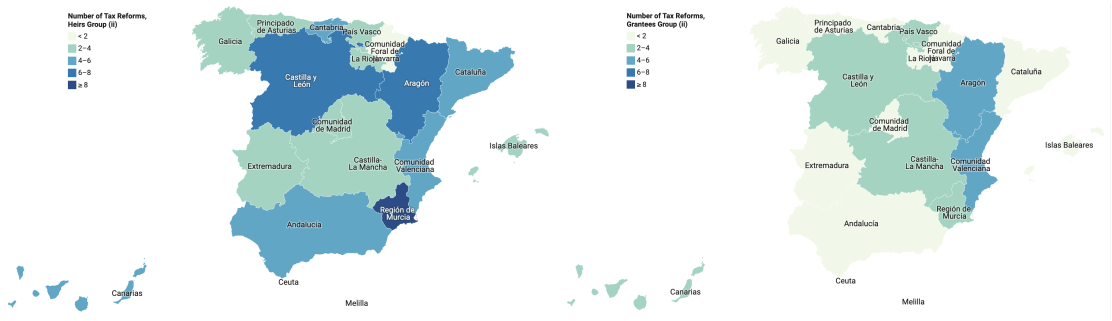
To illustrate how frequently regions have modified the regional tax schedule, the regional

[7] Some regions reduced the multiplying factors to a number very close to zero. See Appendix B for more details

[8] The rationale behind this legislative action is that the default rule already includes generous tax deductions for the most common inherited assets, such as family business or main dwelling, and thus regions did not have much room to reduce these asset-specific tax liabilities for close heirs and donees

maps displayed in Figure 1 depict the number of tax reforms for heirs and donees of group (ii) introduced by each Spanish region. Both maps reveal substantial heterogeneity in the regional tax reform activity, with Murcia, Castile and Leon, and Aragon as the regions which have modified their tax code more frequently. All regions, except Ceuta and Melilla, have reformed the IG tax code at least once over the time period considered.[9]

Figure 1: Regional Inheritance and Gift Tax Reforms 2002-2019 - Group (ii)



(a) Inheritance Tax **(b)** Gift Tax

This Figure depicts the number of tax reforms for close heirs and donees (group (ii)) introduced by Spanish regions. Panel 1a refers to the inheritance tax while Panel 1b refers to the gift tax. These figures have been constructed using the inheritance tax regulation contained in the regional tax books published by the Spanish Ministry of Finance, as well as in the regional fiscal reports produced by the General Council of Spanish Economists.

Even though most tax changes introduced by regional governments were aimed to reduce the tax liabilities of close heirs and donees, some of them implied a large reduction in the tax discounts previously introduced if not their repeal. For instance, Murcia abolished a tax credit of 99%[10] for heirs of group (ii) in 2013. Likewise, Canary Islands also revoked the tax credit of 99.9% for this group in 2012 and replaced it by a 0% tax credit plus a tax base deduction of just 40,000 euros. Figures C.6 - C.9 distinguish between changes in IG tax regulation for close heirs and donees of group that implied a proper introduction of a tax discount from those that involved a repeal or a large reduction in those previously legislated. Both figures reveal that most of these tax reforms led to the introduction of tax discounts or their expansion, while only very few regions actually limited or abrogated them at the end of 2000s.

2.1.2 More distant heirs and donees

Regional governments introduced very few tax reforms for more distant relatives and non-relatives (i.e. those belonging to group (iii) and (iv)). Figure C.2 shows that only very four

[9] Figure C.1 reproduces the same maps focusing on heirs and donees from group (i) and shows that young descendants' tax liabilities have also been subject to several reforms.

[10] A tax credit of 99% with a limit of 300,000 euros of the tax base

regions introduced tax reforms for heirs of group (iii) and only one for heirs of group (iv), while donees in either group did not experience any tax reform over this period[11]

2.2 Constructing Effective Regional Inheritance and Gift Tax Schedules

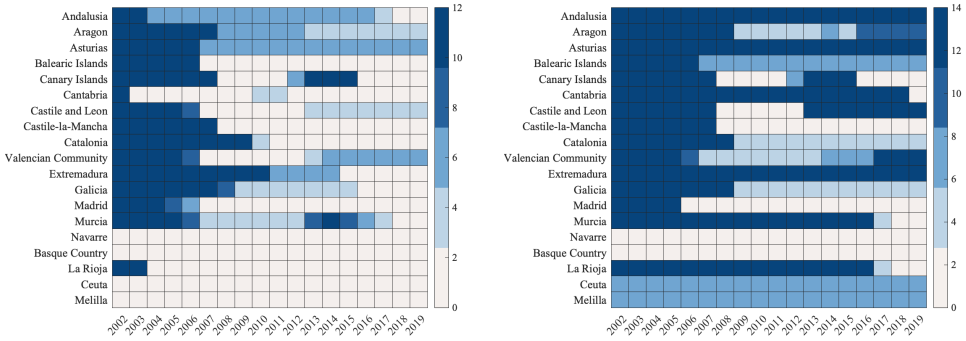
Using the information on tax credits and reductions, I construct the effective tax rate for heirs or donees j for bracket i, group g in region r at time t as follows:

$$\bar{\tau}^{j}_{igrt} = \left(\frac{\overbrace{q_{ir} + (\bar{b}_i - t^{j,d}_{igrt} - c^{lb}_i) \times \tau_{irt}}^{l_{igrt}}}{\bar{b}_i - t^{j,d}_{igrt}} \right) \times t^{j,c}_{igrt} \times \phi_{grt} \quad j \in \{\text{H, G}\} \quad i \in \{1, ..., 16\} \quad g \in \{1, 2, 3, 4\}$$

where $\bar{b}_i$ refers to the average gross tax base, $q_i r$ is the tax quota corresponding to bracket i of the net tax base in region r, i.e $(b_i - t^{d,j}_{igrt})$, τ_{irt} is the marginal tax rate and ϕ_{grt} is known as the multiplying factor of the tax liability, which is increasing in heirs or donees' pre-inheritance wealth and group for region r. Only general tax discounts for any asset are being considered. Notice that the average effective tax rate is allowed to vary across regions and time as local governments introduced different tax deductions (t^{d}_{igrt}) and credits (t^{d}_{igrt}) as well as modified the tax schedule (τ_{ir}), the corresponding quota (q_{ir}) and the multiplying coefficients (ϕ_{grt}) at various points in time. Appendix B provides a more detailed description of the construction of the average effective tax rates for each bracket. Figure 2 presents the average effective inheritance and gift tax rate for heirs and donees of group (ii) by region and year. Depicted average effective tax rates vary from 0.0% (0.0%) to 11.46% (12.8%) for inheritance (gift) tax showing substantial regional variation induced by the tax reforms regulated. As can be seen, the average trend in all Spanish regions has been to reduce the tax liabilities of this group. The cumulative reduction in both average effective tax rates has been sizable: the effective average inheritance and gift tax rates fell by 85% and 50% in 2019, respectively.

[11] Figures C.10 and C.11 show that the few tax reforms for heirs of group (iii) and (iv) also targeted a tax relief for this group in line with the tax reforms introduced for close heirs and donees.

Figure 2: Average Effective Inheritance and Gift Tax Rate - Group (ii)

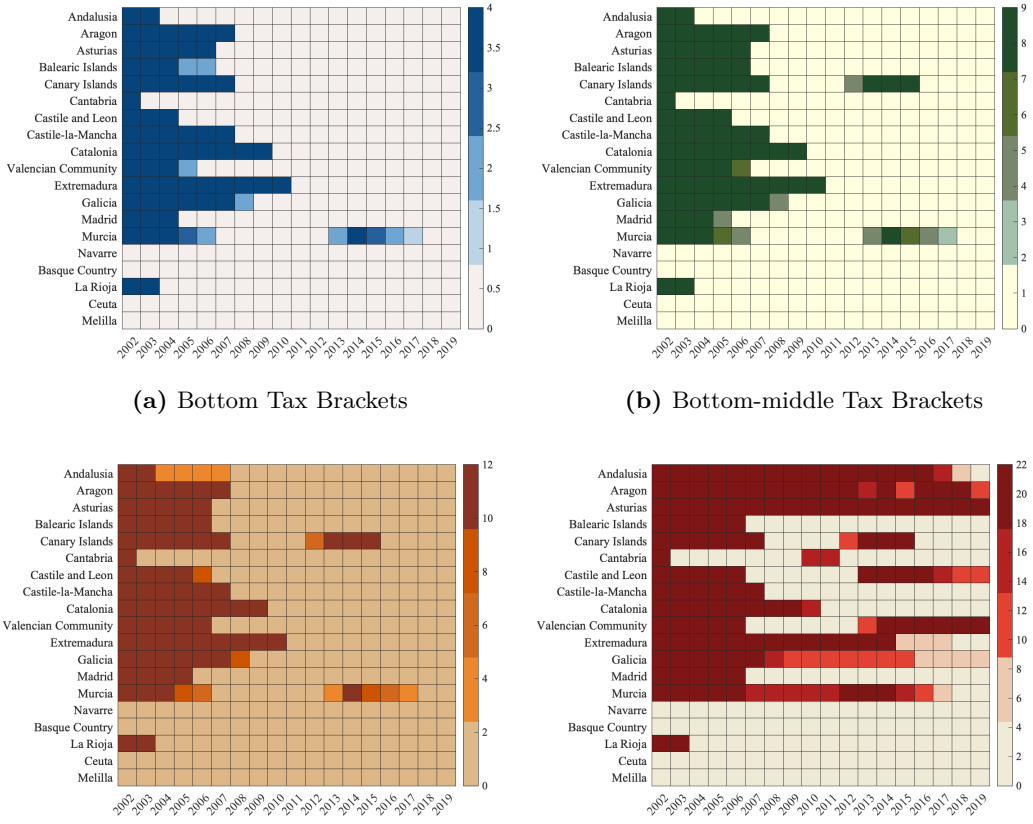


(a) Regional Inheritance Tax Rates **(b)** Regional Gift Tax Rates

This figure depicts the average effective inheritance tax rare (Panel 2a) and gift tax rate (Panel 2a) for group (ii) for each of the 19 Spanish regions and year

This downward pattern in IG tax rates masks important heterogeneity also along the tax schedule. Figures 3 and 4 present average bracket-specific IG tax rates for each region and year. The heatmaps reveal a considerable degree of regional heterogeneity for middle-top and top tax brackets. As can be inspected, the regional heterogeneity in the bottom brackets rates is lower compared to top brackets and is mainly due to the timing of the introduction of the tax discounts. Instead, regional heterogeneity in middle and top bracket rates is rather due to both the degree of generosity of the tax discounts as well as the timing of their introduction.

Figure 3: Average Effective Inheritance Tax Rate across Regions - Group (ii)



(a) Bottom Tax Brackets

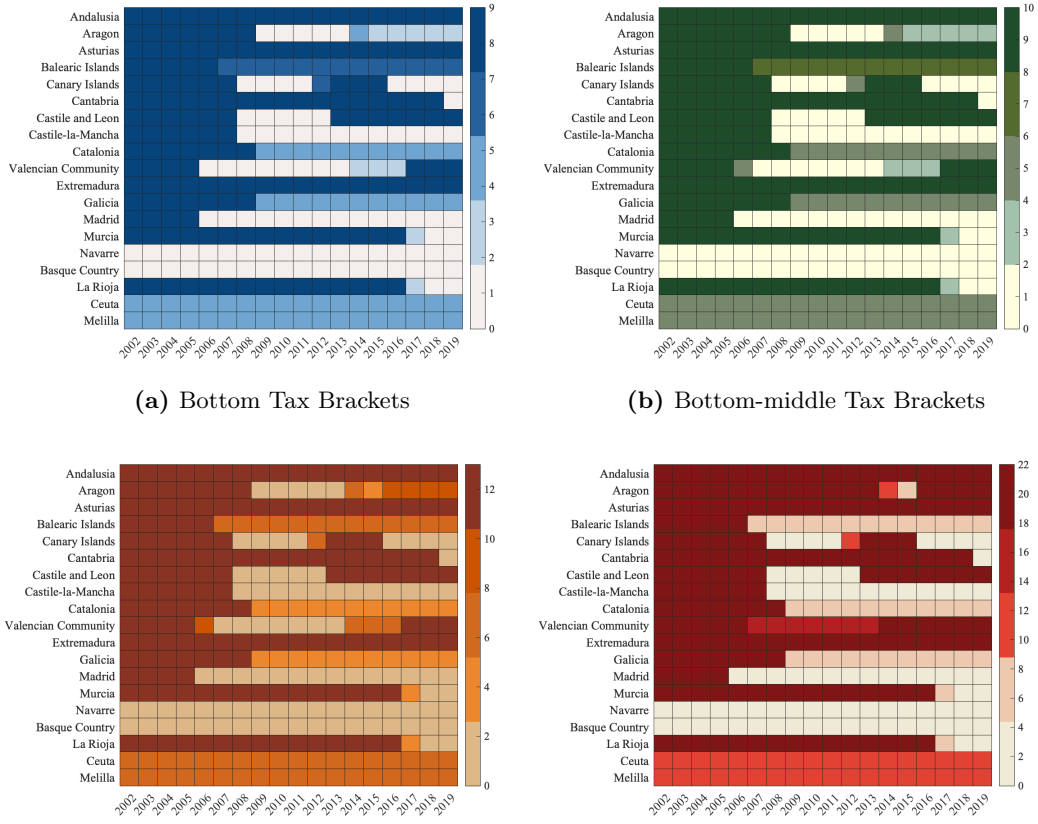
(b) Bottom-middle Tax Brackets

(c) Middle-top Tax Brackets

(d) Top Tax Brackets

This figure depicts the average effective inheritance tax rate by bracket for group (ii) in all Spanish regions in 2013. *Bottom brackets* range from 0 to 32,000 euros, *bottom-middle brackets* from 32000 to 64000 euros, *middle-top brackets* from 64000 to 160,000 euros and *top brackets* from 160,000 euros on

Figure 4: Average Effective Gift Tax Rate across Regions - Group (ii)



(a) Bottom Tax Brackets

(b) Bottom-middle Tax Brackets

(c) Middle-top Tax Brackets

(d) Top Tax Brackets

This figure depicts the average effective gift tax rate by bracket for group (ii) in all Spanish regions. *Bottom brackets* range from 0 to 32,000 euros, *bottom-middle brackets* from 32000 to 64000 euros, *middle-top brackets* from 64000 to 160,000 euros and *top brackets* from 160,000 euros on

2.3 Regional Government Finances

The inheritance and gift tax is one of the tax instruments completely administered by regional governments[12]. Between 2002-2019, IG tax revenues represented 3.78% of annual total revenues at the regional level. This percentage increases to 19.7% if only tax revenues directly controlled by the regions are considered (i.e those coming from decentralized taxes). This relatively high degree of fiscal autonomy enjoyed by Spanish regions is reflected in the expenditure side, as regional governments are in charge of the provision of important public goods such as healthcare, schooling or social spending. Although IG taxes make up less than 4% of total regional revenue, the type of public goods provided regions and the high degree of fiscal autonomy can make the local public goods channel relevant in the Spanish context. I confirm this is not the case empirically by exploring the relationship between IG taxes and

[12]The taxes decentralized to regions are: wealth tax, capital transfer tax and tax on gambling machines. Regional government have limited regulatory power regarding the income tax, th vehicle registration tax and the tax on gambling activities

regional public finances in Section 4.1

3 Household Data

I use household-level data from the EFF survey between 2002 and 2018. This survey is conducted every two years by the Bank of Spain and provides rich information on households' wealth, income, consumption and demographics. Note that, although the survey is actually conducted at triennial frequency, every wave contains household observations in two consecutive years leading to biannual information[13]. In the last four EFF waves, households are asked retrospectively if they had received an inheritance or gift at any point in time[14]. In case of a positive answer, they were additionally requested to report the actual pre-tax inheritance or gift amount, the year of its reception as well as the type of assets involved (i.e. cash, land, real estate, etc.). The survey also provides information on the form of acquisition real estate assets and business-related assets, which includes inheritance and donation as possible answers, as well as the percentage of the property owned by the household and their value at the time of the acquisition. This disaggregated information allows me to better approximate the net tax base of each household, as inherited real estate and business assets have enjoyed generous tax discounts[15].

The EFF has a panel dimension in which households might be included at most for four consecutive waves. This implies that heirs and donees are observed up to a maximum of 12 years with gaps. Since households are asked retrospectively, I construct an unbalanced panel of households that can be tracked for at least two consecutive waves and report the reception of one inheritance/gift within that period. Households reporting more than one inheritance or gift are excluded. Table 1 presents summary statistics for all inheritances and gifts. Spanish households receive around 61,000 euros on average in form of inheritances or gifts. This average goes up to almost 100,000 when considering only bequests in form of cash, real estate and other assets. Moreover, the relative size of these wealth transfers is large: bequests-to-wealth ratios are 0.94, indicating that Spanish heirs and donees receive on average wealth transfers that are almost as large as their current gross wealth. Table D.1 provides descriptive statistics about the socio-economic characteristics of heirs and donees at the year of the wealth transfer receipt.

[13] For example, the 2002 wave contains information of households surveyed in years 2002 and 2003

[14] The survey question is posed as follows: *Have you ever received an inheritance or gift/donation from someone who does not currently form part of your household?*

[15] The national law contemplates a 95% tax credit for main dwelling of the deceased person up to a 120,000 euros limit. Inherited business-related assets enjoy a 95% tax credit with no limit

Table 1: Summary Statistics Inheritance and Gift Receipts

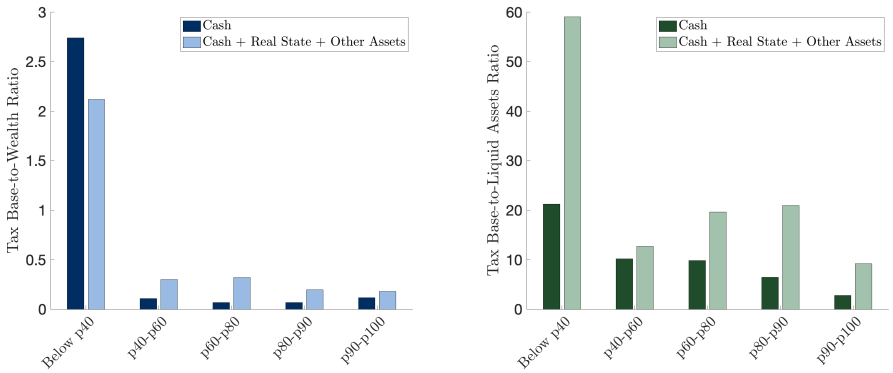
	All Bequests					
	Mean	sd	Min.	Max.	N	# Obs
Bequest value	61.10	124.01	1.24	3246.26	400	1288
Bequest-to-wealth ratio	0.94	6.59	0.00	100.00	400	1288
Bequest year	2009	4.37	2001	2018	400	1288
	Bequests in form of cash (gifts)					
Bequest value	32.37	64.16	1.29	1038.82	210	680
Bequest-to-wealth ratio	0.93	8.45	0.00	100.00	210	680
Bequest year	2009	4.32	2001	2018	210	680
	Bequests in form of cash and other assets (Inheritances)					
Bequest value	99.27	166.95	1.24	3246.26	190	608
Bequest-to-wealth ratio	0.94	2.53	0.00	18.96	190	608
Bequest year	2010	4.42	2001	2017	190	608

Bequest value is expressed in thousand euros and is CPI-adjusted to the year 2016. EFF survey weights are applied such that averages are representative of the Spanish population

To examine how the relative size of the tax base varies along the wealth distribution, Figure 5a plots the tax base as share of households gross wealth in the year of the bequest receipt for different net wealth percentiles. Tax base is constructed after applying the tax deductions applicable to housing and business-related assets, which have been roughly constant for all regions since the beginning of the period. For the sake of comparability with the Swedish study by Elinder et al. (2018), I include only heirs and donees with positive net wealth. Panel 5a shows that the relative size of the tax base with respect to household stock of wealth decreases along the wealth distribution, being more than 2 times higher for households below the 40th net wealth percentile, irrespectively of the type of assets received[16]. Figure 5b plots this share using household liquid assets instead of gross wealth. As can be observed, the relative size of the tax burden with respect to household stock of liquid wealth at the bottom of wealth distribution is particularly higher when bequests include real estate assets (i.e. it amounts to 60 times their liquid wealth).

[16] Although the negative relationship between the relative size of tax liabilities and the distribution of wealth of recipients is also present in Sweden (Elinder et al., 2018; Nekoei and Seim, 2022), this ratio at the bottom of the wealth distribution in Spain is considerably higher than in Sweden where it takes a value of 0.9

Figure 5: Relative Size of the Tax Base by Wealth Percentile



(a) Tax Base-to-Wealth Ratio **(b)** Tax Base-to-Liquid Assets Ratio

Wealth percentiles are constructed using net wealth. Panel 5a shows the ratio of the tax base (net of real assets and business assets tax deductions) with respect to household stock of gross wealth in the year of the bequest receipt. Gross wealth includes housing and financial wealth. Panel 5b shows the ratio of the tax base (net of real assets and business assets tax deductions) with respect to household stock liquid financial wealth in the year of the bequest receipt. Liquid assets include checking, savings accounts and stocks. Only households with positive net wealth are considered. EFF survey weights are applied such that the reported values are representative of the Spanish population

3.1 Sample Selection

The survey is uninformative about the degree of kinship between the heirs/ donees and the deceased person/donor and thus, about the specific group of taxpayers to which of heirs and donees belong to. By looking at heirs and donees' characteristics, it can be ensured that no taxpayer belongs to group (i) in the sample as there is no one-person household reporting an inheritance or gift who is younger than 21. For the main analysis, I will assume that heirs and donees belong to group (ii) (i.e spouses, ascendants and descendants older than 21) as this group represented around 86% and 93% of the total inheritance and gift taxpayers in 2015, respectively[17].

The EFF survey does not differentiate between inheritances and gifts as the survey question asks household about the reception of either of the two. I exploit the information on asset composition of bequests and I will assume that wealth transfers involving only cash are gifts, while those including a combination of liquid and illiquid assets are inheritances. Inheritance taxes are paid in the region of residence of the deceased person while gifts involving only cash are paid in the donees' region of residence. Therefore, for households receiving only cash transfers I will input the gift effective tax rate in their region of residence while for households receiving multi-asset bequests I will use the effective tax rate in their

[17] Unfortunately, there is very scarce information about the distribution of taxpayers according to their group of kinship. The most updated official information on this matter can be found in Libro blanco sobre la reforma tributaria, 2022

region of birth as a proxy for the region of residence of the deceased person. At any rate, this could pose a threat to the identification strategy if cash transfers are not gifts as inheritances and gifts are subject to different effective tax schedules for any group. To overcome this caveat, I will restrict the sample to those inheritances and gifts that received equal tax treatment for group (ii) in each region, year and tax bracket in the robustness check section.

4 Empirical Analysis

4.1 Identification Strategy

The variation in inheritance or gift effective tax rates paid by heirs and donees stems from the regional differences in bracket-specific tax reforms undertaken by local governments after the decentralization of the tax. To interpret the coefficient on the regional effective IG tax rate as the causal effect of the tax change on wealth mobility and net wealth accumulation, it is important to make sure that the exclusion restriction is likely to be satisfied.

In contrast to wealth taxation, for which there is evidence of wealth-tax induced regional mobility of taxpayers (Agrawal et al., 2020; Brülhart et al., 2019), selection into regional inheritance tax treatment does not represent a concern in this setting given the nature of death itself and the fact that inheritors in Spain pay taxes in the region of residence of the deceased person during the last 5 years prior to death. Moreover, gift-tax induced regional mobility seems even less of a concern as gift taxes are paid in the regions of the assets are located except for cash. However, inter-vivos gifts could be used strategically to deal with the progressivity of the inheritance and gift tax (Kopczuk, 2007) within a region and thus, this might result into selection into bottom-brackets tax treatment for donees if planned with time[18]. To make sure this potential source of endogeneity does not represent a big concern in this setting, I will exploit only the regional variation of the tax by restricting the sample to heirs and donees receiving inheritances and gifts in the bottom brackets in an exercise in the robustness check section.

Another concern when studying the effect of geographical differences in taxation is whether these regional tax changes are correlated with macroeconomic aggregates or regional government finances that could affect household outcomes (Cloyne and Surico, 2017; Surico and Trezzi, 2019). Table C.2 presents the estimation results of separately regressing the average inheritance tax rate and gift tax rate on lags of unemployment, CPI and GDP per capita controlling for year and region fixed effects. Table and C.3 presents the estima-

[18]The Spanish IG establishes that gifts made during the four years preceding the moment of death have to be included as part of the estate

tion results of regressing the public expenditure per capita[19] and debt-to-GDP ratio on the average inheritance tax rate and gift tax rate. As can be inspected, changes in the inheritance and gift tax rates do not seem to be correlated with past macroeconomic aggregate conditions or local finances at the regional level. They are, however, correlated with the political orientation of the regional government. Table C.4 reveals that there is a negative and significant statistical correlation between having a right-wing party in power and IG tax rates. Instead, Table C.5 shows there is not a systematic difference in terms of economic performance or government spending between right-wing and left-wing regional governments. These results altogether suggest that while there seems to be politically-driven variation in IG taxes, they could be taken as exogenous to regional macroeconomic conditions influencing household wealth accumulation decisions and wealth mobility.

Finally, the last concern is whether other types of wealth taxation may confound the inference drawn about the effect of IG taxes on household wealth accumulation and wealth mobility. Although there is also substantial regional variation in wealth tax rates across Spanish regions as the regulation of this tax was also decentralized in 1998, wealth tax filers in Spain belong to the top 1% of the wealth distribution[20]. Therefore, the average impact of the wealth tax on the whole wealth distribution would thus be too small to become a meaningful confounder. In contrast, I cannot rule out that the capital gains tax (*Impuesto de Plusvalía*) can represent a relevant confounder in this setting. In Spain, real assets received as inheritance or gift must pay a capital gain tax which varies at the municipality level. If any, the estimated effects for IG taxes could be interpreted as a lower bound for the total effects of wealth transfer taxation if the effect of this additional tax would be taken into account.

4.2 Empirical Specification

To estimate the effect of inheritance taxation on heirs' wealth mobility and wealth accumulation, I rely on an event-study strategy:

$$y_{irt} = \sum_{\substack{k=-3 \\ k\neq -1}}^{2} \beta_k \cdot \mathbf{1}(k = t - t_{w^i}) \times T_{ijrt} + \zeta_i + \zeta_t + \nu_{irt} \tag{1}$$

where y_{irt} denotes the outcome variable of household i who pay taxes in region r in year t, $\mathbf{1}(k = t - t_{w^i})$ are indicators for each event year k before and after the year of the inheritance/gift receipt, t_{w^i}, and T_{ijrt} refers to the treatment variable for household i receiving an

[19] Public expenditures in health, schooling and social protection programs.

[20] (Agrawal et al., 2020) report that wealth tax filers amounted to 2.7% of the total Spanish adult population in 2007. This percentage decreased to approximately 0.5% in 2015 adult population

inheritance or gift in tax bracket j who pays taxes in region r at time $t = t_{w^i}$.

I use two alternative definitions of treatment T_{ijrt}. Treatment is either defined as the tax rate change or the size of the tax liabilities change with respect to household's stock of liquid wealth upon receipt:

$$\begin{cases} T_{ijrt} = & \bar{\tau}_{ijrt=t_{w^i}} \\ T_{ijrt} = & \bar{\tau}_{ijrt=t_{w^i}} \times \frac{B}{W}_{it=t_{w^i}} \end{cases}$$

where $\tau_{ijrt=t_{w^i}}$ is the average effective tax rate for household i with tax base corresponding to tax bracket j and paying taxes in region r at time $t = t_{w^i}$ and $\frac{B}{W}_{it=t_{w^i}}$ is the ratio of the tax base with respect to household stock of liquid wealth upon receipt. The reference period is the year before each household receives the inheritance or gift, $y = -1$, which is omitted. Bequests in form of cash are assumed to be gifts while bequests in form of cash and other assets, such as real estate, land, stocks, etc., are assumed to be inheritances.

Notice that since the inheritance tax system is progressive, the average effective tax rate will vary across individuals within a region-year. Household-fixed effects (ζ_i) as well as year-fixed effects (ζ_t) are included to account for any individual-specific and time-varying shocks that might influence heirs and donees' wealth mobility and wealth accumulation. The event-study coefficients of interest are $\sum_{k=0}^{3} \beta_k$, which recover the difference in wealth accumulation or mobility between those heirs and donees subject to a higher bracket-specific average tax and those subject to a lower one. Standard errors are robust and clustered at the household level since gifts taxes vary at the region-of-residence-bracket level while inheritance taxes vary at the region-of-birth-bracket level.

5 Results

5.1 Wealth Mobility

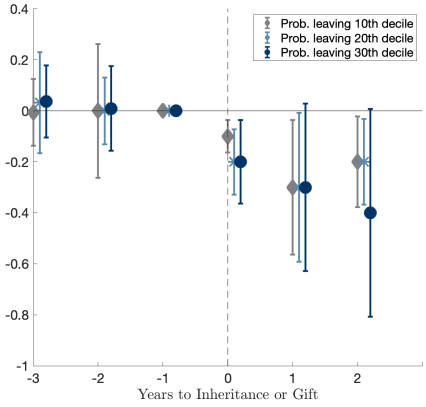
I start by studying how Spanish IG taxation affects wealth mobility of heirs and donees. To that end, I follow one of the most standard approaches to measure intragenerational wealth mobility (Bayaz et al., 2010; Elinder et al., 2018; Jäntti and Jenkins, 2015), which consists in comparing transition probabilities in the wealth distribution for heirs and donees before and after receiving an inheritance/gift. I partition the net wealth distribution in 10 deciles and define nive transition probabilities, each of them being the probability of leaving the *th*

decile of the net wealth distribution within the Spanish population[21].

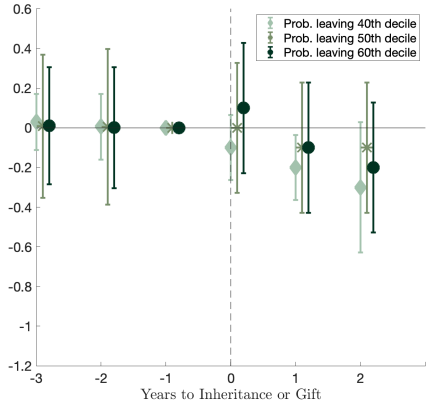
Figure 6 plots the estimated β_k coefficients from Equation 1 when the treatment variable is the average effective tax rate, which recover the baseline estimates of the effect of IG taxe changes on wealth mobility of heirs and donees at different parts of the wealth distribution. The estimated coefficients in the previous periods to receiving the inheritance or gift are not significant, supporting the existence of parallel trends in wealth mobility between households paying high and low IG taxes before receiving the wealth transfer. The effect of higher IG taxes displays a hump-shaped response along the net wealth distribution: a 1 p.p. increase in IG taxes reduces the probability of households placed at the 10th (20th) decile moving up in the net wealth distribution by 20% to 40% (60%) in the years following the wealth transfer receipt (see Panel 6a). Higher IG taxes also affect negatively the upward mobility prospects of households placed at the 30th and 40th net wealth. The detrimental effect of IG taxes on bottom-wealth mobility is significantly persistent - between 3 to 6 years - for heirs and donees placed at the 10th and 20th deciles of the net wealth distribution upon the bequest receipt. In contrast, higher IG taxes do not seem to affect middle or top-wealth mobility (see Panels 6b and 6c) .

[21] I use survey weights provided in the EFF to ensure households' rank position is representative of the Spanish population

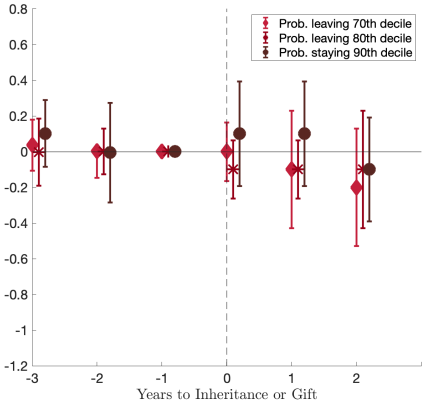
Figure 6: Effect of Inheritance and Gift Taxes on Wealth Mobility



(a) Bottom-wealth mobility



(b) Middle-wealth mobility



(c) Top-wealth mobility

This figure plots the event study estimates ($\hat{\beta}_k$) and corresponding 90 percent confidence bands of the specification of Equation 1. The treatment variable is the average effective tax rate. Wealth transfers in form of only cash are considered gifts while those in form of real estate assets or a combination of real estate assets with other assets (cash, stocks, life insurance, etc.) are considered inheritances.

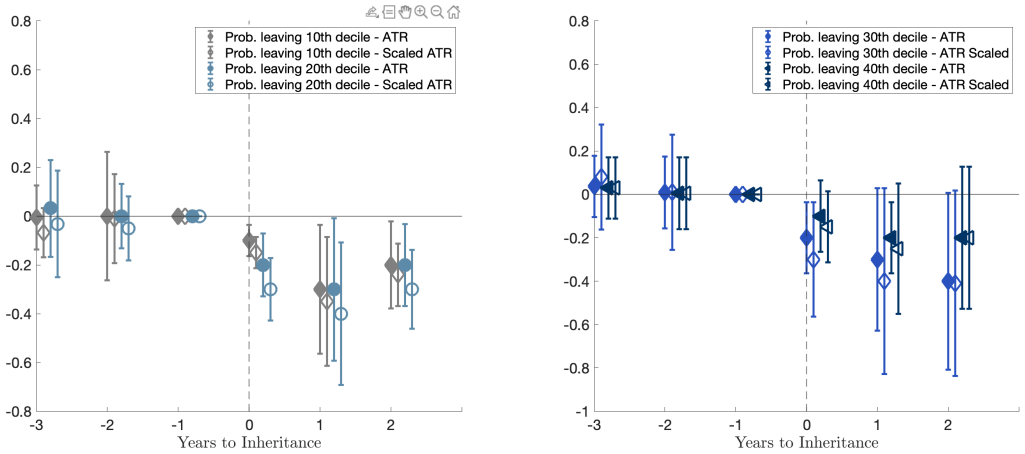
5.2 Understanding The Effects of IG Taxes on Bottom-wealth Mobility

5.2.1 The Role of Liquidity Constraints Upon Receipt

Figure 7 depicts the estimated β_k coefficients of Equation 1 when the treatment variable is the size of the tax liabilities with respect to households' stock of wealth and compares them with the results in Pane 6a. Interestingly, the negative effect on bottom-wealth mobility becomes amplified when defining the treatment variable in relative terms with respect to household's liquid assets: heirs and donees below the 20th decile being subject to higher tax liabilities with respect to their stock of liquid wealth are between 32% to 40% less likely to move up the net wealth distribution in the next years after the wealth transfer receipt. These results illustrate how liquidity constraints can reinforce the detrimental effects of higher taxes

on bottom-wealth mobility.

Figure 7: Effect of Tax Changes versus Scaled Tax Liabilities on Bottom-wealth Mobility



(a) Probability of leaving the 10th, 20th decile **(b)** Probability of leaving the 30th, 40th decile

This figure plots the event study estimates ($\hat{\beta}_k$) and corresponding 90 percent confidence bands of the specification of Equation 1. The dependent variable in Panel 7a is the probability of leaving the 10th and 20th net wealth decile. The depending variable in Panel 7b is the probability of leaving the 10th and 20th net wealth decile. Wealth transfers in form of only cash are considered gifts while those in form of real estate assets or a combination of real estate assets with other assets (cash, stocks, life insurance, etc.) are considered inheritances.

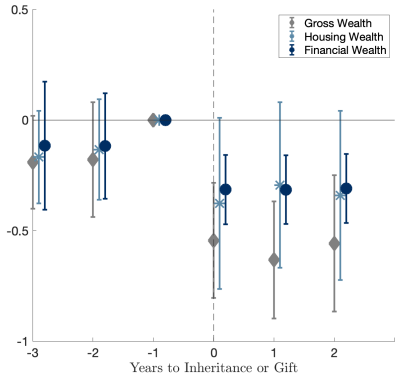
To better understand the empirical drivers behind this bottom-wealth mobility patterns in the presence of liquidity constraints, I investigate how IG taxes affect households' gross wealth and debt accumulation separately. The EFF survey distinguishes between households' type of wealth, such as financial or housing wealth. Financial wealth includes bank deposits, stocks, mutual funds as well as fixed-income securities and private pension plans. The survey also dissagregates debt between mortgage-related debt and non-mortgage related debt. The last includes personal loans, credit lines, current account overdrafts, advances as well as loans from friends or family. Figure 8 presents the estimated β_k coefficients when the dependent variables is (logged) gross wealth and their components (Panel 8a-8e) or debt-to-wealth ratios (Panel 8b-8f) for different groups of households depending on their net wealth position upon receipt. The treatment variable used is tax liabilities scaled by household stock of liquid wealth. First, the estimated coefficients in the previous periods to receiving the inheritance or gift and thus paying IG taxes are not significant, supporting the existence of parallel trends in household wealth and debt before the change in taxes.

Panel 8a shows that a 1 p.p. increase in tax liabilities relative to their liquid wealth reduces gross wealth by 26.9-30% in the following years to the reception of the bequest for bottom-wealth households (i.e. those below the 40th decile of the net wealth distribution). It is clear from this figure that the negative effect of IG taxation on gross wealth accumulation

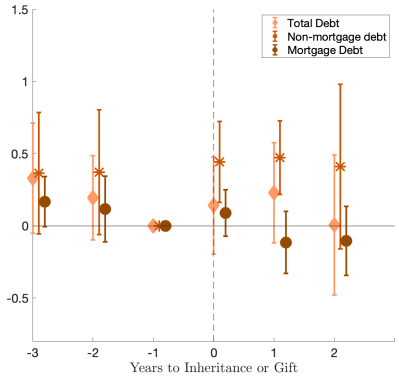
is mainly explained by their negative impact on financial wealth rather than housing wealth. Heirs and donees when they have to bear with relatively large tax liabilities, experience a reduction in financial wealth equal to 50-54% in the years following the reception of the bequest in comparison to those subject to lower tax rates. Interestingly, this negative effect of IG taxes on gross wealth accumulation goes in parallel with a positive effect of IG taxation on debt accumulation. Panel 8b show that less-wealthy heirs and donees subject to higher taxation increase their non mortgage debt-to-wealth ratio between 0.48 and 0.52 p.p. in the years following the reception of the wealth transfer in comparison to those subject to lower tax rates. The effect is statistically significant up to 1 period after the bequest receipt (i.e up to 3 years after).

Panel 8c shows that middle-wealth households (i.e. those between the 40th and 70th deciles of the net wealth distribution) subject to higher tax liabilities relative to their liquid wealth decrease their financial wealth on impact in comparison to those subject to lower tax rates. However, this negative effect on financial wealth dissipates after one period and have no significant impact on gross wealth accumulation. In contrast to the increase in non-mortgage debt experienced by bottom-wealth households subject to higher tax rates, middle-wealth households' debt does not react significantly to higher relative levels of taxation as shown in Panel 8d. Finally, results in Panel 8e and 8f suggest that an increase in tax liabilities do not seem to affect significantly top-wealth households gross wealth or debt accumulation at any point in time.

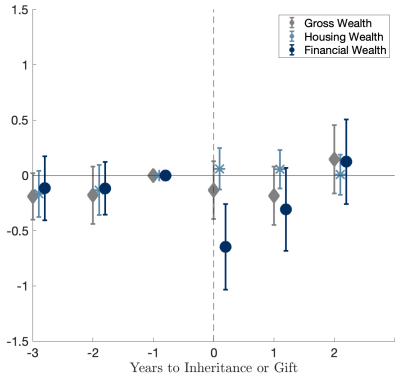
Figure 8: Effect of Relative Size of IG Tax Liabilities on Household Wealth and Debt



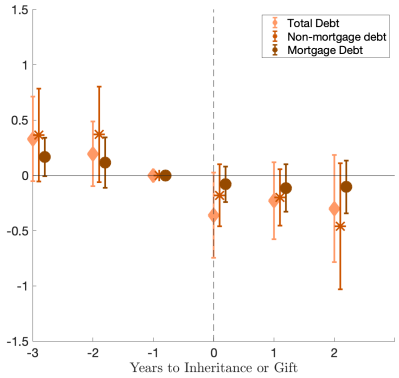
(a) Bottom-wealth households



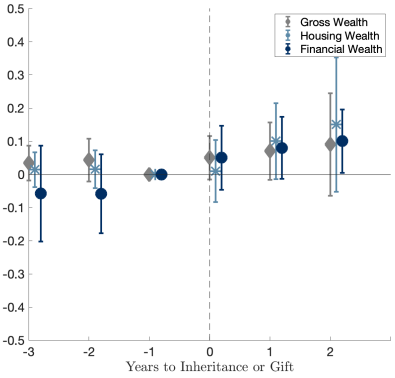
(b) Bottom-wealth households



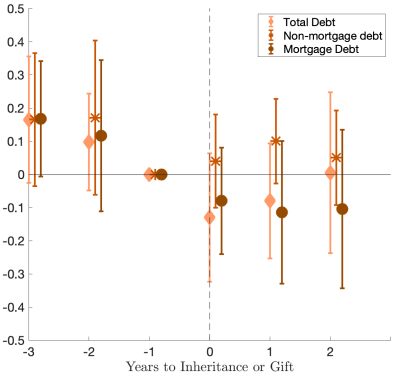
(c) Middle-wealth households



(d) Middle-wealth households



(e) Top-wealth households



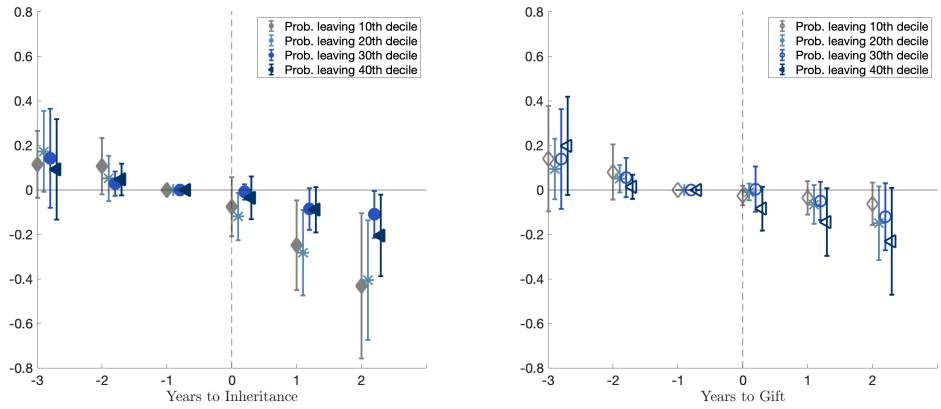
(f) Top-wealth households

This figure plots the event study estimates ($\hat{\beta}_k$) and corresponding 90 percent confidence bands of the specification of Equation 1. The treatment variable is the ratio of tax liabilities with respect to household stock of liquid wealth. Bottom-wealth households are those placed at below the 40th decile of the net wealth distribution, middle-wealth are those placed between the 50th-70th deciles and top-wealth are those placed above 80th decile upon recipt. The dependent variable in Panels 8a-8e is (logged) gross wealth, financial wealth or housing wealth. The dependent variable in Panels 8b-8f total debt-to-wealth ratio, mortgage-related debt-to-wealth ratio or non-mortgage-related debt-to-wealth ratio. Financial wealth includes bank deposits, stocks, mutual funds, pension plans and life insurance. Housing wealth includes real state property. Wealth transfers in form of only cash are considered gifts while those in form of real estate assets or a combination of real estate assets with other assets (cash, stocks, life insurance, etc.) are considered inheritances.

5.2.2 Asset Composition of Bequests

Spain is one the first OECD countries featuring the highest home ownership rates at the bottom of the wealth distribution. In 2014, this rate was almost 30% for households below the 20th net wealth percentile compared to the 2% and 7% rates in France and Germany[22]. This higher home-ownership rates at the left tail of the wealth distribution get also reflected in the composition of bequests for bottom-wealth households: 16% of the total bequests including some form of real estate asset are received by households below the 40th net wealth percentile. This percentage remains relatively constant along the wealth distribution and is only surpassed by households above the 90th net wealth percentile. To explore the role of the bequest illiquidity in explaining the bottom-wealth mobility patterns, Figure 9 disaggregates the effects of IG taxes on bottom-wealth mobility between bequests in form of only cash (gifts) and bequests in form of real estate plus other assets such as cash, life, insurance or other financial assets (inheritances). As can be inspected, the negative effects on bottom-wealth mobility seem to be stronger for illiquid bequests rather than liquid ones.

Figure 9: Effect of IG Taxes on Bottom-wealth Mobility by Asset Composition of Bequests



(a) Bequests in form of real estate + other assets (inheritances)

(b) Bequests in form of cash (gifts)

This figure plots the event study estimates ($\hat{\beta}_k$) and corresponding 90 percent confidence bands of the specification of Equation 1. The treatment variable is the average effective tax rates. Panel 9a restricts the sample in form of real estate assets or a combination of real estate assets with other assets (cash, stocks, life insurance, etc.). Panel 9b restricts the sample to those bequests in form of only cash.

To further investigate the role of the asset composition of bequests in explaining these wealth mobility dynamics, ideally one would like to study the effects of IG taxation by net position and type of assets received. While the size of my panel data sample does not allow me to perform such exercise, Figure E.1 shows the effects of IG taxes on gross wealth and debt-to-wealth ratios by asset composition of bequest. Higher IG taxes decrease financial

[22] Data from 2014 Household Survey of Consumer Finance (HCF) wave conducted by the ECB

wealth and increase non-mortgage debt on impact when bequests include cash and real estate while no effects are found for bequests including only cash.

6 Potential Explanations

The results put forward throughout this paper suggest that the negative effects on bottom-wealth mobility are mostly explained by reduction in net wealth of recipients at the left tail of the net wealth distribution. In the presence of liquidity constraints and higher levels of taxation, bottom-wealth recipients decrease their financial wealth and the non-mortgage debt accumulation compared to those subject to lower tax rates, which translates into serious detrimental effects in terms of wealth mobility for these households.

Limited access to financial instruments. The Spanish IG tax law requires heirs to pay taxes in the next 6 months following the death event to obtain access to the deceased person's estate, which becomes frozen by the bank system and public registry on the same day of the death (including bank accounts and deposits). In the presence of liquidity constraints, bottom-wealth households might need to resort to personal debt to pay the corresponding tax liabilities when being subject to higher levels of IG taxation. Relying on personal credit might be the only option for these households as the Spanish bank system does not allow heirs to put the yet-to-be inherited assets as collateral for loans.

Delays in selling real estate property. Although the above-mentioned singularities of the Spanish IG tax system might translate into lower bottom-wealth mobility on impact due to restricted access to financial instruments, it is less obvious why the detrimental effects of IG taxes on bottom-wealth mobility persist over time (i.e. between 3 to 6 years after the bequest receipt). In combination with this channel, delays in selling real estate property could help explain the lasting negative effect on bottom-wealth mobility. First, Spanish households at the bottom tend to receive bequests that include housing due to high home-ownership rates in Spain. Second, Section 5.2.2 provides evidence that the negative effect of IG taxes bottom-wealth mobility is more significant for wealth transfers entailing real estate property compared to those including only cash. These results together with the persistent increase bottom-wealth households' non-mortgage, which remains statistically significant after 3 years, suggest that delays in selling real estate property might preclude households from liquidating their debt and improve their net wealth position. These delays in selling real estate property might arise from market conditions, but also from tax-induced restrictions. The Spanish IG tax system offers generous tax discounts for the main dwelling of the deceased person (i.e. 95% tax credit up to a limit of 120,000 euros) with the condition

the heirs must keep this property for a certain amount of years[23].

Inherited debt. In Spain, the deceased person's estate includes all assets and their associated liabilities. This implies that heirs become liable for all debts of the deceased person once they accept the inheritance and pay the corresponding taxes. Therefore, it could be that the effect of an increase in IG taxes on bottom-wealth heirs' non-mortgage debt is driven to bottom-wealth heirs inheriting systematically more non-mortgage debt in regions with higher taxation. Although the survey does not provide information on the financial liabilities inherited, I explore this mechanism by check whether non-mortgage debt of bottom-wealth households above 70 years old is systematically higher in regions with higher IG taxation. Table **??** suggests that non-mortgage debt holdings of old bottom-wealth households are not significantly higher in regions with higher levels of IG taxation.

7 Robustness

7.1 Age profile of heirs and donees

One possible concern is that the negative effect of IG taxes on bottom-wealth mobility is driven by a small group of relatively young heirs who, for standard life-cycle reasons, have almost no wealth at the time of paying the corresponding tax liabilities and are forced to undertake debt and decumulate financial wealth (Elinder et al., 2018). Tables E.1 present the average age of heirs and donees and the proportion of those younger than 40 along the wealth distribution. First, the average age for different net wealth percentiles clearly suggest that less wealthy heirs and donees are not on average younger than wealthier ones. Second, although the proportion of younger heirs and donees at the bottom of the wealth distribution is higher, the concentration of younger heirs and donees at the upper parts of the distribution is non-negigible (i.e 40% of total young heirs are above between the p60 and p90). This evidence suggest that young heirs do not seem to be an important driver of the estimated IG tax effects.

7.2 Inheritances and gifts subject to equal effective tax rates

So far I have assumed that households receiving bequests in form of cash and other assets are heirs and thus file the inheritance tax returns in their region of birth, which I consider a proxy for the region of residence of the deceased person. In turn, those households receiving

[23]The national law contemplates a period of 10 years although regions have reduced this number to 5 years on average since the 2000s.

bequests in form of cash are assumed to be donees and hence they file their region of residence which is observed in the survey. If these cash transfers turn to be inheritances, this could pose a threat to the identification strategy as households should be paying taxes in the region of residence of the deceased person. To overcome this caveat, I restrict the sample to those years, regions and tax backets for which inheritances and gifts received equal tax treatment. Figure C.12 depicts the years for which regions applied the same general tax discounts for heirs and donees of group (ii) for all tax brackets and for at least half of them, respectively. This coincidence in the tax liabilities of close heirs and donees was mostly due to the introduction of generous tax credits or tax deductions targeting specific tax brackets. Figure E.2 present the wealth mobility results using this particular identification scheme. The results are very similar to the baseline estimates in Figure 6, suggesting that the effects of inheritance and gift taxes on wealth mobility are robust to this alternative identification scheme.

7.3 Self-selection into bottom-bracket tax treatment

The main baseline specification exploits intra-national variation in both inheritances and inter-vivos gifts effective tax rates for any tax bracket. This could represent a potential source of endogeneity if donees are self-selecting themselves into bottom-brackets tax treatment as gifts could be used strategically to deal with the progressivity of the inheritance and gift tax (Kopczuk, 2007) if planned with time[24]. To make sure estate planning does not represent a big concern in this setting, I exploit only the regional variation of the tax by restricting the sample to heirs and donees receiving inheritances and gifts in the bottom brackets. Figure E.3 present the wealth mobility results in this restricted sample. Although less precisely estimated, the wealth mobility results survive to this robustness exercise.

8 Conclusion

Understanding the empirical effects of inheritance and gift taxation on wealth mobility is at the heart of the current of debate about how taxing transferred wealth could improve equality of opportunity. Although wealth mobility is not equivalent to wealth inequality, there are strong reasons why we should care about how wealth transfer taxation influence the wealth position of households within the wealth distribution. By using Spain as a laboratory, I document that higher IG taxes affect wealth mobility at the lower part of wealth distribution

[24]The Spanish IG establishes that gifts made during the four years preceding the moment of death have to be included as part of the estate

through lower financial wealth and higher non-mortgage debt accumulation of bottom-wealth recipients. Liquidity constraints upon receipt and the asset composition of bequest at the bottom of the wealth distribution seem to be important factors in explaining these empirical regularities. The Spanish Inheritance and Gift Tax law contemplates the use of scaling factors depending on the pre-inheritance wealth of heirs and donees. However, these scaling factors have always been 1 for close heirs and donees, which represent the majority of tax payers and have been barely changed by regional governments. From a more policy-oriented perspective, investigating how the design of the tax could release the tax burden of liquidity-constraint households by taking intro account the pre-inheritance wealth of recipients would be extremely interesting.

Appendix

A Inheritance and Gift Tax in Navarre and Basque Country

The Spanish Constitution passed in 1987 conceded complete fiscal autonomy to Navarre and Basque Country (the *Foral* territories), that is, recognized the legal capacity of these regions to regulate and manage their taxes independently.

Basque Country's fiscal system is composed by three different and independent fiscal authorities, each of them belonging to each provincial government (known as *diputaciones forales*). The *Foral* treasuries of Álava, Bizkaia and Gipuzkoa enjoy a high degree of fiscal regulatory power and are in charge of the collection of their own taxes. The first law regulating the general aspects of the inheritance and gift tax system in Gipuzkoa was introduced in 1987 (Foral norm 5/1987) while Alava and Bizkaia introduced theirs two years later in 1989 (Foral Norm 25/1989 and Foral Norm 2/1989). Navarre's first inheritance and gift tax framework was properly introduced in 2002 (Foral Law 3/2002)

Differently form the rest of regions, the information about the tax reforms undertaken in Navarre and Basque Country is not included in the regional tax books from the Spanish Ministry of Finance. Therefore, I have relied on the regional fiscal reports provided by the Spanish General Council of Economists and the official tax codes published the regional governments to collect this information. Table 2 summarizes the years in which the *Foral* territories legislated a tax reform and the corresponding information sources.

Table 2: Tax reforms and data sources

	Year of Implementation	Data Source
Basque Country		
Alava	2012,2014	Spanish Council of General Economists, Foral Norm 18/2011
Bizkaia	2012,2014	Spanish Council of General Economists, Foral Norm 1/2012
Gipuzkoa	2012, 2014	Spanish Council of General Economists Foral Norm 5/2011, Foral Norm 1/2014
Navarra	2018	Spanish Council of General Economists, Foral Norm 16/2017

The inheritance and gift tax legal framework in the Foral territories shares common features with the one in force for the rest of Spanish regions. The tax systems designed by the Basque and Navarre treasuries established 9 and 13 tax brackets[25], respectively, which is a smaller number compared to the national rule, and a different progressive tax schedule depending on the degree of kinship between the heir (grantee) and the deceased

[25] Alava and Bizkaia have the same tax bracket bounds, which slightly differ from the ones regulated in Gipuzkoa

person (donor)[26]. In general, the progressivity of the tax schedule for more distant heirs in these regions has been higher than the default for rest of Spain. In contrast, gifts and inheritances of close heirs and donees (spouses and direct ascendants and descendants) have been traditionally subject to a very low tax rate in these regions: they were exempted in the whole Basque country until mid 2012 and subject to a flat rate of 0.8% in Navarre until 2017. In terms of tax deductions and credits, the fiscal authorities in Basque Country have regulated various tax discounts for different groups of heirs and donees. These have been traditionally more generous on average in Gipuzkoa compared to Alava and Bizkaia for more distant heirs (i.e. Gipuzkoa has had in force a tax deduction of 8000 for heirs of group (iv)) but less so for close heirs. Navarre introduced a tax deduction of 250,000 euros for close heirs for the first time in 2018.

B Constructing Regional Average Effective Tax Rates

Using the information on tax regulation changes contained in Tables B.5-B.10, I construct the effective tax rate for heirs or donees j for bracket i, group g in region k at time t as follows:

$$\bar{\tau}^{j}_{igkt} = \left(\frac{\overbrace{q_{ik} + (\bar{b}_i - t^{j,d}_{igkt} - c^{lb}_i) \times \tau_{ik}}^{l_{igkt}}}{\bar{b}_i - t^{j,d}_{igkt}} \right) \times t^{j,c}_{igkt} \times \phi^{j}_{gkt} \quad j \in \{\text{H, G}\} \quad i \in \{1, ..., 16\} \quad g \in \{1, 2, 3, 4\}$$

where $\bar{b}_i$ refer to the average tax base in bracket i and ϕ^{j}_{gkt} refers to the multiplying factor which depends on heirs' pre-inheritance wealth and group.

Whenever there is a change in tax regulation in the middle of the year, the average effective tax schedule is computed as a monthly weighed mean. For instance, Galicia introduced a tax credit of 100% for tax bases lower than 125,000 euros as well as simplified the marginal tax for heirs of group (ii) in June 2008. Therefore, the average effective tax rate for heirs of group (ii) in Galicia in the year 2008 is computed as:

$$\bar{\tau}^{H}_{i,2,2008} = \bar{\tau}^{H}_{i,2,2007} \times \frac{5}{12} + \tilde{\bar{\tau}}^{H}_{i,2,2008} \times \frac{7}{12} \quad i \in \{1, ..., 16\}$$

where $\tilde{\bar{\tau}}^{H}_{i,2,2008}$ is the average effective tax rate for each bracket i that considers the tax

[26] The definition of groups of heirs and donees by degree of kinship in these regions also varies with respect to the national law. In Basque Country, group (i) and (ii) include taxpayers qualified as belonging to group (iii) in the national law. The same applies to group (iii) in this region with respect to group (iv) in the national law. Navarre's inheritance and gift tax system does not define groups but directly refers to degrees of kinship

discounts and new tax schedule introduced in June 2008.

A group of regions introduced implicit tax credits by reducing the multiplying factors with respect to the default rule. For example, Cantabria reduced the multiplying factor (ϕ) for heirs of group (i) and (ii) in 2003 from 1-1.4 to 0.02-0.04, which implied a tax credit ranging between 97% and 99% as computed in de La Fuente et al. (2018). The regions that used the multiplying factors as a tool to diminish the tax liabilities of close heirs are gathered in Table B.1 and the corresponding implicit tax credits in Table B.2, respectively. For the regions and years that reduced the multiplying factor with respect to the national rule, I use the average implicit tax credit.

Table B.1: Reduction in the Multiplying Factor - Regions

Region	Group	Default ϕ	New ϕ	Years in force
Cantabria	(i),(ii)	1-1.2	0.01-0.04	2003-2009
Asturias	(i)	1-1.2	0.01-0.04	2004-2018
Galicia	(i)	1-1.2	0.01-0.04	2004-2008

Table B.2: Reduction in the Multiplying Factor and Implicit Tax Credit - Groups (i) and (ii)

Pre-inheritance wealth	Change ϕ	Default ϕ	Implicit tax credit
0-400k	0.01	1	99.00%
400k-2M	0.02	1.05	98.10%
2M-4M	0.03	1.10	97.27%
$>$ 4M	0.04	1.20	96.67%
Average			97.76%

Finally, some regions introduced tax credits that applied to a specific group of taxpayers within a group. In these particular cases, I follow de La Fuente et al. (2018) and compute the average tax credit taking into account the weight of each group of taxpayers in the tax base of the region. For example, Catalonia in 2014 regulated an unconditional tax credit of 99% for spouses while introduced a progressive tax credit for ascendants and descendants:

Table B.3: Tax Credit for Ascendants and Descendants - Catalonia 2014

	Tax credit	Weight Taxpayers*	Average Tax Credit
< 100k	99%	16.91%	16.74%
100-200k	98%	16.33%	16.00%
200-300k	97%	9.73%	9.44%
300-500k	94.20%	12.19%	11.49%
500-750k	89.47%	10.81%	9.67%
750k-1M	84.60%	8.33%	7.05%
1-1.5M	76.40%	6.17%	4.72%
1.5-2M	69.8%	6.17%	4.31%
2-2.5M	63.84%	6.17%	3.94%
2.5-3M	55.37%	6.17%	3.54%
> 3M	30%	1%	0.30%
Average			70,46%

*These weights are taken from a report of Grupo de Trabajo sobre Imposición Patrimonial de la Comisión Mixta de Coordinación de la Gestión Tributaria (CMCGT, 2007). See de La Fuente et al. (2018) for more details

Table B.4: Taxpayers weights, heirs group (ii) - Catalonia 2014

	Weight Tax Payers*
Spouses	23.42%
Ascendants, descendants	76.58%

*These weights are taken from a report of Grupo de Trabajo sobre Imposición Patrimonial de la Comisión Mixta de Coordinación de la Gestión Tributaria (CMCGT, 2007). See de La Fuente et al. (2018) for more details

The average net tax rate for heirs of group (ii) would be computed as:

$$\bar{\tau}^{H}_{i,2,2014} = \bar{\tau}^{H,Default}_{i,2,2014} \times \underbrace{(1-0.99)}_{\text{spouses' tax credit}} \times \underbrace{0.2342}_{\text{spouses' weight}} + \bar{\tau}^{H,Default}_{i,2,2014} \times \underbrace{(1-0.7046)}_{\text{others' tax credit}} \times \underbrace{0.7658}_{\text{others' weight}} \quad \forall i$$

Table B.5: Tax Credits and Deductions for Heirs - Group (ii)

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Andalucia			td 100% if tb<125k				td 100% if tb<175k		
Aragon							td 100% max 150k		
Asturias						tc 100% if tb<125k			tc 100% if tb<150k
Balearic Islands				td 25k		tc such that $\tau = 1\%$			
Canary Islands				td 18.5k	tc 99.9%				
Cantabria		tc 97-99%*							tc 90-99%
Castile and Leon				td 30k	td 60k	tc 99%			
Castile la Mancha							tc 95%		
Catalonia	td 18k								td 150-500k tc 25%,50% + own τ
Valencian Community				td 25k	td 40k	tc 99%			
Extremadure									
Galicia							0/ tc 100% if tb<125k + own τ	tc 100% if tb<125k + own τ	
Madrid				td 50k	td 100k	tc 99%			
Murcia				tc 25% if tb<300k	tc 50% if tb<300k	tc 99% if tb<450k	tc 99% max 450k		
Navarre									
Basque Country									
La Rioja			tc 99%						
Ceuta and Melilla									

td = tax deduction; tc = tax credit; tb = tax base; own τ = regional tax schedule; *Implicit tax credit. The information on tax reforms has been retrieved from the regional tax books from the Spanish Ministry of Finance and from the regional fiscal reports produced by the General Council of Spanish Economists

Table B.6: Tax Credits and Deductions for Heirs - Group (ii)

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Andalucia							td 100% if tb<250k max 200K if 250k<tb<350k	td 100% max 1M	td 100% max 1M / tc 99%
Aragon		tc 20% or td 100% max 150k	tc 33% or td 100% max 150k	tc 50% or td 100% max 150k	tc 65% or td 100% max 150k	td 100% max 150k		td 100k max 500k	
Asturias							tc 100% if tb<200k / tb<300k + own τ	tb<300k + own τ	
Balearic Islands						td 25k + own τ			
Canary Islands		tc 99% / td 20-40k	td 20-40k			tc 99%			
Cantabria		tc 99%						td 50k tc 100% if tb<100k tc 90% if tb>100k	tc 100%
Castile and Leon			td 175k			td 175k/ td 250k	td 250k/ td 300k	td 400k	
Castile la Mancha						tc 95% / tc 80-100%	tc 80-100%		
Catalonia	tc 99% + own τ			tc 99% / td 50-100k + tc 20-99%; 99% if spouse + own τ	td 50-100k + tc 20-99%; 99% if spouse + own τ				
Valencian Community			tc 99%/ td 100k + tc 75%	td 100k + tc 75%			td 100k + tc 50%		
Extremadure	td 100% max 175k if inher<600k				tc 90-99% if tb<600k			tc 99%	
Galicia						td 400k + own τ			
Madrid									
Murcia		tc 99% max 450k/ tc 99% if tb <300k		default/ tc 50%	tc 50%	tc 60%	tc 99%		
Navarre								td 250k spouse + own τ	
Basque Country		exempt/ td 400k, 220k + own τ	td 400k, 220k + own τ*		td 400k + own τ				
La Rioja						tc 98%-99%			
Ceuta and Melilla									

td = tax deduction; tc = tax credit; tb = tax base; own τ = regional tax schedule; *400K in Alava and Bizkaia, 220k in Gipuzkoa

Table B.7: Tax Deductions and Credits for Heirs - Group (i)

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Andalucia			td 100% if tb<125k				td 100% if tb<175k		
Aragon			td 100% max 3M						
Asturias			tc 97-99%*						
Balearic Islands		td 3k	tc 99%						
Canary Islands						td 100% max 1 M	tc 99.9%		
Cantabria		tc 97-99%*							tc 90-99%
Castile and Leon		td 6-120k age	tc 99%						
Castile la Mancha					tc 95%				
Catalonia	td 18-54k age	td 18-114k age							td 275-539k age tc 25%,50% + own τ
Valencian Community			tc 99%						
Extremadure					td 18-70k				
Galicia			tc 97-99%*				tc 97-99%*/ tc 99% + own τ	tc 99% + own τ	
Madrid			tc 99%						
Murcia			tc 99%						
Navarre									
Basque Country									
La Rioja			tc 99%						
Ceuta and Melilla									

td = tax deduction; tc = tax credit; tb = tax base; own τ = regional tax schedule; *Implicit tax credit. The information on tax reforms has been retrieved from the regional tax books from the Spanish Ministry of Finance and from the regional fiscal reports produced by the General Council of Spanish Economists

Table B.8: Tax Deductions and Credits for Heirs - Group (i)

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Andalucia							td 100% if tb<250k max 200K if 250k<tb<350k	td 100% max 1M	td 100% max 1M / tc 99%
Aragon									
Asturias							tc 97-99% + own τ		
Balearic Islands						tc 99% + own τ			
Canary Islands		tc 99.9%/ td 100% max 40k-140k age				tc 99.9%			
Cantabria		tc 99%						td 50-150k age tc 100% if tb<100k tc 90% if tb>100k	tc 100%
Castile and Leon			td 175k			td 175k/ td 250k	td 250k/ td 300k	td 400k	
Castile la Mancha						tc 95% / tc 80-100%	tc 80-100%		
Catalonia	tc 99% + own τ			tc 99% / td 100-196k age + tc 20-99% 99% if spouse + own τ	td 100-196k age + tc 20-99% 99% if spouse + own τ				
Valencian Community			tc 99%/ td 100-156k + tc 75%	td 100-156k + tc 75%					
Extremadure	td 100% max 175k if inher<600k				tc 99%				
Galicia									
Madrid									
Murcia									
Navarre								td 250k spouse + own τ	
Basque Country		exempt/ td 400k, 220k + own τ	td 400k, 220k + own τ*		td 400k + own τ				
Ceuta and Melilla									

td = tax deduction; tc = tax credit; tb = tax base; own τ = regional tax schedule; *440k in Alava, Bizkaia, 220k in Gipuzkoa. he information on tax reforms has been retrieved from the regional tax books from the Spanish Ministry of Finance and from the regional fiscal reports produced by the General Council of Spanish Economists

Table B.9: Tax Credits and Deductions for donees - Group (i) and (ii)

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Andalucia									
Aragon								tc 100% if tb<300k	
Asturias									
Balearic Islands						td such that net $\tau = 7\%$			
Canary Islands							**tc 99.9%**		
Cantabria									
Castile and Leon							**tc 99%**		
Castile la Mancha							**tc 95%**		
Catalonia								own τ	
Valencian Community					**td 40k g (ii)** tc 99% if tb<420k g (i)	tc 99% if tb<420k g (ii)			
Extremadure									
Galicia								own τ	
Madrid					**tc 99%**				
Murcia									
Navarre									
Basque Country									
La Rioja									
Ceuta and Melilla									

td = tax deduction; tc = tax credit; tb = tax base; own τ = regional tax schedule. The tax discounts in bold are the ones that coincided with the ones introduced for heirs of group (ii). The information on tax reforms has been retrieved from the regional tax books from the Spanish Ministry of Finance and from the regional fiscal reports produced by the General Council of Spanish Economists

Table B.10: Tax Credits and Deductions for donees - Group (i) and (ii)

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Andalucia									
Aragon				tc 50%	tc 65%	tc 65% if tb<75k			
Asturias									
Balearic Islands									
Canary Islands			default			**tc 99.9%**			
Cantabria									**tc 100%**
Castile and Leon			default						
Castile la Mancha							tc 95% if tb<120k tc 90% if tb 120-240k tc 85% if tb>240k		
Catalonia									
Valencian Community				tc 75 % if tb<150k					
Extremadure									
Galicia									
Madrid									
Murcia							tc 60%	**tc 99%**	
Navarre								td 250k spouse + own τ	
Basque Country		exempt/ td 400k, 220k + own τ	td 400k, 220k + own τ		td 400k + own τ				
La Rioja								**tc 99% if tb<500k** **tc 98% if tb>500k**	
Ceuta and Melilla									

td = tax deduction; tc = tax credit; tb = tax base; own τ = regional tax schedule. The tax discounts in bold are the same ones for heirs of group (ii). The information on tax reforms has been retrieved from the regional tax books from the Spanish Ministry of Finance and from the regional fiscal reports produced by the General Council of Spanish Economists

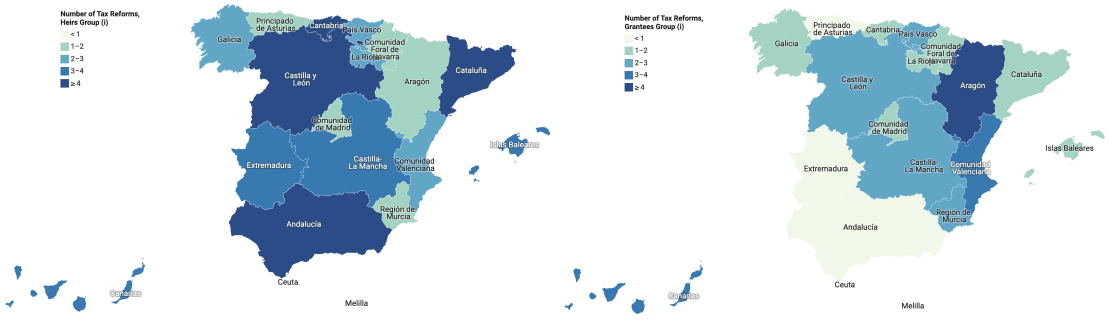
Table B.11: Tax Reforms for Heirs - Group (iii) and (iv)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Andalucia																		
Aragon																		
Asturias																		
Balearic Islands						td 1k												
Canary Islands						group (iv) td 9.3k			td 50k									tc 99%
Cantabria																		
Castile and Leon																		
Castile la Mancha																		
Catalonia	td 9k									td 50k						default		
Valencian Community																		
Extremadure																		
Galicia																		td 16k
Madrid																		tc 15%-10%
Murcia																		
Navarre														td 20,000-				
Basque Country														40,000				
La Rioja														only Bizkaia				
Ceuta and Melilla																		

td = tax deduction; tc = tax credit; tb = tax base; own τ = regional tax schedule.

C Additional Figures and Tables

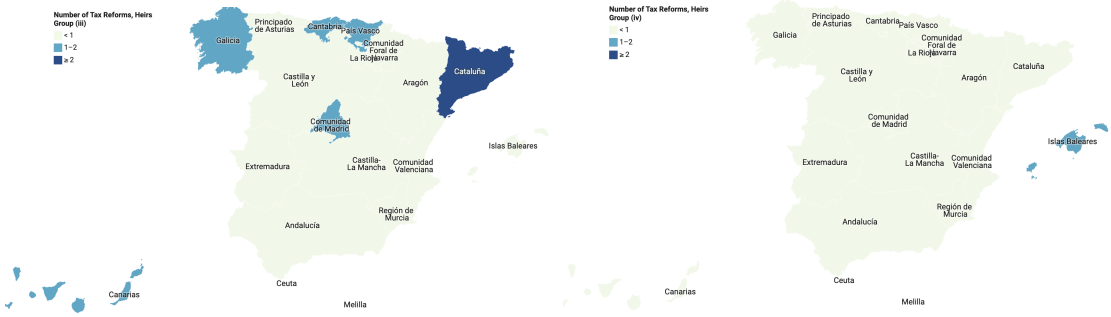
Figure C.1: Regional Inheritance and Gift Tax Reforms - Group (i)



(a) Inheritance Tax **(b)** Gift Tax

This figure depicts the number of different tax reforms for heirs and donees of group (i) (i.e. descendant younger than 21) introduced by each Spanish regions. Panel C.1a refers to the inheritance tax while Panel C.1b refers to the gift tax. These figures have been constructed using the inheritance tax regulation contained in the regional tax books published by the Spanish Ministry of Finance and in the regional fiscal reports produced by the General Council of Spanish Economists.

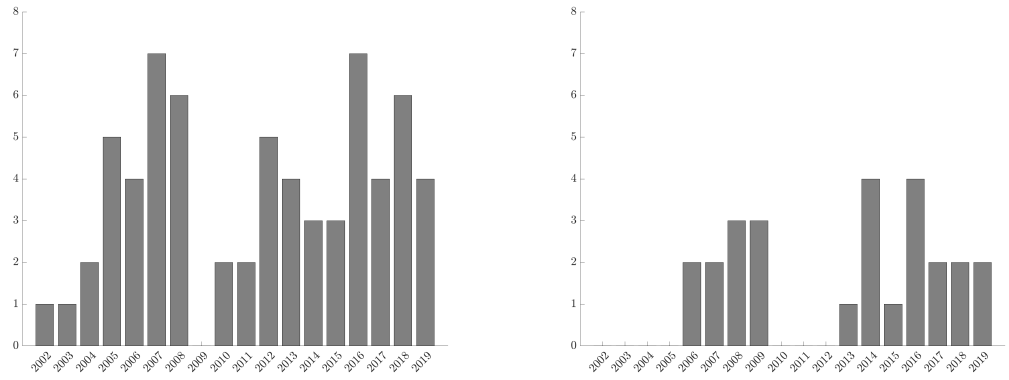
Figure C.2: Regional Inheritance Tax Reforms - Group (iii)-(iv)



(a) Inheritance Tax, Group (iii) **(b)** Inheritance Tax, Group (iv)

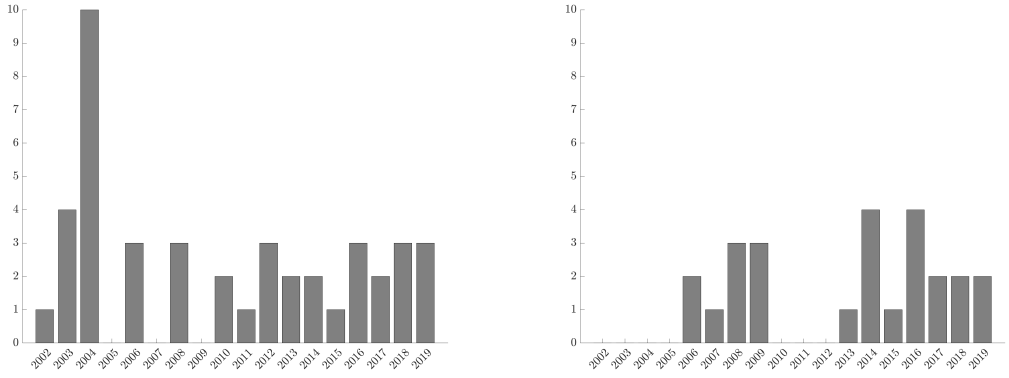
This figure depicts the number of different tax reforms for heirs of group (iii) (i.e siblings, stepchildren, aunts/uncles and nephews/nieces) and (iv) (i.e other distant relatives and non-relatives) introduced by each Spanish region. The change in tax regulation in Basque Country refers only to Bizkaia. This figure has been constructed using the inheritance tax regulation contained in the regional tax books published by the Spanish Ministry of Finance and in the regional fiscal reports produced by the General Council of Spanish Economists.

Figure C.3: Number of Inheritance and Gift Tax Reforms by Year - Group (ii)



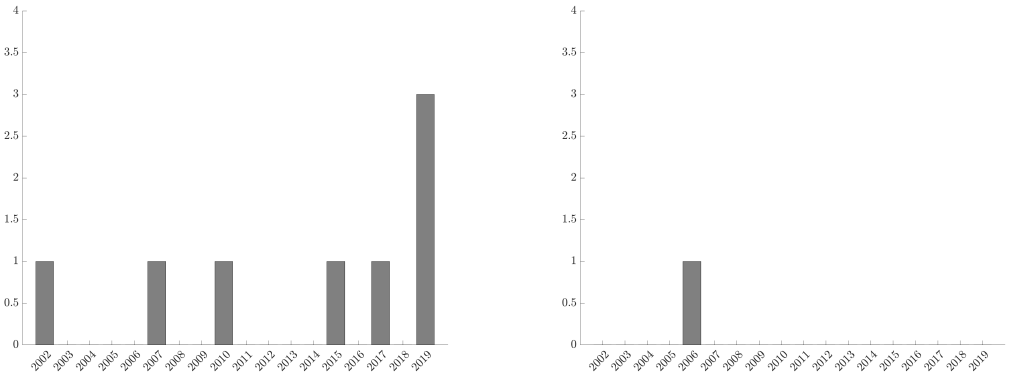
(a) Inheritance Tax **(b)** Gift Tax

Figure C.4: Number of Inheritance and Gift Tax Reforms by Year - Group (i)



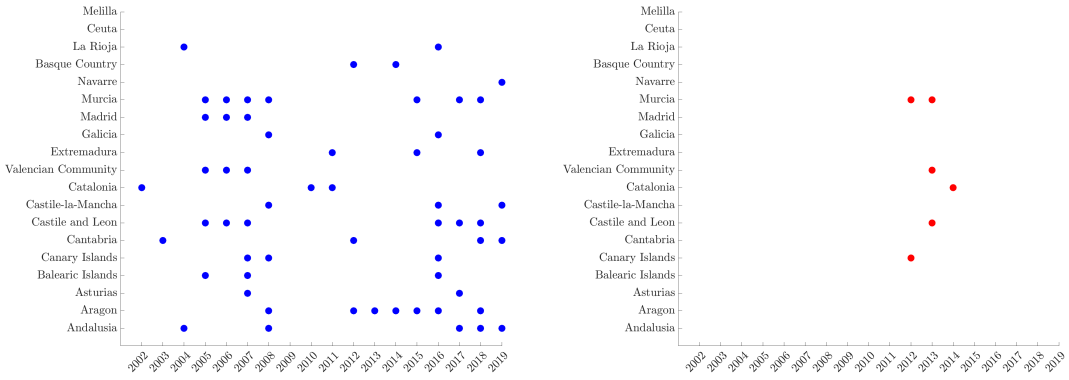
(a) Inheritance Tax **(b)** Gift Tax

Figure C.5: Number of Inheritance Tax Reforms by Year - Group (iii) and (iv)



(a) Inheritance Tax, Group (iii) **(b)** Inheritance Tax, Group (iv)

Figure C.6: Regional Inheritance Tax Reforms by Type - Group (ii)

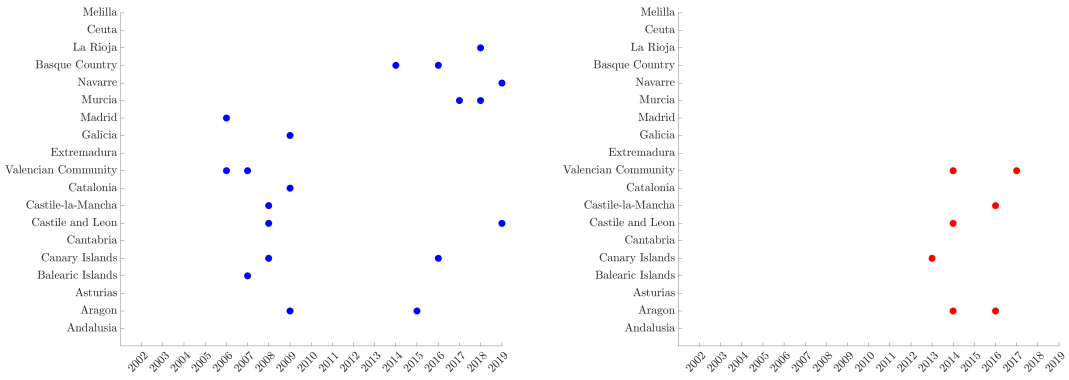


(a) Introduce tax discounts

(b) Repeal/decrease past tax discounts

This figure depicts the years for which each Spanish region introduced a different inheritance tax credit or/and tax deduction for heirs of group (ii) (i.e descendants older than 21, ascendants and spouses). Panel C.6a presents those tax changes that implied the introduction of an actual tax credit/deduction by region and year while Panel C.6a shows those changes that involved a large reduction in past tax discounts or their repeal. These figures have been constructed using the inheritance tax regulation contained in the regional tax books published by the Spanish Ministry of Finance and in the regional fiscal reports produced by the General Council of Spanish Economists.

Figure C.7: Regional Gift Tax Reforms by Type - Group (ii)

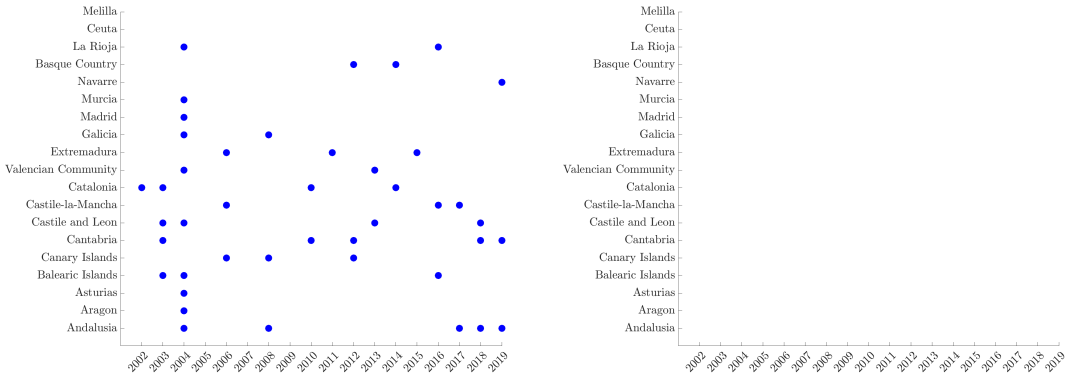


(a) Introduce new tax discounts

(b) Repeal/Decrease past tax discounts

This figure depicts the years for which each Spanish region introduced a different inheritance tax credit or/and tax deduction for donees of (ii) (i.e ascendants, descendants older than 21 and spouses). Panel C.7a presents those tax changes that implied the introduction of an actual tax credit/deduction by region and year while Panel C.7a shows those changes that involved a large reduction in past tax discounts or their repeal. These figures have been constructed using the inheritance tax regulation contained in the regional tax books published by the Spanish Ministry of Finance and in the regional fiscal reports produced by the General Council of Spanish Economists.

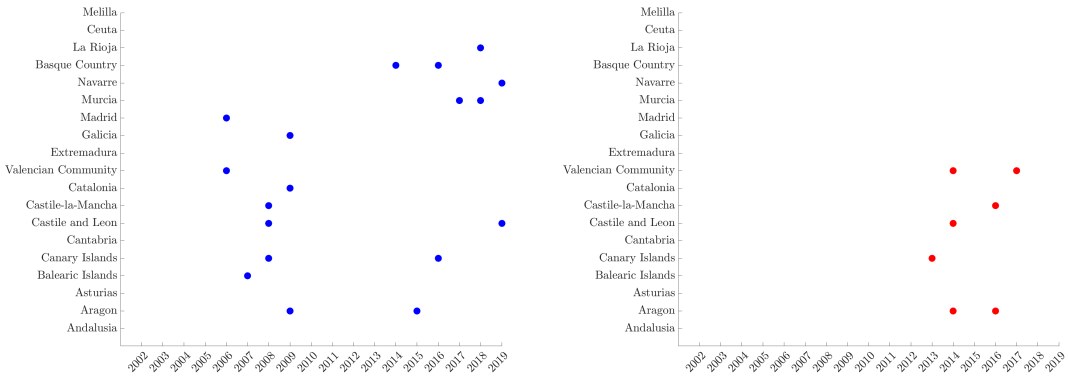
Figure C.8: Regional Inheritance Tax Reforms by Type - Group (i)



(a) Introduce tax discounts **(b)** Repeal/Decrease past tax discounts

This figure depicts the years for which each Spanish region introduced a different inheritance tax credit or/and tax deduction for donees of group (i) (i.e descendants younger than 21). Panel C.8a presents those tax changes that implied the introduction of an actual tax credit/deduction by region and year while Panel C.8a shows those changes that involved a large reduction in past tax discounts or their repeal. These figures have been constructed using the inheritance tax regulation contained in the regional tax books published by the Spanish Ministry of Finance and in the regional fiscal reports produced by the General Council of Spanish Economists.

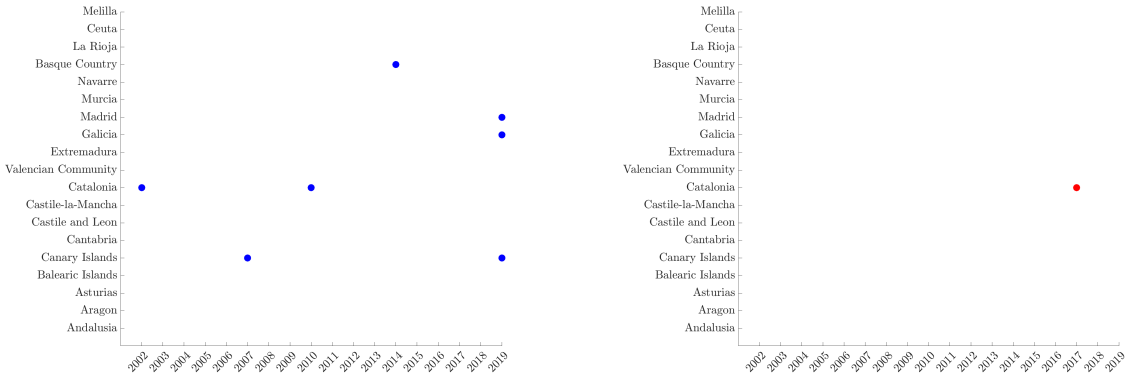
Figure C.9: Regional Gift Tax Reforms by Type - Group (i)



(a) Introduce tax discounts **(b)** Repeal/Decrease past tax discounts

This figure depicts the years for which each Spanish region introduced a different inheritance tax credit or/and tax deduction for donees of group (i) (i.e descendants younger than 21). Panel C.9a presents those tax changes that implied the introduction of an actual tax credit/deduction by region and year while Panel C.9a shows those changes that involved a large reduction in past tax discounts or their repeal. These figures have been constructed using the inheritance tax regulation contained in the regional tax books published by the Spanish Ministry of Finance and in the regional fiscal reports produced by the General Council of Spanish Economists.

Figure C.10: Regional Inheritance Tax Reforms by Type - Group (iii)

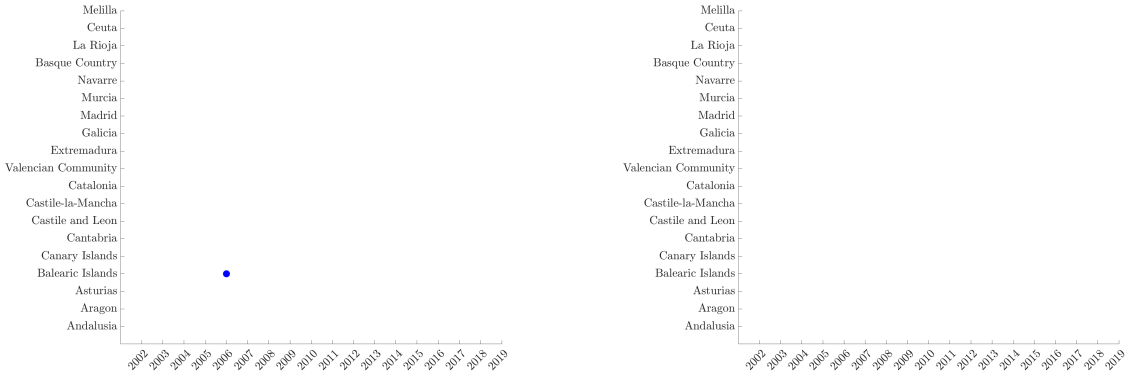


(a) Introduce tax discounts

(b) Repeal/decrease past tax discounts

This figure depicts the years for which each Spanish region introduced a different inheritance tax credit or/and tax deduction for heirs of group (iii) (i.e siblings, stepchildren, nephews/nieces, uncles/aunts). Panel C.10a presents those tax changes that implied the introduction of an actual tax credit/deduction by region and year while Panel C.10a shows those changes that involved a large reduction in past tax discounts or their repeal. These figures have been constructed using the inheritance tax regulation contained in the regional tax books published by the Spanish Ministry of Finance and in the regional fiscal reports produced by the General Council of Spanish Economists.

Figure C.11: Regional Tax Reforms by Type - Group (iii)

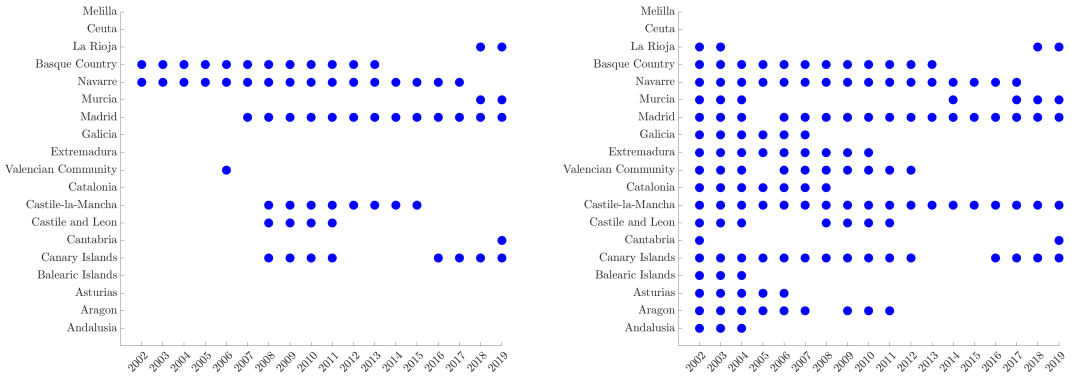


(a) Introduce new tax discounts

(b) Repeal/decrease past tax discounts

This figure depicts the years for which each Spanish region introduced a different inheritance tax credit or/and tax deduction for heirs of group (iv) (i.e cousins, grand nephews/nieces, more distant relatives and non-relatives). Panel C.11a presents those tax changes that implied the introduction of an actual tax credit/deduction by region and year while Panel C.11a shows those changes that involved a large reduction in past tax discounts or their repeal. These figures have been constructed using the inheritance tax regulation contained in the regional tax books published by the Spanish Ministry of Finance and in the regional fiscal reports produced by the General Council of Spanish Economists.

Figure C.12: Regions with Equal Tax Treatment for Heirs and donees - Group (ii)



(a) All tax brackets

(b) For at least half of tax brackets

This figure depicts the years for which each Spanish region had the same average effective tax schedule for heirs and donees of group (ii). Panel C.12a shows the regions and years for which heirs and donees faced the same average tax rate for any bracket while Panel C.12b reports the regions and years for which heirs and donees faced the same average tax rate for at least 8 of the 16 tax brackets. These figures have been constructed using the inheritance tax regulation contained in the regional tax books published by the Spanish Ministry of Finance and in the regional fiscal reports produced by the General Council of Spanish Economists.

Table C.1: Average Variation in Inheritance and Gift Tax - Group (ii)

	Avg. Var.	Median Var.	Std. Dev	Average Rate in 2002
Inheritance Tax	-0.46	-0.59	0.02	9.10%
Bottom Tax Brackets	-0.18	-0.23	0.01	3.12%
Bottom-middle Tax Brackets	-0.41	-0.52	0.02	7.11%
Middle-top Tax Brackets	-0.51	-0.66	0.02	9.00%
Top Tax Brackets	-0,76	-1.05	0.04	17.15%
Gift Tax	-0.32	0.00	0.02	10.98%
Bottom Tax Brackets	-0.20	0.00	0.02	6.92%
Bottom-middle Tax Brackets	-0.27	0.00	0.02	8.64%
Middle-top Tax Brackets	-0.30	0.00	0.02	10.23%
Top Tax Brackets	-0.53	0.00	0.04	18.49%

Table C.2: Regional Inheritance and Gift Taxation and Macroeconomic Aggregates

	(1) ATR Inheritance	(2) ATR Gift
GDP pc_{t-1}	-0.000	0.000
	(0.000)	(0.000)
UR_{t-1}	-0.003	-0.001
	(0.003)	(0.001)
CPI_{t-1}	-0.015	-0.006
	(0.014)	(0.009)
GDP pc_{t-2}	0.000	-0.000
	(0.000)	(0.000)
UR_{t-2}	0.001	0.000
	(0.001)	(0.001)
CPI_{t-2}	0.015	0.005
	(0.009)	(0.009)
Region FE	Yes	Yes
Year FE	Yes	Yes
Observations	272	272

Table C.3: Regional Inheritance and Gift Taxation and Regional Public Finances

	(1) Public Expenditure pc	(2) Public Expenditure pc	(1) Debt-to-GDP	(2) Debt-to-GDP
ATR Inheritance	0.183		-6.435	
	(0.124)		(10.836)	
ATR Gift		0.204		-1.829
		(0.151)		(14.074)
Region FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	170	170	272	272

Public Expendiure pc refers to regional public expenditure in health, education and social protection per capita. Data series have been retrieved from IVIE.

Table C.4: Regional Inheritance and Gift Taxation and Political Orientation

	ATR Inheritance	ATR Gift	ATR Inheritance	ATR Gift
Right-wing party (dummy)	-0.020*	-0.022***	-0.024**	-0.024***
	(0.011)	(0.007)	(0.011)	(0.008)
Region FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Macroeconomic Controls	No	No	Yes	Yes
Observations	323	323	255	255

Right-wing government takes value equal to 1 if regional government is conformed by a right-win party or a right-win coalition. Macroeconomic controls are one-year lagged values of unemployment rate, GDP per capita and debt-to-GDP ratios.

Table C.5: Regional Macroeconomic Aggregates and Political Orientation

	GDP pc	Unemployment Rate	Debt (% GDP)
Right-wing party (dummy)	0.006	0.840	-0.278
	(0.008)	(0.592)	(1.658)
Region FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	323	323	289

Right-wing government takes value equal to 1 if regional government is conformed by a right-win party or a right-win coalition.

D Summary Statistics

Table D.1: Summary Statistics Heirs and donees at Inheritance/Gift

	Mean	sd	Min	Max	N
Gross Wealth	352.91	1385.49	0.00	194519.11	400
Net Wealth	312.33	1372.90	-71.60	194519.11	400
Financial Wealth	50.32	130.17	0.00	12943.93	400
Housing Equity	261.36	438.85	0.00	27971.61	400
Income	41.27	36.72	0.00	1641.53	400
Age	49.64	13.27	22.00	89.00	400
Household Size	2.82	1.26	1.00	7.00	400
Education	1.81	0.83	1.00	3.00	400

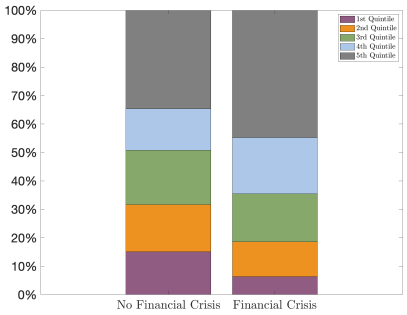
Monetary amounts are expressed in thousands and have been CPI-adjusted to the year 2016.

Table D.2: Summary Statistics Heirs and donees

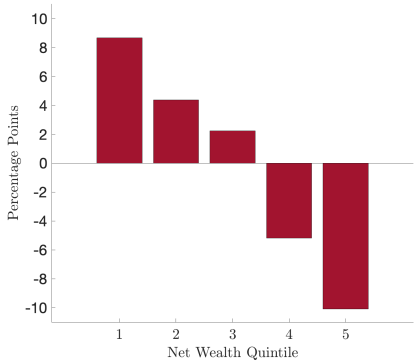
Households reporting an inheritance/gift			Households not reporting an inheritance/gift		
	Mean	sd		Mean	sd
Net Worth$_{t-1}$	286.60	1159.93	Net Worth$_{t-1}$	234.03	733.26
Income$_{t-1}$	41.98	50.76	Income$_{t-1}$	32.01	32.76
Financial Wealth$_{t-1}$	47.52	150.61	Financial Wealth$_{t-1}$	40.86	466.15
Age$_t$	49.23	12.66	Age$_t$	53.08	15.64
Houshold Size$_t$	2.89	1.24	Houshold Size$_t$	2.65	1.29
Educ$_t$	1.88	0.82	Educ$_t$	1.66	0.78

Households not reporting an inheritance receipt at any point in time are selected randomly from the pooled sample between 2002-2017. For heirs and donees, the year prior to wealth transfer is displayed ($t-1$). Monetary amounts are CPI-adjusted to the year 2016.

Figure D.1: % Accepted Bequests by Wealth Quintile: Normal Times vs Financial Crisis



(a) % Accepted Inheritances or Gifts

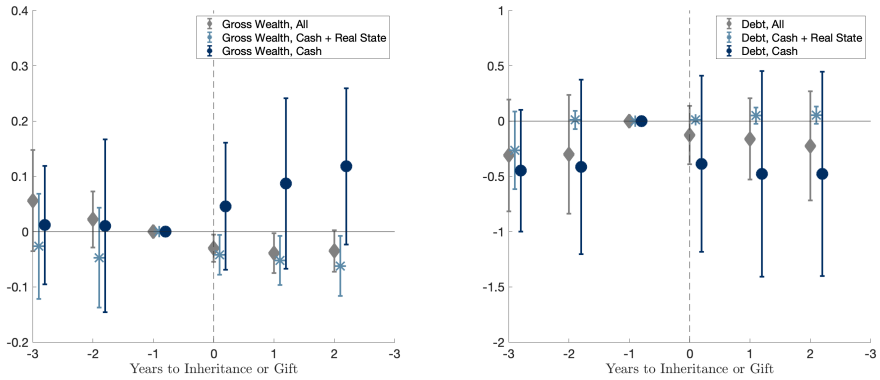


(b) Difference in % Accepted Inheritances or Gifts

Panel a) of this figure depicts the share of accepted inheritances and gift by wealth quintile in the Great Financial Crisis period (2008-2011) compared to the rest of years in the sample (2002-2007,20012-2018). Panel b) presents the difference in the share of accepted inheritances for each net wealth quintile between normal times and the period of Great Financial Crisis

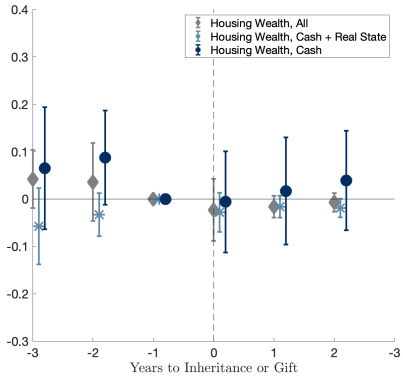
E Results

Figure E.1: Effect of IG Taxes on Household Wealth and Debt by Type of Bequest

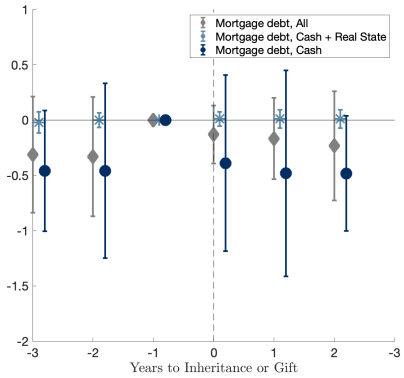


(a) Gross Wealth

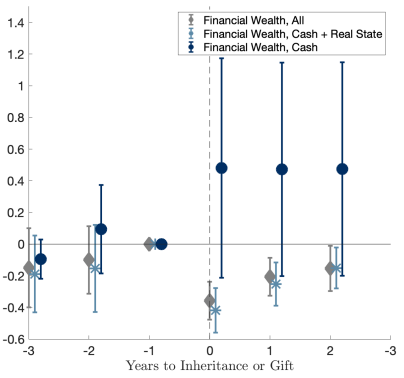
(b) Debt



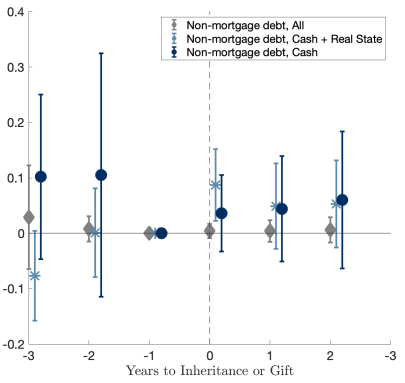
(c) Housing Wealth



(d) Mortgage Debt



(e) Financial Wealth



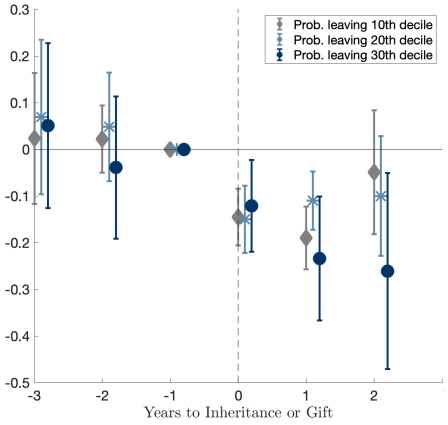
(f) Non-mortgage Debt

This figure plots the event study estimates ($\hat{\beta}_k$) and corresponding 90 percent confidence bands of the specification of Equation 1. The treatment variable is the average effective tax rate. The dependent variable in Panels E.1a,E.1e, E.1c is (logged) gross wealth, financial wealth or housing wealth. The dependent variable in Panels E.1b,E.1d, E.1f total debt-to-wealth ratio, mortgage-related debt-to-wealth ratio or non-mortgage-related debt-to-wealth ratio. Financial wealth includes bank deposits, stocks, mutual funds, pension plans and life insurance. Housing wealth includes real state property. Wealth transfers in form of only cash are considered gifts while those in form of real estate assets or a combination of real estate assets with other assets (cash, stocks, life insurance, etc.) are considered inheritances.

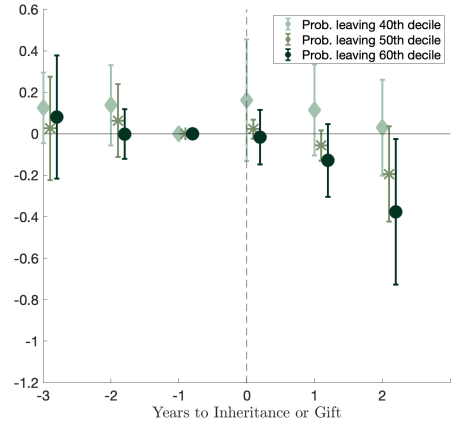
Table E.1: Age profile of heirs and donees

	Average Age	% Heirs or donees < 40 years old
Below p40	47	40.2%
p40-p60	51	25.3%
p60-p80	55	20.2%
p80-p90	57	13.3%
p90-p100	59	0.5%

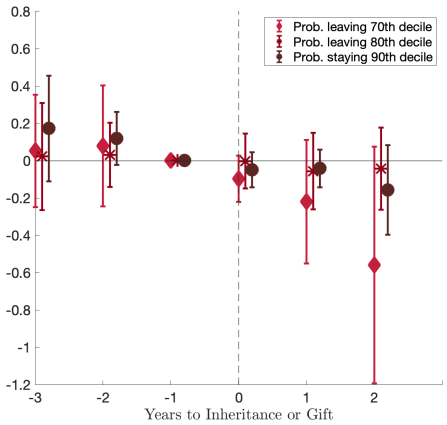
Figure E.2: Effect of IG Taxes on Wealth Mobility - Restricted sample to gifts and inheritances subject to same tax rates



(a) Bottom-wealth Mobility

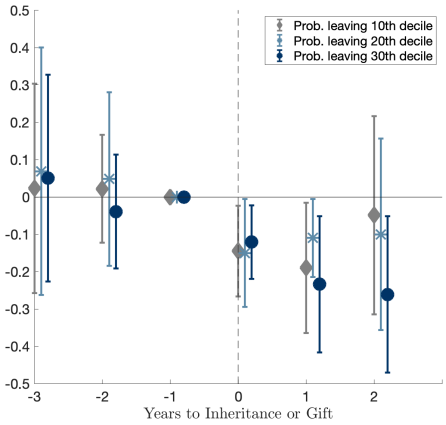


(b) Middle-wealth Mobility

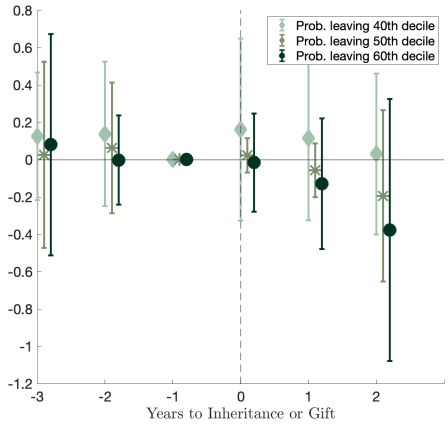


(c) Top-wealth Mobility

Figure E.3: Effect of IG Taxes on Wealth Mobility - Restricted sample to bottom tax brackets



(a) Bottom-wealth Mobility



(b) Middle-wealth Mobility

(c) Top-wealth Mobility

References

Agrawal, D. R., Foremny, D., and Martínez-Toledano, C. (2020). Paraísos fiscales, wealth taxation, and mobility.

Bayaz, G., Burkhauser, R. V., and Couch, K. A. (2010). Trends in intragenerational mobility in the united states and the western states of germany (1984-2006).

Benhabib, J., Bisin, A., and Zhu, S. (2011). The distribution of wealth and fiscal policy in economies with finitely lived agents. *Econometrica*, 79(1):123–157.

Brülhart, M., Gruber, J., Krapf, M., and Schmidheiny, K. (2019). Behavioral responses to wealth taxes: Evidence from switzerland.

Brunner, J. K. and Pech, S. (2012). Optimal taxation of bequests in a model with initial wealth. *The Scandinavian Journal of Economics*, 114(4):1368–1392.

Cagetti, M. and De Nardi, M. (2009). Estate taxation, entrepreneurship, and wealth. *American Economic Review*, 99(1):85–111.

Castaneda, A., Diaz-Gimenez, J., and Rios-Rull, J.-V. (2003). Accounting for the us earnings and wealth inequality. *Journal of political economy*, 111(4):818–857.

Cloyne, J. S. and Surico, P. (2017). Household debt and the dynamic effects of income tax changes. *The Review of Economic Studies*, 84(1):45–81.

de La Fuente, A. et al. (2018). El cálculo de la recaudación homogénea del impuesto sobre sucesiones y donaciones: una propuesta mejorada. *FEDEA, Estudios sobre Economía Española*, (2018/18).

Elinder, M., Erixson, O., and Waldenström, D. (2018). Inheritance and wealth inequality: Evidence from population registers. *Journal of Public Economics*, 165:17–30.

Gruber, J., Jensen, A., and Kleven, H. (2021). Do people respond to the mortgage interest deduction? quasi-experimental evidence from denmark. *American Economic Journal: Economic Policy*, 13(2):273–303.

Jakobsen, K., Jakobsen, K., Kleven, H., and Zucman, G. (2020). Wealth taxation and wealth accumulation: Theory and evidence from denmark. *The Quarterly Journal of Economics*, 135(1):329–388.

Jäntti, M. and Jenkins, S. P. (2015). Income mobility. In *Handbook of income distribution*, volume 2, pages 807–935. Elsevier.

Kopczuk, W. (2007). Bequest and tax planning: Evidence from estate tax returns. *The Quarterly Journal of Economics*, 122(4):1801–1854.

Nekoei, A. and Seim, D. (2022). How Do Inheritances Shape Wealth Inequality? Theory and Evidence from Sweden. *The Review of Economic Studies*.

OECD (2021). *Inheritance Taxation in OECD Countries*.

Piketty, T. and Saez, E. (2013). A theory of optimal inheritance taxation. *Econometrica*, 81(5):1851–1886.

Poterba, J. and Sinai, T. (2008). Tax expenditures for owner-occupied housing: Deductions for property taxes and mortgage interest and the exclusion of imputed rental income. *American Economic Review*, 98(2):84–89.

Ring, M. A. K. (2020). Wealth taxation and household saving: Evidence from assessment discontinuities in norway. *Available at SSRN 3716257*.

Seim, D. (2017). Behavioral responses to wealth taxes: Evidence from sweden. *American Economic Journal: Economic Policy*, 9(4):395–421.

Surico, P. and Trezzi, R. (2019). Consumer spending and property taxes. *Journal of the European Economic Association*, 17(2):606–649.