Inheritance Tax Avoidance Through The Family Firm

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Abstract

This paper shows that family firms are used as vehicles for inheritance tax avoidance among the wealthy and assesses their implications for the effective taxation of wealth. Exploiting a major tax reform in Catalonia (Spain) that widened the tax gap between favored and non-favored assets, I document a shift in inherited wealth toward business assets, especially family firm equity. This pattern is consistent with affluent testators transferring financial and non-productive assets to existing firms as capital contributions before death. Linking inheritance and wealth tax records, I estimate that this behavior reduces combined inheritance and wealth tax revenues by 16% annually, primarily through inheritance tax losses. The findings underscore that preferential tax treatment of business assets within broad wealth tax systems can result in substantial fiscal losses and undermine effective wealth taxation

Keywords: inheritance tax, tax avoidance, tax reform, top wealth
JEL: H24, H26, O23

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1 Introduction

Recent trends in wealth inequality have reignited the debate over how inherited wealth should be taxed (OECD, 2021; Piketty et al., 2023). As with wealth taxes in many countries, inheritance tax systems often grant preferential treatment to specific asset classes, most notably the main residence and business assets[1]. These preferences are typically justified on liquidity grounds (Scheuer and Slemrod, 2021; Loutzenhiser and Mann, 2021). However, favoring certain assets create strong incentives for individuals to reallocate their portfolios toward tax-privileged assets, either to reduce their own liabilities or those of their heirs. The strategic use of tax-advantaged assets, particularly closely held businesses, as vehicles for tax planning among the wealthy has been linked to the political unpopularity of both inheritance (Henrekson and Waldenström, 2016) and wealth taxes (Perret, 2021). Yet, empirical evidence on the scale of this tax avoidance margin and its fiscal implications remains limited.

This paper provides comprehensive evidence on the use of family firms as vehicles for inheritance tax avoidance and examines its implications for the effective taxation of high-wealth individuals. The analysis exploits a major inheritance tax reform in Catalonia (Spain), which substantially increased the tax differential between privileged and non-privileged asset categories for heirs receiving inheritances above €750,000. The reform followed a period of exceptionally low inheritance tax rates, giving wealthy testators strong incentives to restructure their asset portfolios before death to minimize their heirs' tax liabilities. The empirical strategy relies on rich administrative microdata that links individual-level inheritance and wealth tax returns, offering a rare opportunity to observe both the composition of inherited wealth and its subsequent treatment under the wealth tax. Using this data and the sharp variation introduced by the Catalan reform, I first document a strategic reallocation of portfolios toward tax-exempt business assets, and then estimate the resulting revenue losses, capturing both the direct erosion of inheritance tax base and the indirect impact on wealth tax revenues.

The Spanish institutional context offers a compelling setting for studying asset-shifting responses to inheritance taxation and their implications for taxing top-wealth individuals. First, both inheritance and wealth taxes classify assets into two categories, *tax-favored* and *non-tax-favored*, based on the degree of preferential treatment. Tax-favored assets include the main residence, life insurance, agricultural and cultural property, and business assets (i.e., equity in family firms and real assets used for business), which often benefit from near-full exemptions typically subject to some maintenance rules.[2] In contrast, financial

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[1]See OECD (2021) for a comprehensive overview of preferential tax regimes across OECD countries.

[2]In Catalonia (Spain), inheritance tax reliefs included a 95% reduction for business assets, as well as full

assets, secondary real estate, and household items do not receive tax benefits. Second, the 2014 Catalan inheritance tax reform increased the tax differential between favored and non-favored assets for descendants with taxable inheritances above €750,000, while leaving other heir groups largely unaffected. This asymmetry created strong incentives for wealthy individuals to reallocate portfolios when planning their testament for descendants relative to other heirs. The reform thus provides a natural experiment, allowing for a difference-in-differences design comparing descendants to spouses and distant heirs. Third, the reform followed a period of near zero inheritance taxation,[3] during which asset-type differentials were minimal. As a result, incentives for portfolio reallocation emerged only after the reform. I exploit this feature using variation in inheritance timing among descendant heirs who file wealth tax returns, implementing a staggered difference-in-differences strategy.

My first finding shows that treated descendants increased the share of their declared assets held in tax-favored categories by 5.8 percentage points relative to the control group of spouses and distant heirs. This results in an average effective tax reduction of 1.3 percentage points, equivalent to approximately €41,000 per heir. Importantly, the estimation sample is restricted to estates fully transferred to a single kinship category, allowing the results to reflect testators' portfolio reallocation rather than testamentary redistribution. The average effect masks substantial heterogeneity: heirs receiving taxable inheritances above €2 million account for the entire response, with a 28-point increase in tax-favored assets and tax savings exceeding €300,000. Notably, I find no evidence that treated taxpayers reduce the overall value of declared inheritances in response to the reform. This finding aligns with (Mas-Montserrat et al., 2025), who show that wealth taxpayers in Catalonia responded to the reintroduction of this tax by adjusting portfolio composition rather than underreporting wealth. In Spain's context of strict enforcement and third-party verification, the scope for asset undervaluation is limited.[4] The main identifying assumption required to interpret the post-reform between treated and control groups as a tax-motivated change in the composition and value of inheritances is that the outcome evolve similarly between groups. The absence of differential pre-trends provides evidence lending credibility to this assumption.

Using detailed linked data on the asset composition of inheritances and wealth of taxpayers, I show that the entire shift toward tax-favored assets is driven by business assets. Following the reform, treated heirs significantly increased the share of inherited wealth held

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exemptions for the main residence (up to €500,000) and life insurance policies (up to €25,000 per heir). To retain these tax benefits, heirs were required to maintain ownership of the business assets and the main residence for at least five years. Additionally, wealth tax provided a full exemption for business assets and a partial exemption for the main residence, up to €300,000.

[3]In 2011, the Catalan government introduced a 99% tax credit which acted as a quasi-abolishment of the tax for close heirs.

[4]For instance, the administrative valuation serves as a minimum benchmark for real estate assessments.

as equity in family firms, alongside a modest and short-lived rise in real assets used for business purposes. This reallocation is mirrored by a decline in financial assets and, to a lesser extent, nonproductive assets like privately held vehicles and boats. Under Spanish tax law, a family firm is defined as a company engaged in genuine economic activity, in which the testator held a substantial ownership stake and exercised active managerial responsibilities[5]. Real assets, such as vehicles, equipment, or buildings, may also qualify for exemptions if demonstrably used in business, regardless of the firm's classification.

This evidence aligns with two mechanisms of private wealth reclassification. First, affluent individuals increasingly channel private financial and potentially non-productive assets into existing family firms as capital contributions, receiving newly issued shares in return. This reclassification allows the assets to qualify for preferential tax treatment under inheritance tax regime and later on under the wealth tax. Second, though to a lesser extent, real assets such as vehicles are transferred into firms as operating capital. While this channel seems to be more constrained due to the need to demonstrate the business use of these assets to the tax authority, it nonetheless helps explain the estimated decline in non-productive assets. This latter pattern is consistent with Alstadsæter et al. (2014), who document a similar accumulation of consumption assets within Norwegian firms following the introduction of dividend taxes on individuals but not corporations. Beyond these mechanisms, I also examine a third margin of response: the creation of new family firms as a strategy to convert private wealth into business wealth. Although prior literature has documented cross-base behavioral responses to taxation (Alstadsæter and Jacob, 2016; Waseem, 2018; Harju and Matikka, 2016; Bergolo et al., 2022; Bach et al., 2021), I find no compelling evidence that the reform increased the likelihood of family firm ownership among heirs. This result is consistent with the Spanish legal framework which requires eligible firms to engage in genuine economic activity, thereby limiting the scope for extensive margin responses to inheritance tax incentives.

From a tax planning perspective, family firms offer a uniquely flexible vehicle for wealth reclassification. Unlike other asset classes such as the main residence, which involve transaction costs and genuine portfolio rebalancing, capital contributions to firms are exempt from property transfer taxes and do not trigger corporate tax liabilities. Moreover, this relabeling need not be permanent: heirs may later extract reclassified wealth through capital reductions, asset transfers, or dividends. Spanish inheritance tax only requires that business assets be held for a minimum period to qualify for relief, and although withdrawals are subject to capital gains tax, heirs retain some discretion to strategically time and structure

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[5]In Spain, the eligibility for preferential tax treatment is not contingent on firm size or listing status like in other countries, allowing both publicly traded and privately held entities to benefit.

these operations. Descriptive evidence from wealth tax data reveals a sharp decline in family equity holdings, particularly in private firms, among heirs inheriting after 2014, once the mandatory maintenance period expires. This pattern supports the interpretation that the tax reform primarily incentivized the reclassification of assets for tax-saving purposes with little impact on firm-level asset accumulation. This flexibility makes closely held firms especially attractive to high-net-worth individuals, who disproportionately hold business wealth and are well-positioned to exploit these advantages.

To provide a broader view of tax-minimizing behavior, I examine testamentary strategies and inter-vivos transfers around the reform. First, by linking top-wealth heirs within shared estates, I present descriptive evidence that wealthy testators strategically allocate business assets across heirs to reduce overall tax burdens. Second, using comprehensive gift tax return data from Catalonia, I document a modest, short-lived increase in large transfers of real estate and financial assets to descendants relative to distant heirs. This pattern is consistent with fiscal disincentives: effective gift taxes are generally higher across asset classes, and inter-vivos transfers made within four years of death are subject to inheritance tax.

Finally, I use the causal estimates to quantify the fiscal impact of inheritance tax avoidance through business assets. A key strength of the data is the ability to link inheritance and wealth tax records, enabling an assessment of how the relabeling of inherited wealth into business assets affects both tax revenues. My estimates suggest that Catalonia forgoes approximately 16% of combined inheritance and wealth tax revenues annually (around €120 million) due to this reclassification. The majority of this loss stems from inheritance tax revenues (about 15%), while the impact on wealth tax is comparatively modest (around 1%). This disparity arises not from differences in the preferential treatment of business assets, which is broadly similar across both taxes, but from the sharper tax differentials under the inheritance tax between favored and non-favored assets. Crucially, the findings highlight that avoidance in one tax base can generate spillover effects on others, particularly in systems where business assets benefit from preferential treatment under multiple tax regimes, a feature common to many wealth taxation frameworks. As such, the use of business assets, particularly family firms, as tax avoidance vehicles can entail substantial fiscal costs that extend beyond a single tax instrument.

Related literature. This paper contributes to several strands of the literature. First, it relates to the expanding body of research on behavioral responses to inheritance taxation (Goupille-Lebret and Infante, 2018; Joulfaian, 2006; Erixson and Escobar, 2020; Glogowsky, 2021; Kopczuk, 2007; Brülhart and Parchet, 2014; Moretti and Wilson, 2023; Montserrat,

2019; Escobar et al., 2023). Much of this literature has focused on inter-vivos transfers as the primary margin of response, typically yielding modest elasticity estimates. Notable exceptions include Brülhart and Parchet (2014) and Moretti and Wilson (2023), who show that high-income and high-wealth individuals respond to inheritance taxation by relocating to jurisdictions with more favorable tax regimes. Other studies explore less conventional margins. Montserrat (2019) provides evidence of underreporting behavior in inheritance tax filings, while Kopczuk (2007) and Poterba and Weisbenner (2003) examine portfolio reallocation toward hard-to-value assets in the U.S. estate tax context.[6] Despite these contributions, direct empirical evidence on inheritance tax avoidance through asset-specific reallocation remains limited. This is partly due to institutional constraints: such strategies are only viable where tax codes offer preferential treatment for specific asset classes (Advani and Tarrant, 2021; Scheuer and Slemrod, 2021). Moreover, even in countries where asset-specific inheritance tax reliefs are available, empirical analysis is often hindered by the lack of comprehensive microdata.[7] This paper addresses this gap by leveraging administrative microdata from Catalonia (Spain), which covers the universe of inheritance tax returns in a region where institutional features create strong incentives for the wealthy to exploit asset-specific tax differentials.

Second, this paper contributes to the broader literature on tax-induced asset shifting and cross-base behavioral responses among high-wealth individuals. Prior work has examined responses to wealth taxes (Alvaredo and Saez, 2009; Mas-Montserrat et al., 2025; Londoño-Vélez and Ávila-Mahecha, 2024; Alstadsæter et al., 2022), income taxes (Bergolo et al., 2022; Piketty et al., 2014), and dividend taxes (Alstadsæter and Jacob, 2016). In contrast, this study focuses on how inheritance tax incentives affect the composition of wealth portfolios prior to death, a margin that has received comparatively less attention.

Third, this paper contributes to the literature on the use of (closely-held) firms as tax avoidance vehicles. In Spain, Alvaredo and Saez (2009) and Mas-Montserrat et al. (2025) show that taxpayers reallocate non-business assets into tax-exempt business wealth in response to wealth taxation. More recently, Winter and Zental (2025) document that inter-vivos transfers of business assets in Germany are highly responsive to anticipated changes in preferential tax regimes. Additional evidence highlights income shifting between personal and corporate tax bases (Romanov, 2006), and to shelter private consumption within corporate

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[6]Specifically, Kopczuk (2007) finds that business assets, corporate stock, and household goods decline significantly in estates of individuals with prolonged illness, suggesting strategic tax planning. Poterba and Weisbenner (2003) highlights how valuation discounts and minority ownership structures can substantially reduce effective estate tax rates, particularly for closely held businesses and real estate comparing SCF and estate tax returns data

[7]For example, more than half of the 22 OECD countries offer exemptions or preferential treatment for family businesses, primary residences, pensions, life insurance, or land (OECD, 2021), yet few provide access to detailed inheritance tax return data.

structures (Leite, 2024; Alstadsæter et al., 2014). This paper extends this literature by documenting the strategic use of business assets, particularly family firms, as a channel for inheritance tax avoidance. It further quantifies the implications of such behavior for the effective taxation of the wealthy in institutional settings where preferential treatment applies not only to inheritance taxes but also to wealth taxes.

The closest related study is Montserrat (2019), who examines the quasi-repeal of the inheritance tax in Catalonia in 2011 to demonstrate that such taxes prompted wealthy taxpayers to misreport real estate assets. The author links this underreporting behavior to anticipated savings in capital gains taxes upon future property sales. In contrast, my primary contribution lies in analyzing asset-shifting behavior by leveraging a subsequent tax reform in Catalonia, and quantifying the fiscal costs associated with preferential taxation of business assets within broad-based wealth tax systems. Differently form her, I find no significant changes in reporting behavior around the 2014 tax reform. These divergent outcomes may be attributable to the Spanish tax assessment rules, which require heirs to self-report the value of inherited assets.[8] Notably, while the administrative value of real estate serves as a minimum threshold for tax assessment, there is no tax ceiling. Consequently, taxpayers may overvalue inherited property when tax rates are low, whereas opportunities for undervaluation in response to rising tax rates are structurally constrained.

The rest of this paper proceeds as follows. Section 2 and 3 describe the institutional framework and the administrative tax data used. Section 4 lays out the empirical strategy and provides the main results before studying mechanisms in Section 5 and additional results in Sections 6 and 7. Section 8 assesses the tax revenue implications of the behavioral responses. Finally, Section 9 concludes

2 Institutional Setting

2.1 The Spanish Inheritance Tax

The Spanish Inheritance tax was regulated in its current form back in 1987 (Law 29/1987). 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 inheritance tax[9]. The tax is levied on heirs and depends on their degree of kinship with the deceased or donor, respectively. The law distinguishes four groups of heirs:

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[8]The tax authority then uses the higher value between the self-reported figure and that provided by third parties (e.g., banks, registries, or other institutions) to calculate tax liabilities (see Law 1987/29 for details)

[9]Notwithstanding this special status, these two regions have regulated inheritance tax rates similar to the rest of Spain.

(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.

Tax base. Heirs' tax base is defined as the sum of the individual portion inherited, life insurance benefits derived from the deceased's death as well as other assets transferred before death[10]. The net tax base is calculated after applying any eligible tax deductions. If the net tax base is positive, a progressive marginal tax schedule is applied to obtain the net tax liability.

Tax benefits. The Spanish inheritance tax law regulates a first set of tax deductions depending on the degree of kinship between the deceased person and heirs, which usually take the form of a fixed monetary amount. The law also includes a second set of tax benefits accruing certain types of assets - like the main residence of the deceased person, life insurance provisions, equity in family firms, business-related real assets, cultural property, or agricultural land. Most of these tax benefits take the form of unconditional 95% tax credits, meaning that only 5% of the asset value enters the net tax base, under some maintenance rules.

Tax schedule and tax liability. The tax schedule defines 16 brackets with tax rates ranging from 7.65% to 34%. The final tax liability to be paid is obtained after considering the corresponding scaling factor, which depends on the pre-inheritance gross wealth of the taxpayer and kinship group. Appendix A overviews all the general and asset-specific tax benefits applicable, the tax schedule, and the tax formula.

Assessment rules and tax enforcement. Heirs are asked to self-report the value of all the assets inherited at market prices and back up their assessment with third-party information. Financial asset value can be third-reported by banks and financial institutions. Real estate and closely-held business valuation at market prices is less straightforward. In this case, the tax administration will keep the highest value between the one self-reported and the one determined by some specific assessment rules[11]. Taxpayers can rely on balance sheet information[12] to value closely-held business assets while they can use the updated administrative value of the property to value the real estate assets[13]. The scope for under assessment is limited as the tax administration constantly supervises that assessment rules

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[10]The inheritance tax base also includes those assets transferred to the heirs by the deceased during the four years preceding the moment of death to avoid tax planning strategies.

[11]See Art 18 Law 29/1987 for assessment rules

[12]Taxpayers can use the assessment rules specified in the Spanish Wealth Tax law. See Law 19/1991

[13]The Catalan tax administration publishes the adjustment rules to measure real estate property at market prices given its administrative (cadastral) value. These adjustment rules are updated yearly and vary at the municipal level. See here

have been followed accordingly.

Decentralization of the inheritance tax. The administration and regulation of the Spanish Inheritance Tax were decentralized in 1996. This meant that regions were awarded regulatory power to modify many aspects of the tax code, including the tax deductions or marginal tax rates, whenever these changes would not compromise the tax benefits already regulated in the national law. Heirs are required to file the inheritance tax within the next 6 months after the death event in the region of residence of the deceased person, independently of the region where the assets being transferred are located. Still, they can ask for tax installment or/and tax moratorium for an extra 6 months but they become subject to interest on late payment.

2.2 The 2014 Inheritance Tax Reform in Catalonia

Since the early 2000s, most Spanish autonomous communities began exercising their regulatory power to modify the inheritance tax framework by introducing new tax benefits for close heirs (Micó-Millán, 2023). These benefits typically took the form of substantial increases in kinship-related deductions or the implementation of general tax credits applied to final tax liabilities. Importantly, these general credits were layered on top of pre-existing asset-specific tax reliefs.

In Catalonia, certain asset categories, namely the main residence of the deceased, life insurance, real assets used in business activity, equity in closely held firms, agricultural and rural land, and cultural property receive preferential tax treatment. These assets, collectively referred to as *tax-favored assets*, have been eligible for tax credits ranging from 95% to 100%, effectively resulting in near-complete exemption from inheritance taxation, subject to specific thresholds and conditions (see Appendix Table A.3). These reliefs are contingent upon compliance with maintenance requirements. For example, heirs claiming the tax credit on equity in family firms must retain ownership for a minimum of five years. A comprehensive overview of these conditions is provided in Table A.4. Assets not falling under this category, such as financial holdings, secondary real estate, and household goods, are classified as *non-tax-favored assets* and are subject to standard tax treatment.

Catalonia undertook its first major inheritance tax reform between 2010 and 2011, which culminated with the introduction of a 99% tax credit for close heirs (i.e. direct descendants, ascendants, and spouses). The size of the tax credit, 99% of the resulting tax liabilities, acted as a quasi-repeal of the inheritance tax in this region (see Montserrat (2019)) and made negligible any differences in effective tax rates between privileged assets and non-

privileged assets for close heirs. Distant heirs, however, were excluded from this reform and remained subject to the standard tax schedule, albeit with modest increases in kinship-related deductions.

In February 2014, the Catalan government implemented a substantial reform of the inheritance tax as part of a broader fiscal consolidation strategy aimed at reducing the regional budget deficit. This reform introduced two principal changes: (i) a general reduction in kinship-related deductions across all heir categories, and (ii) the repeal of the 99% general tax credit previously granted to descendants and ascendants. The latter was replaced by a progressive tax credit schedule ranging from 99% to 20%, depending on the gross tax base. Notably, the new credit schedule was explicitly designed to be only partially compatible with asset-specific tax reliefs, thereby limiting the cumulative application of tax advantages.[14] Appendix Table A.1 and Figure A.2 provide a detailed account of the revised tax parameters.

To illustrate the impact of the 2014 reform on the tax differential between privileged and non-privileged assets, Figure 1 presents simulated asset-specific average tax rates by heir type and wealth bracket, comparing pre- and post-reform periods. As depicted in Figure 1a, the reform led to a pronounced increase in the tax rate differential for direct descendants inheriting more than €750,000. Specifically, heirs above this threshold experienced an average tax rate increase starting at 6 percentage points, with the magnitude of the increase rising steeply in line with the progressive nature of the new credit schedule. In contrast, Figures 1b and 1c demonstrate that the reform had minimal impact on the tax differential faced by surviving spouses and distant heirs (i.e., extended relatives and non-relatives).

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[14]The law stipulates that the general tax credit is reduced by 50% if the heir claims any asset-specific tax benefit, with the exception of those related to the main residence or life insurance.

Figure 1: Average Effective Tax Rate Differential Between Assets - Before and After the 2014 reform

(a) Direct descendants

(b) Spouses

(c) Distant heirs
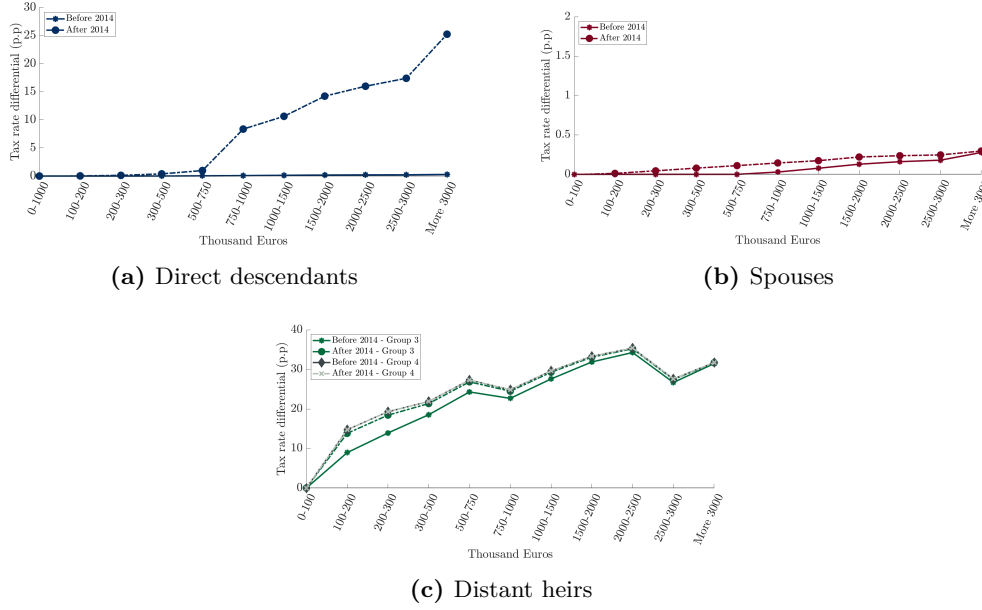
This figure plots the average effective tax rate differential between non-tax-favored and favored assets along the distribution of inheritances in Catalonia before and after the tax reform by heir group. The average effective tax rate has been computed using a self-constructed tax simulator and a pre-reform average asset composition of inheritances by wealth bracket. In Panel 1c, distant heirs in group 3 include second and third degree relatives (brothers, sisters, uncles, nephews, etc.). Distant heirs in group 4 include more distant relatives (like cousins) and non-relatives. Data from the universe of inheritance tax returns in Catalonia between 2011 and 2019 (Catalan Tax Agency)

2.3 Estate Sharing Rules

According to the Spanish Civil Code, testators are not entirely free to distribute their estate as they wish. Generally, 2/3 of the estate must go to descendants, with 1/2 of that portion required to be divided equally among them, known as the *forced share*. However, regions may modify these rules. In Catalonia, the forced share is limited to 25% of the total estate, which must be distributed equally among direct descendants. The remaining 75% can be freely allocated by the testator to any heir. If a surviving spouse exists, they are entitled either to the usufruct of the entire estate or, alternatively, to 25% of the estate plus the usufruct of the main residence.

2.4 The Spanish Wealth Tax

The design and regulation of Spain's wealth tax closely resemble those of the inheritance tax. It was formally established in its current form by Law 19/1991, although it was temporarily suspended between 2008 and 2010. The law also applies across all autonomous communities, with the exception of the Basque Country and Navarra who are autonomous

to design their own taxes. In 1996, the Spanish government also transferred the regulation and administration of the wealth tax together with the inheritance tax to the autonomous communities.

The wealth tax is levied on the net value of an individual's assets, calculated as the total value of taxable assets minus outstanding debts. Taxpayers are also required to report non-taxable assets, such as some business assets and their primary residence. The exempt business assets are the same ones receiving preferential inheritance tax treatment, specifically equity in family-owned businesses and tangible assets actively used in business operations. The tax follows a progressive schedule, with default marginal rates ranging from 0.2% to 2.5%, applied only to the portion of the tax base that exceeds a legally defined exemption threshold. After the reintroduction of the tax in 2011, the Catalan government regulated a slightly more progressive tax schedule, with marginal rates ranging from 0.21% to 2.75%, and set the exemption threshold at 500,000 € (see Appendix B.1 for more details).

3 Administrative Data

The analysis builds on two different administrative datasets provided by the Catalan Tax Agency ("*Agència Tributària Catalana*").

Inheritance tax data. The primary dataset comprises the universe of anonymized inheritance tax returns filed in Catalonia between 2011 and 2019.[15] Heirs are required to submit two forms: the *650 form*, which details the individual share inherited, applicable asset-specific and general tax deductions and credits, as well as the heir's age and relationship to the deceased; and the *660 form*, which reports the total value and composition of the estate. I use the detailed information from the 650 form, combined with a self-constructed tax simulator for Catalonia, to recover the value of inherited assets by asset class for each heir. This is complemented with data from the 660 form, which enables the identification of heirs linked to the same estate (e.g., spouse and descendants, or other relatives), and, in some cases, provides additional detail on asset types, particularly for non-tax-favored assets not specified in the 650 form. To cleanly identify the effects of the 2014 tax reform on the outcome variables, I focus on the sample period 2011-2019 as the Catalan government had already reformed the inheritance tax code in 2010. Therefore, inheritance tax returns filed in the years prior to 2011 are excluded from the analysis to avoid confounding results.

Wealth tax returns. The second dataset consists of a panel of anonymized wealth tax

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[15]In Spain, only regional tax authorities can provide data on inheritance tax returns, as the administration and regulation of the tax were transferred to them in 1996. To date, only the Catalonian Tax Authority has compiled and anonymized the full universe of inheritance tax returns filed in the region since 2006.

returns between 2012 and 2019 filed by heirs in Catalonia who received taxable inheritances exceeding $2 \in$ million over that period[16]. It contains most items reported on the annual wealth tax declaration, the year of the inheritance receipt and whether estates were exclusively transferred to descendants or shared with the surviving spouse. Critically, it contains disaggregated information on wealth declared in the form of non-taxable business assets, that is, equity in family firms and real assets used in business activity.

Descriptive statistics. Table D.1 reports summary statistics for the proportion of taxpayers by their kinship relationship with the deceased person. On average, around 87% of the taxpayers are close heirs (ascendants, descendants, and spouses), while only 13% have more distant family ties to the deceased person. Among those classified as close heirs, direct descendants represent around 66% while spouses make up around 20%. Table D.2 presents summary statistics for the inheritance tax base and liabilities. The average tax base for close heirs is $109,100 \in$ while the average tax liability is $418 \in$. After 2014, the proportion of taxpayers subject to positive tax liabilities doubled as descendants represent more than 80% of close heirs. However, it remained lower than 20% as the tax reform affected only wealthy descendants. This also becomes reflected in the increase in the average tax liabilities from $33 \in$ to $643 \in$, which is entirely explained by the tax payments of heirs at the top of the inheritance distribution. Table D.2 also shows that distant heirs also experienced an increase in tax liabilities after 2014 due to the decrease in tax deductions. However, the average increase was considerably less sizable as it affected mostly the median distant heir.

Regarding the composition of inheritances, Figure D.1a disaggregates inherited wealth between tax-favored and non-tax-favored assets and shows that the fraction of tax-privileged assets declared rises with inherited wealth, reaching around 30% at the top 1%. Interestingly, the composition of tax-favored assets declared also changes along the inheritance distribution, as shown in Figure D.1b. In particular, the most common forms of tax-privileged assets are life insurance and primary residence for heirs below the 95th percentile. For those above, business assets represent most of their tax-favored inherited wealth.

Table D.5 presents summary statistics for the panel of wealth tax returns filed by heirs with tax base exceeding 2M €. Consistent with the receipt of a substantial wealth transfer, both the wealth of heirs and the share of tax-exempt assets increase following the inheritance year. Notably, these increases are significantly larger for heirs inheriting after 2014.

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[16]The Spanish Wealth Tax was temporarily repealed between 2008 and 2011. As a result, wealth tax return data is only available from 2012 onward.

4 Behavioral Responses to the Inheritance Tax Reform

To provide causal evidence on tax minimizing strategies of wealthy testators, I leverage the differential exposure to the 2014 tax reform by kinship relationship (see Figure 1). Using a difference-and-difference design, I compare shifts in the asset composition and value of inheritances received by wealthy descendants compared to other wealthy heirs.

Treatment and Control Groups. The treatment group consists of direct descendants with taxable inheritances exceeding 750,000 €, representing the top 2% of the pre-reform inheritance distribution, while the control group includes spouses and distant heirs within the same wealth bracket.

To avoid capturing behavioral responses related to estate distribution strategies, I deliberately restrict the sample to estates fully transferred to a single kinship category: descendants, spouses, or distant heirs. This design implicitly compares estates of testators with and without descendants, acknowledging that the law prohibits disinheriting descendants. Importantly, the tax reform altered the effective tax burden based on the heir's kinship relationship, potentially incentivizing testators to reallocate their estates between the surviving spouse and descendants. For instance, a declining share of estates passed solely to descendants affected by the reform (i.e., the treatment group) may suggest that only testators with greater flexibility to engage in asset-shifting strategies chose to exclude spouses after the reform. Such behavior could introduce upward bias in the estimates due to endogenous selection into the treatment group. Figure D.2 shows that the share of estates inherited (not) exclusively by treated descendants has remained relatively stable over time, mitigating concerns about such bias.

Descriptive Statistics. Table D.3 presents descriptive statistics for the treatment and control group before 2014. The average taxable inheritance in the treatment and control group goes up to 3.2 and 2.5 million Euro, respectively. Similarly, the average fraction of tax-favored assets inherited by descendants and the other group of heirs is 22.03% and 22.22%, respectively.

Empirical Specification. The differences-in-differences specification is given by:

$$Y_{it} = \sum_{\substack{j=2011 \\ j \neq 2013}}^{2019} \beta_j D_{j=t} \times T_i + \gamma_t + \epsilon_{it} \tag{1}$$

where Y_{it} is the outcome variable in year t, D_j denotes time dummies[17], T_i is a treatment in-

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[17]I define time dummies from February to January, instead of using the natural year (i.e. January to December). The reason is that the 2014 tax reform was put in place on the 1st of February 2014

dicator, γ_t refers to time fixed effects and ϵ_{it} represents the idiosyncratic error term. Standard errors are clustered at the year-month level. The coefficient of interest is β_j which captures the average difference in the outcome between wealthy descendants and other wealthy heirs in year t with respect to the reference year.

The key identifying assumption is that the outcome of the wealthy descendants and other types of wealthy inheritors would have evolved similarly in the absence of the 2014 tax reform. While it is not possible to test this assumption empirically, the tax rate differential between privileged and non-privileged assets faced by spouses and distant heirs was barely affected by the reform and therefore, the incentives for them or their testators to engage in tax-minimizing strategies should at least be weaker. A key concern is that descendants might differ from other heirs in the asset composition or value of inheritances *per se.* This would translate into changes in the outcome variable not reflecting behavioral responses to the tax reform but rather differences in the composition of estates. The empirical specification allows me to detect some of these confounders by comparing trends in the outcomes across wealthy heirs in the years before tax reform: to the extent that confounding shocks occur in an earlier year than the tax reform, they will appear as a differential trend for wealthy descendants in the pre-reform period.

4.1   Results

Asset-shifting responses. Figure 2a presents how the fraction of tax-favored assets inherited evolved around the reform for the treated and control group, normalized to one period before the tax change. As can be inspected, the fraction of tax-favored assets evolved strikingly similarly in both groups before the reform and only started to diverge immediately after. Figure 2b plots the dynamic effects of the tax reform on the outcome of interest. On average, wealthy descendants declared a fraction of tax-favored assets 5.8 p.p higher compared to the control group in the full post-reform period. Given the average pre-reform tax base of treated taxpayers, this shift toward tax-favored assets implied a decline in total average effective tax rates of 1.3 p.p (i.e. 41,000 euros in tax savings).

**Figure 2:** Average Effects of the Tax Reform on Asset Composition of Inheritances
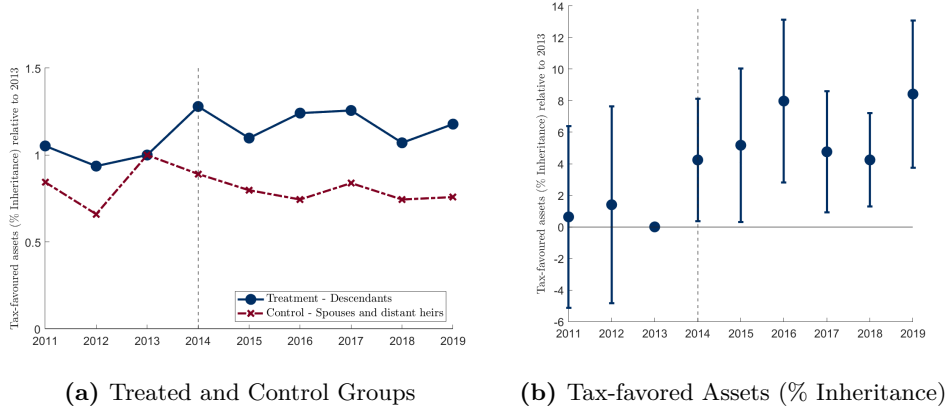
(a) Treated and Control Groups

(b) Tax-favored Assets (% Inheritance)

This figure plots the time series of the treated and control group (normalized to 2013) and estimated β_j coefficients from Equation 1 with 95% confidence intervals. The treated (control) group are descendants (spouses and distant heirs) with taxable inheritances above 750,000 euros between 2011-2019. The dependent variable is the fraction of inherited tax-favored assets. Standard errors are robust and clustered at the year-month level.

Although the Catalan tax reform raised the tax rates for all descendants who inherit wealth above 750,000 euros, the magnitude of the tax increase was *progressive* along the inheritance distribution (see Figure 1a). Thus, we should expect stronger responses for descendants who receive larger wealth transfers, as tax incentives are higher. To explore in depth the heterogeneity in the asset-shifting responses by inheritance bracket, I group heirs in bins depending on their tax base. Figure 3 presents the results for this exercise and shows that the average response to the tax reform is entirely driven by descendants with taxable inheritances above 2 million Euro (i.e. top 0.5% heirs). Given the average pre-reform taxable inheritance for this group of heirs,[18] this increase in the fraction of tax-favored assets implies a drop in effective tax rates of 3.83 p.p (360,000 euros in tax savings). This result suggests that among wealthy descendants affected by the 2014 tax reform, only inheritances at the very top of distribution and experiencing the largest increase in tax rates responded strongly to the policy change.

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[18]The average pre-reform tax base for this group of heirs was 9.4 million euros. Table D.4 gathers summary statistics for the control and treatment group of this segment of heirs.

Figure 3: Effects of the Tax Reform on Asset Composition of Inheritances - By inheritance bracket
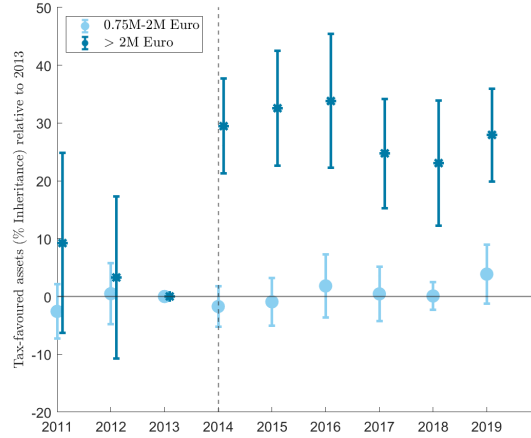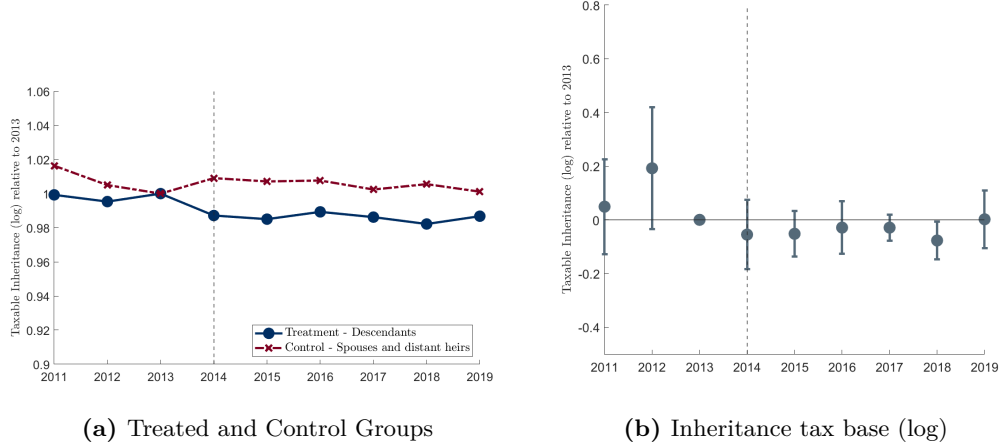

This figure plots the time series of the treated and control group (normalized to 2013) and estimated β_j coefficients from Equation 1 with 95% confidence intervals. The treated (control) group are descendants (spouses and distant heirs) by wealth bracket. Wealth brackets (in thousand euros) are 750-2000, 2000-3000, and above 3000. The dependent variable is the fraction of inherited tax-favored assets. Standard errors are robust and clustered at the year-month level.

Reported inheritances. Figure 4a illustrates the evolution of the inheritance tax base around the reform for both the treated and control groups, normalized to one period prior to the tax change. Figure 4b displays the dynamic effects of the reform. As shown in Figure 4b, there is no significant impact of the tax reform on the total declared inheritances by wealthy descendants compared to wealthy spouses or distant heirs. This piece of evidence is consistent with Mas-Montserrat et al. (2025) who show that wealthy individuals reacted to the reintroduction of the wealth tax in Catalonia through asset reallocation responses towards tax-exempted business assets instead of changes in reported wealth. However, it contrasts previous results found by Montserrat (2019) who finds strong overassessment responses by Catalan wealthy heirs after the quasi-repeal of the tax in 2011.[19] The disparity in results might be related to the Spanish tax assessment rules and the nature of the two tax reforms studied. Notice that while the administrative value of real assets constitutes a tax assessment floor, there is no tax assessment ceiling. As a result, taxpayers can freely overvalue inherited real estate property when taxes are low but the scope for undervaluation behavior as a response to a rise in tax rates is limited.

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[19]The recent literature on the behavioral responses to wealth taxation finds strong to moderate underreporting responses in settings where there is little or no third-party reporting (Seim, 2017; Alstadsæter et al., 2022; Jakobsen et al., 2020; Londoño-Vélez and Ávila-Mahecha, 2024). See Scheuer and Slemrod (2021) or Advani and Tarrant (2021) for a full discussion of the estimates found in the literature

Figure 4: Average Effects of the Tax Reform on Reported Inheritances

(a) Treated and Control Groups   **(b)** Inheritance tax base (log)

This figure plots the time series of the treated and control group (normalized to 2013) and estimated β_j coefficients from Equation 1 with 95% confidence intervals. The treated (control) group are descendants (spouses and distant heirs) with taxable inheritances above 750,000 euros. The dependent variable is the 2016-cpi adjusted total taxable inheritance (in logs). Standard errors are robust and clustered at the year-month level

4.2 The asset-shifting elasticity

To benchmark my findings against behavioral responses to wealth taxation documented in the literature, I translate the observed asset-shifting behavior into an elasticity with respect to the tax differential. Building on the framework developed by (Bergolo et al., 2022; Waseem, 2018), I demonstrate that the reduced-form estimates can be decomposed into two components: a pure asset-shifting elasticity and an intensive margin elasticity that captures both asset reallocation and reporting responses (see Appendix C).

Focusing on the former, and drawing on the reduced-form estimates presented earlier, I estimate the pure asset-shifting elasticity. Given the endogeneity of the tax rate differential between favored and non-favored assets, I employ an instrumental variables (IV) strategy using two-stage least squares (2SLS):

$$log(I_{it}^F) = \nu_s(\tau_{it}^{NF} - \tau_{it}^F) + \gamma_t + u_{it} \tag{2}$$

where $\tau_{it}^{NF} - \tau_{it}^F$ is instrumented using the interaction $Treat_i \times Post_t$. The asset-specific tax rates τ_{it}^{NF} and τ_{it}^F are calculated using a tax calculator that incorporates the applicable tax schedule, asset-specific and kinship-related tax benefits regulated in Catalonia during the relevant period. As specified in the baseline Equation 1, the treatment indicator ($Treat_i$) takes a value equal to 1 for direct descendants and 0 for spouses and other distant heirs while the time dummy ($Post_t$) takes value equal to 1 in the post-reform period (i.e. after

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February 2014) and 0 otherwise. I focus on the same sample heirs with taxable inheritances above 750,000 and 2 million euros as in Section 4.

Table E.1 reports an estimated asset-shifting elasticity of 17 (s.e. 3.0), indicating that a one percentage point increase in the inheritance tax differential leads to a 17% increase in the share of tax-favored assets. Among the top 0.5% of heirs, who account for the average response to the reform, this elasticity rises to 20 (s.e. 3.9). These findings are consistent with the limited empirical literature on asset-shifting responses to tax differentials. For example, Alvaredo and Saez (2009) exploit the introduction of a tax exemption for closely held stocks in Spain and find that the share of such assets held by the top 1% increased by 33%, implying an elasticity of 25. Similarly, Mas-Montserrat et al. (2025) estimate an elasticity of 32.1 with respect to the average wealth tax, based on the 2011 reintroduction of the Spanish wealth tax. Since they find no evidence of changes in total reported wealth, their estimate primarily reflects changes in asset composition.

5   The anatomy of the asset-shifting

Shifting the form in which wealth is held is not a frictionless process. In Spain, the group of inheritance tax-privileged assets includes a wide variety of assets. Although it is not unreasonably to think that certain assets are more prone to be held in different forms than others (for instance, financial wealth can be held through a firm), the magnitude of the shifting responses as well as the vehicles used remains an empirical question (Advani and Tarrant, 2021). Fortunately, the richness of the inheritance and linked wealth tax data allows us to study the anatomy of the asset-shifting responses by asset category. I focus on heirs with taxable inheritances exceeding 2 million Euro as this segment of heirs is entirely responsible for the average responses uncovered.

Evidence from inheritance tax returns. Figure 5a breaks down the impact of the tax reform across different categories of tax-favored assets: equity in family firms, real assets used in business activity, primary residences, life insurance, and a residual group comprising agricultural land, rural land, and cultural property. The estimates reveal that the increase in the share of tax-favored assets inherited by wealthy heirs relative to the control group is almost entirely explained by equity in family firms. Specifically, this share increased by an average of 30 percentage points in the post-reform period. In contrast, the reform appears to have had minimal to no effect on the inheritance of other tax-privileged assets with the exception of a short-lived increase in business-related real assets.

The uncovered shift toward tax-favored business assets necessarily implies a correspond-

ing reduction in the share of non-tax-favored assets of the same size. To explore which specific categories of non-tax-favored assets explain this portfolio reallocation, I draw on detailed estate tax return data that provides a comprehensive breakdown of asset composition of the estate at the time of inheritance.[20] To this end, I compare the evolution of the asset composition of the estates transmitted to wealthy descendants compared to other wealthy heirs around the inheritance tax reform.

Figure 5b displays the results from a stacked specification of Equation 1, where the dependent variable is the share of various non-tax-favored asset categories and equity in family firms relative to the total estate.[21] The findings indicate that the increase in the share of equity in family firms is primarily offset by a decrease in the share of financial assets followed by a decline in non-productive assets such as vehicles, boats, and household items. This pattern suggests that private wealth, particularly financial wealth, is being strategically reclassified as business wealth through family firms in response to the tax reform.

Figure 5: The Anatomy of The Asset-shifting Responses to The Tax Reform
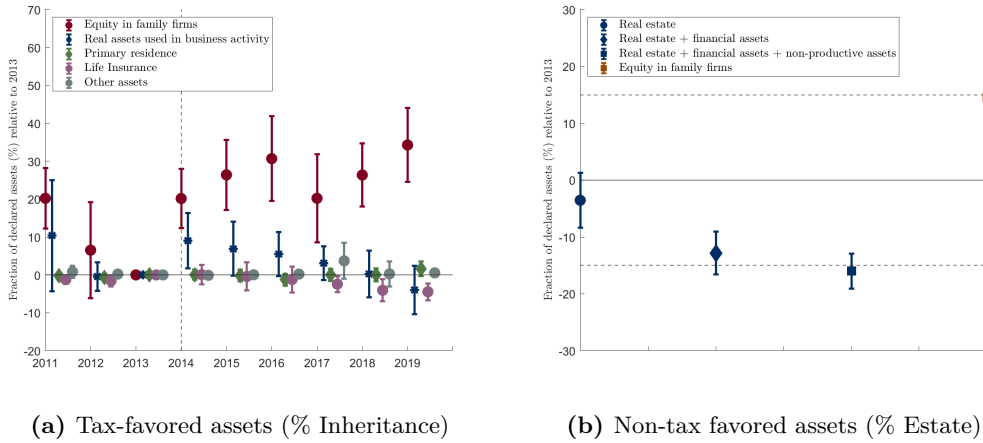
(a) Tax-favored assets (% Inheritance)   **(b)** Non-tax favored assets (% Estate)

Panel 5a plots the estimated β_j coefficients from Equation 1 and 95% confidence intervals when the dependent variable is the fraction of declared (i) equity in family firms (ii) real assets used in business activity (iii) primary residence (iv) life insurance (v) other tax-favored assets (agricultural and rural land and cultural property) declared out of the total tax base. Panel 5a plots the estimated β_j coefficients from a stacked version of Equation 1 when the dependent variable is the fraction of the estate transmitted in the form of (i) real estate wealth excluding main residence (ii) real estate and financial assets (iii) real estate, financial assets and non-productive assets (vehicles, boats, aircraft, household items). The treated (control) group are descendants (spouses and distant heirs) with taxable inheritances above 2 million Euro. Standard errors are robust and clustered at the year-month level.

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[20]The value of each tax-favored asset is recovered by applying a self-constructed tax simulator to the asset-specific deductions reported in the inheritance tax return (650-form). Next, the value of non-tax-favored assets is computed residually by subtracting the total value of tax-favored assets from each heir's taxable inheritance. However, to observe the precise composition of the estate one needs to rely on an additional tax return filed at the time of inheritance (660-form), which provides a detailed inventory of all assets comprising the decedent's estate. See Section 3 for more details

[21]Figure E.1a presents results where the dependent variable is each individual non-tax-favored asset category. Additionally, Figure E.1b displays the results from the dynamic difference-in-differences estimation

Evidence from wealth tax returns. In Spain, equity in family businesses and real assets used for business purposes benefit from favorable tax treatment not only under the inheritance tax but also under the wealth tax. Specifically, the exact same type of business assets are granted a full wealth tax exemption.

To provide additional causal evidence of the asset-shifting behavior uncovered in Figure 5, I exploit this feature of the Spanish wealth tax in combination with a panel of wealth tax returns filed by heirs whose taxable wealth exceeds €2 million. In particular, I leverage variation in the timing of inheritance events to identify the asset-shifting responses to the inheritance tax reform using the following difference-in-differences specification:

$$Y_{it} = \sum_j \beta_j \mathbf{1}\{j = t - I_i\} \times T_i + \alpha_i + \gamma_t + \epsilon_{it} \tag{3}$$

where Y_{it} denotes the outcome variable for taxpayer i in year t and I_i refers to the year in which taxpayer i received an inheritance. Thus, $\mathbf{1}\{j = t - I_i\}$ represents the number of years since the inheritance. The variable T_i is a treatment indicator equal to 1 for heirs who inherited after 2014, and 0 otherwise. The terms α_i, γ_t represent taxpayer and time fixed effects, respectively, while ϵ_{it} is the idiosyncratic error term. The standard errors are clustered at the inheritance year level. For consistency with the results based on inheritance tax data, the sample is restricted to wealth tax filers who inherited estates transferred exclusively to descendants.

The identification strategy rests on the assumption that, absent the inheritance tax reform, the wealth portfolios of taxpayers inheriting before and after 2014 would have followed parallel trends. To assess the plausibility of this assumption, I test for the presence of differential pre-reform trends in the outcome variable across the treatment and control taxpayers. Table D.6 reports summary statistics for these two groups of heirs prior to inheritance receipt and shows that both groups declared remarkably similar wealth portfolios.

Figure 6 presents the estimated coefficients from Equation 3, using the method developed by Callaway and Sant'Anna (2021), which accounts for treatment effect heterogeneity stemming from variation in inheritance timing across heirs. Consistent with the patterns shown in Figure 5, the results indicate a small short-term increase in the share of business-related real assets, alongside a large sustained rise in the share of family-firm equity declared by treated taxpayers relative to the control group in the years following inheritance. On average, heirs who inherited after the 2014 reform reported portfolios with a 7.6 percentage point higher share of family-firm equity than those who inherited earlier.

Figure 6: Effects of the Tax Reform on Tax-exempted Wealth (% Total wealth)
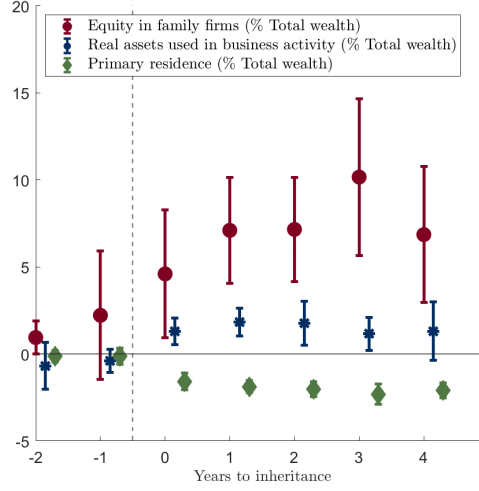
This figure plots the estimated β_j coefficients from Equation 3 and 95% confidence intervals when the dependent variable is the fraction of (i) equity in family firms (ii) real assets used for business operations (iii) primary residence. The treated (control) group are descendants with taxable inheritances above 2 million Euro who inherited after (before) 2014. Standard errors are clustered at the year of inheritance level.

Overall, these findings align with prior research highlighting the role of closely held businesses as vehicles for tax avoidance. For instance, Alstadsæter et al. (2014) document a substantial accumulation of assets such as company cars, planes, and boats within Norwegian firms following the introduction of dividend taxation for personal but not corporate owners. In terms of magnitude, the shift toward business assets observed here is comparable to the estimates reported by Alvaredo and Saez (2009) and Mas-Montserrat et al. (2025), who examine the effects of tax exemptions under the Spanish Wealth Tax. Alvaredo and Saez (2009) exploit a 1993 reform to show that the share of exempted closely held business equity rose by 33 p.p. for the top 1%. Similarly, using administrative tax data and the 2011 reintroduction of the wealth tax, Mas-Montserrat et al. (2025) find that a one percentage point increase in the average wealth tax rate led to a 9.6 p.p. rise in the share of exempted business assets among the top 50% of taxpayers.

5.1 The relabeling of private wealth into business wealth

Under Spanish inheritance and wealth tax law, two categories of business-related assets are eligible for preferential treatment: equity holdings in family firms and business-related real assets used as operating capital. To qualify as a family firm, a company must be actively engaged in a trade or business, and the testator must both hold a minimum ownership stake and participate directly in its management. There is no restriction regarding the size or listing

status of the firm, it may be publicly traded or privately held.[22] In contrast, business-related real assets such as vehicles, equipment, or buildings may qualify for tax exemptions when held personally but used within any firm structure, provided they are demonstrably used for business purposes. This distinction is critical for understanding the different channels through which private wealth can be strategically reclassified as business wealth.

Transfer of private assets to already-established firms. The observed increase in the share of family-firm equity inherited by treated taxpayers, along with a decline in transmitted financial and non-productive assets in treated estates, suggests a strategic reallocation of wealth by affluent testators prior to death. Specifically, the findings are consistent with a mechanism in which private wealth is injected into existing family firms as capital contributions, in exchange for newly issued company shares. This process effectively reclassifies private wealth as family-firm equity, thereby qualifying it for preferential tax treatment.

A second, complementary mechanism involves the transfer of real assets, particularly vehicles and equipment, into firms as operative capital. This may account for the modest increase in the share of business-related real assets inherited by treated descendants relative to the control group. It also aligns with the observed decline in non-productive assets transmitted, as vehicles, often categorized as non-productive when held privately, can be reclassified as productive if integrated into business operations. However, this strategy is subject to stricter scrutiny: business owners must convincingly demonstrate to the tax authority that these assets are used exclusively for business purposes. This can limits the scale of this relabeling channel, making it potentially less flexible than capital contributions.

Family firm creation for tax-saving purposes. Wealthy individuals may transfer financial wealth into existing businesses, but they could also establish new firms as a means of converting financial assets into business wealth to benefit from preferential tax treatment. In Spain, however, setting up a new firm solely for inheritance tax-saving purposes is relatively challenging, as companies must meet specific legal requirements to qualify as family firms and access the associated tax benefits. Holding companies, which are not considered to be engaged in active business operations, are therefore excluded from these tax advantages, despite being a natural vehicle for relabeling personal wealth as business wealth.

Both the transfer of assets into existing firms and the creation of new family firms would appear in inheritance tax returns as an increase in the amount of family-firm equity inherited. However, I can directly test whether the reform incentivized the creation of new firms by using panel data from wealth tax returns filed by wealthy heirs. Table D.5 shows that 65%

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[22]See Law 29/1987 for Inheritance Tax and Law 19/1991 for Wealth Tax provisions on closely held businesses.

of heirs already reported ownership of family-firm equity in their wealth tax returns prior to receiving an inheritance. Figure E.2 presents the estimated coefficients from Equation 3 when the dependent variable is a dummy that indicates whether taxpayers declare some wealth in the form of equity in family firms. The results suggest that heirs who inherited after 2014 were not statistically more likely to declare ownership of equity in closely held businesses in the years following inheritance than those who inherited before. This provides suggestive evidence that the observed relabeling of financial wealth as business wealth in response to the reform occurred primarily along the intensive margin, through injecting financial wealth and potentially other real assets into existing firms, rather than through the extensive margin of new firm creation.

Tax implications of private wealth relabeling. From a strictly tax-minimization perspective, all tax-favored assets provide comparable incentives for wealthy individuals to use them as vehicles for inheritance tax avoidance. However, reallocating wealth across asset classes is not frictionless. In this regard, closely held firms offer a distinctive advantage: they enable individuals to reclassify wealth without incurring the costs associated with real portfolio rebalancing. For example, shifting financial wealth into a primary residence entails a genuine reallocation of assets and involves non-trivial transaction costs, such as selling an existing residence and paying associated transaction and capital gains taxes. In contrast, transferring an equivalent amount of financial or real assets into a closely held firm as a capital contribution has, since 2010, been fully exempt from property transfer taxation[23] and does not require a real rebalancing of the portfolio. In addition, injecting private assets into firms, whether through capital contributions or the direct allocation of real assets, does not, in itself, trigger corporate tax liabilities. These transactions are treated as equity operations and fall outside the scope of taxable income under corporate tax rules. Moreover, wealthy individuals are particularly well-positioned to exploit preferential taxation of business assets, as business wealth is highly concentrated at the top of the wealth distribution.[24]

Capital withdrawal strategies. In principle, heirs may later extract reclassified wealth from firms through mechanisms such as capital reductions, asset transfers, and dividend distributions. Under the original framework of the Spanish Inheritance Tax Law, the 95% tax deduction for business assets was contingent upon heirs maintaining ownership for a minimum of ten years. However, over time, regional governments have gradually relaxed this requirement. In particular, Catalonia reduced the mandatory holding period from ten

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[23]The same would apply if an individual allocates a real asset to a firm. See Law 828/1995 for the Spanish Property Transfer Tax and Law 13/2010 for the exemptions granted to capital contributions and operative asset transfers.

[24]This pattern is not unique to Spain (Martínez-Toledano, 2023), but is also observed in other countries, including Norway (Fagereng et al., 2019), the United States (Kopczuk and Zwick, 2020), and the United Kingdom (Advani et al., 2021).

to five years in 2011.[25] Although extracting equity through all these operations can be costly for business owners, as such operations are subject to progressive capital gains taxation,[26] they nonetheless offer strategic opportunities for tax planning once the holding period has elapsed. This is particularly relevant for privately held firms, where the absence of a market-determined share price allows for greater flexibility in assigning asset values. In fact, Figure E.3 shows that observed increase in equity is predominantly driven by a rise in ownership of private family-firm shares. This discretion can be strategically used to minimize the capital gains when extracting wealth from the firm, thereby reducing the associated tax burden. In such cases, heirs may understate the appreciation of business assets, effectively lowering the taxable base when equity is withdrawn through mechanisms such as capital reductions or asset transfers.

Using the panel of wealth tax returns, Figure E.4 illustrates the evolution of family firm equity holdings for heirs who inherited in 2012, 2013, and 2014. The descriptive evidence suggests that the cohort of heirs affected by the 2014 reform exhibit a more pronounced decline in the share of equity holdings after the expiration of the maintenance period, particularly in private equity (see Panel E.4b). Although this figure should be interpreted as descriptive evidence, the observed pattern aligns with the hypothesis that the reform incentivized the reclassification of business assets primarily for tax-saving purposes with little impact on firm-level asset accumulation.

6   Robustness checks

The choice of the control group. One potential concern is that the composition and total value of inheritances of surviving spouses and distant heirs might differ. In order to validate the baseline results presented in in Figure 2b and 3, I estimate the response to the reform using either the group of surviving spouses or the group of distant heirs as a control group. Figure E.5 shows that the asset-shifting responses are very similar irrespective of the choice of the control group. This is particularly true when we focus on the group of top-wealth heirs who have been shown to be the ones responsible for the average responses uncovered.

Placebo exercise. The 2014 Catalan tax reform increased progressively the tax differential faced by direct descendants with taxable inheritances above 750,000 euros. Thus, only the tax incentives of that segment of heirs were substantially modified after the tax reform.

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[25]For more details, see Law 19/2010

[26]In Spain, capital gains tax is set at the national level and its schedule ranges from 19% to 26% during the sample period considered

To provide evidence that the results presented so far capture this differential change in tax incentives across groups of heirs, I run a placebo exercise where I compare direct descendants to a control group of heirs with taxable inheritances between 500,000 and 750,000 euros. For this tax base range, all groups of heirs faced a small and similar increase in the tax differential (see Figure 1) and therefore we should not observe significant asset-shifting responses. Figure E.6 presents the results of this exercise and shows no significant change in the composition of inheritances received between the two groups.

7 Other margins of response

Redistribution of inheritances within the family. So far, the baseline sample has included only estates transferred to a single kinship category: descendants, spouses, or distant heirs. This sample selection helps control for potential spillover effects between treatment and control heirs, who may otherwise belong to the same family. More importantly, it enables a clearer interpretation of asset-shifting behavior toward business assets as a form of private wealth reclassification. However, the tax reform also created incentives for the strategic redistribution of estates between descendants and the surviving spouse, as it increased the effective tax burden on the former while maintaining a near-zero rate for the latter. Figure D.2 shows that around 27% of estates with at least one descendant affected by the tax reform are shared with the surviving spouse.

To examine this margin of response, I analyze how inheritances were distributed after the tax reform, focusing on treated descendants who share estates with a surviving spouse. Panel E.7a shows the evolution of overall wealth shares, while Panel E.7b tracks the allocation of family-firm assets, both within estates where at least one descendant inherits taxable wealth above €750,000. The figures reveal a sharp post-reform increase in business assets inherited by descendants, mirrored by a decline for spouses. This suggests that wealthy families reallocated business assets from spouses to descendants, likely to reduce total tax liabilities.

Inter-vivo gifts. Extensive evidence shows that inter-vivos gifts are commonly used to reduce inheritance tax liabilities (Kopczuk, 2007; Escobar et al., 2023; Glogowsky, 2021; Sturrock et al., 2022). In Spain, however, tax law restricts this strategy: gifts made within four years before death are subject to inheritance tax, and overall tax benefits are limited raising effective rates for any asset type. Table A.5 outlines the specific benefits in Catalonia, while Figure A.1 shows the gift tax schedule.

Despite this, inter-vivos gifts may still offer opportunities for wealthy individuals to reduce heirs' tax burdens, particularly through transfers of real estate or financial assets that

are harder to relabel. To explore this channel, I examine how large gifts (above €100,000) of non-tax-favored assets to descendants respond to the reform, compared to distant heirs.[27] Table D.7 summarizes pre-2014 gift patterns. Importantly, the gift tax law remained unchanged during the sample period. Figure E.8 shows a modest, short-lived increase in such transfers to descendants post-reform, which faded within two years. Compared to the stronger asset-shifting responses documented earlier, this suggests that wealthy families prioritized portfolio reallocation over inter-vivos gifting as a tax-minimization strategy.

Changes in fiscal residence. Wealthy individuals may respond to increases in tax rates by relocating their fiscal residence to regions with lower tax burdens. Although the empirical literature on inheritance tax-induced mobility remains limited, existing studies report mixed evidence (see Brülhart and Parchet (2014); Moretti and Wilson (2023)). In Spain, substantial regional disparities in effective inheritance tax rates due to its decentralization make this behavioral response particularly relevant (see Micó-Millán (2023)). In the case of the wealth tax, Agrawal et al. (2023) provide evidence of tax-induced mobility by exploiting its reintroduction in 2011, after which all regions imposed positive rates except Madrid. However, two specific features of the inheritance tax may constrain the scope for such responses. First, unlike the wealth tax, the inheritance tax has undergone frequent regional reforms. As documented by Micó-Millán (2023), there were, on average, four regional changes between the early 2000s and 2019. Second, while the Spanish wealth tax determines fiscal residence based on where the taxpayer has lived continuously for the past three years, the inheritance tax applies a more stringent five-year rule based on the deceased's region of residence. Although this rule is somewhat ambiguous and may allow for strategic or even fraudulent manipulation, it is marginally more restrictive than the one applied to the wealth tax. Unfortunately, the administrative data used in this study do not allow for an investigation of this behavioral margin. Such an analysis would require access to wealth tax returns and the ability to track changes in testators' fiscal residence prior to death.

8   Tax Revenue Analysis

This section evaluates the tax revenue implications of asset-shifting behaviors triggered by the inheritance tax reform. The analysis considers both the direct impact on inheritance tax revenues and the cross-base effects on wealth tax revenues. Estimating these cross-base effects provides a broader perspective on how the use of business assets as tax avoidance vehicles influences the overall taxation of wealthy individuals. Based on the results in Section 4,

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[27]Spouses are excluded from the control group due to other tax incentives affecting intra-household transfers during the sample period.

the focus is placed on treated heirs with taxable inheritances exceeding €2 million, as they account for the entire average response to the reform. On average, they represent only 0.15% of inheritance taxpayers, they contribute 19% of total inheritance tax revenues since 2014. In the case of the wealth tax, these individuals make up 1.45% of taxpayers and generate 5% of total revenue in the region.

The revenue analysis is based on counterfactual simulations. To estimate inheritance tax revenues, I apply the causal estimates from Figure 5a to adjust the share of tax-favored business assets inherited by heirs, specifically equity in family firms and real assets used in business. This is done by randomly assigning each type of business assets to heirs in a way that matches both the average share of those inheriting these asset types and the corresponding average portfolio share in the pre-reform period data.[28] This approach implicitly assumes that the wealth reallocated to business assets due to tax incentives is, in the counterfactual scenario, redistributed proportionally across all non-tax-favored asset categories. Notice that, while Figure 5b suggests that this reallocation could plausibly be concentrated in financial and non-productive assets, this distinction does not have any impact on the simulation results, as all non-tax-favored assets face the same effective tax burden.

For wealth tax revenues, I use the estimates from Figure 6 to reduce the share of tax-exempt business assets reported in wealth tax filings, aligning it with the average levels observed among taxpayers who inherited before 2014. As in the previous exercise, I randomly assign business wealth in the post-inheritance period to match the average share of heirs declaring business assets in the control group as well as their portfolio composition.[29] Finally, I simulate inheritance and wealth tax revenues in the absence of tax-motivated asset reclassification using a self-constructed tax calculator that replicates the Catalan legislation.

Figure 7a compares the actual wealth and inheritance tax revenues collected from the top 0.5% of descendants (gray area) with the counterfactual revenues that would have been collected in the absence of private wealth relabeling behavior. Figure 7b complements this analysis by illustrating the forgone tax revenue (dark blue and red) as a percentage of total tax revenue. In 2019, Catalonia forfeited approximately 15.52% of its total tax revenue, equivalent to €127 million, due to the strategic reclassification of private wealth as business wealth.

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[28]Prior to the reform, 36.81% of treated heirs inherited equity in family firms, while 7.85% inherited business-related real assets. Among those receiving such assets, the average portfolio share was 22.64% for equity and 4.86% for business-related real assets.

[29]Among heirs prior to 2014, 60.9% report holding equity in family firms, while 8.87% declare business-related real assets in their wealth tax returns after inheriting. For those declaring such assets, the average portfolio allocation is 30.37% for equity and 3.06% for real assets tied to business activity.

Figure 7: Tax Revenue Simulations

(a) Inheritance and wealth tax revenue simulations

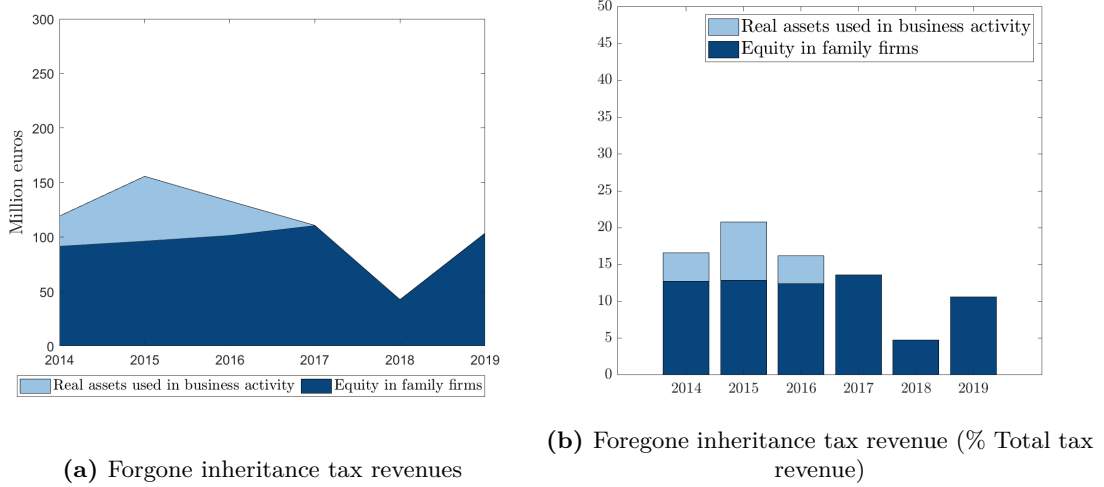**(b)** Foregone tax revenue (% Total tax revenue)
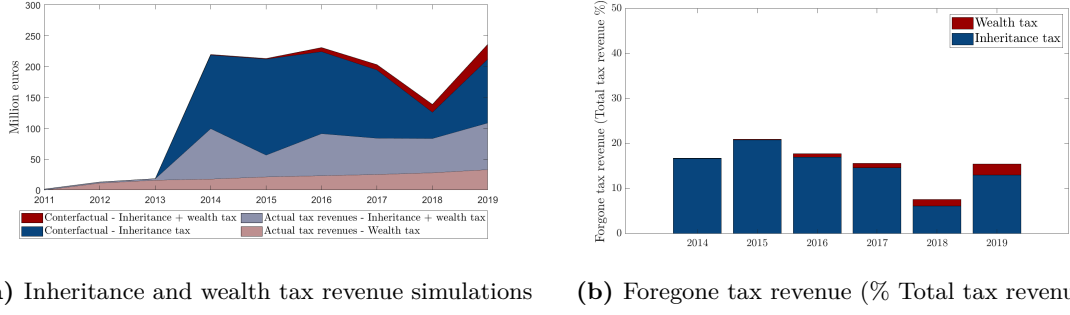
Panel 7a depicts potential wealth tax and inheritance tax revenue from descendants with taxable inheritances above 2M € when shutting down the private wealth rebelling responses. Panel 7b presents forgone tax revenue as a percentage of total wealth plus inheritances tax revenue in Catalonia.

A closer look reveals that the bulk of this forgone revenue stems from inheritance taxes, which alone account for 13.06% of total tax revenue. In contrast, losses from the wealth tax represent a comparatively modest 2.45%. This disparity is primarily driven by the greater tax differential between favored and non-favored assets under the inheritance tax regime. While both taxes offer generous exemptions for business wealth, 95% for inheritance tax and 100% for wealth tax, the inheritance features lower exemption thresholds and substantially higher marginal rates (see Appendix A and B). As a result, any shift in the composition of inherited wealth toward tax-favored business assets has a disproportionately large effect on inheritance tax revenues, while the impact on wealth tax collections remains marginal.

Finally, Figure 8 offers a detailed breakdown of the estimated forgone inheritance tax revenues by type of tax-favored business asset. Consistent with the reduced-form estimates presented in Section 4, the bulk of these fiscal losses can be traced to the strategic relabeling of private wealth as family firm equity, primarily executed through capital contributions. These results suggest that the use of family firms as inheritance tax avoidance instruments can entail non-negligible fiscal losses. This form of asset reclassification appears to be a dominant strategy among high-wealth individuals when planning their testament, significantly contributing to the erosion of the inheritance tax base.

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Figure 8: Breakdown of Forgone Inheritance Tax Revenues

(a) Forgone inheritance tax revenues

(b) Foregone inheritance tax revenue (% Total tax revenue)

Panel 8a depicts potential extra inheritance tax revenue from descendants with taxable inheritances above 2M€ when shutting down the private wealth rebelling responses through (i) equity in family firms (ii) real assets used in business activity. Panel 8b presents forgone inheritance tax revenue as a percentage of total wealth plus inheritances tax revenue in Catalonia.

9 Conclusion

This paper uses comprehensive administrative data and a salient inheritance tax reform in Catalonia (Spain) to examine how wealthy individuals strategically reallocate their wealth in response to tax incentives. The sharp and timely shift toward family-firm assets following the reform provides clear evidence that such firms are readily used as tax avoidance vehicles, with significant implications for tax revenue.

These findings are highly relevant to ongoing policy debates on the design of inheritance tax systems. Many countries, including Spain, grant preferential treatment to business assets to facilitate family business succession. This policy is typically justified by concerns that taxing business transfers could jeopardize firm liquidity, continuity, and employment. However, empirical support for this rationale is limited and mixed. For instance, Tsoutsoura (2015) finds that the repeal of inheritance taxation in Greece increased investment in transferred firms, suggesting a relaxation of financial constraints. Similarly, Brunetti (2006) reports a modest increase in the likelihood of business sales following estate taxation. In contrast, Holtz-Eakin et al. (2001) shows that entrepreneurs do not fully utilize life insurance to protect their firms from estate tax liabilities, casting doubt on the prevalence of liquidity-driven disruptions.

While inheritance taxation may affect firm liquidity in some cases, this paper shows that preferential treatment of business assets can be strategically exploited to minimize

tax liabilities. This undermines both revenue collection and the progressivity of the tax system, especially in jurisdictions where preferential treatment extends beyond inheritance taxes to wealth taxes. Although the injection of personal wealth into private firms could, in principle, generate positive externalities, such as increased investment or job creation, the data used in this study does not allow for a direct evaluation of these effects. If anything, the descriptive evidence suggests that such capital injections are not sustained for productive purposes: equity holdings tend to decline once the mandatory maintenance period required to retain tax benefits expires. This pattern indicates that the primary motivation behind these transfers is tax avoidance and casts doubt about they contribution to improved firm outcomes.

A more comprehensive understanding of the equity-efficiency trade-offs involved in taxing intergenerational transfers of business wealth is therefore essential. Future research should aim to quantify both the fiscal costs of preferential treatment of business assets and its potential economic benefits, providing clearer guidance for the optimal design of broad wealth tax regimes.

Appendix

A The Spanish Inheritance and Gift Tax

A.1 Institutional Background

The Spanish Inheritance and Gift Tax Law was first introduced in the tax system during the reign of Charles IV in the 18th century. 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 inheritance and gift tax.[30]

Different from other countries, Spanish law regulates inheritances and gift taxes jointly. The 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[31] while donees' tax base is defined as the sum of assets transferred *inter vivos* by an alive donor. The net tax base of heir or donee i is calculated after applying any eligible tax deductions as follows

$$\text{Net Tax Base}^i = \min\Big\{0, \Big(\sum_r (\text{Tax-favored Assets}_r - k_r) \times (1 - tc^{r,i})$$
$$+ \sum_s \text{Non tax-favored Assets}_s\Big) - td^i\Big\} \quad i \in \{\text{heir}, \text{donee}\}$$

where $tc^{r,i}$ denotes the tax credit specific to tax-favored assets up to some limit k and td^i denotes the corresponding exemption threshold. Next, if the net tax base is positive, the tax quota is computed as follows:

$$\text{Tax Quota}^i = (q_j + (\text{Net Tax Base}_j^i - b_j^{lb}) \times \tau_j) \times (1 - tc^i) \times \text{SF}$$

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[30]Notwithstanding this special status, these two regions have regulated inheritance and gift tax rates similar to the rest of Spain

[31]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 is gifts made by the deceased to heirs during the four years preceding the moment of death.

where q_j is the tax payment corresponding to the first X euros of the net tax base for bracket j and τ_j is the marginal tax rate applicable to the remaining amount (i.e. Net Tax Base$_j^i - b_j^{lb}$ where b_j^{lb} is the lower bound of tax bracket j). Finally, tc^i denotes any general tax credit, which usually takes the form of a tax credit expressed as a fraction of the net tax base, and SF refers to the scaling factor, which is increasing in heirs or donees' pre-inheritance or pre-gift wealth. Once the tax quota and the net tax base are computed, the effective tax rate can be obtained as:

$$\tau^{E,i} = \frac{\text{Tax Quota}^i}{\text{Net Tax Base}^i}$$

The administration and regulation of the inheritance and gift tax in Spain were decentralized in 1996. This meant that regions were awarded regulatory power to (i) introduce new general and asset-specific tax credits (ii) increase the generosity of default exemption thresholds and asset-specific tax benefits and (iii) modify the tax schedule or the scaling factors. Regional governments did not exercise this right until the beginning of the 2000s when they started to modify the inheritance and gift tax code rather frequently (see Micó-Millán (2023)).

The Spanish law establishes that inheritance taxes must be paid in the region of residence of the deceased person, independently of the region of the assets being transferred are located. By contrast, the region where gift taxes are paid depends 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 donee.

A.2 The Inheritance and Gift Tax in Catalonia

Similar to other Spanish regions, Catalonia started to exercise its right to modify the inheritance and gift tax code in the mid-2000s. The first time the regional government reformed the inheritance tax code was in 2002, when increased the exemption threshold for group I and II[32] and regulated a new tax schedule with marginal rates from 7.42% to 32.98%. In 2006, the Catalan government introduced tax benefits applicable to agricultural land for the first time. However, the two major reforms took place during the years 2010-2011 and 2014.

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[32]The exemption threshold for group I and group II changed to $\max\{18k + 12K(21 - age), 114K\}$ and 18,000 euros, respectively with respect to the default law (See Law 19/1987)

A.2.1 Inheritances

Table A.1: Kinship-related tax deductions in Catalonia

	2003-2010	Jan-Jun 2010	Jun-Dec 2010	Jan 2011 - Jan 2014	Feb 2014- Dec 2019
Close heirs					
Direct Descendants					
Son or daughter < 21	$18k+$ $12k(21 - \text{age})$ max. 114k	$69+$ $8k(21 - \text{age})$ max. 134k	$171k+$ $20k(21 - \text{age})$ max. 337k	$275k+$ $33k(21 - \text{age})$ max. 539k	$100k+$ $12k(21 - \text{age})$ max. 196
Son or daughter > 21	18k	68.75k	171.87k	275k	100k
Other descendants	18k	37.50k	93.75k	150k	50k
Spouse	18k	125k	312.50k	500k	100k
Ascendants	18k	25k	62.50k	100k	30k
Distant heirs					
Group III	9k	12.50k	31.25k	50k	8k
Group IV	-	-	-	-	-

Table A.2: Other tax deductions in Catalonia

	2003-2010	Jan-Jun 2010	Jun-Dec 2010	Jan 2011 - Jan 2014	Feb 2014- Dec 2019
Close heirs					
Direct Descendants					
Son; daughter < 21	-	125k	125k	125k	-
Son; daughter > 21	-	$\max\{32.5k,$ $0.5 \times (\text{net tax base})\}$	$\max\{78.13k,$ $0.5 \times (\text{net tax base})\}$	$\max\{125k,$ $0.5 \times (\text{net tax base})\}$	- -
Other descendants	-	$\max\{12.5k,$ $0.5 \times (\text{net tax base})\}$	$\max\{31.25k,$ $0.5 \times (\text{net tax base})\}$	$\max\{50k,$ $0.5 \times (\text{net tax base})\}$	- -
Spouse	-	$\max\{37.5k,$ $0.5 \times (\text{net tax base})\}$ 275k if age>75	$\max\{93.75k,$ $0.5 \times (\text{net tax base})\}$ 275k if age>75	$\max\{150k,$ $0.5 \times (\text{net tax base})\}$ 275k if age>75	- - -
Ascendants	-	$\max\{6.25k,$ $0.5 \times (\text{net tax base})\}$	$\max\{15.63k,$ $0.5 \times (\text{net tax base})\}$	$\max\{25k,$ $0.5 \times (\text{net tax base})\}$	- -

A.3 Asset-specific tax credits

A.3.1 Inheritances

Table A.3: Asset-specific Tax Credits

	2003-2007	2008-2009	2010-2019
Close heirs			
Primary residence	95% tax credit limit 125k per heir	95% tax credit limit 500k on property	95% tax credit limit 500k on property
Equity shares in family firms	95% tax credit	95% tax credit	95% tax credit
Real assets used for business activity	95% tax credit	95% tax credit	95% tax credit
Agricultural land	-	95% tax credit	95% tax credit
Rural land	95% tax credit	95% tax credit	95% tax credit
Cultural property	95% tax credit	95% tax credit	95% tax credit
Life insurance	100% tax credit; 9.4k	100% tax credit; 9.4k	100% tax credit; limit 25k

Table A.4: Maintenance Rules for Tax-favored Assets

| Asset Type	Maintenance Requirements
Primary residence	Heirs must retain ownership for at least 5 years following the date of inheritance, unless exceptional circumstances apply (e.g., death, forced sale).
Equity shares in family firms	The heir must maintain ownership and the firm must continue its activity for at least 5 years.
Real assets used for business activity	The business must remain active and the inherited assets must be used for the same purpose for at least 5 years.
Agricultural land	The land must be used for agricultural purposes and not sold or re-purposed for at least 5 years.
Rural land	Same as agricultural land
Cultural property	Must remain in the heir's possession and be accessible to the public or registered with the cultural heritage authority for 5 years.
Life insurance	-

A.3.2 Inter-vivos gifts

Table A.5: Asset-specific Tax Credits

	2003-2007	2008-2009	2010-2019
Close heirs			
Equity shares in family firms	95% tax credit	95% tax credit	95% tax credit
Real assets used for business activity	95% tax credit	95% tax credit	95% tax credit
Cultural property	95% tax credit	95% tax credit	95% tax credit
Cash for acquisition of first residence	80% tax credit; 18k limit	95% tax credit; 60k limit	95% tax credit; 60k limit
House for first residence	-	95% tax credit; 60k limit	95% tax credit; 60k limit
Cash for business creation	-	-	95% tax credit; 125k limit

A.4   Tax schedule

Figure A.1: Inheritance and Gift Tax Schedules in Catalonia

(a) Inheritance Tax   **(b)** Gift Tax
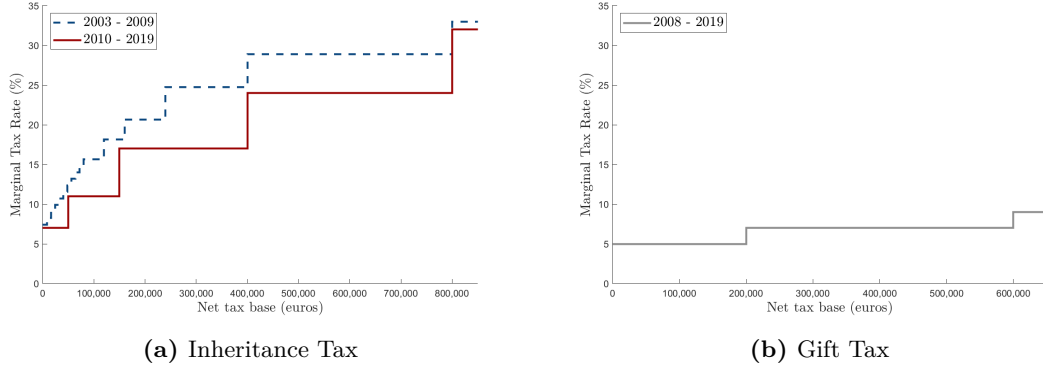
A.5   Scaling factors by pre-inheritance/gift wealth

Table A.6: Scaling factors in Catalonia 2010-2019

Group	Scaling factor
Group I and II *Descendants, ascendants, spouses*	1.0000
Group III *Relatives 2nd degree*	1.5882
Group IV *More distant relatives; non-relatives*	2.0000

A.6   General tax credits applicable to net tax liabilities

In 2011, the Catalan government introduced a 99% tax credit for close heirs, namely direct descendants, ascendants, and surviving spouses, effectively amounting to a quasi-abolition of the inheritance tax for these groups. However, in 2014, this tax credit was replaced by a progressive tax credit schedule for descendants and ascendants, based on the gross tax base (as illustrated in Figure A.2). Notably, this credit is reduced by 50% if the heirs report ownership of any assets qualifying for specific tax credits (listed in Table A.3), with the exception of the deceased's primary residence and life insurance benefits.

Figure A.2: Tax credits for close heirs in Catalonia
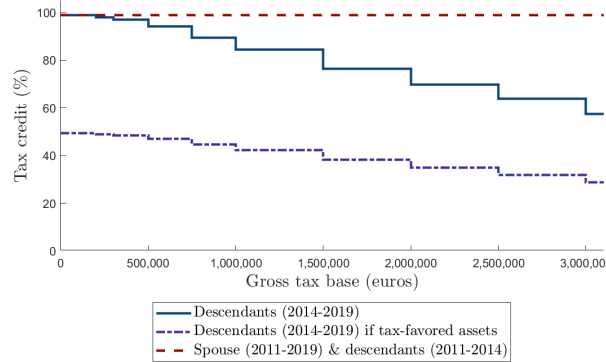
B   The Spanish Wealth Tax

The Spanish Wealth Tax is a direct, personal tax imposed annually on the net wealth of individuals as of December 31st. Following its effective suspension in 2008 through the application of a 100% tax allowance, the tax was reactivated in 2011 (Law 13/2011). Since 1996, the authority to modify key parameters of the tax depends on the autonomous communities (Law 14/1996). This delegation of fiscal powers was subject to the condition that the regional governments maintain, at a minimum, the same lower and upper bounds of the national tax scale.

The tax applies to both residents and non-residents, albeit with different scopes of liability. Spanish residents are taxed on their worldwide assets, whereas non-residents are subject to taxation only on assets located within Spanish territory. In both cases, taxpayers are required to report annually the market value of their financial assets (such as cash, bank deposits, stocks, bonds, and foreign financial holdings), their non-financial assets (including real estate, land, consumer durables, and business assets), and their outstanding liabilities (such as mortgages and personal debts). Additionally, they must declare non-taxable business assets and the full value of their primary residence. Business assets, whether taxable or exempt, must be reported at book value.

The obligation to file a wealth tax return arises either when a positive tax liability exists or when the taxpayer's gross assets exceed €2,000,000, regardless of whether any tax is ultimately due. The tax is structured progressively, with marginal rates ranging from 0.2% to 2.5%, and a general exemption threshold of €700,000. However, due to Spain's decentralized fiscal structure, autonomous communities have the discretion to adjust these parameters, leading to substantial regional variation in the effective tax burden. This variation became

particularly pronounced after the tax's reactivation in 2011, as several regions exercised their fiscal autonomy to tailor the tax to local policy objectives (see Agrawal et al. (2023) for more details).

B.1 Wealth Tax in Catalonia

Since the reintroduction of the wealth tax in 2011, the Catalan government established a regional exemption threshold of €500,000, lower than the national baseline of €700,000,and applied a statutory marginal rate schedule distinct from the national scale. These regionally determined rates and brackets, which are illustrated in Figure B.1.

Figure B.1: Wealth Tax Schedule in Catalonia
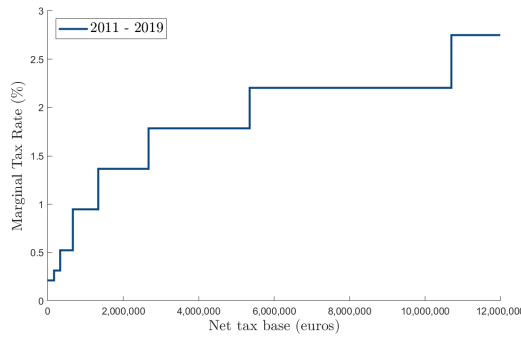
C Conceptual framework for estimating tax elasticities

C.1 A simple model of inheritance tax avoidance

I build on (Bergolo et al., 2022; Waseem, 2018) as well as on Kopczuk and Slemrod (2000) to develop a simple model of inheritance avoidance behavior. Consider for simplicity an economy with a continuum of individual pairs consisting of unmarried individuals (testators) and single heirs of measure one. Each unmarried individual cares about the well-being of her heir and would like to maximize her after-tax inheritance.[33].

Assume individual j transfers wealth $i = i^F + i^{NF}$ to her heir such that i^F denotes tax-favored assets (i.e. business assets) and i^{NF} refers to non-tax-favored assets (i.e. financial assets) which are taxed at $\tau_{NF} > \tau_F > 0$.[34]. She decides how much to consume c, how much wealth shifts from non-tax-favored to tax-favored assets x, and how much non-tax-favored wealth underreports z. For simplicity, I assume that testators are the ones engaging

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[33]Kopczuk and Slemrod (2000) model this by adding the after-tax inheritance in the utility function of testators

[34]I abstract from modeling avoidance behavior through inter-vivos gifts guided by the reduced-form results in Section 7

in underreporting, for example, through inflating tax deductible debt.[35] The utility costs of relabeling and underreporting assets are represented by two strictly increasing and convex functions, $\gamma_j(x)$ and $\psi_j(z)$, and normalized so that $\gamma'_j(0) = \psi'_j(0) = 0$.

Let's denote $\bar{i}$ as the true amount of wealth to be transferred absent any behavioral response to inheritance taxes.[36] Reported tax-favored and non-tax-favored assets can be expressed as $i^F = \bar{i}^F + x$ and $i_i^{NF} = \bar{i}^{NF} - x - z$, respectively. Following Piketty and Saez (2013), I assume that both types of assets are taxed at a linear rate τ with $\tau^F < \tau^{NF}$ and that individual's utility follows a quasi-linear functional form to simplify the derivations and eliminate cross-elasticity effects between saving and avoidance decisions.

$$\max_{c,x,z} c - \gamma_j(x) - \psi_j(z)$$
$$\text{s.t. } c = (1 - \tau_{NF})i^{NF} + (1 - \tau_F)i^F$$

Following Kopczuk and Slemrod (2000), I am implicitly assuming that transferring wealth gives utility to individual j as $c = i - T(i, \tau)$.[37] Using the definitions of reported inheritance, the above maximization problem can be rewritten as:

$$\max_{c,x,z} c - \gamma_j(x) - \psi_j(z)$$
$$\text{s.t. } c = y + (1 - \tau_{NF})\bar{i}^{NF} + (1 - \tau_F)\bar{i}^F + (\tau_{NF} - \tau_F)x - (1 - \tau_{NF})z$$

The first order conditions are:

$$x : (\tau^{NF} - \tau^F) = \gamma'_j(x)$$
$$z : \tau^{NF} = h'_j(z)$$

These two conditions can be interpreted as usual. First, in equilibrium, the marginal cost of relabeling an additional unit of non-tax-favored assets must be equal to the marginal benefit of asset shifting, which is the marginal increase in consumption from the increased inheritance: $\tau^{NF} - \tau^F$. Second, the marginal cost of underreporting non-tax-favored assets must be equal to the marginal benefit of evading taxes, that is, τ^{NF}. Notice that these conditions imply that the asset-shifting elasticity will heavily depend on the tax differential

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[35]In reality, changes in declared inheritances can arise from testators' or heirs' underreporting behavior. For instance, testators can create artificial debt which reduces reported inheritances, while heirs can simply underreport the value of inherited assets.

[36]One can think of this object as the amount of transferred wealth absent any tax differential between asset types. It could also reflect real saving decisions of testators that might depend on other taxes

[37]Kopczuk and Slemrod (2000) develop a more general model of tax avoidance where the heir's utility, v, enters the individual's utility function as a function of his endowment and the after-tax inheritance. In this simple and static version, I am assuming this function v to be linear.

across asset types. However, the tax rate on non-tax-favored assets is the relevant parameter for deriving the corresponding asset-specific intensive margin elasticity.

C.2 Tax revenue impact of avoidance

Define taxable wealth of testator i to be transferred to her heir j as $I_i = I_i^{NF} + I_i^F$, where I_i^F denotes reported wealth in tax-favored assets and I_i^{NF} refers to reported wealth in non-tax-favored assets by heir j. Aggregating over all individuals and following Bergolo et al. (2022); Waseem (2018), the revenue impact of a change with respect to the tax differential $d(\tau_{NF} - \tau_F)$ can be expressed as:

$$\frac{\partial B}{\partial(\tau_{NF} - \tau_F)} = -\tau_{NF} \times \frac{\partial I^{NF}}{\partial(\tau_{NF} - \tau_F)} + \tau_F \times \frac{\partial I^F}{\partial(\tau_{NF} - \tau_F)} \tag{4}$$

where $I^F = \int i_j^F d\theta j$ and $I^{NF} = \int i_j^F d\theta j$

The first term, $\tau_{NF} \times \frac{\partial I^{NF}}{\partial(\tau_{NF}-\tau_F)}$, refers to the intensive margin response of non-tax favored assets, that is, the revenue loss associated due to lower reported non tax-favored assets because of pure shifting towards tax-favored assets and misreporting. The second term, $\tau_F \times \frac{\partial I^F}{\partial(\tau_{NF}-\tau_F)}$, captures the pure asset-shifting margin response, that is, the revenue loss associated only with testators relabeling tax-favored assets into tax-favored assets. I choose to define elasticities with respect to the tax differential, $(\tau_{NF} - \tau_F)$, instead of the non-tax-favored assets tax rate, τ_{NF}, because the Catalan 2014 tax reform implied an increase in the tax differential.

Intensive margin response

$$-\tau_{NF} \times \frac{\partial I^{NF}}{\partial(\tau_{NF} - \tau_F)} = -\tau_{NF} \int \frac{\partial i_j^{NF}}{\partial(\tau_{NF} - \tau_F)} d\theta j = \tau_F \int \frac{\partial i_j^{NF}}{\partial(\tau_{NF} - \tau_F)} \times \frac{(\tau_{NF} - \tau_F)}{(\tau_{NF} - \tau_F)} \times \frac{i_j^{NF}}{i_j^{NF}} d\theta j =$$

$$\frac{-\tau_F}{(\tau_{NF} - \tau_F)} I^{NF} \times \int \underbrace{\frac{\partial i_j^{NF}}{\partial(\tau_{NF} - \tau_F)} \frac{(\tau_{NF} - \tau_F)}{i_j^{NF}}}_{\eta_{s,j}} \frac{i_j^F}{I^{NF}} d\theta j = \frac{\tau_F}{(\tau_{NF} - \tau_F)} I^{NF} \bar{\eta}_s$$

Pure asset-shifting response

$$\tau_F \times \frac{\partial I^F}{\partial(\tau_{NF} - \tau_F)} = \tau_F \int \frac{\partial i_j^F}{\partial(\tau_{NF} - \tau_F)} d\theta j = -\tau_{NF} \int \frac{\partial i_j^F}{\partial(\tau_{NF} - \tau_F)} \times \frac{(\tau_{NF} - \tau_F)}{(\tau_{NF} - \tau_F)} \times \frac{i_j^F}{i_j^F} d\theta j =$$

$$\frac{\tau_F}{(\tau_{NF} - \tau_F)} I^F \times \int \underbrace{\frac{\partial i_j^F}{\partial(\tau_{NF} - \tau_F)} \frac{(\tau_{NF} - \tau_F)}{i_j^F}}_{\nu_{s,j}} \frac{i_j^F}{I^F} d\theta j = \frac{-\tau_F}{(\tau_{NF} - \tau_F)} I^F \bar{\nu}_s$$

Hence we have that Equation 4 can be rewritten as:

$$\frac{\partial B}{\partial(\tau_{NF} - \tau_F)} = \frac{\partial I}{\partial(\tau_{NF} - \tau_F)} = \frac{1}{(\tau_{NF} - \tau_F)} \left[-\tau_{NF} \cdot \eta_s \cdot I^{NF} + \tau_F \cdot \nu_s \cdot I^F \right] \quad (5)$$

where η_s and ν_s are the wealth-weighted average intensive margin elasticity of the reported non-tax-favored assets and tax-favored assets, respectively, with respect to changes in the tax differential.

In general, we have that $\eta_s \geq \nu_s$. Notice that η_s can capture other avoidance responses (i.e. misreporting of wealth, etc.) on top of pure relabeling of assets into tax-privileged assets, which is captured by ν_s. An increase in the tax differential will entail a revenue loss as long as $\tau_F < \tau_{NF}$ and $\eta_s \geq \nu_s$. Notice that even in the case where avoidance only takes place through asset-shifting, that is, $\eta_s = \nu_s$, we have by construction that:

$$\frac{\partial I}{\partial(\tau_{NF} - \tau_F)} = \frac{1}{(\tau_{NF} - \tau_F)} \left[(\tau_F - \tau_{NF}) \cdot \eta_s \cdot I^{NF} \right] = -\eta_c I^{NF} < 0$$

D   Summary Statistics

Table D.1: Summary Statistics - Heirs by Kinship

Close heirs. Group 1	
Descendants < 21 age	2.3%

Close heirs. Group 2	
Son or daughter > 21 age	57.7%
Spouse	19.9%
Other direct descendants	5.8%
Ascendants	0.9%

Distant heirs. Groups 3 & 4	13.3%

Data from the universe of inheritance tax returns filed in Catalonia between 2011-2019 (Catalan Tax Agency)

Table D.2: Summary Statistics

	Close heirs			Distant heirs		
	All	Before 2014	After 2014	All	Before 2014	After 2014
Taxpayers with tax liabilities > 0	0.14	0.06	0.18	0.64	0.39	0.75
Tax Base (1000 euros)						
Mean	109.10	110.26	108.51	102.61	118.50	94.99
p25	14.67	13.09	15.47	10.32	10.29	10.29
p50	44.73	41.35	46.47	33.08	33.04	33.10
p90	240.64	239.69	241.16	199.67	202.27	198.49
Tax Liabilities (euros)						
Mean	418.36	33.06	643.85	11239.69	9470.93	12106.41
p25	0.00	0.00	0.00	0.00	0.00	0.00
p50	0.00	0.00	0.00	337.50	0.00	1186.68
p90	15.13	0.00	51.83	18391.80	11466.45	20893.10
Tax Liabilities (euros) > 0						
Mean	4639.79	569.82	5487.84	17324.45	22617.86	15905.10
p25	0.59	0.00	4.00	436.88	53.88	538.53
p50	37.01	0.00	49.73	2755.44	2363.59	2851.65
p90	1989.22	738.88	2374.23	29559.56	35208.56	28229.19
Observations	908,793	306,046	602,777	152,561	50,172	102,389

All variables are expressed in 2016-cpi adjusted prices. Close heirs refer to surviving spouses and direct descendants. Distant heirs refer to distant relatives (2nd degree or more) and non-relatives. Data from the universe of inheritance tax returns filed in Catalonia (Catalan Tax Agency).

Figure D.1: Composition of Inheritances - All heirs

(a) Tax favored + non-tax-favored assets

(b) Tax-favored assets
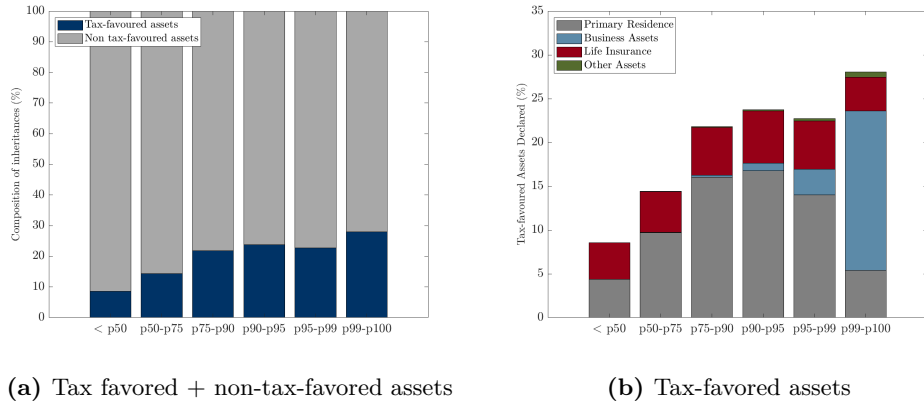
This figure plots the composition of inherited assets along the inheritance distribution. Panel D.1a disaggregates assets between tax-favored and non-tax-favored assets. Panel D.1b differentiates tax-favored assets by type. Inherited wealth has been obtained by applying the tax simulator to the universe of inheritance tax returns in Catalonia between 2011-2019 (Catalan Tax Agency)

Table D.3: Summary Statistics - Treatment and Control Group (Tax base > 750,000 €)

	(1) Treated Group	(2) Control Group		
		All	Surviving spouse	Distant heirs
	Before 2014	Before 2014		
Tax Base (1000 euros)	3198.12	2519.98	1826.61	3346.90
Tax-favored Assets (% Tax Base)	22.03	22.22	21.29	23.33
Business Assets (% Tax Base)	11.31	9.84	3.79	17.07
Equity in family firms	9.16	7.22	2.92	12.39
Real assets used for business activity	2.13	2.60	0.87	4.67
Primary Residence (% Tax Base)	6.92	6.88	11.97	0.82
Life Insurance (% Tax Base)	3.19	5.42	5.58	5.21
Other Tax-favored Assets (% Tax Base)	0.82	0.08	0.02	0.16
Inheritance Tax Rate (%)	0.08	6.17	0.05	14.67
Observations	3433	1655	901	754
Total number of observations	9,784	4,990	2,918	2,072

This table presents summary statistics for the treatment and control group before 2014. Treated and control group heirs are those with taxable inheritances above 750,000 euros. Variables referring to total amount values are expressed in thousands of euros, 2016 CPI-adjusted. Data from the universe of inheritance tax returns filed in Catalonia between 2011-2019 (Catalan Tax Agency).

Figure D.2: Summary Statistics - Estate sharing
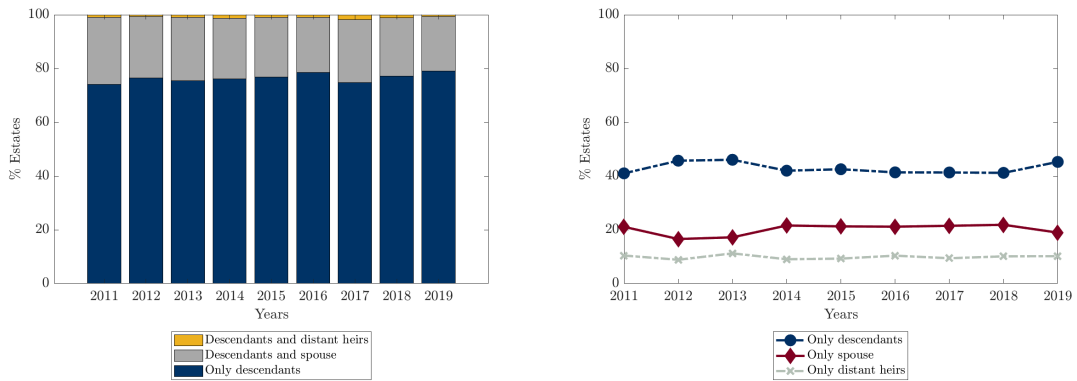
(a) % Estates by type
(Estates with at least one descendant > 750,000 €)

(b) % Single-kinship estates
(Estates with at least one heir > 750,000 €)

This figure presents the proportion of estates including at least one heir with taxable inheritances above 750,000 euros by type of heirs included. Data from the universe of inheritance tax returns filed in Catalonia (Catalan Tax Agency).

Table D.4: Summary Statistics - Treatment and Control Group (Tax base > 2M €)

	(1) Treated Group	(2) Control Group All
	Before 2014	Before 2014
Tax Base (1000 euros)	9545.48	8129.51
Tax-favored Assets (% Tax Base)	30.62	25.23
Business Assets (% Tax Base)	26.73	18.87
Primary Residence (% Tax Base)	2.52	3.26
Life Insurance (% Tax Base)	1.32	3.09
Other Tax-favored Assets (% Tax Base)	0.46	0.00
Inheritance Tax Rate (%)	0.10	5.86
Observations	850	337
Total number of observations	2,004	1,031

This table presents summary statistics for the treatment and control group with taxable inheritances above 2 million euros before 2014. Variables referring to total amount values are expressed in thousands of euros, 2016 CPI-adjusted. Data from the universe of inheritance tax returns filed in Catalonia (Catalan Tax Agency).

Table D.5: Summary Statistics - Wealth taxpayers with inheritance > 2M €

	Before inheritance	After inheritance
Tax base (in 1000)	2656.93	3649.34
Total wealth (in 1000)	6169.64	8723.05
Exempted Assets (% Total wealth)	37.56	41.52
Equity in family firms	30.22	32.68
Real assets used for business activity	0.48	4.48
Main residence	4.91	3.07
% Family firm owners	69	61
% Heirs in only-descendant estates	71.36	
Observations	2905	8614

This table presents summary statistics of wealth tax returns of heirs with tax base exceeding 2 million Euro. Variables referring to total amount values are expressed in thousands of euros, 2016 CPI-adjusted. Data from the panel of wealth tax returns filed by heirs who inherited more than 2 millions in Catalonia between 2012 and 2019 and do not share the estate with the surviving spouse. Data from the Catalan Tax Agency.

Table D.6: Summary Statistics - Wealth taxpayers with inheritance > 2M €

	(1) Treated Group *Inherited after 2014*	(2) Control Group *Inherited before 2014*
	Before inheritance	Before inheritance
Tax base (in 1000)	2385.43	2806.90
Total wealth (in 1000)	5185.24	6321.94
Exempted Assets (% Total wealth)	35.36	35.02
Equity in family firms	30.20	28.29
Real assets used for business activity	0.70	0.28
Main residence	3.64	4.77
% Family firm owners	64	65
Total number of observations	3105	5116

This table presents summary statistics of the wealth declared in the wealth tax by heirs who inherited after 2014 (treatment) and those inherited before 2014 (control group). Variables referring to total amount values are expressed in thousands of euros, 2016 CPI-adjusted. Data from the panel of wealth tax returns filed by heirs who inherited more than 2 millions in Catalonia between 2012 and 2019 and do not share the estate with the surviving spouse (Catalan Tax Agency).

Table D.7: Summary Statistics Gift Tax Returns (Tax base > 100,000€)

	(1) Descendants	(2) Distant recipients
	Before 2014	Before 2014
Tax Base (1000 euros)	478.32	677.83
Non-tax favored assets (1000 euros)	257.21	488.66
Tax favored assets (1000 euros)	195.87	188.680
Gift tax rate(%)	4.70	14.92
Observations	6045	529
Total number of observations	21,570	2,015

This table presents summary statistics of recipients with taxable gifts above 100,000 euros. Distant recipients include distant relatives (2nd degree or more) and non-relatives. Variables referring to total amount values are expressed in thousands of euros, 2016 CPI-adjusted. Data from the universe of gift tax returns filed in Catalonia before 2014 (Catalan Tax Agency).

E   Additional results

**Figure E.1:** Effects of the Tax Reform on Non-tax-favored Assets (% Estate)
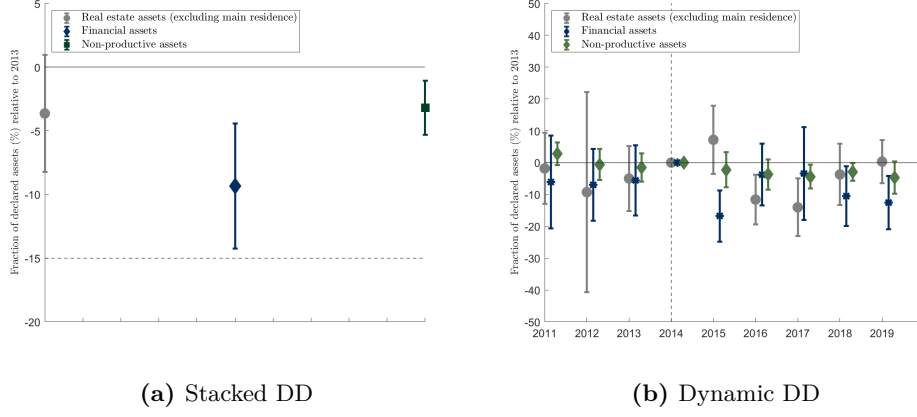
(a) Stacked DD   **(b)** Dynamic DD

This figure plots the estimated β_j coefficients from Equation 1 and 95% confidence intervals when the dependent variable is (i) real estate assets excluding the main residence of deceased (ii) financial assets (iii) non-productive assets (vehicles, aircraft, boats, household items) as a fraction of total estate. The treated (control) group are estates transmitted exclusively to descendants (spouse and distant heirs) with taxable inheritances above 2 million Euro. Standard errors are clustered at the year of inheritance level.

**Figure E.2:** Effects of the Tax Reform on The Probability of Declaring Equity in Family Firm
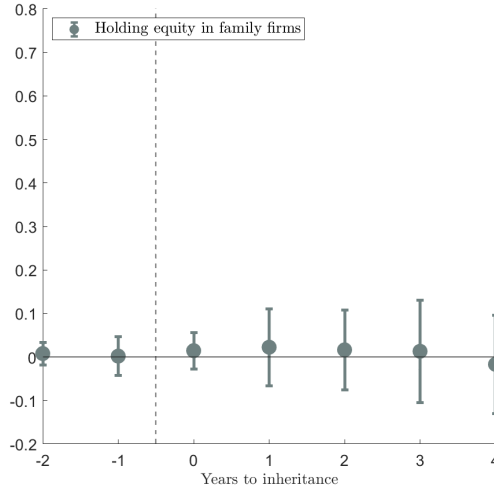
This figure plots the estimated β_j coefficients from Equation 3 and 95% confidence intervals when the dependent variable is a dummy that takes value equal to 1 if the taxpayer reports equity in family firm in her tax declaration. The treated (control) group are descendants with taxable inheritances above 2 million Euro who inherited after (before) 2014. Standard errors are clustered at the year of inheritance level.

**Figure E.3:** Effects of the Tax Reform on Equity in Family Firms (% Total Wealth)
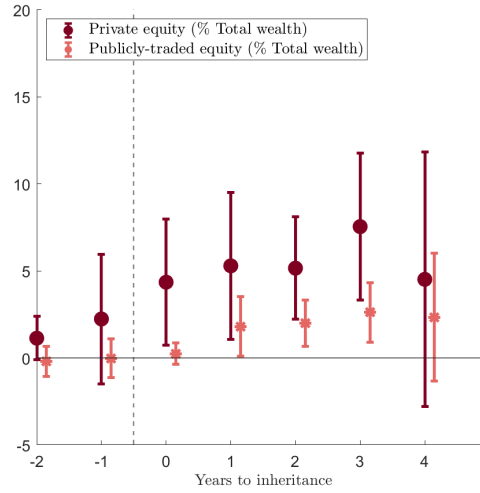
This figure plots the estimated β_j coefficients from Equation 3 and 95% confidence intervals when the dependent variable is (i) private equity (ii) publicly traded equity. The treated (control) group are descendants with taxable inheritances above 2 million Euro who inherited after (before) 2014. Standard errors are clustered at the year of inheritance level.

Figure E.4: Evolution of Equity in Family Firms (% Total wealth) held by Heirs

**(a)** All equity   **(b)** By type of equity
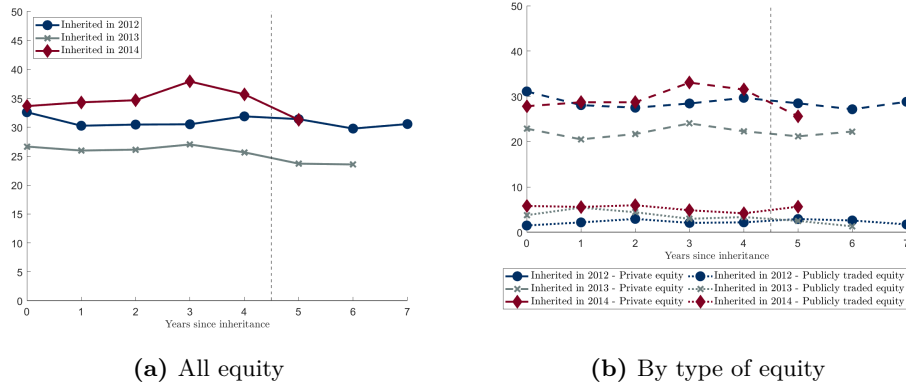
This figure plots the evolution of equity in family firms as a share of total wealth since the inheritance receipt. The rule for benefiting from the 95% tax exemption on family-firm equity implies retaining ownership of these assets during at least 5 years. Data from wealth tax returns filed by descendants with taxable inheritances above 2 million Euro.

Figure E.5: Effects of the Tax Reform on Asset Composition of Inheritances - by Control Group
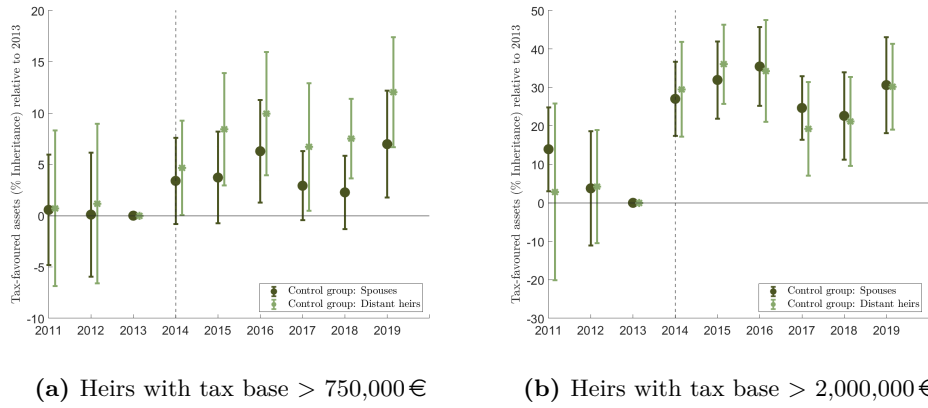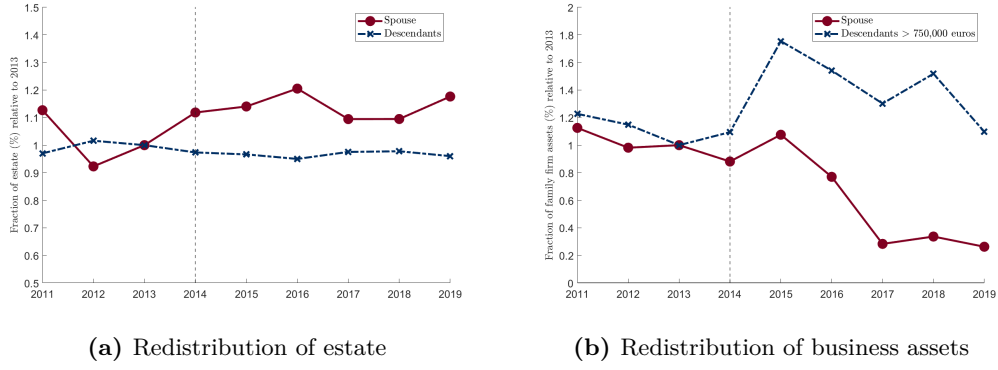

(a) Heirs with tax base > 750,000 €

(b) Heirs with tax base > 2,000,000 €

This figure plots estimated β_j coefficients from Equation 1 and the corresponding 95% confidence intervals. The treated group are descendants with taxable inheritances above 750,000 euros. The control groups are (i) surviving spouses with taxable inheritances above 750,000 euros, (ii) distant heirs with taxable inheritances above 750,000 euros. The dependent variable is tax-favored assets (% inheritances). Standard errors are robust and clustered at the year-month level.

Figure E.6: Placebo Exercise
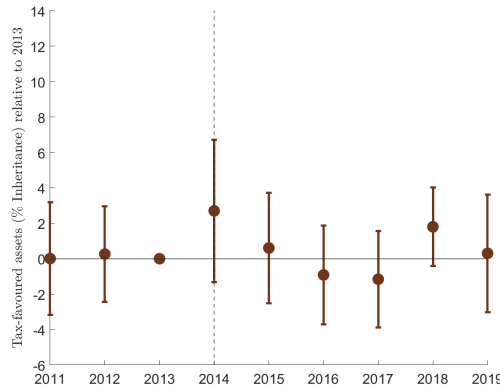
This figure plots estimated β_j coefficients from Equation 1 and the corresponding 95% confidence intervals. The treated group are descendants with taxable inheritances between 500,000-750,000 euros. The control group are surviving spouses and distant heirs with taxable inheritances above 500,000 euros and 750,000 euros. The dependent variable is tax-favored assets (% inheritances). Standard errors are robust and clustered at the year-month level.

Figure E.7: Redistribution of Estates within Wealthy Families

(a) Redistribution of estate

(b) Redistribution of business assets

Panel E.7a shows the evolution of the fraction of wealth inherited by spouses and all descendants in estates where at least one descendant receives more than 750,000 euros normalized to 2013. Panel E.7b shows the evolution of the fraction of family-firm assets inherited by the surviving spouse and treated descendants in estates where at least one descendant receives more than 750,000 euros normalized to 2013.

Figure E.8: Effects of the Tax Reform on Inter-vivos Transfers of Financial and Real Estate Assets

This figure plots the estimated β_j coefficients from Equation 1 and the corresponding 95% confidence intervals. The treated (control) group are descendants (distant heirs) recipients. The dependent variable is the log of non-tax-favored gifts (financial wealth or/and real estate property). Standard errors are robust and clustered at the year-month level.

Table E.1: Asset-shifting Elasticity Estimates

	(1)	(2)
	Tax-favored assets Heirs with tax base > 750,000 €	Tax-favored assets Heirs with tax base > 2M €
Elasticity w.r.t $(\tau^{NF} - \tau^F)$	16.919*** (3.010)	20.228*** (3.888)
F-stat First stage	129.68	129.68
Time FE	Yes	Yes
Observations	7721	1628

This table presents the 2SLS estimates of Equation 2. $(\tau^{NF} - \tau^F)$ is instrumented by the interaction between $T_i \times Post_t$, where T_i takes the value 1 (0) for descendants (spouses and distant heirs). Standard errors are robust and clustered at year-month level. $***p < 0.01, **p < 0.05, *p < 0.1$

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