Tax Design, Information, and Elasticities: Evidence From the French Wealth Tax*

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Abstract

Using exhaustive administrative wealth and income tax data, we study a French wealth tax reform that scaled back information reporting requirements below a certain wealth threshold. We develop a dynamic bunching approach that permits estimating the average response to the reform, the share of compliers, and the LATE. Reported wealth declines sharply in response to the reform and annual wealth growth rates are on average 20% lower among affected taxpayers. This decline appears due to increased evasion facilitated by the lower reporting requirements, as suggested by the fall in self-reported wealth but the lack of response in third-party-reported labor and capital incomes. By contrast, the elasticities to tax rates estimated are very small and insignificant. This illustrates the critical role of information reporting policies in shaping taxpayers' behavior.

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1 Introduction

Over the last decades, there has been extensive research on the behavioral responses to taxes. Following the work of Feldstein (1995) and Gruber and Saez (2002), a rich literature has estimated the elasticity of taxable income. Recent work has focused on the elasticity of taxable wealth (e.g., Seim, 2017; Duran-Cabré et al., 2019; Jakobsen et al., 2020; Agrawal et al., 2020; Brülhart et al., 2021; Londoño-Vélez and Avila-Mahecha, 2022). These estimates are critical for formulating empirically-grounded statements about optimal tax policy and informing the public debate on core policy issues, such as the feasibility and desirability of taxing wealth.

A key difficulty in using empirical tax elasticities for policy is that tax base elasticities are not structural parameters: they can be affected by tax design. Policy choices such as the stringency of reporting requirements and enforcement can make tax bases more or less elastic (Slemrod and Kopczuk, 2002; Keen and Slemrod, 2017).[1] Because these tax design features vary over time and across countries, it is challenging to generalize elasticities estimated in specific contexts to others. To address this limitation, isolating the causal effect on behaviors of key features of tax design would be valuable, but this task is difficult for several reasons. First, sharp or fundamental changes in tax design occur less frequently than changes in tax rates. Second, when they do occur, they are often paired with tax rate changes, complicating the identification of causal effects. Third, when it comes to the design of wealth taxation, only few countries tax wealth and collect individual-level administrative wealth data.

This paper tackles these challenges and provides evidence on the effects of changes in information reporting requirements—a key dimension of tax design—on taxpayer behavior. We study an unusual reform of the French wealth tax that considerably scaled back reporting requirements for some taxpayers. Until 2011, all taxpayers had to report their detailed asset composition on their wealth tax return. A reform introduced simplified reporting requirements in 2011, allowing taxpayers with less than €3 million in wealth (changed to less than €2.57 million in 2013) to file a simplified return reporting only total gross and net taxable wealth, with no breakdown by components. This reform drastically reduced the amount of information reported to the tax authority.

[1] For instance, Fack and Landais (2016) find that tightening reporting requirements for charitable giving deductions for the income tax in France decreased the elasticity of reported contributions. Kopczuk (2005) shows that US income tax elasticities depend on the availability of deductions. Basri et al. (2021) show that stronger monitoring in Indonesia reduces corporate income tax elasticities.

It allows us to estimate the causal effects of changing information reporting requirements while keeping most other features of the tax schedule constant. More specifically, the French institutional setting and reforms make it possible to disentangle behavioral responses to marginal tax rates (kinks), exemption thresholds, and information reporting requirements (keeping other features of the tax system and tax rates constant). To do so we leverage new, exhaustive longitudinal data on the universe of French wealth taxpayers matched to their income tax returns.[2]

Our contribution is also methodological. We develop a new method of *dynamic bunching*. This method relies on studying discontinuities in the distribution of (appropriately normalized) wealth growth rates for different groups, and differences in the distributions of these growth rates relative to counterfactual distributions. The counterfactual distributions are derived from a control group of similar but unaffected taxpayers. Our method does not require imputing a counterfactual distribution using a smooth polynomial or another fitting method, and we do not need to assume similar preferences in our treatment and control groups, thus avoiding the concerns raised by Blomquist et al. (2021). Our method can be more generally used to study the responses of variables for which growth rate distributions can be computed in panel data.

Our approach offers advantages over the standard static and difference-in-differences bunching approaches. By using longitudinal data, we can improve on the static bunching approach (Saez, 2010; Kleven and Waseem, 2013) as already shown by Marx (2018). Our dynamic bunching method straightforwardly maps to the causal identification framework of Angrist et al. (1996).[3] We can identify compliers (i.e., "bunchers") who took advantage of the reform within the bunching segment. In turn, this enables us to estimate the local average treatment effect of reducing reporting requirements and the intent-to-treat effects.[4] We can also quantify heterogeneous responses among groups defined by taxable wealth levels and show responses along the full wealth distribution, even far below the threshold. Relative to a simple difference-in-differences analysis, our approach yields more precise estimates and lets us directly estimate the share of compliers and the LATE.

[2]These data are used in contemporaneous papers to study the effects of the French wealth tax on entrepreneurs' behavior (Bach et al., 2020), charitable giving (Cage and Guillot, 2021), and redistribution (Bozio et al., 2024).

[3]The standard bunching method has been applied to many settings (see Kleven (2016) for a review). Pollinger (2021) shows that static bunching can capture participation and intensive margin response, and develops an alternative bunching estimator to measure these responses. Jakobsen et al. (2020) also argue that static bunching estimates may capture short-term responses, frictions, and avoidance as opposed to true, long-term responses to taxes.

[4]Closely related to our contribution, Diamond and Persson (2016) and Chen et al. (2021) also estimate the ITT and LATE but must rely on parametric assumptions for their counterfactuals.

Our main findings can be summarized as follows. First, we illustrate the first-order role of information requirements on the wealth tax base by showing sharp bunching responses at information discontinuities. By contrast, we cannot detect any bunching at any pure tax kink. For instance, the estimated elasticities based on the pure tax kinks of the second and third tax rate brackets are small and insignificant, ranging from 0.08 (.06) to 0.14 (.11). When marginal tax rate kinks become associated with changes in reporting requirements (as is the case at the exemption and simplification thresholds), we find large, sharp, and persistent bunching responses. The absence of bunching at thresholds where only tax rates change but substantial bunching at information discontinuity thresholds suggests that reporting requirements are crucial in driving behavioral responses to the wealth tax. It also suggests caution when interpreting tax elasticities estimated at exemption thresholds, since these thresholds mix an information discontinuity and a tax change.

Second, we use our dynamic bunching method to estimate dynamic responses to changes in reporting requirements. We focus on the introduction of the simplified return below €2.57 million in 2013 and estimate the heterogeneous effects of this reform depending on the pre-reform distance to the threshold. We use the group of taxpayers located very far above the threshold in 2012, which we show is not affected by the reform, to build a counterfactual distribution of wealth growth rates. We then compare this counterfactual distribution of wealth growth rates to that of taxpayers below and above (but not too far above) the threshold. The reform led to substantial reductions in the growth of wealth reported by treated taxpayers. The average annual growth rate reduction equals 0.5 percentage points, equivalent to 20% of the control group's wealth growth rate in 2012. These responses are driven by a minority of compliers (around 15% of taxpayers previously just below the threshold) who reduce their growth rates substantially (by 3 percentage points or more). A body of evidence supports the notion that these responses are driven by evasion rather than actual changes in savings or investment.

Our methodology allows us to document the dynamic longer-term effects of low information reporting. Bunching at the simplification threshold is highly persistent within taxpayers over time and remains sharp and large even four years after the reform. This persistence reveals that the reform's effect is cumulative over time: taxpayers under-report a growing fraction of their wealth to stay in the low-information regime, implying that the change in tax design has growing revenue costs. Responses also appear to increase and spread further down the wealth distribution over time.

Third, we explore the channels through which taxpayers react to the reduced reporting requirements by using our comprehensive administrative dataset linking wealth taxpayers to their income tax returns. We show that taxpayers who react to the reform by reporting lower wealth growth do not experience any corresponding change in their (third-party) reported labor and capital income. This provides further evidence in favor of tax evasion and misreporting of wealth. Leveraging data on the asset composition of taxpayers, we show that taxpayers who locate just below the simplification threshold had more housing wealth and less financial assets (in proportion of their total taxable wealth) in the year before the reform. Furthermore, we show that taxpayers who bunched below the simplification threshold end up exiting the simplified regime after they experience large positive shocks to their financial assets. One way to interpret this finding is that shocks in financial assets are hard to hide and therefore force bunchers into filing the detailed wealth tax return again.[5] Overall, our results suggest that it is easier for bunchers to under-report the value of some assets (e.g., housing) than others (e.g., financial assets).

We can use our estimates to quantify the aggregate effects of scaling back reporting requirements. By 2017, 35% of wealth taxpayers are missing in the affected bracket. These bunchers evade 10% of their total wealth tax payments each year. The magnitude of the behavioral responses prompted by the change in reporting requirements is noteworthy, given how apparently anodine the simplification reform was.[6] The magnitude of these responses also contrasts with the absence of responses triggered by wealth tax reforms. We cannot reject the hypothesis that the elasticity of taxable wealth with respect to changes in marginal tax rates on wealth is zero.

Our results are consistent with a simple model of taxpayers' behavior with dynamic misreporting. In this model, taxpayers value being in the simplified regime and try to remain in it by misreporting their wealth. Misreporting is costly, and the cost increases in the amount of misreporting and decreases in the reported growth rate from year to year. Because wealth is a stock, the tax authority can compare reported amounts in different years. Low wealth growth rates—especially negative growth rates—can raise a flag for the tax authority. This feature makes wealth misreporting an inter-temporal choice for the taxpayer. Forward-looking taxpayers anticipate how their

[5] We find no such effect for real estate assets, the valuation of which is less clear-cut and which are likely easier for taxpayers to misvalue and misreport.

[6] Other studies comparing changes in tax design to changes in tax rates (e.g., Basri et al., 2021) usually focus on larger (and more costly for the government) changes in tax design (e.g., the creation of new tax offices and the hiring of new staff by the government).

future ease of misreporting is affected by their current misreporting of wealth, leading to "misreporting smoothing." This smoothing motive explains why even taxpayers far below the threshold may engage in misreporting in anticipation. We also investigate the hypothesis that taxpayers may value being in the simplified regime due to lower hassle costs or reduced privacy concerns, but find little support for it.

One of our contributions is the ability to study very wealthy taxpayers (around the 99.5^{th} percentile of the wealth distribution in France). While there is a large literature on tax evasion (e.g., Kleven et al., 2011; Almunia and Lopez-Rodriguez, 2018; Pomeranz, 2015; Bachas and Soto, 2021; Harju et al., 2019; Brockmeyer et al., 2021), there is more scarce evidence on tax evasion responses by wealthy taxpayers, which matter substantially for tax revenues. Exceptions include Alstadsæter et al. (2019) who highlight substantial evasion at the top in Scandinavia, Johannesen et al. (2020) who document reductions in US tax evasion following improvements in information reporting of offshore accounts, and Guyton et al. (2021) who shed light on evasion at the top of the US income distribution. Studies of simplified tax regimes mostly focus on low-income taxpayers, for whom such regimes were made available.[7]

Our findings confirm that tax design choices can have immediate implications for tax compliance and that these effects may be large and persistent. Lower information environments (such as the simplified reporting in our setting) can lead to a growing erosion of the tax base, cumulative over multiple years, since wealth not reported in one year continues to be unreported in future years. By contrast, responses around changes in wealth tax rates appear minimal in our context, highlighting that tax base elasticities are affected by tax design. The variation of tax design across countries and time can rationalize the wide range of elasticities found in different countries and periods (e.g., Scheuer and Slemrod, 2021).

The rest of this paper proceeds as follows. In Section 2 we describe the institutional framework and the tax data we use. Section 3 provides graphical evidence of the effect of information reporting requirements vs. tax rates on reported wealth. We then present our dynamic bunching method and results in Section 4 before studying mechanisms in Section 5. Section 6 concludes.

[7] Aghion et al. (2022) study how French self-employed individuals react to tax simplicity and find that entrepreneurs bunch at the threshold to benefit from simplified income tax regimes. Other recent studies include Benzarti (2020), Zwick (2021), Colombo et al. (2014), De Neve et al. (2021) and Blesse et al. (2019).

2 Institutional Setting and Data

2.1 Wealth Taxation in France

The *impôt sur la fortune* (ISF) was an annual progressive wealth tax implemented in France from 1989 to 2017.[8] It applied to French tax residents with net taxable wealth above an exemption threshold. This exemption threshold varied over time, as we discuss below, but it was always located above the 97^{th} percentile of the household wealth distribution during our period of study. We summarize here the key elements of the tax needed for our analysis.

Tax base. The base of the ISF was net wealth above an exemption threshold. Net wealth was defined as financial plus non-financial assets minus debts and was assessed as of January 1^{st} of year t for fiscal year t. Thus, in calendar year t, taxpayers filled out income tax returns and paid income tax for income earned in $t-1$, but filled out wealth tax returns and paid tax on wealth as of January 1^{st} of year t. For French tax residents, the base included assets held worldwide.[9] The exemption threshold ranged from around €800,000 in 2010 (roughly the top 2% of the wealth distribution) to €1.3 million after 2011 (roughly the top 1% of the wealth distribution).

Several major exemptions reduced the tax base. First and most importantly, the business wealth of owner-managers was exempt. Owner-managers were defined as sole proprietors and individuals owning 25% or more of the stock of a company, including listed firms. In addition, groups of individuals (e.g., family members or business partners) who collectively owned significant stakes in a company (of at least 20% or 34% depending on the business) could exclude three-quarters of the corresponding assets from their net wealth. Thus in practice, the vast majority of private business wealth and large stakes in public companies were exempt. Second, 30% of the value of a household's primary residence could be deducted from the tax base. Third, artwork was exempt.[10]

Tax schedule. The ISF had a progressive tax schedule, with five to six tax brackets over our study

[8] The first progressive annual wealth tax in France was implemented in 1982 and called the *impôt sur les grandes fortunes*. It was abolished in 1986 after the election of a new government. In 2018, the ISF was abolished and replaced by a progressive tax on real estate wealth, called the *impôt sur la fortune immobilière*.

[9] Non-residents could be liable for the wealth tax under certain conditions. They represent 3% of our estimation sample. We exclude them from our benchmark analysis; results are unchanged if we include them.

[10] Tax credits for the wealth tax are not relevant for the analysis in this paper. They concern investments in small and medium enterprises, charitable giving, and a tax ceiling mechanism capping the amount of wealth tax owed by taxpayers as a fraction of their taxable income.

period (see Panel B of Figure A.1). Marginal tax rates ranged from 0.5% for the first bracket to 1.5% for the top bracket in 2013.

Reporting requirements. Wealth was self-reported by households and there was no third-party reporting of any asset. However, the tax administration provided detailed guidelines for taxpayers to properly estimate the value of their assets; the general principle was to use prevailing market prices. If noncompliance was uncovered upon audit, taxpayers could be required to file amended returns for up to 10 preceding years. Taxpayers above the exemption threshold had (until the simplification reform we study in this paper) to file a wealth tax return listing the value of each component of their net taxable wealth such as primary residence, other real estate, stocks, and bank deposits (listed in Appendix Table B.1). When filling the detailed wealth tax return, taxpayers must send detailed appendices listing all of their assets' characteristics and must attach additional proofs.[11] Although we do not know whether taxpayers are filing wealth tax returns themselves or using tax preparers, the industry of tax preparers is less developed in France than in the U.S., because most of the components of income tax returns are pre-populated. Note also that tax preparers are not responsible for the veracity of information reported in the wealth tax returns, and must only fill returns based on the information they received from their clients. Thus, evasion is still possible when using tax preparers.

2.2 Wealth Tax Reforms Studied in This Paper

Changes to reporting requirements. In June 2011, a simplified wealth tax return for taxpayers with taxable wealth below a threshold, called the "simplification threshold," was introduced.[12] In the simplified return, taxpayers only report total net and gross taxable wealth, as well as three specific tax credits (charitable giving, direct and indirect investment in small and medium-size enterprises). Figure A.2 shows the detailed and the simplified wealth tax returns. Appendix Table

[11] For real estate, taxpayers must list the number of rooms, the size of the land and the exact address of each of their properties. For financial assets, taxpayers must list each of their financial assets with details on the asset and the methodology used to assess the reported market value. Taxpayers must also send proofs to benefit from some wealth tax exemptions and deductions. For instance, they must send proofs for each debt or liability they wish to deduct from their wealth tax base.

[12] Because the reform was passed in June, the deadline for filing a 2011 wealth tax return was postponed from June to the end of September.

B.1 summarizes the changes in reporting requirements item by item.[13]

The simplification threshold was initially set at €3 million. After the election of a new president, a second reform was passed in July 2012, which lowered the simplification threshold from €3 million to €2.57 million, effective in 2013. The 2013 reduction of the simplification threshold is particularly helpful for estimating the effects of reporting requirements because there is no other policy change occurring around this specific wealth level in the years after 2013. Panel A of Figure A.1 summarizes the changes in information reporting requirements over time.

Exemption threshold and tax bracket changes. Panel B of Figure A.1 summarizes changes in the tax brackets and schedule. The 2011 reform also increased the wealth tax exemption threshold from €0.8 million to €1.3 million, which reduced the number of households subject to the tax by a factor of about two. Furthermore, the €1.3 million threshold is interesting because it was a pure tax kink before 2011 and, in 2010, the marginal tax rate jumps from 0.55% to 0.75% at this kink. In 2011, the marginal tax rate at this kink increases again but the €1.3 million threshold simultaneously becomes the exemption threshold. The policy variations around the €1.3 million threshold thus allow us to contrast behavioral responses at a pure marginal rate discontinuity in 2010 and those at a marginal rate plus information discontinuity in 2011.

In brief, although several changes to wealth taxation happened between 2007 and 2017, we focus in this paper on two salient reforms: the reduction of the simplification threshold from €3 million to €2.57 million in 2013; the increase of the exemption threshold to €1.3 million in 2011.

2.3 Administrative Tax Data and Summary Statistics

Our analysis builds on a new administrative longitudinal dataset from the French tax administration containing the universe of wealth tax returns matched to income tax returns from 2006 to 2017. For taxpayers subject to the wealth tax, the tax returns include all the information required in either the detailed or simplified tax returns (see Appendix Table B.1). The income tax returns include information on all taxable capital and labor incomes, and basic demographics.

[13] Although households below the simplification threshold did not have to send any justification of their self-assessed wealth to the tax authority, they were required to keep all information and intermediary steps used to estimate their net wealth. Starting in 2012, the simplified form could also be filed as part of the income tax return.

Columns 1 and 2 of Table B.2 report summary statistics for taxpayers liable to the wealth tax in 2010 and 2012. The lower number of taxpayers in the second column stems from the increase in the exemption threshold in 2011. Wealthy taxpayers are on average 66 years old. About 67% of them are retirees and around 70% are landlords. Their taxable income is on average €90,000 in 2010 and (following the increase in the exemption threshold) €120,000 in 2012. Their average wealth is €1.8 million in 2010 and €2.7 million in 2012. Assets can be divided into financial assets, primary residence, and other real estate. Financial assets are always the largest category, but their importance increases from less than 40% for taxpayers with €790,000 in wealth to 60% for taxpayers with €3 million in net taxable wealth. Real estate excluding primary homes accounts for a roughly constant share (30%) of taxable wealth. Primary homes account for around 30% at the lowest wealth levels and for just 10% for taxpayers with €3 million in net taxable wealth.

3 Graphical Evidence

This section presents graphical evidence of behavioral responses to three types of discontinuities in the wealth tax schedule: tax brackets, the exemption threshold, and the simplification threshold.

3.1 Bunching at Marginal Tax Rate Discontinuities

Tax brackets introduce changes in marginal wealth tax rates, so-called "kinks" in the budget set of taxpayers. Figure A.3 shows the responses to the kinks in the wealth tax schedule in 2010 associated with a tax bracket threshold. The figure reveals that the distribution of taxpayers below and above all tax kinks is smooth. Figure A.5 shows that the distribution of growth rates around the tax brackets is also smooth. Similar results hold for all years and across all tax brackets.

To further assess the lack of behavioral responses at kinks, we compute the elasticity of reported wealth to changes in marginal tax rates. In Figure 1, we plot the distribution of taxpayers around the second (Panel A) and third (Panel B) marginal wealth tax rate threshold, pooling all years between 2006 and 2010 to maximize power in our estimation. Following Seim (2017) and Londoño-Vélez and Avila-Mahecha (2022), we compute counterfactual distributions estimated using a seventh-order polynomial. We report our estimates of the bunching mass in absolute (B) and relative to the counterfactual distribution at the kink (b) in the figures. We cannot reject the null hypothesis of

no bunching at kinks. The implied elasticities are not statistically different from zero. This result suggests that households do not sharply manipulate their reported taxable wealth to stay below tax kinks. This finding is somewhat surprising given the low level of wealth tax enforcement and lack of third-party reporting, but is consistent with the findings of Jakobsen et al. (2020) in Denmark. Of course, evasion may still be prevalent but not visible at the kinks: the whole distributions may be shifted to the left relative to a counterfactual of lower tax rates.

3.2 Bunching at the Exemption Threshold

Next, we study behavioral responses at the exemption threshold. Panel A of Figure 2 shows the distribution of taxable wealth above the exemption threshold in 2006-2010. The shape suggests a missing mass just above the exemption threshold: many taxpayers with wealth a little above the threshold choose to "bunch" below and do not file a wealth tax return. The distribution of taxpayers is distorted above the exemption threshold in all years and this distortion grows over time.

To bolster the identification of the behavioral responses to the exemption threshold, we exploit the 2011 increase in the exemption threshold to €1.3 million. Before this reform, in 2009 and 2010, the €1.3 million threshold was a pure tax kink. Panel B of Figure 2 shows that, consistent with the findings from Figure A.3, there is no discontinuity in the wealth distribution at that wealth level in 2009 and 2010. In Panel C, we plot the distribution in year 2011. There is a clear drop in the number of taxpayers just above €1.3 million as compared to 2010, suggestive of a substantial share of households attempting to remain just below the exemption threshold. The distortion in the distribution of taxpayers is persistent and grows over time (Panel D).

In sum, we detect no response at €1.3 million when it was a pure tax kink but we see a clear response when it becomes the exemption threshold. An exemption threshold is a combination of a tax kink and a reporting discontinuity since taxpayers below it do not file. This suggests that discontinuities in information disclosure play a key role in behavioral responses to the wealth tax.

3.3 Behavioral Responses to the Simplification Threshold

Bunching in wealth at the simplification thresholds. Last, we provide graphical evidence of behavioral responses at the simplification threshold. Figure 3 starts by showing the distribution of

taxable wealth around discontinuities in reporting requirements. Panel A shows that the distribution of taxpayers around €3.0 million was smooth in 2010, but an excess mass appears in 2011 when this wealth level becomes the simplification threshold. Panel B shows that the discontinuity is even larger in 2012.[14] In 2013, the simplification threshold was reduced to €2.57 million. The distribution of taxpayers around €2.57 million is smooth in 2012 but exhibits significant bunching in 2013 (Panel C), which persists and grows over time (Panel D). Meanwhile, bunching at the old €3.0 million simplification threshold disappears.

Because there was no excess mass below €2.57 million before 2013 (when there was only a discontinuity in marginal tax rates at that wealth level, but not in information reporting requirements), bunching responses after 2013 appear to be entirely due to the change in reporting requirements. Our findings also suggest that wealthy taxpayers quickly learn about and adjust to wealth tax design changes, which stands in contrast to other types of taxpayers such as small business entrepreneurs (Aghion et al., 2022).

Average growth rates below and above the simplification thresholds. Figure 4 reports changes in average reported wealth growth rates around the simplification threshold for three sub-periods: 2006–2010 (before the simplification reform), 2011–2012, and 2013–2017 (post-reform). Before the introduction of the simplification threshold in 2011, growth rates were roughly constant across wealth levels (Panel A).[15] Panel B shows that, after the introduction of the simplified returns in 2011, there is an immediate distortion in growth rates around the €3.0 million simplification threshold. For taxpayers with €2.0 to €3.0 million in wealth, growth rates decrease as we move closer to €3.0 million. For taxpayers with €3.0 to €3.5 million in wealth, growth rates are constant and similar to those of taxpayers located far below the threshold. When the simplification threshold is reduced to €2.57 million in 2013, the discontinuity in wealth growth rates moves to that new threshold (Panel C).[16] Wealth growth rates also fall in a large segment below the threshold.

[14]The larger response in 2012 could be due to the fact that the simplification reform was only announced in May 2011. Many taxpayers had already submitted their 2011 wealth tax returns prior to the reform.

[15]While wealth growth rates tend to increase with the level of wealth across broad ranges of wealth (for instance, when comparing households in the top 10% and those in the top 1%), the taxpayers depicted in this figure are in the same percentile of the wealth distribution (between P99.7 and P99.8)

[16]For the distribution of growth rates around the simplification threshold year by year, see Figure A.6.

Summary of the graphical evidence. In sum, we find no bunching at thresholds where only tax rates change (pure tax thresholds), but substantial bunching at information discontinuity thresholds (exemption and simplification thresholds). Furthermore, we find clear reductions in wealth growth rates for a large segment below the simplification threshold. The immediate and sharp responses to changes in reporting requirements are suggestive of avoidance and misreporting rather than real (savings or investment) changes. Overall, these facts suggest that reporting requirements play a key role in driving behavioral responses to the wealth tax.

4 Dynamic Responses to Changes in Reporting Requirements

In this section, we exploit the panel dimension of our dataset to study the dynamic effects of reporting discontinuities. We focus on the lowering of the simplification threshold to €2.57 million in 2013, a clean variation in reporting requirements that kept tax liabilities unchanged.[17]

4.1 Motivation for a Dynamic Bunching Approach

Even absent behavioral responses, we would expect wealth to grow because of saving and valuation effects. A "classic" difference-in-differences bunching approach that considers the levels of wealth from year to year may therefore be misleading, unless it accounts for some normal growth rate. To address this issue, we study changes in the *distribution of wealth growth rates*.

We define groups of taxpayers based on their pre-reform distance to the simplification threshold of €2,570K. These groups are depicted in the diagram below. All households with taxable wealth close to the €2,570K threshold in 2012 are potentially treated by the change in reporting requirements in 2013. To capture potential heterogeneity in the responses, we split the treated group with taxable wealth in the [€2360K, €2710K[range into five treated groups by bins of €70K euros of wealth.[18] The control group includes taxpayers with wealth between €2,710K and €2,850K in

[17] To study the effect of this reform, we keep households for which we can observe growth rates at least once before and once after the reform (this reduces sample size by 9%). Second, we drop households who experience a change in family status such as a death, divorce, or marriage (10.4% of the initial sample). Last, we exclude observations with extreme wealth growth rates (above the 99th or below the first percentile of each annual growth rate distribution, another 2% of the sample). In total, we drop 19.8% of the raw sample. Table B.2 summarizes the characteristics of the full raw sample and of our analysis sample for the pre-reform years 2010 and 2012. Demographic characteristics, income composition, wealth tax payments and tax rates are similar in the two samples.

[18] We pick this bin size to allow for sufficiently many treated groups (five), but also not slice the data too thinly and

2012. These taxpayers are both far enough above the €2,570K threshold and below the previous simplification threshold of €3,000K so that they are not affected by any of the reforms. Panel C of Figure 4 confirms that the wealth growth rates for these taxpayers exhibit no discontinuity.[19]

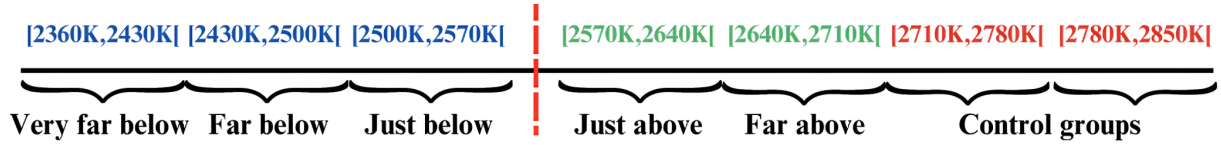

Figure 5 plots the distribution of growth rates in our treatment and control groups, before and after the change in reporting requirements in 2013. Panel A shows that before the reform, all treated and control groups had similar distributions of growth rates (from 2011 to 2012). Panel B reveals that the distribution of wealth growth rates in the treatment group changed after the reform. For households located just below the simplification threshold in 2012, a spike in wealth growth rates appears around zero, mirrored by a missing mass of taxpayers with small positive wealth growth rates (between 1% and 5%). This is consistent with the intuition that taxpayers located very close to the simplification threshold in 2012 and who want to remain below the simplification threshold need to report a wealth level in 2013 that is almost identical to their wealth level in 2012, i.e., a wealth growth rate close to zero. The wealth of these taxpayers would otherwise potentially have grown at 1%–5% that year.

For treated taxpayers located further below the simplification threshold in 2012, the figure also reveals a substantial spike in wealth growth rates compared to the pre-reform year. The spike in wealth growth rate is, however, not centered around zero, but rather around small positive wealth growth rates. This suggests that households further away below the simplification threshold can report small positive wealth growth rates and still manage to remain right below the simplification threshold. This spike in the distribution of wealth growth rates induces a corresponding missing mass in the number of taxpayers with positive wealth growth rates that are between 5% and 10%.

Figure 5 further sheds light on the nature of behavioral responses. We do not see a uniform downward shift in the distribution of growth rates for all households below the simplification threshold nor a spike at zero growth rates for all these groups. The different shapes of the growth

introduce excessive noise.

[19] We investigate this issue carefully in Section 4.2.2 and show that the whole distribution of wealth growth rates for this group is not affected by those reforms.

rate distributions mean that we cannot directly compare across groups, unless we find a proper way to "normalize" these distributions, which is at the core of our dynamic bunching approach.

4.2 Dynamic Bunching Method

We develop a dynamic bunching approach based on a causal effect framework as in Angrist et al. (1996). This method allows us to estimate: i) the growth rate reduction to study the effects of the simplification threshold at the group level (an intent-to-treat or ITT effect); ii) the proportion of bunchers, i.e., the share of taxpayers who react to the simplification threshold (the compliers); iii) the growth rate reduction among the bunchers (a local average treatment effect or LATE).

We proceed in three steps. First, we define and compute "normalized growth rates" around the simplification threshold for treated groups. Second, we use the control group to estimate an appropriate counterfactual distribution of normalized growth rates. Third, we present a causal effect framework based on the comparison of the observed and counterfactual distributions to estimate the ITT, the share of compliers, and the LATE.

4.2.1 Normalized growth rates

For taxpayers affected by the simplification threshold, we define the normalized growth rate as the growth rate in excess of the rate that would make individuals cross the simplification threshold:

$$\tilde{g}_{i,t,2570} = \underbrace{\frac{W_{i,t+1} - W_{i,t}}{W_{i,t}}}_{\text{actual growth rate}} - \underbrace{\frac{2570K - W_{i,t}}{W_{i,t}}}_{\text{growth rate needed to be at threshold}} = \frac{W_{i,t+1} - 2570K}{W_{i,t}} \quad (1)$$

If $\tilde{g}_{i,t,2570}$ is zero, individual i locates exactly at the simplification threshold. When $\tilde{g}_{i,t,2570}$ is negative, this means that i locates below the 2,570K threshold. For instance, $\tilde{g}_{i,t,2570} = -0.015$ means that the individual reported a wealth growth rate 1.5 percentage points lower than the growth rate that would have allowed her to locate exactly at the simplification threshold. Henceforth, for the sake of simplicity, we abstract for the subscript t and label the normalized growth rate as $\tilde{g}_{i,2570}$. To generalize our notation, we denote $\tilde{g}_{i,S}$ the normalized growth rate defined relative to the threshold S for individual i with taxable wealth $W_{i,t}$ in year t. We define $f(\tilde{g}_{i,S})$ as the distribution of $\tilde{g}_{i,S}$ and $f_{T_j}(\tilde{g}_{i,S})$ as the distribution of $\tilde{g}_{i,S}$ for taxpayers belonging to one of our

treated group T_j.

Figure 6 illustrates why the concept of a normalized growth rate allows us to resolve the issues highlighted above in Figure 5. Panel A depicts the distributions of normalized growth rates in 2013 for all the groups below the threshold. While the growth rate distributions have different means and shapes, the normalized growth rate distributions are directly comparable to one another. They exhibit clear excess mass just below 0 and missing mass right above zero (taxpayers with these small positive growth rates would end up just above the simplification threshold in 2013). There is excess mass just below the zero normalized growth rates, and bunching decreases with distance to the threshold. For instance, the group "very far below" seems only barely affected by the threshold. Panel B focuses on the groups above the threshold. The normalized growth rate distributions are now shifted toward positive values with excess mass exactly at the wealth growth rates that would push these groups below the simplification threshold. There is much less bunching for groups located above than for groups located below the threshold pre-reform. The control groups' normalized growth rate distribution appears unaffected and exhibits no discontinuity.

4.2.2 Counterfactual distribution and placebo threshold

In a second step, we use the control group to derive a counterfactual distribution for each treated group. We construct the difference between the observed growth rate of the control group and the growth rate that would make taxpayers in the control group locate at a placebo threshold. The placebo threshold needs to be at the same distance—according to some metric—from the control group as the actual simplification threshold is for each treated group. This placebo threshold differs for each treated group. For any treated group $T_j = [a_j, b_j[$, we define the normalized growth rate of the control group C (taxpayers with wealth in the [2710K,2780K[interval in 2012) as:

$$\tilde{g}_{i,c_j} = \frac{W_{i,t+1} - c_j}{W_{i,t}} \qquad \text{with} \quad c_j = 2780K \times (2570K/b_j) \tag{2}$$

where c_j is the placebo threshold defined relative to each treated group T_j for individuals in the control group C. Under our benchmark assumption, the distance between the placebo threshold and the control group is the same as the difference between the treated group and the simplification threshold in percent terms.

Alternatively, the placebo threshold can be such that the distance between that threshold and the control group is the same (in level) as the difference between the treated and control group. This amounts to using the additive form $c_j = 2780K + 2570K - b_j$. This yields similar results.

Identifying assumption and validation. Our identifying assumption is that control and treated groups should have the same distribution of normalized growth rates absent the reform. We explore the plausibility of this assumption with various tests. First, we verify in Figure A.12 that our treated and control groups (defined in 2012) have the same distribution of growth rate in 2012 and before. Second, we define our treated and control groups in 2011 (or 2010) instead of 2012, and show in Figure 8 and Figure A.10 (or Figure A.11) that they have the same distribution of normalized growth rate in 2012 (or 2011). To verify that our control group has not been affected by the temporary simplification threshold of 3,000K that was in place from mid-2011 to the end of 2012, we compare our control group defined in 2012 (or 2011) to the group of individuals above the 3,000K threshold in 2012 (or 2011). Results shown in Panel B of Figure 8 and Panel D of Figure A.10 confirm that the entire distribution of normalized growth rates in our control group remains comparable to the distribution of wealth growth rates for taxpayers above the 3,000K simplification threshold. This confirms that the 2011 reform around 3,000K did not shift the distribution of wealth growth rates for the control group we will use in our main analysis. Finally, our control group is also not affected by the simplification threshold around 2,570K in 2013 (Panel B of Figure 6).

4.2.3 Conceptual Framework

We now provide a causal effect framework as in Angrist et al. (1996) to estimate the effects of the simplification threshold. In Appendix C we provide more details on the mapping of our dynamic bunching approach with the causal effect framework, and we formally derive and discuss our identifying assumptions.[20]

For each treated group Tj (defined by an interval of wealth in 2012), we observe the distribution of normalized growth rates $f_{T_j}(\tilde{g}_{i,2570})$. We call bunching area or excluded range, denoted by $[a_L, a_U]$, the interval affected by the simplification threshold and where the distributions of the

[20] In particular, we show that standard assumptions (exclusion restriction, monotonicity, and independance) allow to identify the ITT and the LATE estimates.

control and treated groups diverge. We explain how we compute the (unobserved) bounds a_L and a_U below. In the bunching area below the threshold, $[a_L, 0]$, there is an excess mass, mirrored by a corresponding missing mass in the bunching area above the threshold $[0, a_U]$. We first want to measure the impact of the 2,570K simplification threshold on the distribution f_{T_j} in the interval $[a_L, 0]$. We define B_j as the share of bunchers in each treated group T_j:

$$B_j = \int_{a_L}^{0} [\ f_{T_j}(\tilde{g}_{i,2570}) - f_{T_j}^{counterfactual}(\tilde{g}_{i,2570})\ ] d\tilde{g}_{i,2570} \tag{3}$$

where $f_{T_j}^{counterfactual}(\tilde{g}_{i,2570})$ is the counterfactual distribution of the normalized growth rate in the treated group, i.e., the distribution absent the treatment. To recover this counterfactual distribution, we use the control group's normalized growth rate distribution relative to the placebo threshold: $f_{T_j}^{counterfactual}(\tilde{g}_{i,2570}) = f_C(\tilde{g}_{i,c_j})$, with c_j the placebo cut-off adapted to the treated group T_j. The share of bunchers can be rewritten as:

$$B_j = \int_{a_L}^{0} f_{T_j}(\tilde{g}_{i,2570}) d\tilde{g}_{i,2570} - \int_{a_L}^{0} f_C(\tilde{g}_{i,c_j}) d\tilde{g}_{i,c_j} \tag{4}$$

We can approximate this share of bunchers using the data by bins. Let $P_Z(a)$ be the proportion of the group Z population in a given bin a of $\tilde{g}_{i,S}$. The share of bunchers is estimated as:

$$B_j = \sum_{a=a_L}^{0} [P_{T_j}(a) - P_C(a)] \tag{5}$$

Figure 7 shows the application of our dynamic bunching framework for the group just below the threshold in 2012. The distribution of normalized growth rate is plotted in blue for the treated group and in red for the control group, and the difference between the two distributions in the interval $[a_L, 0]$ identifies B_j.

Bunching range. To compute the lower and upper bounds of our bunching range, we first set the lower bound a_L visually by noting the point at which the distributions $f_C(\tilde{g}_{i,c_j})$ and $f_{T_j}(\tilde{g}_{i,S})$ begin to diverge. In our benchmark case, $a_L = -0.045$. The upper bound a_U is then chosen such that the bunching mass (blue area in Figure 7) equals the missing mass (green area in Figure 7),

i.e., such that:

$$\sum_{a=a_L}^{0} [P_{T_j}(a) - P_C(a)] = -\sum_{a=0}^{a_U} [P_{T_j}(a) - P_C(a)] \tag{6}$$

This leads us to set $a_U = 0.1$ and our bunching interval is therefore [-0.045, 0.1].

Growth rate reduction in the treated group. We compute the average growth rate reduction at the group level $\Delta E_j(g)$ using the formula:

$$\begin{aligned} \Delta E_j(g) &= E(g|T_j) - E(g|C) \\ &= \sum_{a=a_L}^{a_U} [P_{T_j}(a) \times g_{T_j}(a) - P_C(a) \times g_C(a)] \end{aligned} \tag{7}$$

where $g_Z(a)$ stands for the average growth rate for the group Z population in a given bin a. $\Delta E_j(g)$ is akin to an ITT effect. We compute it over the bunching range $[a_L, a_U]$ because the distributions are assumed to be identical (by definition of the counterfactual) outside of this range and this is verified empirically.

Growth rate reduction amongst bunchers We also compute the growth rate reduction among the bunchers $\Delta E_j(g)_B$, which can be interpreted as the LATE of the simplification threshold. We scale the average effect $\Delta E_j(g)$ by the share of bunchers: $\Delta E_j(g)_B = \Delta E_j(g)/B_j$. We obtain standard errors using a bootstrap procedure.

4.3 Results

We now present our results using this methodology in Figure 9. Each panel displays our treatment (blue lines) and control (red lines) series, for four different treated groups ("Just below" in Panel A, "Far Below" in Panel B; "Just above" in Panel C; and "Far above" in Panel D). In each panel, we report our three key statistics of interest: the average growth rate response in the treated group (ITT), the share of bunchers, and the average growth rate response amongst bunchers (LATE).

There are four main findings. First, Figure 9 shows that lowering reporting requirements sub-

stantially distorted wealth growth rates in a broad segment of the wealth distribution, not only for groups located right below the threshold. Groups further below or just above the threshold are also significantly affected. The average reductions in growth rates (ITT) range from 0.47 p.p for the group Just Below and 0.44 for the group Far Below to 0.18 p.p for the group Just above, which can be compared to the average growth rate of 2.3% for the control group. Second, the average responses to the simplification threshold are smaller for groups located further away from it.

Third, responses to the simplification threshold are driven by a small subset of taxpayers. There are 14.7% of taxpayers who bunch in the group Just below, 8.4% in the group Far below, 3.9% in the group Just above, and 1.4% in the group Far above. Among bunchers in each group, the growth rate reductions are much larger than for the average taxpayer in the group. For the group Just below, the wealth growth rate is 3.2 percentage points lower, relative to a counterfactual growth rate of 4.8%. For the group Far below, the growth rate reduction is 5.2 p.p relative to a counterfactual growth rate of 7.8%. In the group above, the reduction in the growth rate is 4.8 p.p, even though the counterfactual suggests these groups should have grown at 1.6% (they essentially report negative wealth growth). Our analysis therefore shows that the ITT effects that would be estimated through the lens of a standard difference-in-differences approach are driven by a small share of taxpayers who significantly reduce their wealth growth rates to benefit from low reporting requirements.

Fourth, the proportion of bunchers in the group located just above the wealth threshold in 2012 (which stands at 3.9%) is significantly lower than for those located just below the threshold in the same year (14.7%). Similarly, the average growth rate reduction in the group just above the threshold is smaller than for the one below. What explains this asymmetry? Taxpayers above the threshold in 2012 must report a decrease in their net worth to qualify for the simplified reporting regime, whereas those below the threshold only need to report a lower (weakly positive) growth rate. Taxpayers may worry that reporting lower taxable wealth relative to the previous year could raise suspicions from the administration and make it more likely to be audited.[21] We explore issues related to the costs of evasion and avoidance in Section 5.4.

Growing responses to the threshold over time. We apply our dynamic bunching approach to subsequent cohorts, namely those defined in 2013 and 2016 (Figures A.13 and A.14). The results

[21] This fear may be accentuated by the fact that the tax authority sends taxpayers a default empty tax form to fill out, based on their wealth in the previous year.

are similar to those for our benchmark 2012 cohort. However, the estimated average growth reduction (ITT) increases over time. For taxpayers just below the threshold, the ITT almost doubles from 20% of the control group's growth rate in 2012 to 40% in 2016. The share of bunchers in each treated group is also significantly larger for later cohorts.

Persistence within taxpayers. How does a given taxpayer adjust to the simplification threshold over time? Figure 10 tracks the same taxpayers over time. In Panel A (left) we follow the cohort of taxpayers who are in the Just below group in 2012 and plot their normalized growth rate distributions in the subsequent four years (2013–2016). In Panel B, we repeat this with the cohort in the Just below group in 2014; in Panel C in 2016. The first two panels show that the bunching in normalized growth rates is highly persistent within taxpayers over time. Although it is strongest in the first year, it remains sharp and large even after four years. The right figure in Panel A considers taxpayers at a given level of taxable wealth in 2012 and plots their reduction in growth rates relative to the growth rate of taxpayers above 3,000K for the subsequent four years. The normalization by the growth rate of taxpayers further above the threshold is to account for the different growth rates of the economy in different years. Panel B repeats this analysis for the cohort defined in 2014; Panel C for the cohort defined in 2016. There is a persistently lower growth rate for taxpayers below the threshold that is attenuated over time. Together these results suggest a high persistence in the reduction of growth rates for taxpayers below the simplification threshold. Taxpayers persistently report lower wealth and pay less taxes than they would have absent the simplification threshold.

Figure 10 suggests that, although bunching is highly persistent within taxpayers over time, some taxpayers do end up crossing the threshold. Panel A of Figure A.8 shows the share of taxpayers in the treatment and control groups (as defined based on their pre-reform taxable wealth in 2012) who cross the simplification threshold in 2014 as a function of their normalized growth rate from 2012 to 2013. Panel B shows the same three years later in 2016. For the control group, this share is defined relative to the placebo threshold.

Consider taxpayers in the treated group with a normalized growth rate between -2% and 0%. These taxpayers located right below the simplification threshold in 2013. Following our earlier analysis, there is a substantial share of bunchers in this group, i.e, individuals who adjust their growth rate to remain below the threshold. By contrast, taxpayers in the control group with a

normalized growth rate between -2% and 0% are locating at the same relative distance from their placebo threshold and there are, by construction, no bunchers in this group. These taxpayers from the control group serve as a counterfactual for the expected probability to cross an equivalent threshold after one or three years, absent a behavioral bunching response to the simplification.

In line with our findings of substantial and persistent misreporting behavior around the 2,570K threshold, the probability that taxpayers with normalized growth rates between -2% and 0% in 2013 end up above the 2,570K threshold in 2014 (one year after the reform) is 32% in the treated group against almost 60% in the control group. Panel B shows that this effect persists over time. In 2016, three years after the reform, the probability that taxpayers in 2013 end up above the 2,570K threshold is 43% in the treated group against more than 60% in the control group. More generally, we see that taxpayers in the treated group with negative normalized growth rates in 2013 (i.e, who remain below the threshold in 2013) systematically have a lower probability of crossing the threshold than taxpayers in the control group with the same normalized growth rates. This discrepancy persists even three years later.

Robustness check around another simplification threshold. As a robustness check, we apply our dynamic bunching analysis to the introduction of a simplified return for taxpayers below the 3,000K threshold in 2011 and 2012. We define treatment and control groups following the same methodology as before except that we focus on 3,000K instead of 2,570K as our information discontinuity. We present dynamic bunching estimates of responses to the 3,000K threshold in Figure A.15 for year 2012. Our analysis of the 3,000K threshold is consistent with the dynamic responses by cohorts around the 2,570K threshold shown in Figure 10. For both simplification thresholds, we find that responses grow over time for a given group, and those responses progressively spread-out below the threshold over the years. This confirms that our estimates do capture behavioral responses to information discontinuities rather than responses to other potentially unobserved discontinuities that would be associated with the 2,570K threshold after 2013.

In Figure A.16, we can also show that the response around the 3,000K threshold disappears in 2013, when the simplification threshold is reduced to 2,570K. Once the information discontinuity is removed in 2013, the distribution of normalized growth rates for taxpayers located just below the 3,000K threshold in 2012 aligns with the control group.

4.4 Difference-in-Differences Strategy

We now present results from a simple difference-in-differences strategy in which we track taxpayers' wealth growth rates in control versus treated groups before and after the change in reporting requirements. This allows us to compare the results from a difference-in-differences approach to our dynamic bunching method. Furthermore, by tracking taxpayers over several years, we can study persistent responses to the lower reporting requirements. We estimate the following model:

$$g_{i,t} = \frac{W_{i,t} - W_{i,t-1}}{W_{i,t-1}} = \sum_{j} \sum_{\substack{k=2008 \\ k \neq 2012}}^{2017} \beta_{jk} \cdot \mathbb{1}\{i \in T_j\} \times \mathbb{1}\{t = k\} + \alpha_i + \lambda_t + \varepsilon_{i,t} \tag{8}$$

where α_i is an individual fixed effect, λ_t is a year fixed effect, $\mathbb{1}\{i \in T_j\}$ is a dummy equal to one if the individual belongs to the treated group T_j and $\mathbb{1}\{t = k\}$ is a dummy equal to one if year is year k. We set $\beta_{j,2012} = 0$ and $\lambda_{2012} = 0$ such that all estimates can be interpreted as the difference in wealth growth rates between treated and control taxpayers in year k relative to 2012. The sequence of estimates β_{jk} captures the differential evolution of wealth growth rates for households in the treated group j compared to the control group over time. They represent an intent-to-treat effect of lowering information requirements because they capture the responses of all taxpayers in the treatment group, regardless of whether they effectively react to the reform.

Results and comparison to the dynamic bunching method. We report our estimates for all treated groups in Table B.3 and plot the estimated effects for the groups closest to the threshold in Figure A.9, distinguishing between treated taxpayers located just below the threshold in 2012 (panel A), and those located just above (panel B). The growth rates follow the same evolution in each of the treated groups and the control group for the four years preceding the policy change. This lends support to our identifying assumption that households located far above the 2,570K threshold provide a credible counterfactual for the evolution of wealth growth rate of households located closer to the threshold. The figure shows persistent reductions in growth rates for treated taxpayers just below the 2,570K threshold in 2012 (equal to 0.6–0.8 percentage points each year, equivalent to 25-30% of the control group growth rate). For households just above the 2,570K threshold in 2012, the effect is much lower and not significant. Consistent with our dynamic bunch-

ing approach, the bulk of the response comes from households below the simplification threshold.

Table B.4 compares the ITT effects in the dynamic bunching approach and the standard difference-in-differences in 2013. The estimated ITT effects are consistent and not statistically significantly different. However, the standard errors are four times smaller in the dynamic bunching approach.[22]

5 Mechanisms and Discussion

In this section, we study the mechanisms through which taxpayers substantially and persistently reduce their wealth growth rates following the lowering of reporting requirements.

5.1 Are Responses Driven by Misreporting of Specific Assets?

5.1.1 Pre-Reform Differences Between Treated and Control Groups

We first seek to understand whether bunchers (i.e., compliers) differ from other taxpayers in terms of assets, occupation, and income composition. We start by comparing the pre-reform characteristics (in 2010) of taxpayers below and above the simplification threshold, before and after the simplification threshold was introduced. In Figure A.7, we plot the 2010 share of housing wealth (Panel A), financial assets (Panel B), liabilities (Panel C), and deposit and savings accounts (Panel D) in taxpayers' total taxable wealth, by bins of taxable wealth in 2011-2012 (red series) and 2013-2017 (blue series). Individuals located just below the 3,000K threshold in 2011 and 2012 had larger shares of housing assets and liabilities in their total taxable wealth in 2010 and lower shares of financial assets. There are sharp discontinuities in the 2010 composition of assets at the simplification threshold: individuals located just above the simplification threshold have substantially less housing assets and liabilities and more financial assets than those just below. These discontinuities at the 3,000K threshold disappear once we plot the 2010 characteristics as a function of taxable wealth reported between 2013 and 2017. The same discontinuities now appear around the 2,570K threshold that corresponds to the simplification threshold for that period.

[22] We find significant effects for all treated groups with the dynamic bunching approach but only for the group Just below using the difference-in-difference approach. The higher precision of the dynamic bunching approach can be explained as follows. Outside the excluded range, average growth rates by bins are similar between control and treated groups. However, these growth rates have wide variation. By focusing only on observations in the excluded range for the estimation, the dynamic bunching estimates the same ITT as the difference-in-differences but with less noise.

These findings indicate that bunching responses to the simplification threshold are driven by differences in the type of assets held by taxpayers in 2010. One interpretation is that it is easier to misreport growth in real estate assets (and liabilities) than growth in financial assets.[23] This intuition is supported by Panel D, which zooms on liquid assets. Banks provide taxpayers with an annual statement of the value of their deposits and savings accounts. This makes these assets more difficult to hide. Panel D reveals no discontinuities in the share of liquid assets around the threshold, both in the 2011-2012 and the 2013-2017 periods.

In Panels E and F, we repeat the same exercise but plotting income tax rates before tax credits, and tax credits in percent of income taxes paid. Taxpayers located just below the simplification threshold (in 2011-2012 or after 2013) tend to pay slightly higher income taxes in percent of their taxable income in 2010. Interestingly, however, tax credits represent a lower share of total tax liabilities for taxpayers located just below the simplification threshold, compared to taxpayers just above. In sum, taxpayers who locate just below the simplification threshold pay more taxes (relative to their income), but also appear more constrained in the way they can optimize their income taxes (since they use less income tax credits).[24]

One limitation of the evidence presented in Figure A.7 is that it only reflects correlation. To move towards causality, we rely on our dynamic bunching approach which allows us to rely on the comparison of treated and control groups to identify the specific pre-reform characteristics of the bunchers. Formally, we estimate:

$$Y_i = a + bX_i + cT_i + dX_i \cdot T_i + u_i \tag{9}$$

where Y_i is a dummy for "being in the bunching area below the threshold in $t+1$" (i.e., defined as having a normalized growth rate between a_L and 0 in Figure 7), T_i is a dummy for being in the treated group in t, and X_i is a vector of pre-reform individual characteristics (i.e, measured

[23] Assessment is likely easier to enforce for financial assets than for real estate assets. Financial assets must be assessed at market value for stocks in listed companies. Upon audits, the tax authorities can thus detect misreporting based on the public value of the stock market, and can then impose large penalties if fraud is detected (e.g., a 40% increase in wealth tax payments). For real estate, market values are less clearly observable. Taxpayers must use information on recent properties sales in the same ZIP code, but can adjust it for differences in properties quality or other specific characteristics of their house.

[24] In Figure A.17, we also show differences in other pre-reform characteristics, such as taxable income, share of wage earners, share of self-employed and age. We find that the share of wage earners is higher among bunchers and that bunchers are slightly younger and have higher taxable income, but those effects are small in magnitude.

in 2010). We focus on the 2,570K simplification threshold that was in place for the period 2013-2017. We pool the different cohorts of treated groups "Just Below" and control groups defined over the 2012-2016 period to maximize power in our estimation. The main parameter of interest d identifies the characteristics of the bunchers. The identification assumption is that absent the reform, individuals from treated and control groups should have the same probability to be in the excess mass area (i.e., $c = 0$) and there should be no differential impact of individual characteristics on the probability to be in the excess mass area (i.e, $d = 0$).

Table 1 reports the results. Column 1 reports the simplest specification, which includes only the dummy for being in the treated group and no individual characteristics. The coefficient c associated with T_i measures the share of bunchers in the treated group "Just below." Over the 2013-2017 period, the share of bunchers in the treated group "Just Below" (defined over the 2012-2016 period) is 20%. Columns (2) to (5) sequentially introduce individual characteristics in the regression. In Column (2), we account for portfolio composition differences in 2010. Treated taxpayers who had a higher share of housing in their wealth are more likely to bunch. The share of liabilities also appears to play a role although standard errors are too large to reject a null effect. In Column (3), we find no impacts of income composition in 2010 on the probability to bunch. Adding controls for pre-reform income type does not alter the coefficients associated with the 2010 portfolio composition. In Column (4), we see that the income tax rate and tax credits (relative to the amount of income tax before any tax credits) are linked to bunching behavior for treated taxpayers. Holding other demographics constant, treated taxpayers with higher income tax rates are more likely to bunch. The negative sign associated with the share of tax credits suggests a trade-off between using income tax credits and misreporting wealth growth for treated taxpayers. Adding a control for the 2010 income composition, as showed in Column (5), does not change the results. Comparing Column (1) and Column (5) shows that differences in pre-reform portfolio and income composition can explain half of bunching.

The two last columns of Table 1 provide direct tests of our identification assumptions. We first conduct a falsification exercise by running the same regression but using a control and treated groups defined in 2010 and 2011, before the introduction of the simplified tax return at 2,570K. As shown by Column (6), taxpayers in the treated and control groups have the same probability to be in the excess mass area: there are no bunchers in pre-reform years. Second, in Column (7), we

find no differential impact of individual characteristics on the probability to be in the excess mass area between treated and control groups.

5.1.2 Post-Reform Differences Between Treated and Control Groups

We now try to identify the categories of taxable wealth which are adjusted by taxpayers *after* the change in reporting requirements by studying the portfolio compositions of different groups after the implementation of the simplified tax returns.

The main challenge is that taxpayers below the simplification threshold after 2013 do not report detailed asset compositions. To overcome this issue we focus on taxpayers who cross the simplification threshold at some point during the 2014 to 2017 period. As highlighted in Figure A.8, treated taxpayers in the bunching area below the simplification threshold in 2013 (e.g., with a normalized growth between -2% and 0%) have a much lower probability to cross the threshold that control taxpayers. This suggests that "crossers" in the treated group are selected and may have experienced shocks that differ from those experienced by individuals in the control group who also crossed the threshold. Like before, comparing the treated and control groups (as defined in 2012) allows us to learn about the selection mechanism in the treated group. To understand what drives treated taxpayers out of the simplified regime, we decompose wealth growth rate by assets type for the treated group of taxpayers crossing the threshold one year after the reform and for the control group of taxpayers who cross the placebo threshold.

Figure 12 shows that conditional on crossing the threshold, there are large differences between treated and control taxpayers in terms of financial assets growth after the reform. Treated taxpayers experienced growth rates in their financial assets between 2010 and 2014 that were twice as large as those of their counterparts in the control group. In contrast, those in the treated group who did not react to the simplification reform (i.e., with a positive 2013 normalized growth rate) experienced the exact same growth in terms of financial assets compared to taxpayers in the control group with similar normalized growth rates in 2013.[25] This analysis highlights that bunchers end up crossing the threshold after they experience large positive shocks to their financial assets. One possible interpretation is that shocks to financial assets can be hard to hide and force bunchers into filing the detailed wealth tax return again. This is consistent with the pre-reform differences in assets

[25] The results are similar when looking at bunchers who cross the threshold in 2016 (Figure A.18).

documented in Table 1: bunchers have more housing wealth and less financial assets ex-ante, and those who exit the simplified regime experience large positive shocks to their financial assets.

5.2 Are responses associated with real changes in income after the reform?

A key benefit of the link between the wealth tax data and income tax returns is that we can investigate whether the change in reported taxable wealth following the 2013 reform goes hand in hand with a change in labor and capital income. If the decline in reported wealth reflected real dissaving, we would expect to see a fall in capital income and/or labor income.

However, Figure 11, shows that this is not the case. The figure reports the 2010–2017 evolution of different types of incomes and tax rates for the subsample of the control group and the treated group "Just Below" (as defined in 2012) who have a normalized growth rate just below zero, i.e., who are in the bunching area. Recall that, in the treated group, there is a large share of bunchers at these normalized growth rates. The figure shows that taxable income and the shares of financial income, real estate income, and self-employed income all evolved similarly for these two groups, before and after the change in reporting requirements. Thus, while taxpayers who respond to the reporting requirements significantly reduce their reported taxable wealth, we do not see any corresponding change in their capital and labor incomes. This suggests that behavioral responses to low reporting requirements reflect misreporting rather than real dissaving.

5.3 Quantification

We now quantify the aggregate effects of scaling back reporting requirements. To quantify the responses at the simplification threshold, we implement a standard static bunching approach following Kleven (2016) with results reported in Table B.5. The excess mass around the €2.57 million threshold represents 24% of all taxpayers in the [2570K,2690K[bracket in 2013. The aggregate missing mass of taxpayers induced by the simplification threshold increases substantially over time. By 2017, 35% of taxpayers are missing in the [2570K,2690K[bracket. This can be rationalized by the mechanisms previously documented at the micro-level: bunching is highly persistent within taxpayers over time, leading to a "stacking" of taxpayers below the 2,570K threshold.

We next quantify the aggregate implications for wealth tax revenues. Bunching responses at

the simplification threshold affect wealth tax payments through two channels: the wealth tax base of the bunchers is reduced (since they report lower levels of taxable wealth) and they face a lower effective tax rate (since wealth below and above the simplification threshold is taxed at a different marginal tax rate).[26] As showed in Column (7) of Table B.5, bunchers evade roughly 10% of the total wealth tax they should have paid each year by misreporting their taxable wealth at the simplification threshold.

This emphasizes that changes in tax design can generate much larger responses than typical changes in wealth tax rates (since we found zero responses around changes in tax rates). The change in reporting requirements, while generating much larger effects that tax rate changes, was also a very small intervention (e.g changing the number of items to fill in the tax returns). Presumably it would be very low cost to improve tax administration by doing the opposite reform.

5.4 Discussion

Summary of key behavioral responses. What can we learn about the underlying reasons and mechanisms for taxpayers' behaviors from the previous analyses? The findings to inform a potential model of taxpayer behavior are as follows:

1. There is sharp bunching of taxpayers at the simplification threshold.
2. Several groups of taxpayers below the threshold respond to it, not only those directly below, even though responses are strongest for groups closer to the threshold.
3. Taxpayers above the threshold (who would have to report negative growth rates in order to locate below the threshold) exhibit much lower bunching.
4. Growth rates are systematically lower for taxpayers below the simplification threshold than for taxpayers above.
5. Responses to the simplification threshold are persistent, with taxpayers attempting to remain below the threshold for multiple years, as long as possible and being "pushed out" of the simplified regime once significant financial asset shocks occur.
6. We cannot detect any change in labor or capital income that could justify the changes in reported wealth.

[26] Note however than since the 2,570K threshold is a kink, and not a notch, the effective tax rate of taxpayers below and above the threshold is in fact very similar.

7. There is no discernible response at pure tax kinks in the detailed reporting regime.[27]
8. There is significant bunching at the exemption threshold.

A model of wealth tax misreporting. The second and fifth findings point to reporting and avoidance responses rather than real saving responses, because the true value of taxable wealth is not easily controllable by taxpayers since it depends on asset prices. This hypothesis is bolstered by the finding that there is no corresponding change in labor or capital income that could justify changes in taxable wealth. In Appendix B, we suggest a simple model to rationalize these findings. Taxpayers value being in the simplified regime so that the simplification threshold generates a substantial notch in the payoff. They therefore misreport their wealth in order to stay below the simplification threshold. Misreporting is costly and the cost is increasing in the amount of misreporting and decreasing in the reported growth rate from year to year. The latter assumption explains why forward-looking taxpayers further below the threshold will report lower wealth and growth rates as well, to facilitate anticipated misreporting in future years.

Why do taxpayers want to remain in the simplified regime? There are three potential reasons why taxpayers may want to remain in the simplified regime. First, they may value the lower hassle cost of reporting taxes with a simplified return. Second, they may have privacy concerns. Finally, it may be easier to misreport wealth in the simplified reporting regime. Although each of these channels may play some role, it is unlikely the hassle costs and privacy are central.

First, the tax administration requires that taxpayers keep records in case of audits, so the information needs to be recorded and stored regardless of the type of form filled out. Further, the affected taxpayers are wealthy and often use some professional help for accounting and tax purposes (even if the overall tax preparer industry is less developed than in the United States), making it unlikely that there is a big hassle cost difference between the detailed and the simplified tax form.

The extent of privacy concerns is also unclear because the government already has access to a lot of information on real estate (through property tax filing), financial wealth (through bank and brokerage accounts), and other sources of capital income (through income tax returns).[28] Although

[27] This means that there is no bunching at any tax kink before the simplification reform, when everyone files a detailed tax form and there is no bunching at tax kinks above the simplification threshold after it was introduced. There are no pure tax kinks inside the simplified region to be able to assess what happens there.

[28] There is no automatic third-party reporting of bank accounts value, only taxable capital income flows from those

this information does not currently appear to be used explicitly for the wealth tax administration, taxpayers should be aware that most of it is already in the hands of the tax administration.

Moreover, if the simplified reporting reduced the burden of filing wealth taxes or the privacy concern associated with it, we might expect that some taxpayers who would otherwise have remained below the exemption threshold are now enticed to cross it. However, the data does not support this view. To quantify the number of missing taxpayers around the exemption threshold, we exploit Pareto parameters computed in the unaffected segment of the wealth distribution that we use to extrapolate the distribution of taxpayers around the exemption threshold.[29] Table B.7 shows substantial missing mass just above the exemption threshold, both pre-2011 when the exemption threshold was around €790,000, and after 2011 when the exemption threshold was moved to 1,300K. The share of missing taxpayers around the exemption threshold after 2011 is increasing, as behaviors slowly adjust to the newly implemented simplification threshold. In 2017, around 41% of taxpayers are missing around the exemption threshold. This share is close to and, if anything, slightly higher than the 40% of missing taxpayers in 2010, before any simplified return was implemented. This suggests that allowing taxpayers to fill a simple tax return did not induce more taxpayers to file and did not reduce bunching below the exemption threshold after 2013.

6 Conclusion

A body of work studies the experience of various countries with wealth taxation. Estimated elasticities, however, vary widely. We find zero bunching responses to changes in the wealth tax rates alone (kinks) in France, but substantial responses to information notches introduced by the exemption and simplification thresholds. Most papers focus on exemption thresholds. Seim (2017) finds behavioral responses to the exemption threshold in the context of wealth tax in Sweden, with elasticities between 0.1 and 0.3. In Colombia, where enforcement is lower than in Sweden, Londoño-Vélez and Avila-Mahecha (2022) find large behavioral responses to the wealth tax, in particular at the salient exemption notch. Like in France, taxpayers in Colombia face additional

accounts are reported by banks. However, the government has access to information on all *"assurances vie"* (of more than €7,500), the most important financial asset owned by French households, see Goupille-Lebret and Infante (2018).

[29] Our identifying assumption when conducting this analysis is that Pareto parameters should be constant over the [1,300K-4,000K] interval. Data on pre-reform distributions show that this assumption is valid.

reporting requirements when they become subject to the wealth tax.[30] Londoño-Vélez and Avila-Mahecha (2022) estimate an elasticity with respect to the net-of-tax rate between 0.3 and 4.4 at the exemption notch. Our results show that behavioral responses to the exemption notch are likely to capture responses to changes in reporting requirements rather than to changes in tax rates. In our context, bunching responses to the wealth tax only arise when discontinuities in marginal tax rates are associated with changes in reporting requirements, corroborating that information avoidance is the main channel explaining bunching responses to the wealth tax.

Our results imply that poor tax design choices can have immediate implications for tax enforcement and that these effects may be large and persistent. Taxpayers in lower reporting environments persistently under-report their wealth, which in turn can lead to deterioration in the enforcement capacities of the tax authorities. A one-off collection of information may not be enough and it may take a long time to recoup the lost enforcement capacities. Our paper illustrates why the details of tax design matter as much, if not more, than tax rates.

If specific design choices can contribute to increasing tax elasticities, other choices can contribute to reducing them, such as mandating pre-populated returns, collecting and using information automatically transmitted by domestic and foreign third parties, or taxing non-residents. A full cost-benefit analysis of different elasticity-reducing design features of taxes constitutes a fruitful avenue for future research.

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[30] More specifically, households below the exemption cut-off must declare their assets in a very aggregate way. If they are above the exemption cut-off, they file an additional wealth tax statement that requires to disclose detailed information on their taxable wealth to the government.

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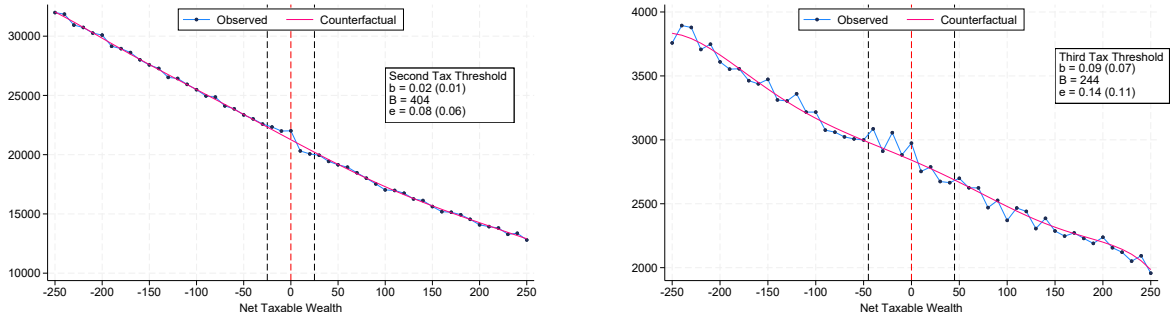
Figures and Tables

Figure 1: **Behavioral Responses at Kinks in the Wealth Tax Schedule, 2006-2010**

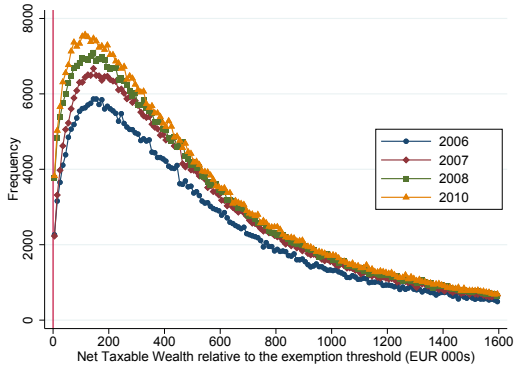
(a) **Second marginal tax rate bracket** (b) **Third marginal tax rate bracket**



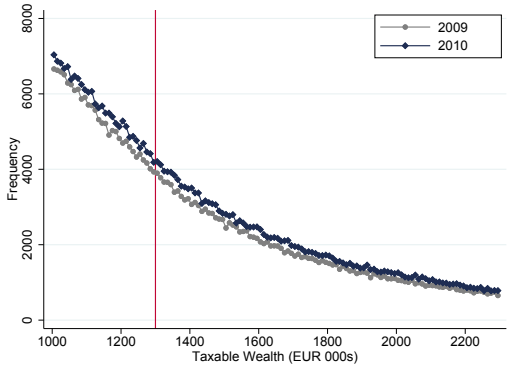
Notes: This figure shows the distribution of taxpayers by net taxable wealth around the second (Panel A) and wealth tax bracket threshold during the period 2006-2010. We pool all years together and group households by bins of net taxable wealth relative to the threshold each year. We plot in pink a counterfactual distribution obtained from a fitted polynomial outside the excluded range, which is denoted by the two vertical black lines. We report in the figure estimates of the bunching mass (B), the ratio of the bunching mass and the counterfactual density (b) and the implied elasticity of taxable wealth with respect to the change in marginal tax rate at the kink (e). Standard errors are obtained using 1,000 replications of a bootstrap procedure.

Figure 2: **Bunching at the Exemption Thresholds**

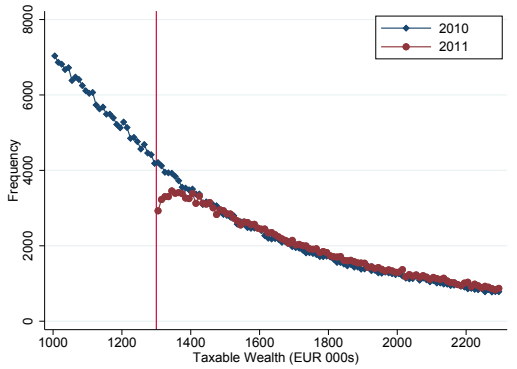
A. Exemption Threshold in 2006-2010



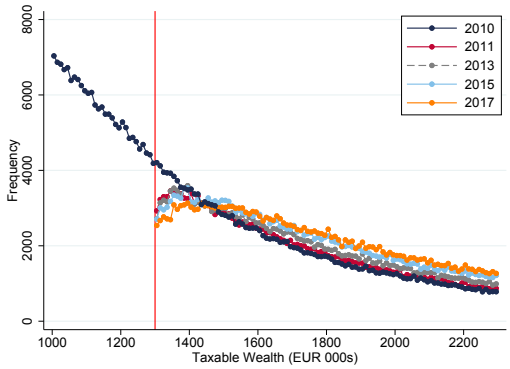
B. 1,300K is a MTR Threshold in 2009-2010



C. Exemption Threshold is 1,300K in 2011



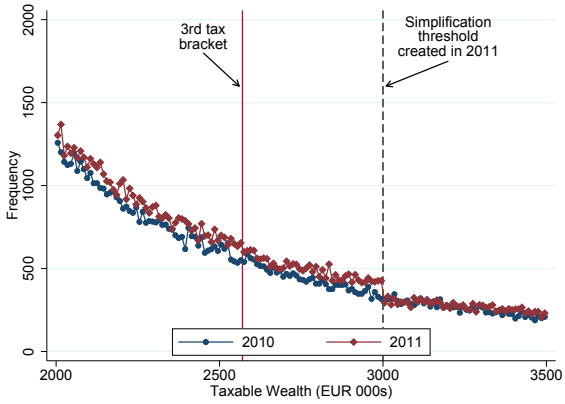
D. Exemption Threshold is 1,300K after 2011



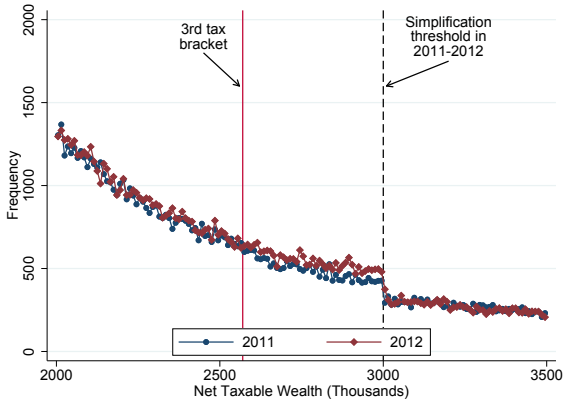
Notes: This figure groups households into bins of €10,000 of taxable wealth and plots the bin counts around the exemption threshold each year (vertical red lines). Panel A shows the distribution of taxpayers relative to the exemption threshold in 2006-2010, years for which the exemption threshold varied only a little: it was 760K in 2006, 770K in 2008, and 790K in 2009 and 2010. Panel B shows the distribution of taxpayers around 1,300K, which in 2009 and 2010 represented a pure tax kink (discontinuity in marginal tax rates) as explored in Figure A.3. Panel C layers on top of the distribution for 2010 from Panel B the distribution of taxpayers for the year 2011 when the 1,300K threshold becomes the exemption threshold. Therefore, this threshold becomes associated both with a change in wealth tax rates and a change in reporting requirements. Panel D shows the distribution of taxpayers around the new exemption threshold after 2011.

Figure 3: **Bunching at Simplification Thresholds**

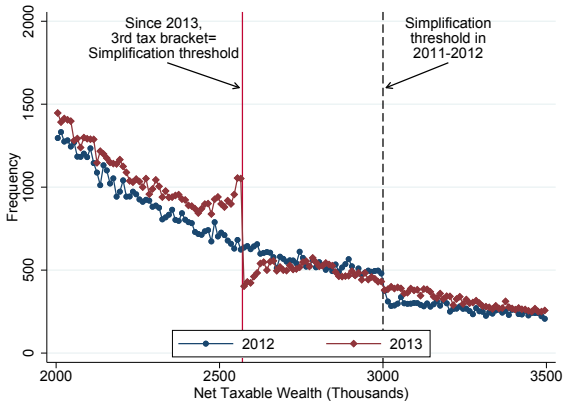
A. Simplification Threshold is 3,000K in 2011



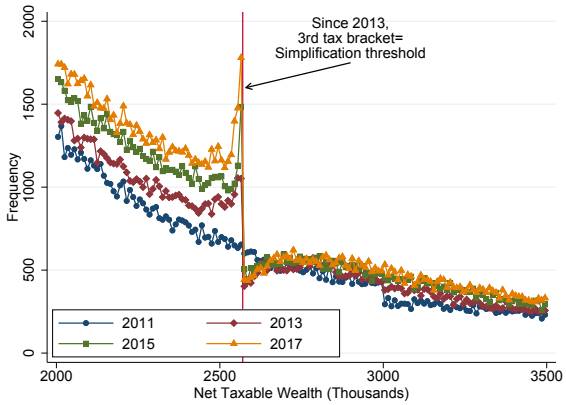
B. Simplification Threshold is 3,000K in 2012



C. Simplification Threshold is 2,570K in 2013



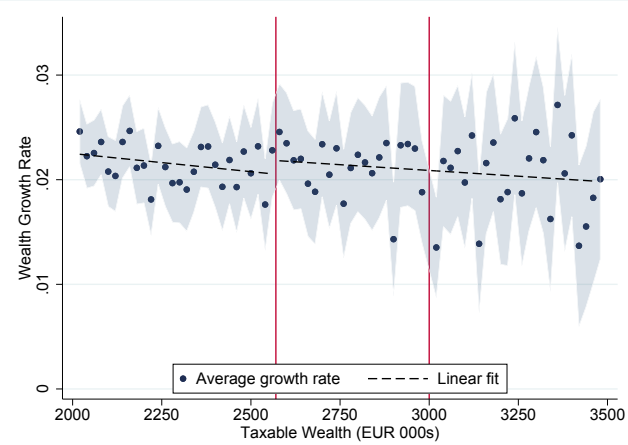
D. Simplification Threshold is 2,570K for 2013-2017



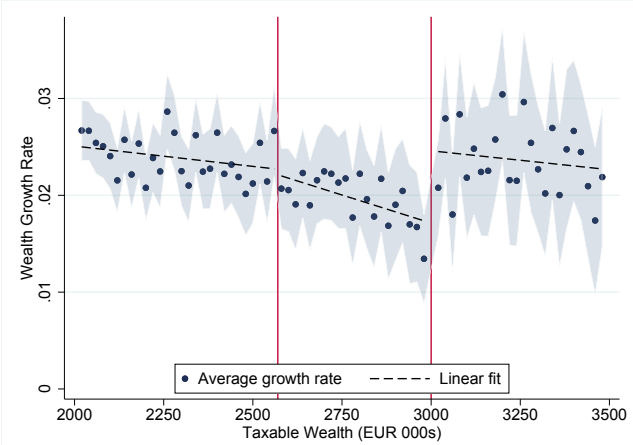
Notes: This figure shows the distribution of taxpayers by net taxable wealth around the simplification threshold (dashed vertical line) implemented for taxpayers with net taxable wealth below 3,000K in 2011 and that was moved at 2,570K in 2013. We group households into bins of €10,000 of taxable wealth and plot the bin counts around the threshold each year. We also plot the threshold for the third tax bracket, which was 2,520K in 2009, 2,530K in 2010, and 2,570K in 2013 (solid vertical line). The discontinuity in MTR associated with passing the third bracket threshold was stable: 0.25 percentage points before 2013, and 0.30 percentage points after 2013. From 2007 to 2012, the third bracket MTR threshold was associated with a change in marginal tax rate (a tax kink) but not with a change in reporting requirements. In 2013, the third bracket and the simplification threshold coincide at 2,570K. In each figure, we group households into bins of €10,000 and plot the bin counts around the simplification threshold. Panel A shows the distribution of taxpayers in 2011, when the simplification threshold is newly created at 3,000K, as compared to the distribution in 2010; Panel B plots the distribution of taxpayers in 2011 and 2012, after the simplification threshold at 3,000K has been in place for one year already. Panel C plots the distribution in 2013 when the simplification threshold is moved to 2,570K and starts to coincide with the third bracket and compares it to the distribution in 2012. Panel D plots the distribution of taxpayers for 2013, 2015, and 2017, years for which the simplification threshold remained stable at 2,570K and compares it to the distribution in 2011.

Figure 4: **Behavioral Responses to Simplification Thresholds: Wealth Growth Rates**

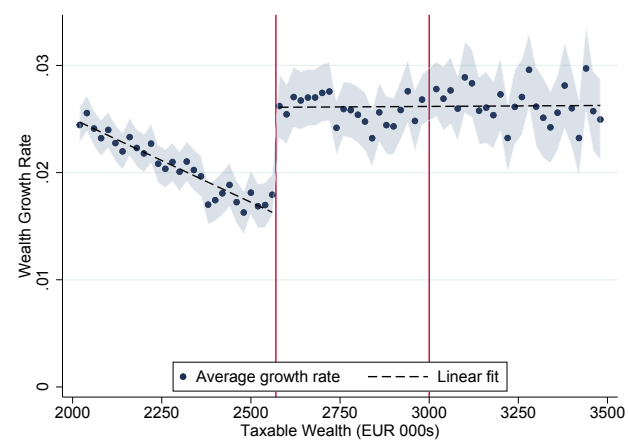
A. No Simplification Threshold in 2006-2010



B. Simplification Threshold is 3,000K in 2011-2012

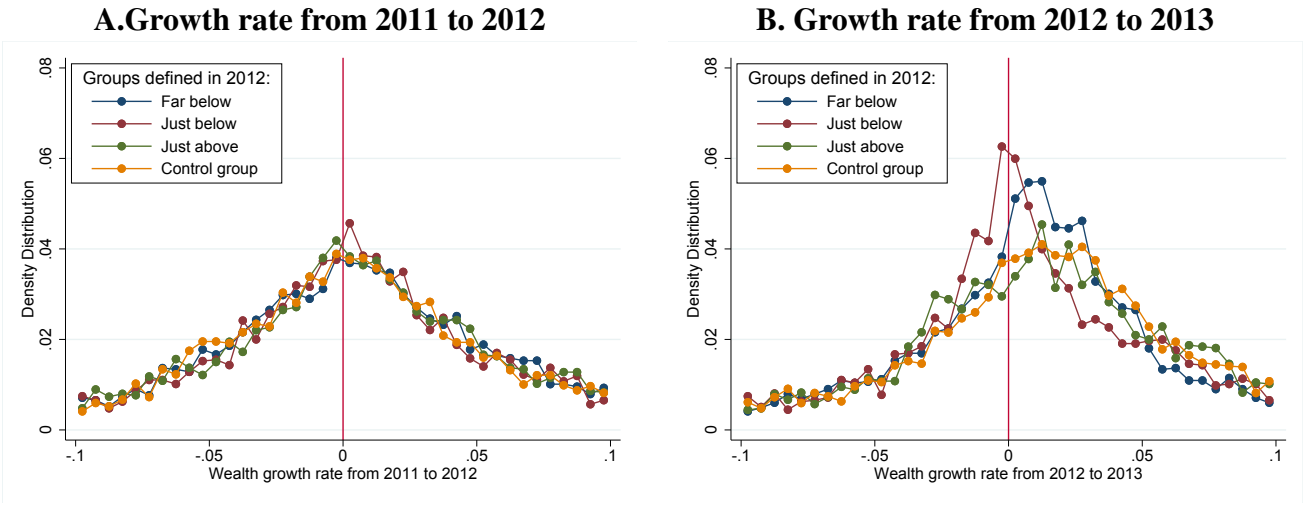


C. Simplification threshold is 2,570K in 2013-2017



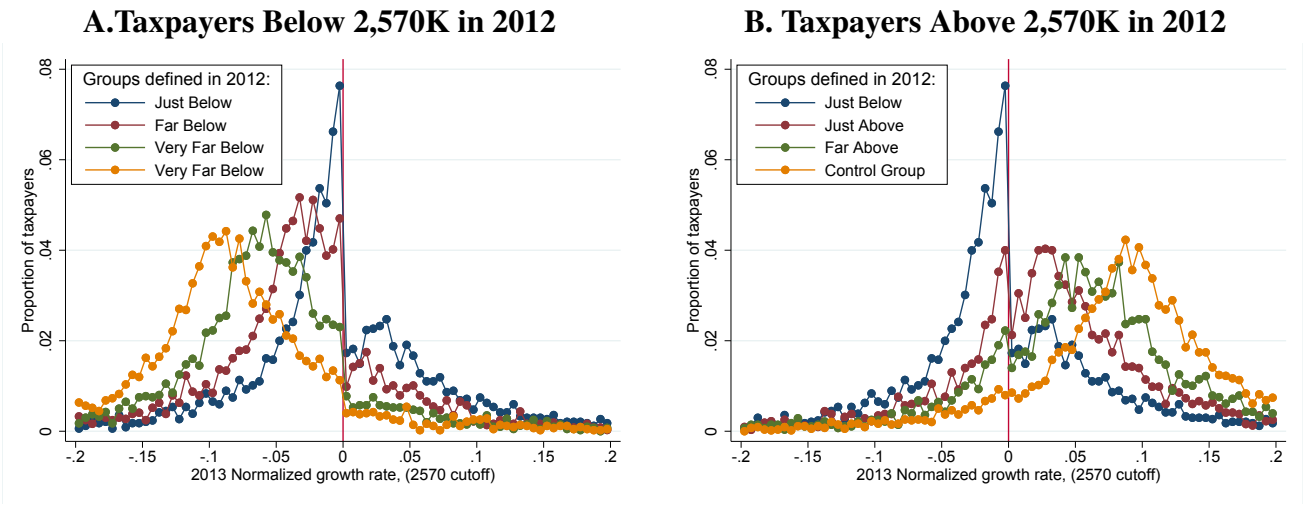
Notes: This figure shows the distribution of yearly wealth growth rates by wealth bins, pooled for different periods, around the simplification threshold (vertical solid line). In each figure, we group household into bins of €20,000 of reported taxable wealth. We plot the average wealth growth rate by bin and fit linear models (one below and one above the cut-off), depicted by the dashed black lines. Panel A pools all observations for the period before the simplified reporting was introduced (2006-2010), Panel B pools all observations for the period during which the simplification threshold was at 3,000K (2011-2012) and Panel C pools all years for the period during which the simplification threshold was 2,570K (2013-2017). The shaded areas depict 95% confidence intervals.

Figure 5: **Behavioral Responses to Simplification Thresholds, Wealth Growth Rates**



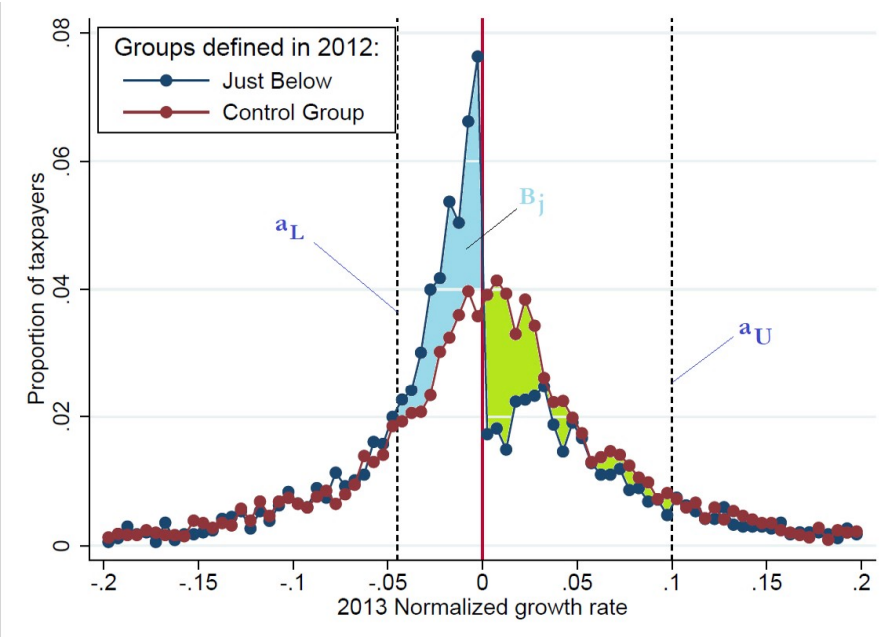
Notes: This figure plots the distribution of wealth growth rates for households with different levels of taxable wealth in 2012.

Figure 6: **Behavioral Responses to Simplification Thresholds, Normalized Growth Rates**



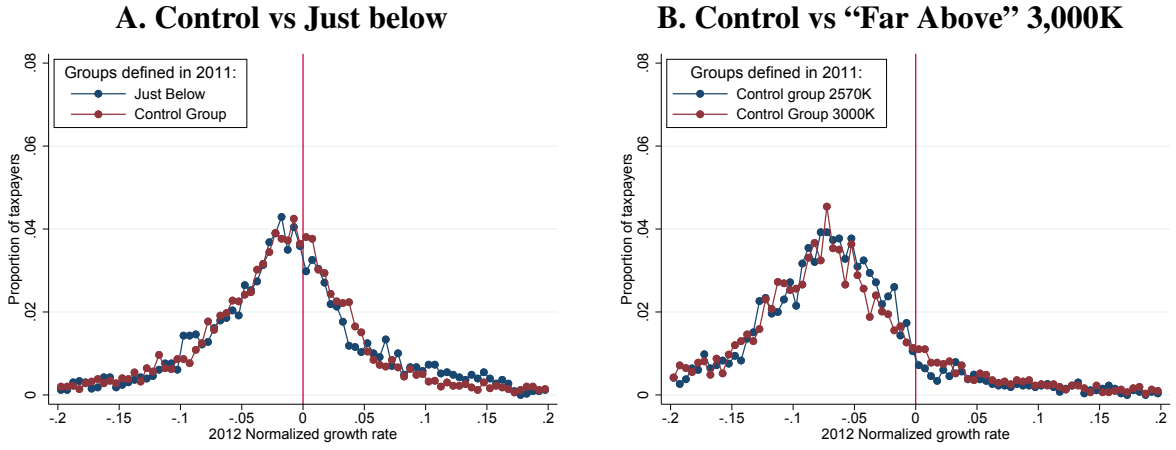
Notes: This figure plots the distribution of normalized wealth growth rates for households with different levels of taxable wealth in 2012. The definition of normalized growth rate is detailed in the text (see Equation (1)).

Figure 7: **Dynamic Bunching Estimator**



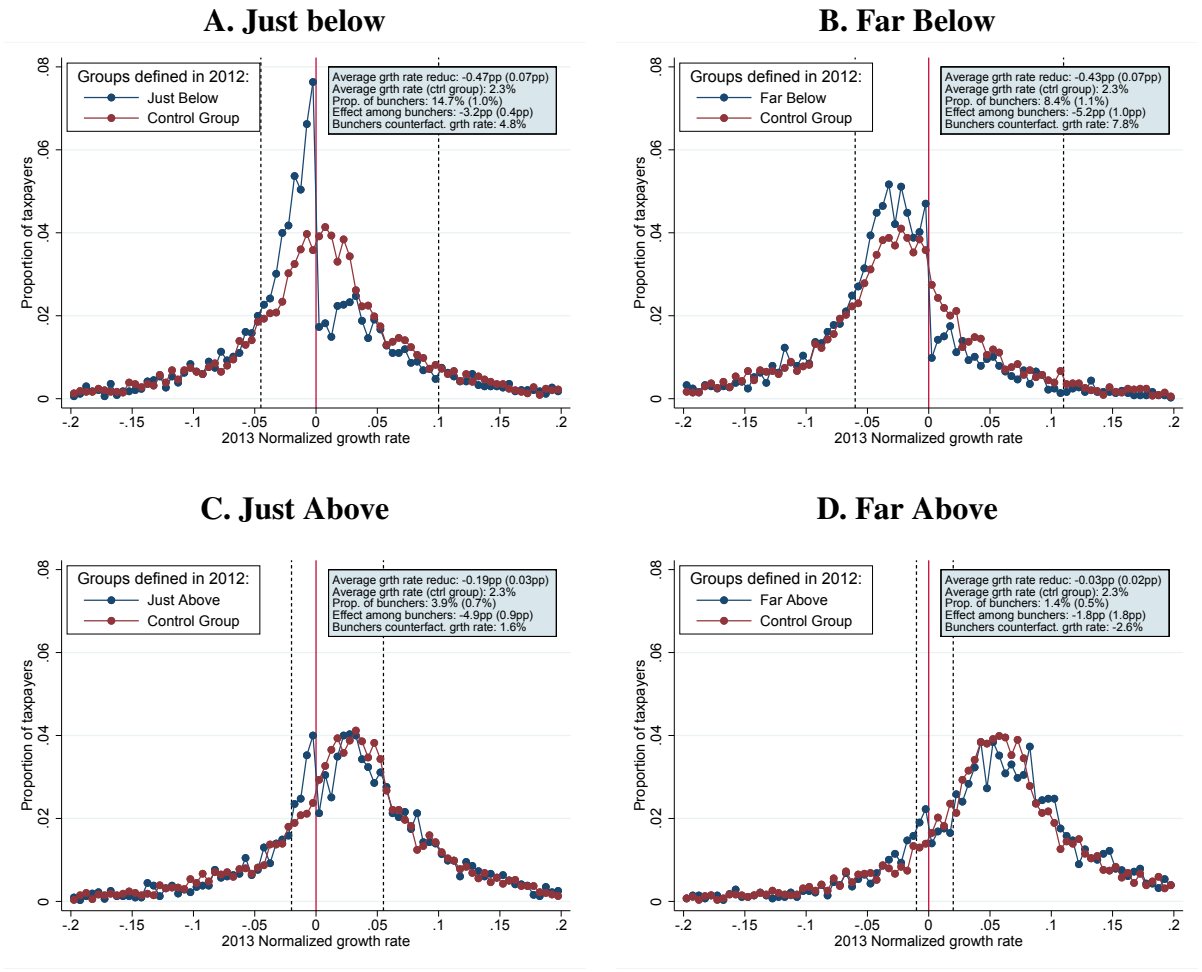
Notes: This figure describes our dynamic bunching methodology and estimator, as explained in Section 4.2.

Figure 8: **Distribution of normalized growth rates across groups before the simplified regime**



Notes: This figure investigates whether the distribution of normalized growth rates in the control group (taxpayers located in [2710K,2850K[in 2012) is comparable to the distribution of normalized growth rates for taxpayers "Just Below". We define our control and treated group by level of wealth in 2011, and plot their 2012 normalized growth rates as explained in Sections 4.2.1. Panel B investigates whether the control group has been affected by the introduction and the repeal of the simplification threshold at 3,000K (see Figure A.1, Panel A for details on the timing of reforms). It compares the distributions of normalized growth rate at 3000K in the control group ([2710K,2850K[) with the group of individuals far above the 3,000K threshold ("Control Group 3,000K" in [3150K,3225K]).

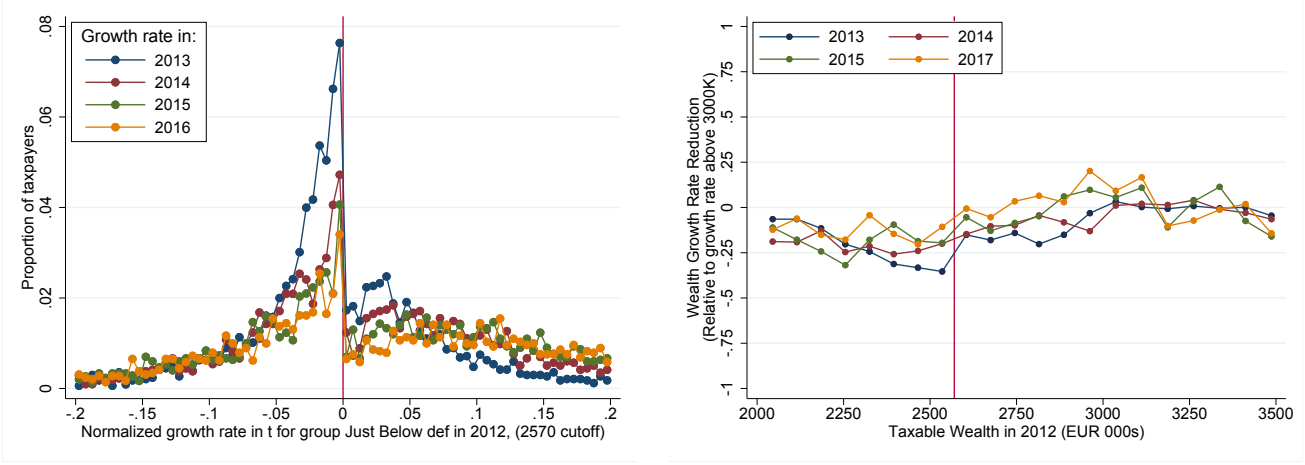
Figure 9: **Behavioral Responses to Simplification Thresholds, Dynamic Bunching**



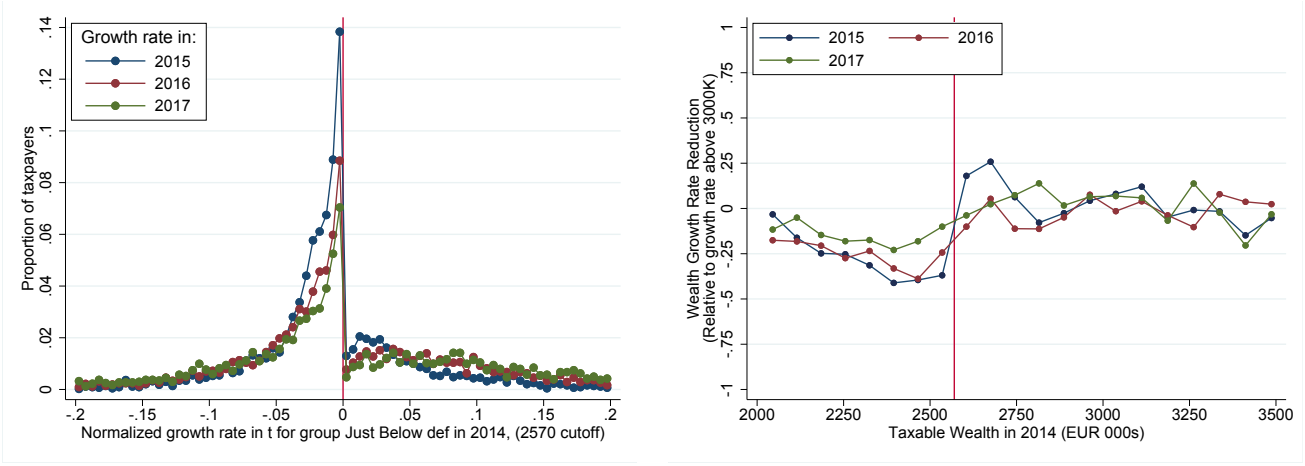
Notes: This figure plots the distributions of 2013 normalized growth rates as defined in Section 4.2 for the control group and for one treated group ("Just below" in Panel A; 'Far below" in Panel B; "Just above" in Panel C; and "Far Above" in Panel D), where groups are defined in 2012. Each panel summarizes our estimates of the impact of the simplification reform on wealth growth rates, using our dynamic bunching analysis described in Section 4.2.3. Each panel reports the average growth rate reduction between the treated and control group (ITT); the average growth rate in the control group; the proportion of the treated group that bunches ("bunchers"); the reduction in growth rates among bunchers (LATE); and the counterfactual growth rate of bunchers in the absence of the simplification threshold.

Figure 10: **Wealth Growth Rates Over Time, By Cohorts**

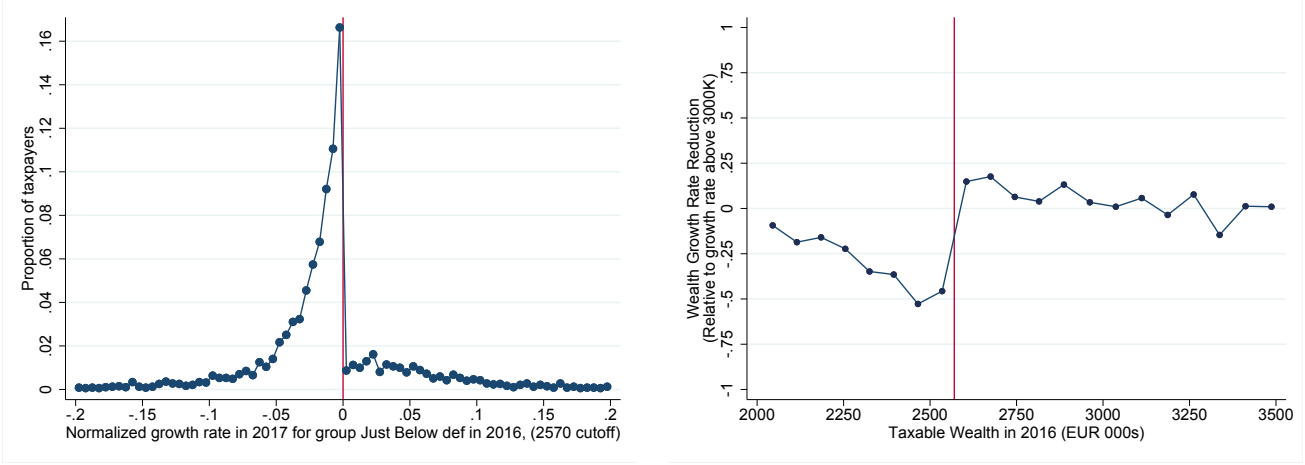
A. Cohort defined in 2012



B. Cohort defined in 2014



C. Cohort defined in 2016

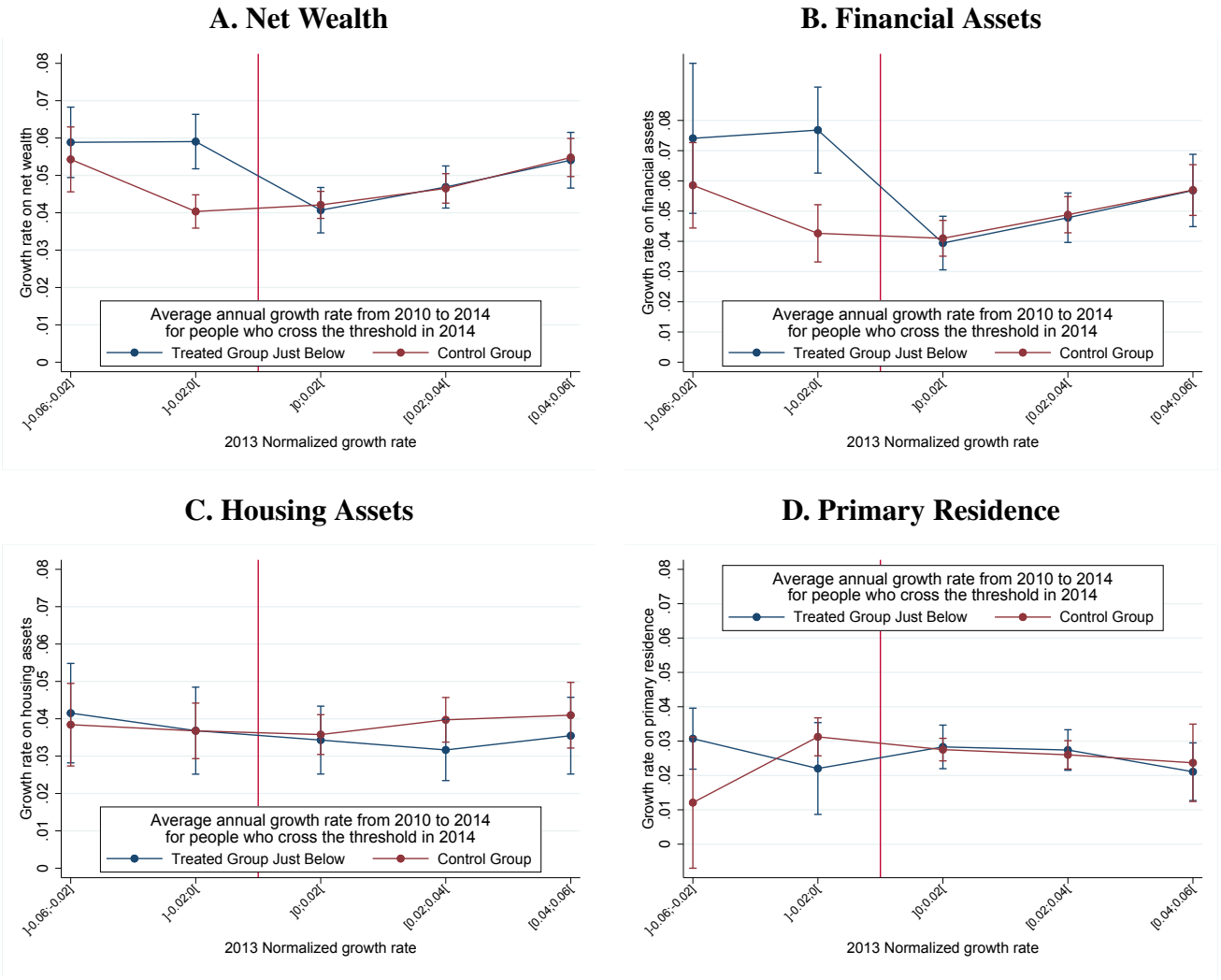


Notes: This figure plots normalized growth rates and wealth growth rate reductions in different years for groups ("cohorts") defined in 2012 (Panel A); 2014 (Panel B); and 2016 (Panel C). In each panel, the left figure shows the distribution of normalized growth rates for individuals in the Just Below group (right below the 2,570K threshold). The right figure shows the reduction in growth rates (relative to the average growth rate of taxpayers between 3,000K and 3,500K) by bin of taxable wealth.

Figure 11: **Evolution of Reported Income, Income Composition, and Income Taxes**

Notes: This figure shows differences in taxable income (Panel A), income composition (Panels B, C, and D) over time for the treated group just below ([2500-2570[) and the control group([2710-2780[) with a normalized growth rate between -2% and 0% in 2013.

Figure 12: **Average Annual Growth Rate After Crossing the Simplification Threshold**



Notes: This figure shows the average growth rates in components of taxable wealth from 2010 to 2014, for treated and control individuals defined in 2012, who cross the simplification threshold in 2014. Normalized growth rates are defined between 2012 and 2013. For the control group, the normalized growth rate is defined relative to the placebo threshold.

Table 1: **Characteristics of Bunchers**

	Baseline					Placebo 2010-2011	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treated Group	0.20***	0.16***	0.16***	0.16***	0.11**	0.01	0.04
	(0.01)	(0.01)	(0.01)	(0.02)	(0.05)	(0.01)	(0.06)
Share housing*Treated		0.07***	0.07***	0.05**	0.05**		-0.04
		(0.02)	(0.03)	(0.02)	(0.03)		(0.04)
Share liabilities*Treated		0.10	0.10	0.06	0.10		0.11
		(0.06)	(0.07)	(0.06)	(0.07)		(0.11)
2010 income*Treated			-0.00		-0.00**		0.00
			(0.00)		(0.00)		(0.00)
Share real estate income*Treated			-0.01		-0.02		0.02
			(0.02)		(0.02)		(0.03)
Self-employed*Treated			0.01		0.01		-0.01
			(0.01)		(0.01)		(0.02)
Wage earner*Treated			0.00		0.01		-0.01
			(0.01)		(0.01)		(0.02)
Income tax rate*Treated				0.15**	0.20**		-0.08
				(0.08)	(0.08)		(0.11)
Share tax credits*Treated				-0.05***	-0.05***		0.00
				(0.02)	(0.02)		(0.02)
Age*Treated					0.00		-0.00
					(0.00)		(0.00)
Constant	0.31***	0.29***	0.32***	0.33***	0.31***	0.25***	0.31***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.03)	(0.00)	(0.04)
Observations	41591	41591	41591	41591	41591	14184	14184
Adjusted R^2	0.041	0.052	0.059	0.055	0.061	0.000	0.014

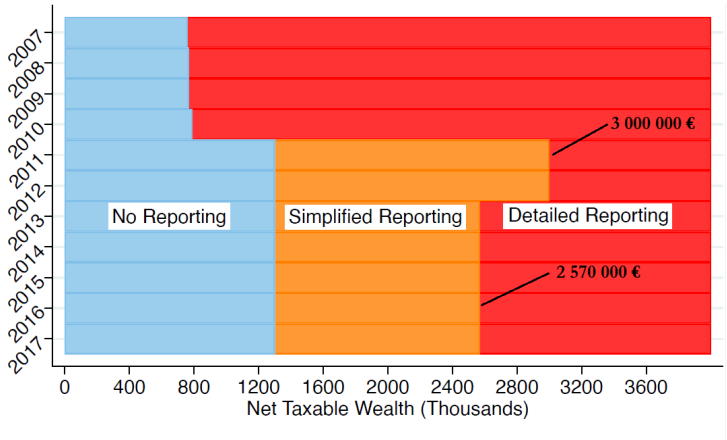
Notes: This table summarizes our estimates of the effects of pre-reform characteristics on bunching behavior. The outcome variable is a dummy equal to one if taxpayers in the treated or control group in t are observed in the bunching area in $t+1$. Standard errors are clustered at the taxpayers level. We measure taxable income in thousand euros. The income tax rate is the income tax rate measured before tax credits. The share of tax credits is the proportion of tax credit relative to the amount of income tax before any tax credits. More details are provided in the text.

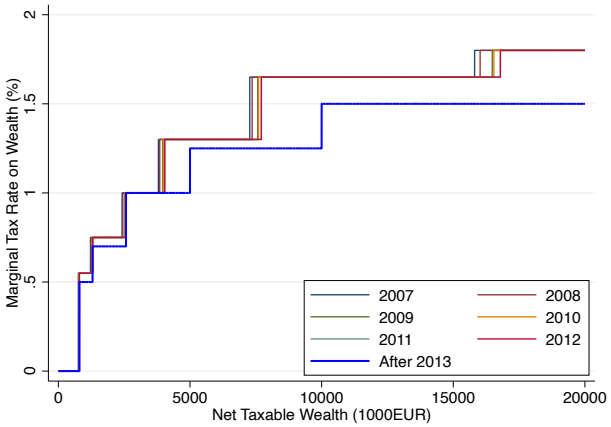
Appendix (for Online Publication)

A Additional Figures and Tables

Figure A.1: **Wealth Tax Schedule and Reporting Requirements in France, 2007-2017**

(a) **Reporting Requirements** (b) **Wealth Tax Schedule**

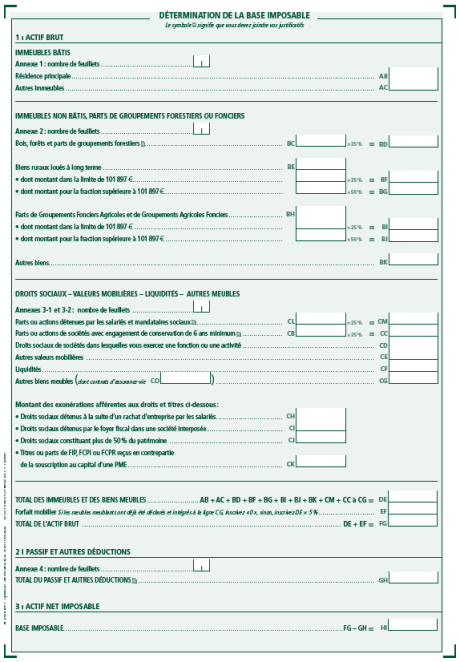




Notes: Panel A summarizes the reporting requirements for wealth taxpayers by level of reported net taxable wealth over the period 2007-2017. Panel B shows the wealth tax schedule between 2007 and 2017.

Figure A.2: **Reporting requirements: Simplified versus Detailed reporting**

Detailed reporting **Simplified reporting**


DÉTERMINATION DE LA BASE IMPOSABLE

1 : ACTIF BRUT

IMMEUBLES BÂTIS

Annexe 1 : nombre de feuillets

Résidence principale AB

Autres immeubles AC

IMMEUBLES NON BÂTIS, PARTS DE GROUPEMENTS FORESTIERS OU FONCIERS

Annexe 2 : nombre de feuillets

Bois, forêts et parts de groupements forestiers BC × 25 % = BD

Biens ruraux loués à long terme BE

• dont montant dans la limite de 101 897 € × 25 % = BF

• dont montant pour la fraction supérieure à 101 897 € × 50 % = BG

Parts de Groupements Fonciers Agricoles et de Groupements Agricoles Fonciers BH

• dont montant dans la limite de 101 897 € × 25 % = BI

• dont montant pour la fraction supérieure à 101 897 € × 50 % = BJ

Autres biens BK

DROITS SOCIAUX – VALEURS MOBILIÈRES – LIQUIDITÉS – AUTRES MEUBLES

Annexes 3-1 et 3-2 : nombre de feuillets

Parts ou actions détenues par les salariés et mandataires sociaux CL × 25 % = CM

Parts ou actions de sociétés avec engagement de conservation de 6 ans minimum CR × 25 % = CC

Droits sociaux de sociétés dans lesquelles vous exercez une fonction ou une activité CD

Autres valeurs mobilières CE

Liquidités CF

Autres biens meubles (dont contrats d'assurance-vie CO) CG

Montant des exonérations afférentes aux droits et titres ci-dessous :

• Droits sociaux détenus à la suite d'un rachat d'entreprise par les salariés CH

• Droits sociaux détenus par le foyer fiscal dans une société interposée CI

• Droits sociaux constituant plus de 50 % du patrimoine CJ

• Titres ou parts de FIP, FCPI ou FCPR reçus en contrepartie de la souscription au capital d'une PME CK

TOTAL DES IMMEUBLES ET DES BIENS MEUBLES AB + AC + BD + BF + BG + BI + BJ + BK + CM + CC à CG = DE

Forfait mobilier Si les meubles meublants ont déjà été déclarés et intégrés à la ligne CG, inscrivez « 0 », sinon, inscrivez DE × 5 % EF

TOTAL DE L'ACTIF BRUT DE + EF = FG

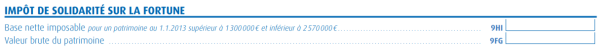
2 | PASSIF ET AUTRES DÉDUCTIONS

Annexe 4 : nombre de feuillets

TOTAL DU PASSIF ET AUTRES DÉDUCTIONS GH

3 : ACTIF NET IMPOSABLE

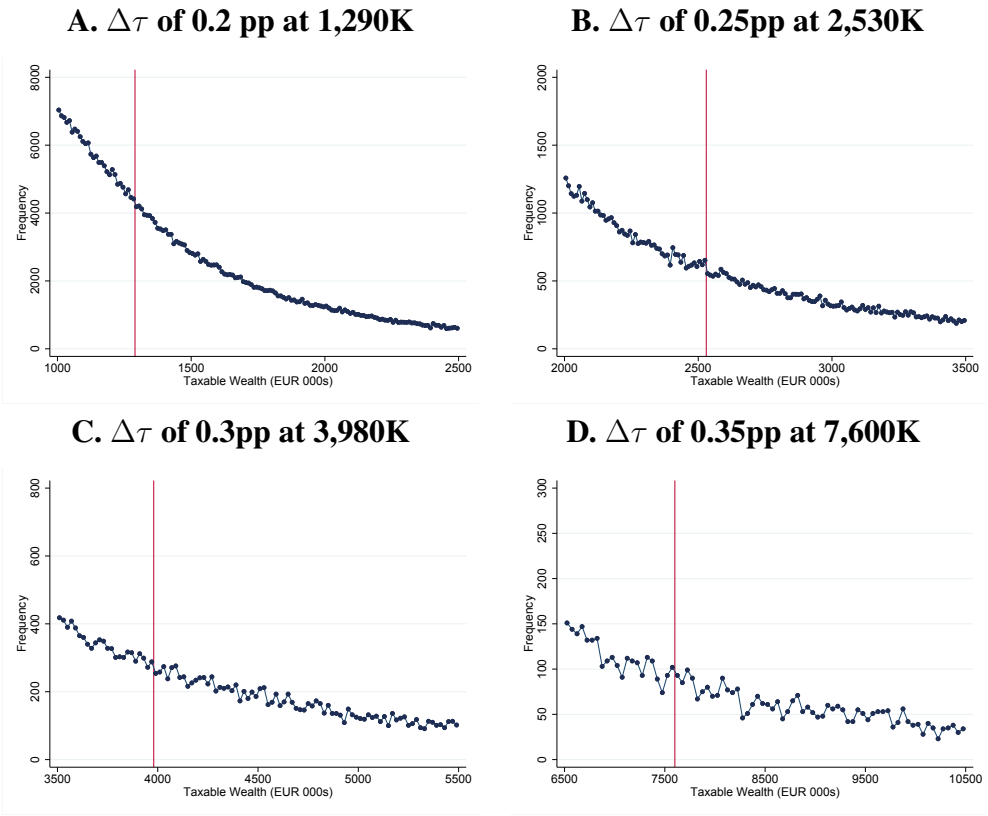
BASE IMPOSABLE FG – GH = HI


IMPÔT DE SOLIDARITÉ SUR LA FORTUNE

Base nette imposable *pour un patrimoine au 1.1.2013 supérieur à 1 300 000 € et inférieur à 2 570 000 €* 9HI

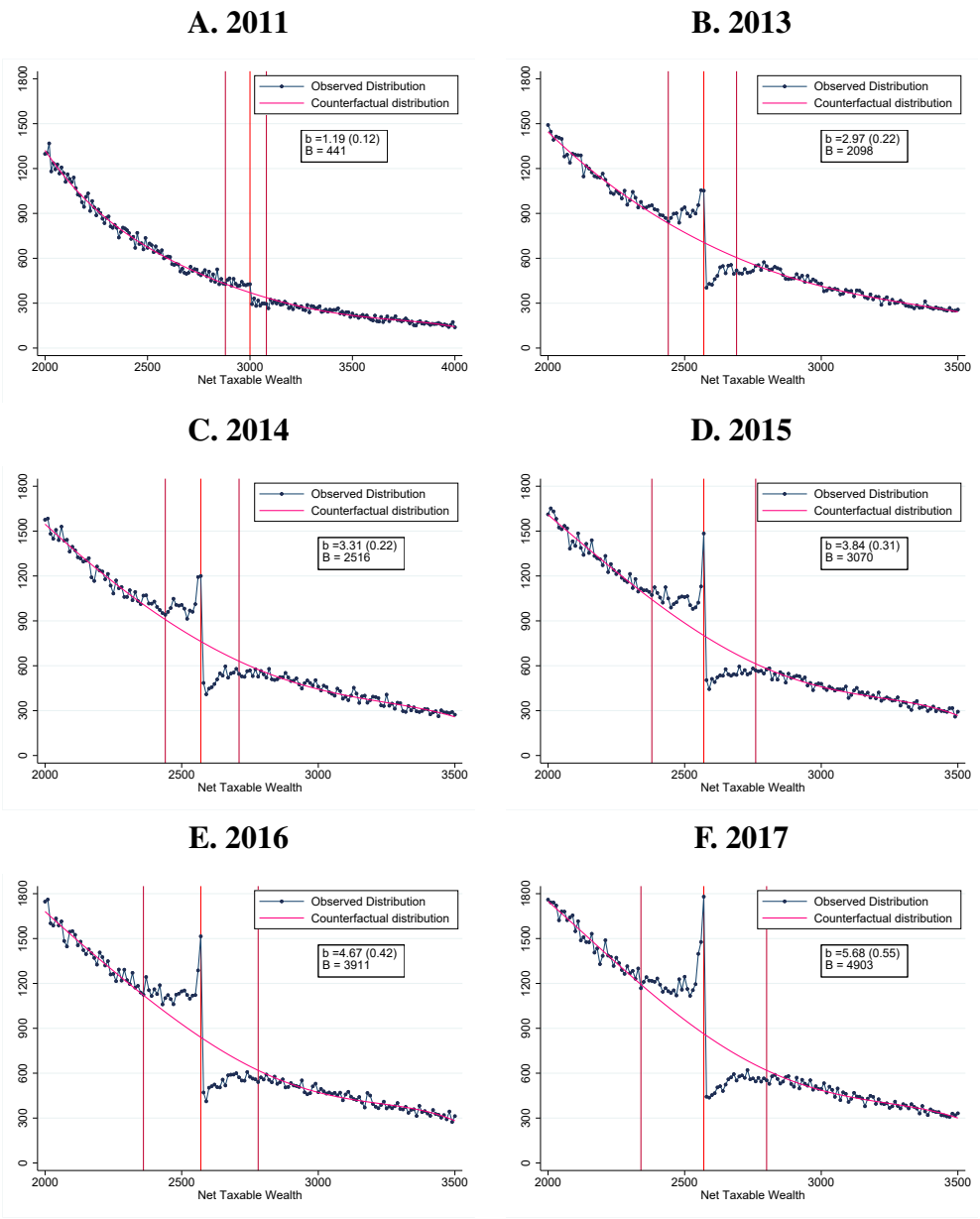
Valeur brute du patrimoine 9FG

Figure A.3: **Absence of Bunching at Kinks in the Tax Schedule (Marginal Tax Rate Changes)**



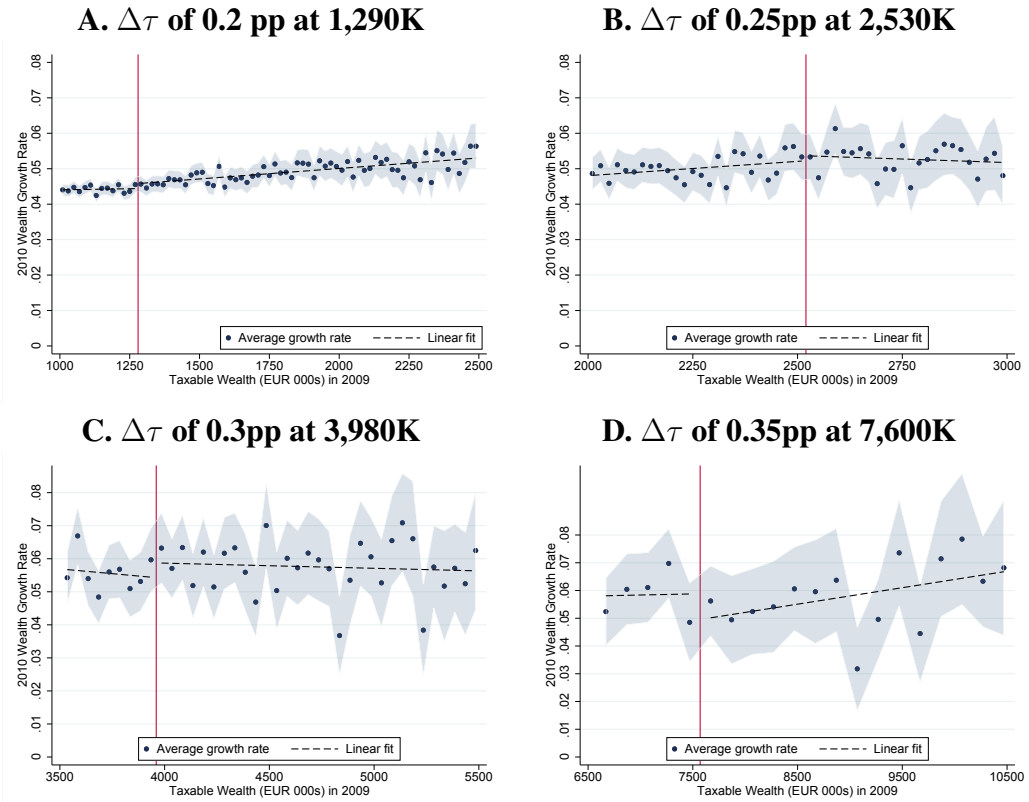
Notes: This figure shows the distribution of taxpayers by net taxable wealth around the second (Panel A), third (Panel B), fourth (Panel C) and fifth (Panel D) wealth tax bracket threshold in year 2010. For the full tax schedule, see Figure A.1 (Panel B). In each figure, we group households into bins of €10,000 of net taxable wealth for Panel A and B, €20,000 in Panel C and €50,000 in Panel D, and plot the bins counts around each kinks.

Figure A.4: **Excess Mass Estimates using Static Bunching**



Notes: This figure shows the distribution of taxable wealth in bins of €10,000 of taxable wealth around the third bracket threshold of the French wealth tax, for year 2010, and each year between 2013 and 2017. In 2010, the threshold was 2,530K and was associated with a kink in the wealth tax schedule. From 2013 to 2017, the threshold was 2,570K and was associated with a kink in the wealth tax schedule and a change in reporting requirements (notch). We plot the observed distribution in blue and an estimate of the counterfactual distribution absent the kink in pink. The counterfactual is obtained by fitting a 5th-order polynomial to the observed distribution, excluding a segment that we determine following the standard bunching methodology. The bunching estimate b equals excess mass at the kink (B), scaled by the height of the counterfactual distribution at the kink.

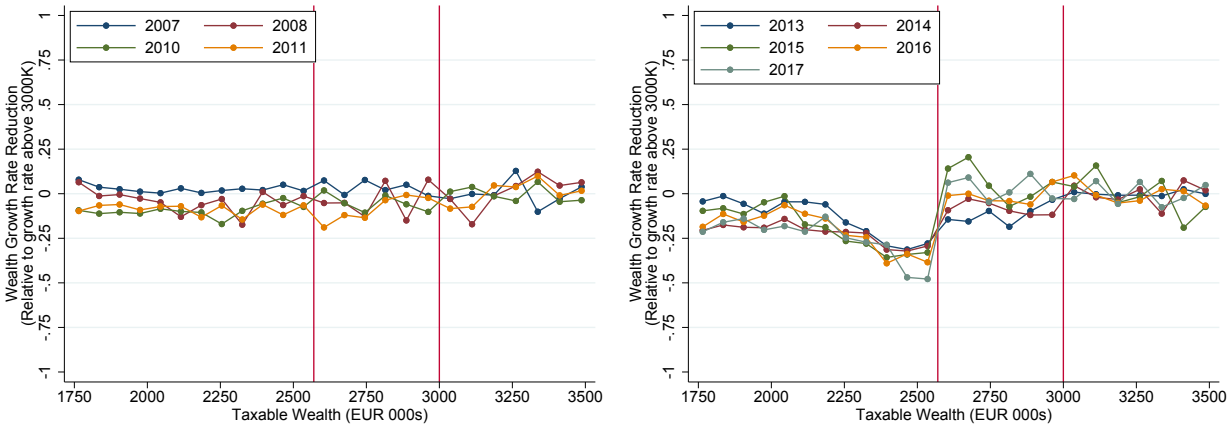
Figure A.5: **Behavioral Responses to Marginal Tax Rates, Wealth Growth Rates**



Notes: Notes: This figure shows the pooled distribution of yearly wealth growth rates by individuals' wealth bin over the period. We plot the average wealth growth rate by taxable wealth bin around the marginal tax rate thresholds depicted by the vertical line in each figure. We fit a linear model below and above the cut-off that is depicted by the fitted dashed black line. In each figure, we group households into bins of €10,000 of taxable wealthfor Panel A and B, €20,000 in Panel C and €50,000 in Panel D. The shaded area depicts 95% confidence intervals.

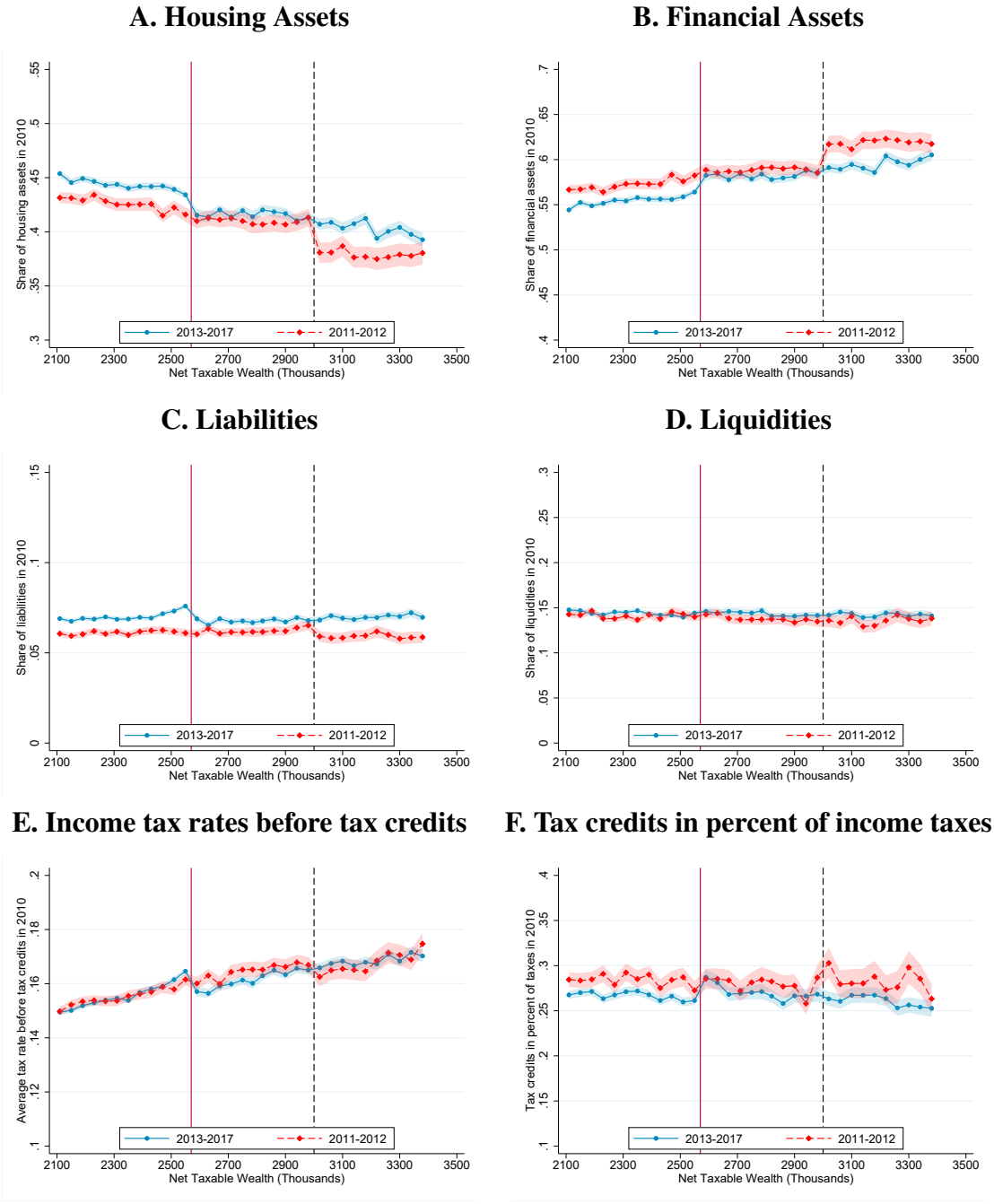
Figure A.6: **Cross-Section of Wealth Growth Rates**

(a) Before Introduction of Simplified Return (b) Simplification threshold is 2,570K in 2013-2017



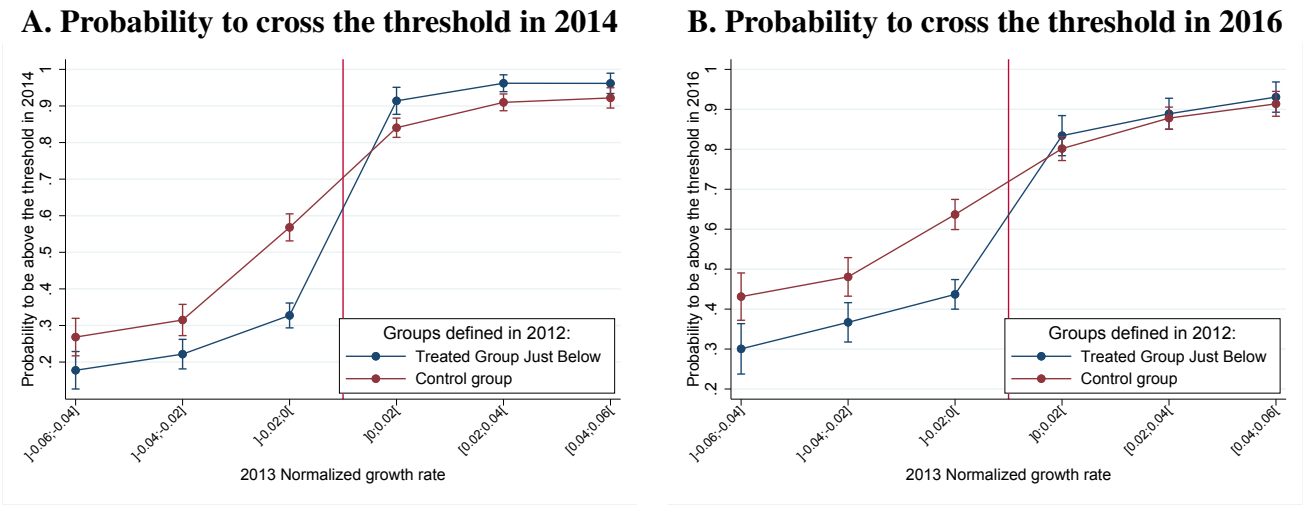
Notes: This figure shows wealth growth rate reduction by 70K bins of taxable wealth each year. For each bin, we compute the wealth growth rates reduction relative to the average growth rate of taxpayers between 3,000K and 3,500K in the same year. The two vertical red lines denote the simplification thresholds in place during the period 2011-2017.

Figure A.7: **Pre-Reform Differences in Portfolio and Income Taxes**



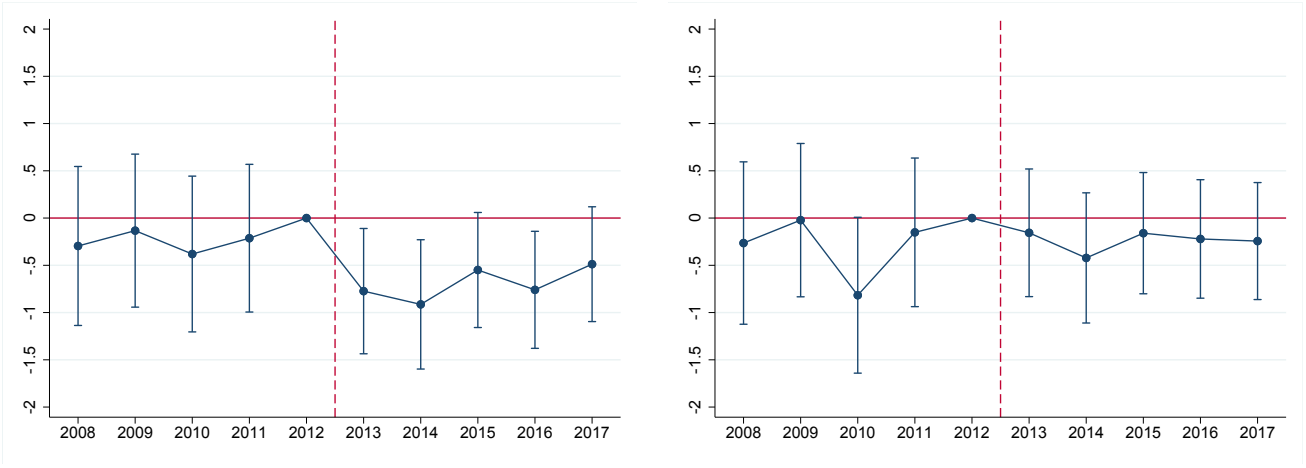
Notes: This figure shows differences in housing assets (Panel A), financial assets (Panel B), liabilities (Panel C), liquidities (Panel D), income tax rates before tax credits (Panel E), and tax credits in percent of income taxes (Panel F) for our treated and control groups, defined in 2012, by bin of 2013 normalized growth rate.

Figure A.8: **Probability to cross the simplification threshold for bunchers**



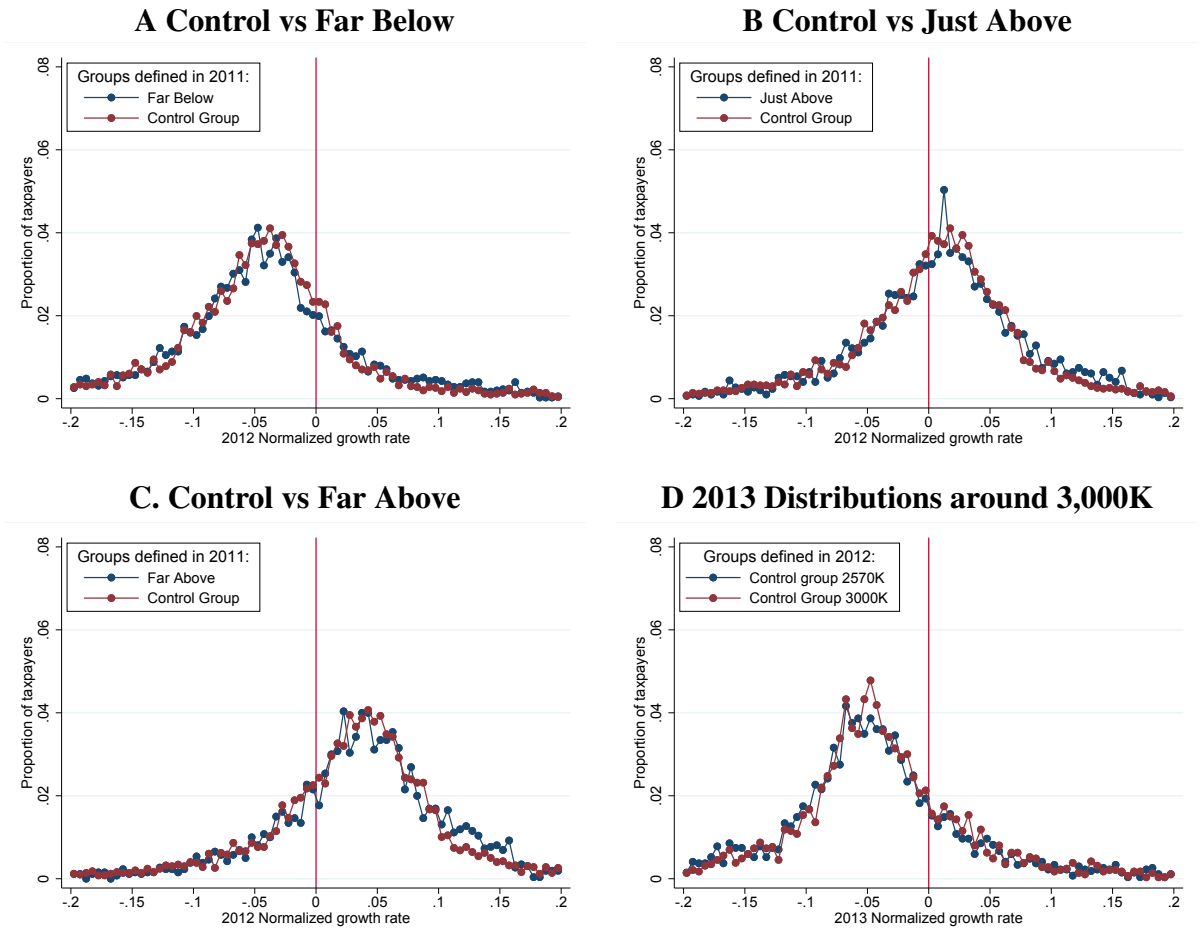
Notes: This figure shows the share of taxpayers who cross the simplification threshold in 2014 (Panel A) and 2016 (Panel B) for our treatment and control group, by normalized growth rates defined between 2012 and 2013. For the control group, the normalized growth rate is defined relative to the placebo threshold.

Figure A.9: **Behavioral Responses to Simplification Thresholds, Difference-in-Differences**



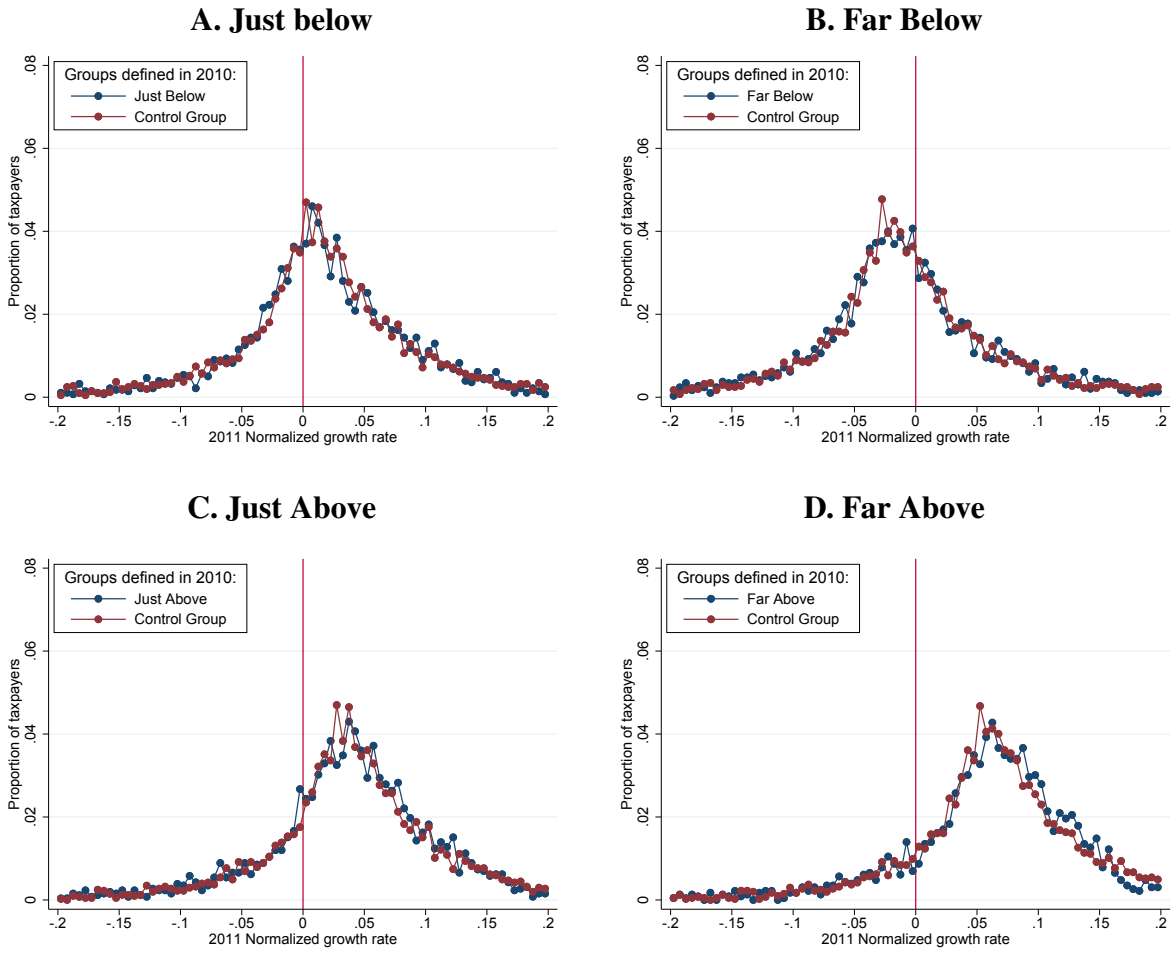
Notes: This figure plots the path of estimated β_{kj} and their 95 percent confidence interval band from the difference-in-differences model summarized by Equation 8. The dependent variable is the yearly wealth growth rate for each taxpayer (in percentage points). Standard errors are clustered at the taxpayer level. The pre-reform coefficient β_{2012j} is normalized to zero such that estimates can be interpreted relative to pre-reform year. The control group includes taxpayers with wealth in the [2710K,2850K[bracket in 2012. Panel A shows the effects of the simplification reform for individuals with wealth in the [2500K,2570K[bracket in 2012 (the "Just below" group). Panel B shows the effects of the simplification reform for individuals with wealth in the [2570K,2640K[bracket in 2012 (the "Just above" group).

Figure A.10: **Validation of the identification assumption: Additional tests**



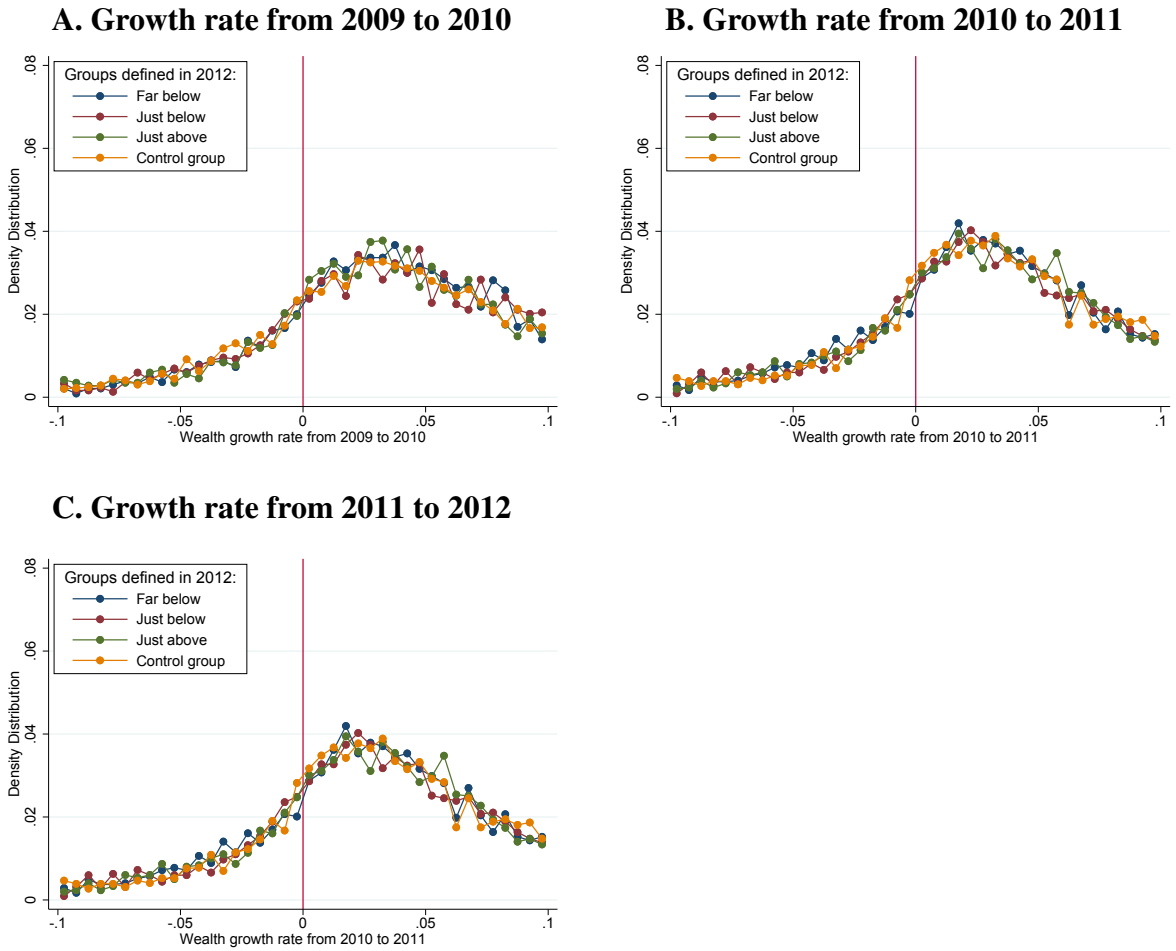
Notes: This figure investigates whether the distribution of normalized growth rates in the control group (taxpayers located in [2710K,2850K[in 2012) is comparable to the distribution of normalized growth rates for other taxpayers ("Far below", "Just above", and "Far above"). In Panel A, B, and C, we define our control and treated groups by level of wealth in 2011, and plot their 2012 normalized growth rates as explained in Sections 4.2.1. Panel D investigates whether the control group (defined in 2012) has been affected by the repeal of the simplification threshold at 3,000K in 2013. It compares the distributions of 2013 normalized growth rate at 3000K in the control group ([2710K,2850K[) with the group of individuals far above the 3,000K threshold ("Control Group 3,000K" in [3150K,3225K]).

Figure A.11: **Validation of the identification assumption: Distribution of 2011 normalized growth rates across groups defined in 2010):**



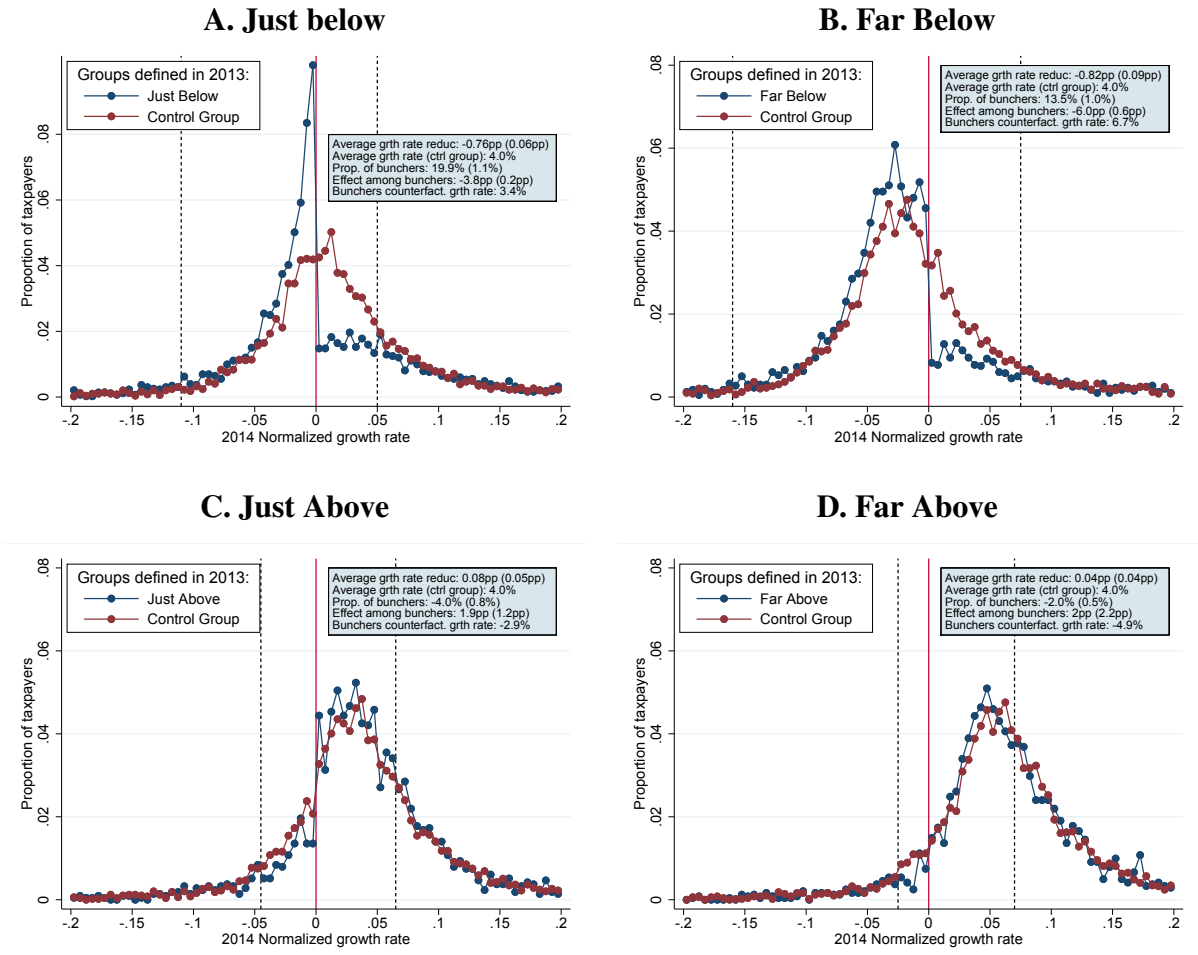
Notes: This figure investigates whether the distribution of normalized growth rates in the control group (taxpayers located in the interval [2710K,2850K[in 2010) is comparable to the distribution of normalized growth rates for other taxpayers ("Far below", "Just below", "Just above", and "Far above"). We define our control and treated group by level of wealth in 2010, and plot their 2011 normalized growth rates as explained in Sections 4.2.1 and 4.2.2.

Figure A.12: **Validation of the identification assumption: Pre-reform Growth Rates for Groups Defined in 2012**



Notes: This figure shows the distribution of wealth growth rates before the 2013 reform, for our treatment and control groups (defined in 2012).

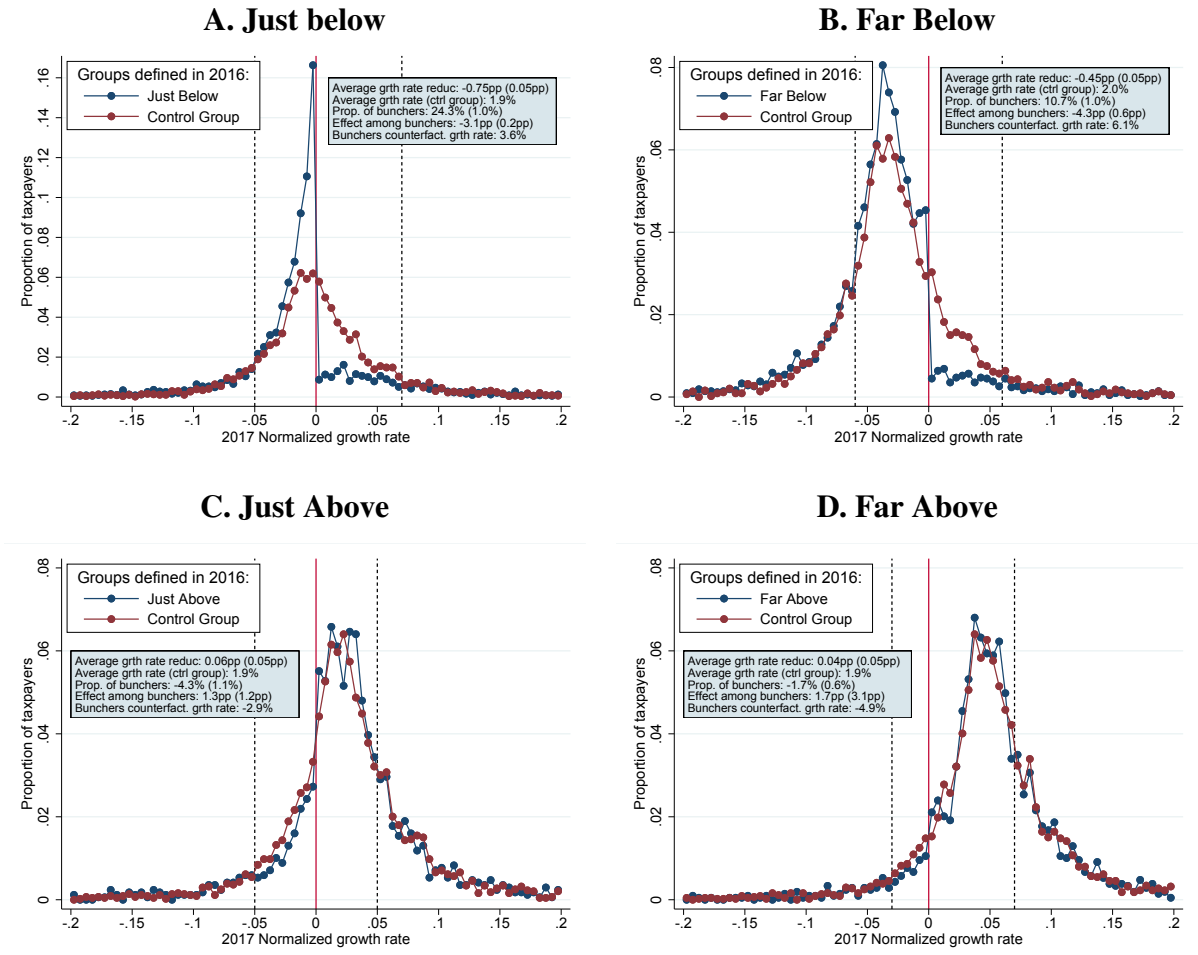
Figure A.13: **Dynamic Bunching for the 2013 Cohort**



Notes: This figure plots the distributions of normalized growth rates as defined in Section 4.2 for the control group and for one treated group ("Just below" in Panel A; 'Far below" in Panel B; "Just above" in Panel C; and "Far Above" in Panel D), where groups are defined in 2013. Each panel summarizes our estimates of the impact of the simplification reform on wealth growth rates, using our dynamic bunching analysis described in Section 4.2.3. Each panel reports the average growth rate reduction between the treated and control group (ITT); the average growth rate in the control group; the proportion of the treated group that bunches ("bunchers"); the reduction in growth rates among bunchers (LATE); and the counterfactual growth rate of bunchers in the absence of the simplification threshold.

As compared to Figure 9, groups ("cohorts") are defined based on their level of taxable wealth in 2013 instead of 2012.

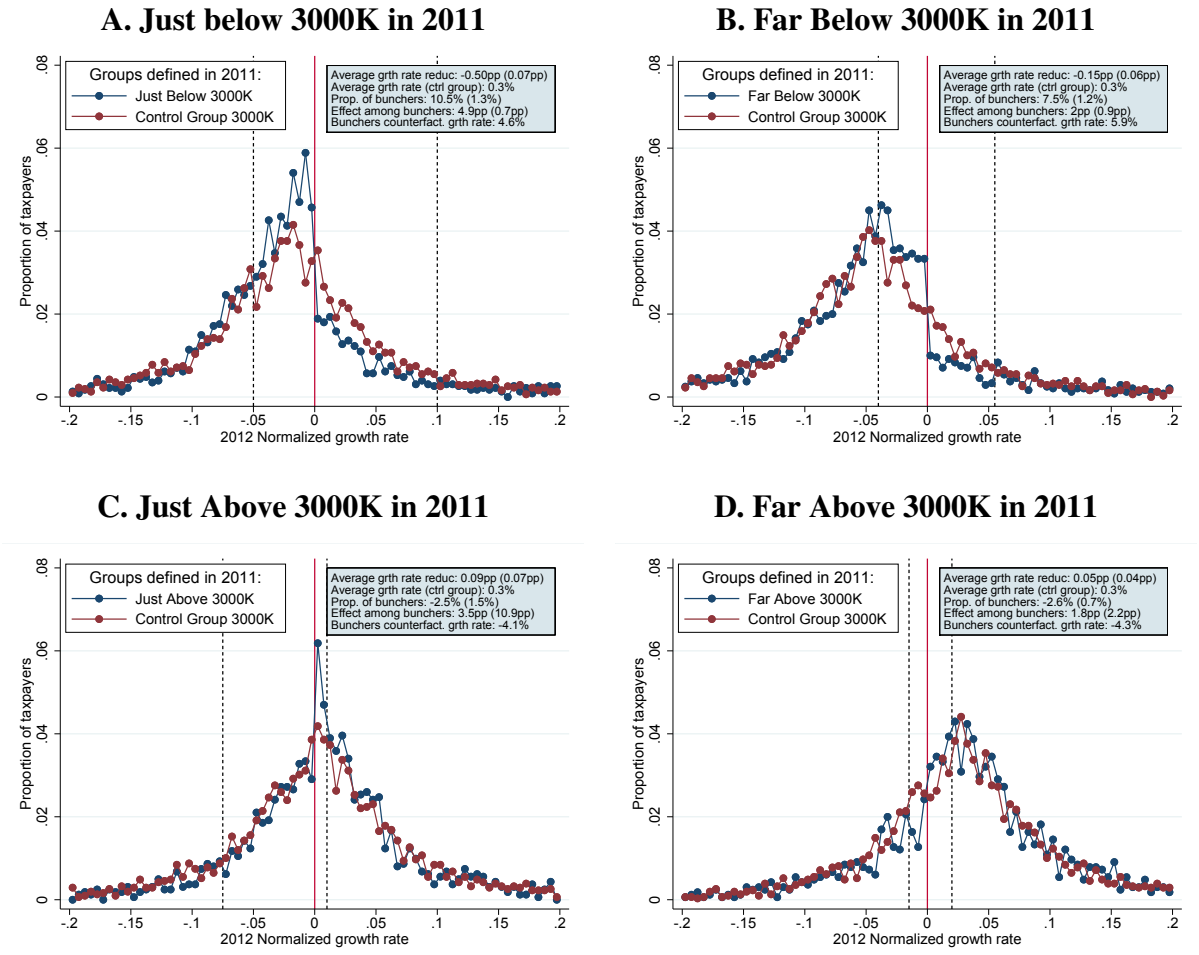
Figure A.14: **Dynamic Bunching for the 2016 Cohort**



Notes: This figure plots the distributions of normalized growth rates as defined in Section 4.2 for the control group and for one treated group ("Just below" in Panel A; 'Far below" in Panel B; "Just above" in Panel C; and "Far Above" in Panel D), where groups are defined in 2016. Each panel summarizes our estimates of the impact of the simplification reform on wealth growth rates, using our dynamic bunching analysis described in Section 4.2.3. Each panel reports the average growth rate reduction between the treated and control group (ITT); the average growth rate in the control group; the proportion of the treated group that bunches ("bunchers"); the reduction in growth rates among bunchers (LATE); and the counterfactual growth rate of bunchers in the absence of the simplification threshold.

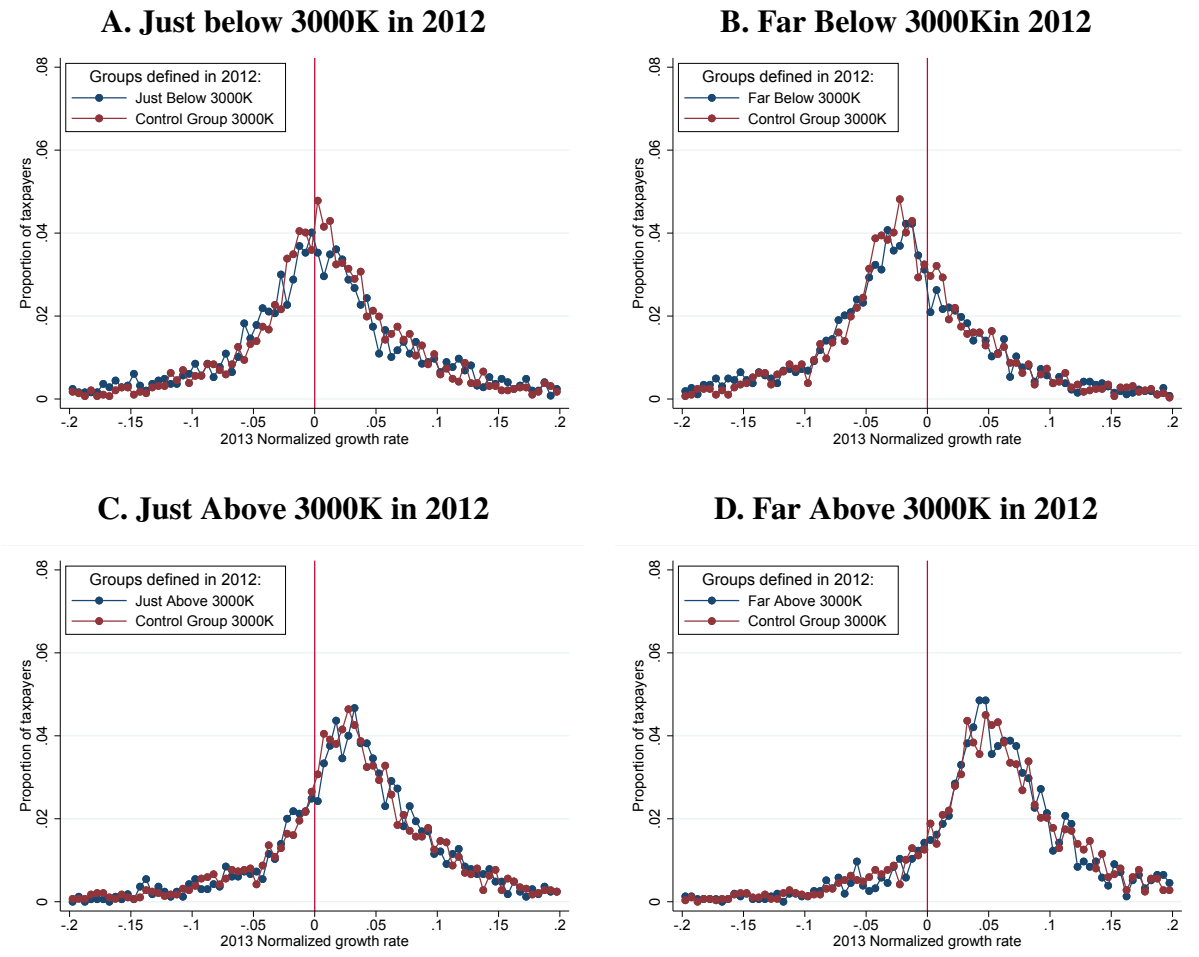
As compared to Figure 9, groups ("cohorts") are defined based on their level of taxable wealth in 2016 instead of 2012.

Figure A.15: **Distribution of 2012 normalized growth rates of treated and control group around the 3,000K simplification threshold**



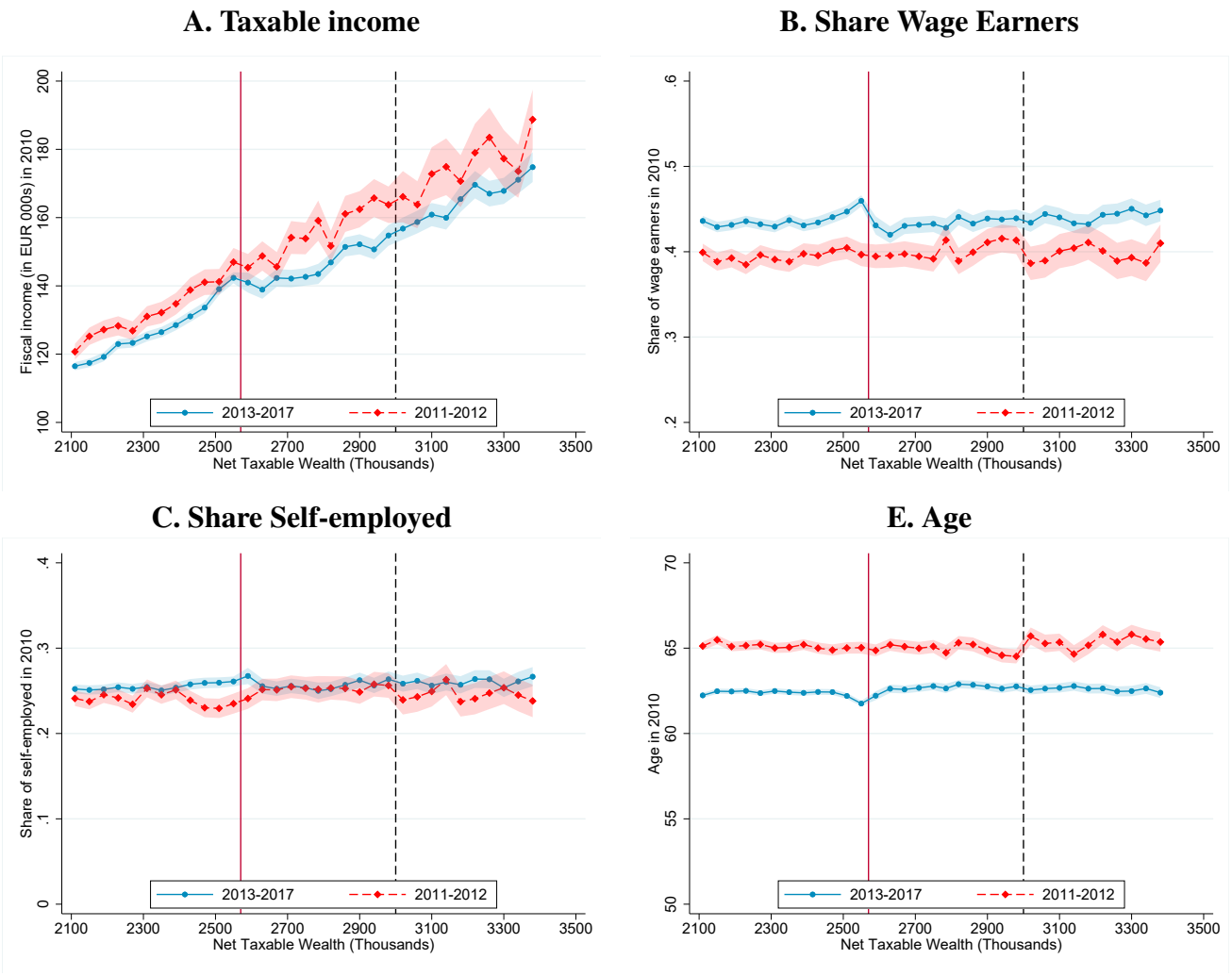
Notes: This figure applies the dynamic bunching analysis to the simplification threshold at 3,000K threshold in 2012. This figure plots the distributions of 2012 normalized growth rates ($f(\tilde{g}_{i,3000})$) as defined in Section 4.2 for the control group and for one treated group ("Just below 3000K" in Panel A; 'Far below 3000K" in Panel B; "Just above 3000K" in Panel C; and "Far Above 3000K" in Panel D), where groups are defined based on their level of taxable wealth in 2011. The groups "Far Below 3000K", "Just Below 3000K", "Just above 3000K", and "Far Above 3000K" correspond to individuals with wealth in the range [2850K,2925K[, [2925K,3000K[, [3000K,3075K[, [3075K,3150K[, respectively. The control group corresponds to individuals with wealth in the range [3150K,3225K[.

Figure A.16: **Distribution of 2013 normalized growth rates of treated and control group around the 3,000K simplification threshold**



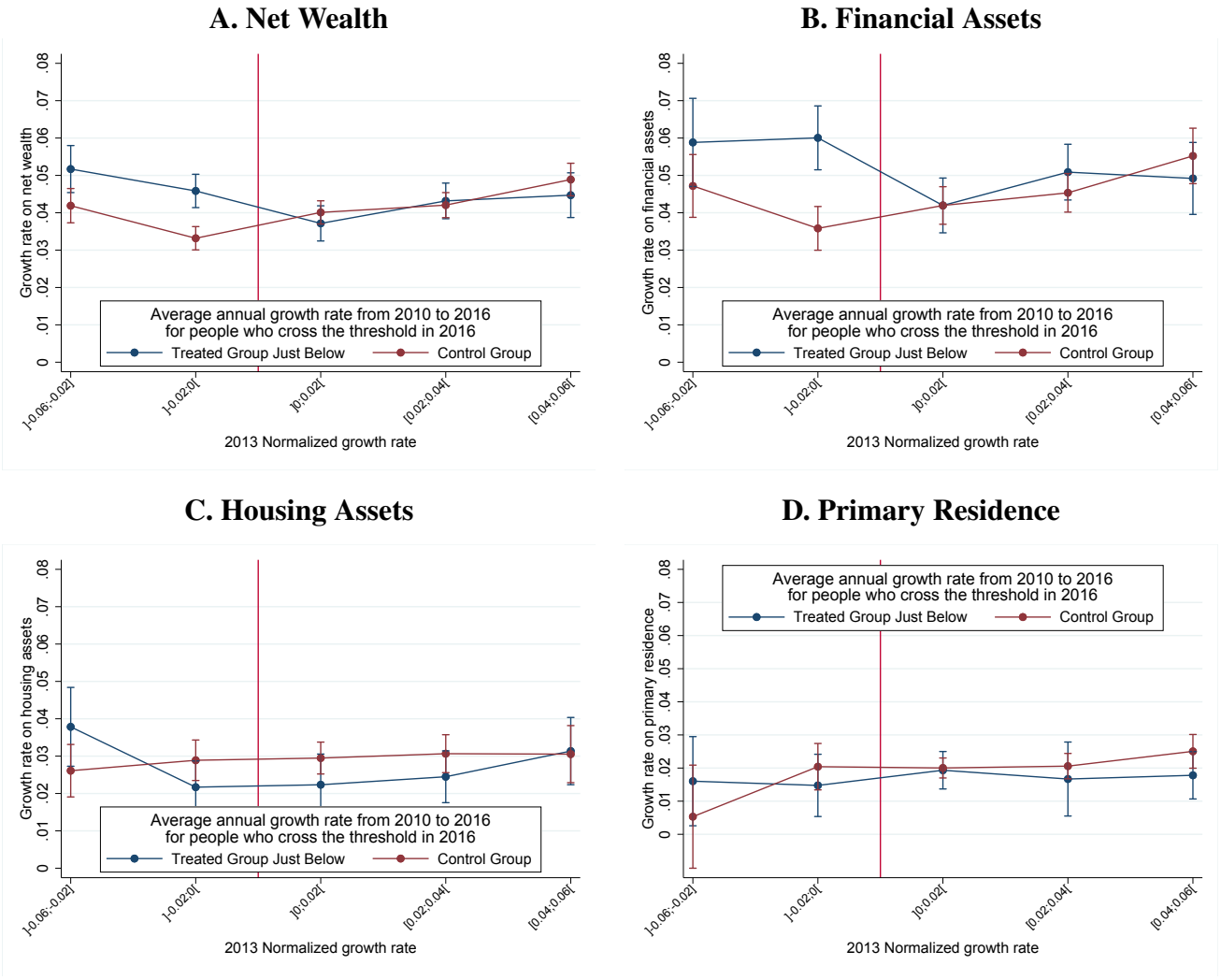
Notes: This figure applies the dynamic bunching analysis to the simplification threshold at 3,000K threshold in 2013. This figure plots the distributions of 2013 normalized growth rates ($f(\tilde{g}_{i,3000})$) as defined in Section 4.2 for the control group and for one treated group ("Just below 3000K" in Panel A; 'Far below 3000K" in Panel B; "Just above 3000K" in Panel C; and "Far Above 3000K" in Panel D), where groups are defined based on their level of taxable wealth in 2012. The groups "Far Below 3000K", "Just Below 3000K", "Just above 3000K", and "Far Above 3000K" correspond to individuals with wealth in the range [2850K,2925K[, [2925K,3000K[, [3000K,3075K[, [3075K,3150K[, respectively. The control group corresponds to individuals with wealth in the range [3150K,3225K[.

Figure A.17: **Pre-Reform Differences in Income and Demographics**



Notes: This figure shows differences in taxable income (Panel A), share of wage earners (Panel B), share of self-employed (Panel C) and Age (Panel D) for our treated and control groups, defined in 2012, by bin of 2013 normalized growth rate.

Figure A.18: **Average Annual Growth Rate After Crossing the Simplification Threshold, 2016**



Notes: This figure shows the average annual growth rates in components of taxable wealth from 2010 to 2016, for treated and control individuals defined in 2012, who cross the simplification threshold in 2016. Normalized growth rates are defined between 2012 and 2013. For the control group, the normalized growth rate is defined relative to the placebo threshold.

Table B.1: **Reporting Requirements for Wealth Taxpayers in France**

	Regular Form	Simplified Form
Tax exemptions		
Taxpayer has exempted professionnal assets	Y	N
Name, activity and tax ID of the company of main activity	Y	N
Names, activities and tax IDs of held companies	Y	N
Profession in held companies	Y	N
Share of capital owned in held companies	Y	N
Capital share representing more than 50% of taxable wealth	Y	N
Capital share after takeover by employees	Y	N
Holding shares after SMEs capital buyout	Y	N
Taxable assets decomposition		
Real estate, main residence (address + characteristics+value)	Y	N
Real estate, other buildings (address + characteristics+value)	Y	N
Forests	Y	N
Rural lands	Y	N
Agricultural lands	Y	N
Shares owned with 6 years holding clause	Y	N
Shares owned by employees	Y	N
Other financial assets	Y	N
Liquid assets	Y	N
Tax deductions		
75% deduction for forests (+ proofs)	Y	N
75% deduction for 6 years holding clause (+ proofs)	Y	N
75% deduction for shares owned by employees (+ proofs)	Y	N
Liabilities (+ proofs)	Y	N
Tax credits		
Direct investment in SMEs*	Y	Y
Investment in SMEs through holdings (FIP/FCPI)*	Y	Y
Charitable giving*	Y	Y
Tax ceiling		
Income taxes paid	Y	N
Amount of capped wealth tax	Y	Y
Gross and Net Taxable Wealth		
Net Taxable Wealth	Y	Y
Gross Taxable Wealth	Y	Y

Notes: *components for which taxpayers filling the regular form must attach proofs, while taxpayers filling the simplified form do not have to attach proofs.

Table B.2: **Descriptive Statistics, sample selection**

	All		Tax payers with wealth between 2,360 and 2,850K€ in 2012			
			without restrictions		with restrictions	
	2010	2012	2010	2012	2010	2012
Demographics						
Age	66	67	65	66	65	67
% Married	69	68	72	70	74	73
% Non residents	4	5	4	5	0	0
% Retirees	67	67	63	67	64	69
% Wage Earners	38	39	42	39	41	37
% Self-Employed	23	24	26	25	26	24
% Landlords	67	72	75	75	75	76
Incomes & income tax						
Taxable income	89,668	119,937	123,800	128,344	124,302	127,201
Gross income	114,447	184,104	161,437	180,884	160,928	168,699
Pension benefits (%)	23	17	18	18	18	20
Wages (%)	28	23	28	25	27	25
Self-employment income (%)	13	11	14	13	15	14
Rental income (%)	17	15	19	17	19	19
Financial income (%)	18	22	20	20	19	20
Other (incl. Capital gains) (%)	1	11	1	6	1	2
Income Tax	17,099	29,086	26,941	30,416	26,973	28,976
Income tax rate (% gross income)	15	16	17	17	17	17
Wealth & wealth tax						
Taxable wealth ('000)	1,747	2,656	2,371	2,585	2,380	2,584
Housing assets (%)	46		46		45	
incl. Primary Residence (%)	17		15		15	
Financial assets (%)	62		62		63	
Liabilities (%)	8		8		8	
Wealth tax	6,094	16,919	7,944	12,537	7,925	12,533
Wealth tax rate (%)	0.3	0.6	0.3	0.5	0.3	0.5
Wealth tax (total, billion)	3,6	4.9	0.21	0.36	0.17	0.28
Tax units	590,031	289,119	26,677	28,872	21,243	22,331

Table B.3: **Behavioral Responses to Simplification Threshold, Difference-in-Differences**

	Dependent Variable: Wealth Growth Rate in percent				
	(1)	(2)	(3)	(4)	(5)
	Wealth groups defined in 2012				
	Just Below [2500K,2570K[	Far Below [2430K,2500K[	Very Far Below [2360K,2430K[	Just Above [2570K,2640K[	Far Above [2640K,2710K[
Pre-Period (2008-2009)	-0.23 (0.35)	-0.01 (0.33)	0.23 (0.33)	-0.13 (0.35)	0.45 (0.37)
Pre-Period (2010-2011)	-0.30 (0.34)	-0.32 (0.33)	-0.03 (0.32)	-0.48 (0.35)	0.50 (0.37)
Post-Period (2013)	-0.77** (0.34)	-0.38 (0.32)	-0.30 (0.31)	-0.16 (0.34)	0.14 (0.36)
Post-Period (2014-2015)	-0.74** (0.30)	-0.43 (0.29)	-0.16 (0.28)	-0.30 (0.31)	-0.16 (0.32)
Post-Period (2016-2017)	-0.63** (0.29)	-0.19 (0.27)	-0.25 (0.27)	-0.23 (0.30)	-0.02 (0.31)
Constant			3.56*** (0.07)		
Observations			241,259		
Individuals			27,021		

Notes: This table summarizes estimates from Equation 8. The dependent variable is the yearly wealth growth rate. Standard errors are clustered at the taxpayer level. The pre-reform coefficient β_{2012j} is normalized to zero such that estimates can be interpreted relative to the pre-reform year 2012. The control group includes taxpayers with wealth in the [2710-2850] bracket in 2012.

Table B.4: **Behavioral Responses to Simplification Threshold, Dynamic Bunching vs. DiD**

	Dependent Variable: Wealth Growth Rate in percent				
	(1)	(2)	(3)	(4)	(5)
	Wealth groups defined in 2012				
	Just Below [2500K,2570K[	Far Below [2430K,2500K[	Very Far Below [2360K,2430K[	Just Above [2570K,2640K[	Far Above [2640K,2710K[
	Diff-in-diff				
Average effect (ITT)	-0.77 (0.34)	-0.38 (0.32)	-0.30 (0.31)	-0.16 (0.34)	0.14 (0.36)
	Dynamic bunching				
Average effect (ITT)	-0.47 (0.07)	-0.44 (0.08)	-0.37 (0.08)	-0.18 (0.03)	-0.03 (0.03)
Share of bunchers	14.7 (1.1)	8.5 (1.0)	6.6 (1.1)	3.9 (0.7)	1.4 (0.5)
Effect among bunchers (LATE)	-3.2 (0.4)	-5.3 (1.0)	-5.8 (1.6)	-4.8 (0.9)	-1.7 (3.5)

Notes: This table summarizes our estimates using dynamic bunching or standard difference-in-differences designs for the year 2013. More details are provided in the text.

Table B.5: **Quantification of Missing Taxpayers and Tax Revenues at Simplification Threshold**

	Threshold	Missing Taxpayers	% Taxpayers	Missing wealth	% Evaded wealth	Tax Loss (M€)	% Evaded Taxes	% Tax Revenues
2011	3000	412	14.6	39.09	3.1	0.48	8.3	1.2
2013	2570	1,891	24.2	182.27	3.7	0.68	3.8	0.9
2014	2570	2,299	27.4	230.44	3.8	1.45	6.5	1.8
2015	2570	2,508	28.5	317.23	4.8	1.64	7.0	2.0
2016	2570	2,900	31.6	400.70	5.3	2.51	9.3	2.9
2017	2570	3,332	35.3	474.58	5.4	2.92	9.5	3.3

Notes: This table summarizes our estimates of missing taxpayers and missing tax revenues from bunching at the simplification threshold. The counterfactual distribution of wealth taxpayers is estimated fitting a 5th order polynomial to the observed distribution, excluding data in a range around the notch and extrapolating the fitted distribution to the notch. We compute the different statistics by comparing the actual and the counterfactual distributions in the range [3000:3080K) for 2011, and [2570:2690K] from 2013 to 2017. The variable "% Taxpayers" corresponds to missing taxpayers expressed as a share of the counterfactual number of taxpayers. This variable can be read as follows: in 2017, 35.3% of taxpayers with taxable wealth between 2570K and 2690K are missing from the French wealth tax declarations due to the simplification threshold. The variable "Tax Loss" represents the amount of tax revenues missing due to underreporting. Thus, missing tax revenues from bunching at the simplification threshold amount to €2.92 million in 2017. The variable "% Evaded Taxes" represents the share of taxes evaded by the bunchers at the simplification threshold, calculated as the total amount of taxes evaded expressed as a percentage of the taxes they would have paid absent the simplification threshold. It can be read as follows: in 2017, bunchers evaded 9.5% of the wealth tax they should have paid. Similarly, the variable "% Tax Revenues" denotes the tax loss expressed as a percentage of the total counterfactual tax revenues. It can be read as follows: in 2017, missing tax revenues from bunching at the simplification threshold accounted for 3.3% of the counterfactual tax revenues.

Table B.6: **Quantification of Missing Taxpayers and Tax Revenues at Simplification Threshold using Pareto Counterfactual Distributions**

	Threshold	Missing Taxpayers	% Taxpayers	Missing wealth (M€)	% Evaded wealth	Tax Loss (M€)	% Evaded Taxes	% Tax Revenues
2011	3000	470	7.3	49.72	3.4	0.49	7.5	0.5
2013	2570	1,322	10.3	87.01	2.5	0.38	3.0	0.3
2014	2570	1,866	13.4	147.12	3.0	1.08	5.9	0.8
2015	2570	2,286	15.5	215.26	3.6	1.19	5.5	0.8
2016	2570	3,163	20.2	352.31	4.2	2.74	9.1	1.8
2017	2570	3,824	23.6	422.73	4.2	3.37	9.3	2.2

Notes: This table summarizes our estimates of missing taxpayers and missing tax revenues from bunching at the simplification threshold using Pareto counterfactual distributions. The counterfactual distribution of wealth taxpayers is estimated using the average of Parameto parameters in the bracket [3500K:4000K].

Table B.7: **Quantification of Missing Taxpayers and Tax Revenues at Exemption Threshold using Pareto Counterfactual Distributions**

	Threshold	Missing Taxpayers	% Taxpayers	Missing wealth (M€)	Tax Loss (M€)	% Tax Revenues
2006	750	171,999	43.5	147,374	95.2	26.3
2007	760	224,195	47.3	195,793	131.7	30.8
2008	770	171,823	39.3	150,241	86.8	23.9
2009	790	125,490	31.6	111,480	58.6	18.8
2010	790	181,652	40.1	162,886	92.1	26.0
2011	1310	6,517	10.1	8,869	18.2	9.4
2013	1300	15,698	20.5	21,461	33.9	18.1
2014	1300	21,197	25.9	29,016	45.8	23.2
2015	1300	26,233	30.3	35,976	57.0	27.6
2016	1300	34,124	36.9	46,907	74.5	34.3
2017	1300	39,500	41.4	54,357	86.5	38.8

Notes: This table summarizes our estimates of missing taxpayers and missing tax revenues from bunching at the exemption threshold using Pareto counterfactual distributions. The counterfactual distribution of wealth taxpayers is estimated using the average of Parameto parameters in the bracket [3500K:4000K]. We compute the different statistics by comparing the actual and the counterfactual distributions in the range [threshold:1210K) from 2006 to 2010, and [threshold:1490K) from 2011 to 2017.

B A Model of Taxpayer Behavior

This Section presents a simple model of taxpayer behavior that can help rationalize our findings (summarized in Section 5.4). The lower growth rates below the simplification threshold and the absence of bunching at tax kinks in the detailed regime are consistent with lower evasion costs for taxpayers filing the simplified form. Bunching at the exemption threshold (which is a combination of a reporting notch and a tax kink) suggests a fixed cost from entering the wealth reporting area, such as hassle costs or administrative reporting costs. Denote this fixed cost of filing a wealth tax return by γ_i.

Taxpayer i has wealth w_{it} in year y and reports wealth $\hat{w}_{it}$. We assume away real wealth responses for expositional ease; adding them would provide another channel for responses. The sequence of expected wealth is given exogenously to the taxpayer. For the sake of notation, we omit expectation operators but it can be assumed that all future payoffs are in expected value.

The cost of misreporting has two components, which differ depending on whether the taxpayer is in the simplified or the detailed reporting regime. First, there is a cost to misreporting wealth. This cost is increasing and convex in the amount misreported. Denote by $v_i^k(w_{it} - \hat{w}_{it})$ the cost of reporting wealth $\hat{w}_{it}$ when true wealth is w_{it} for taxpayer i in regime k, where $k = S$ for the simplified regime and $k = D$ for the detailed regime. One interpretation of this cost specification is that the cost represents the expected cost from being caught misreporting by the tax authority, which is a function of the probability of being audited, the probability of misreporting being uncovered conditional on an audit, and the penalty for misreporting, all of which are potentially increasing in the gap between true and reported wealth.

In addition, the cost of misreporting has a second component, which depends on the reported wealth *growth*: $h_i^k(\hat{w}_{it} - \hat{w}_{i,t+1})$ is the cost of reporting a growth in wealth $\hat{w}_{i,t+1} - \hat{w}_{i,t}$. This cost is decreasing and convex in $\hat{w}_{it} - \hat{w}_{i,t+1}$, i.e., the lower reported growth the higher the misreporting cost. A key difference between an income flow (such as self-employed income) and a stock (such as wealth) is that low wealth growth rates—especially negative growth rates—can raise a flag for the tax authority. For instance, it is likely that a taxpayer who reports the same wealth level in subsequent years is misreporting because asset values change due to price changes. Therefore, it may be that $h_i(0) > 0$. Similarly, a decline in reported wealth may raise flags if the economy is overall growing and returns are positive (as was the case over the entire period of study), so the cost may become steeper for negative reported growth values.

A given taxpayer has a value $V_{i,t}$ from being in the simplified regime. As explained in the main text, this could be the value due to lower hassle costs, privacy concerns, or the ease of misreporting. Consider a taxpayer in year t who reports taxable wealth above the exemption threshold. Assuming an infinite horizon, quasilinear utility, a tax rate τ for simplicity, and a discount factor β_i, the utility of this taxpayer is:

$$\sum_{j=t}^{\infty} \beta^{j-t}(w_{i,j} - \tau\hat{w}_{i,j} - \mathbb{I}_{i,j}\left(v_i^S(w_{i,j} - \hat{w}_{i,j}) + h_i^S(\hat{w}_{i,j-1} - \hat{w}_{i,j}) - V_{i,j}\right)$$

$$-(1 - \mathbb{I}_{i,j})\left(v_i^D(w_{i,j} - \hat{w}_{i,j}) + h_i^D(\hat{w}_{i,j-1} - \hat{w}_{i,j})\right))$$

where $\mathbb{I}_{i,j} = 1$ if the taxpayer is below the simplification threshold in year j and 0 otherwise.

For a taxpayer in period t, with reported wealth $\hat{w}_{t-1,i}$ in period $t-1$ and who is still in the

simplified filing regime and plans to remain in it in period $t+1$, the interior first-order condition with respect to $\hat{w}_{it}$ is:

$$-\tau + v_i'^S(w_{i,t} - \hat{w}_{i,t}) + h_i^{S\prime}(\hat{w}_{i,t-1} - \hat{w}_{i,t}) - \beta h_i^{S\prime}(\hat{w}_{i,t} - \hat{w}_{i,t+1}) = 0$$

The taxpayer misreports wealth up to the point where the marginal tax savings τ equal the marginal cost of misreporting, taking into account that misreporting in year t changes the cost of misreporting in year $t+1$ as well. Specifically, reporting lower wealth in year t makes it easier to misreport in year $t+1$, inducing an intertemporal consideration to the misreporting decision that may be be absent (or less directly relevant) for income flows.

In period $t+1$, the first-order condition is:

$$-\tau + v_i^{S\prime}(w_{i,t+1} - \hat{w}_{i,t+1}) + h_i^{S\prime}(\hat{w}_{i,t} - \hat{w}_{i,t+1}) - \beta h_i^{S\prime}(\hat{w}_{i,t+1} - \hat{w}_{i,t+2}) = 0$$

Rearranging and combining these first-order conditions yields:

$$v_i^{S\prime}(w_{i,t} - \hat{w}_{i,t}) + \beta v_i^{S\prime}(w_{i,t+1} - \hat{w}_{i,t+1}) + h_i^{S\prime}(\hat{w}_{i,t-1} - \hat{w}_{i,t}) - \beta^2 h_i^{S\prime}(\hat{w}_{i,t+1} - \hat{w}_{i,t+2}) = \tau(1+\beta)$$

Result 1: taxpayers below the threshold will start adjusting to the anticipation of crossing the threshold in future years.
A myopic taxpayer ($\beta = 0$) will simply solve the static problem with first-order condition:

$$v_i^{S\prime}(w_{i,t} - \hat{w}_{i,t}) + h_i^{S\prime}(\hat{w}_{i,t-1} - \hat{w}_{i,t}) = \tau$$

A non-myopic taxpayer, however, will anticipate how their future ease of misreporting is affected by their current misreporting and engaged in "misreporting smoothing" over time. All else equal, a taxpayer who anticipates having to misreport to cross the threshold in a future year will start misreporting already in previous years, to minimize their misreporting costs.

To see this, suppose that taxpayer i expects their wealth to be above the threshold in year $t+1$. In year $t+1$, the taxpayer misreport their wealth to remain below the threshold and report $\hat{w}_{i,t+1} = 2,570K$. They will also do so in $t+2$ in order to keep staying below the threshold. Knowing this, their decision in year t of how much wealth to report is governed by the FOC:

$$v_i^{S\prime}(w_{i,t} - \hat{w}_{i,t}) + \beta v_i^{S\prime}(w_{i,t+1} - 2,570K) + h_i^{S\prime}(\hat{w}_{i,t-1} - \hat{w}_{i,t}) - \beta^2 h_i^{S\prime}(0) = \tau(1+\beta)$$

Therefore, we expect to see taxpayers significantly below the threshold also misreport, and not just taxpayers immediately below it. This is consistent with the systematically lower reported wealth growth rates below the threshold (relative to above) which we observe in the data.

Result 2: Bunching can persist for several years and taxpayers can be pushed above the threshold by a sufficiently large wealth shock.

Let $M_i^k(w_{it})$ denote the continuation value of a taxpayer with wealth w_{it} in regime $k \in D, S$.

Taxpayer i will bunch at the threshold if and only if:

$$\begin{aligned} & w_{it} - \tau w_S - v_i^S(w_{it} - w_S) - h_i^S(\hat{w}_{i,t-1} - w_S) + V_{i,t} + \beta M_i^S(w_{it}) \\ & \geq w_{it} - \tau \hat{w}_{i,t}^* - v_i^D(w_{it} - \hat{w}_{i,t}^*) - h_i^D(\hat{w}_{i,t-1} - \hat{w}_{i,t}^*) + \beta M_i^D(w_{it}) \end{aligned} \tag{10}$$

For a myopic taxpayer, the bunching condition is the classic static bunching indifference equation or inequality. However, a forward-looking taxpayer anticipates the dependency between future misreporting costs and today's reporting behavior. Note that this bunching indifference condition can hold for several years, as different realizations of wealth occur, and as long as the value from remaining in the simplified regime $V_{i,t}$ is high enough.

We can also see that a high realization of w_{it} will push a taxpayer above the threshold as it will increase the cost of misreporting $v_i^S(w_{i,t} - w_S)$ such that it becomes too costly to remain at the threshold.

Result 3: Taxpayers above the threshold will bunch less, since it requires them to decrease reported wealth which is particularly costly. If the cost h_i^S of reporting negative wealth growth is sufficiently large and steep, taxpayers above the threshold will face a higher cost, all else equal, of locating at the threshold. To see this, consider taxpayers with wealth above and below the threshold, respectively, with the same cost functions and same value V. From the bunching condition (Equation 10), we can see that for a taxpayer with wealth above the threshold, the left-hand side is smaller, making it less likely that the bunching will be appealing. Furthermore, they may even engage in reverse bunching, whereby they will over-report their true wealth to avoid having to report negative wealth growth.

Result 4: There is no detectable bunching at pure tax kinks in the detailed reporting regime because the costs of misreporting imply low elasticities of misreporting. In the limit, if there is a fixed (and large) cost component of misreporting above the threshold, only taxpayers with sufficient incentives to do so will misreport and the observed tax elasticity of misreporting may be low.

Result 5: We will observe bunching at the exemption threshold because of the fixed cost of reporting wealth.

C Dynamic Bunching and Local Average Treatment Effect

In this Section we formally map our dynamic bunching approach to the causal framework from Angrist et al. (1996) to show how our approach allows us to identify a local average treatment effect (LATE). We present and discuss the identifying assumptions.

Let $Z_i \in \{0, 1\}$ be an indicator for being affected by a policy (*eligibility to the treatment*). The "potentially affected group" is such that $Z_i = 1$ after the reform. Similarly, $Z_i = 0$ for the unaffected (control) group. In our set-up, taxpayers are affected by the reform when they were located in a given range of reported wealth prior to the reform.

Let $D_i \in \{0, 1\}$ be an indicator for taxpayer i reporting a negative normalized growth rate (*selection into treatment*).

For all taxpayer i, observed D_i can be written as

$$D_i = D_i(1)Z_i + D_i(0)(1 - Z_i) \tag{11}$$

where $D_i(z)$ are indicators for i reporting a negative normalized growth rate when $Z_i = z$. As with any potential outcomes framework, for any taxpayer i, only one potential $D_i(z)$ is observed.

Let g_i be taxpayer i's reported normalized growth rate. g_i can be written as:

$$g_i = g_i(0,0)(1 - Z_i)(1 - D_i) + g_i(0,1)(1 - Z_i)D_i + g_i(1,0)Z_i(1 - D_i) + g_i(1,1)Z_iD_i \tag{12}$$

where $g_i(z,d)$ denotes i's potential normalized growth rate when $Z_i = z$ and $D_i = d$. So far we have not made any assumptions.

Let us now assume, for all taxpayer i:

- **Exclusion**: $g_i(z,d) = g_i(z',d)\ \forall z, z', d$, which allows to define $g_i(d) = g_i(z,d)\ \forall z, d$
- **Monotonicity**: $D_i(1) \geq D_i(0)$
- **Independence**: $g_i(0), g_i(1), D_i(0), D_i(1) \perp\!\!\!\perp Z_i$

The **exclusion restriction** says that to the extent the policy affects the normalized growth rate, it is only causing a taxpayer i to report a negative $g_i(1)$ to bunch below the simplification threshold (instead of $g_i(0)$). Therefore Equation 12 simplifies to:

$$g_i = g_i(1)D_i + g_i(0)(1 - D_i) \tag{13}$$

The **monotonicity condition** says that the policy only affects bunching in one direction. No taxpayer is induced to report away above the simplification threshold when affected by the reform (i.e., when $Z_i = 1$).

The **independence assumption** says that Z_i is as-good-as-randomly assigned, in the sense of being unrelated to potential outcomes. Although we cannot test the validity of this assumption after the reform, we provide support for this assumption by showing in Figure 5 (Panel A) and Figure A.12 that the distribution of growth rates is identical across all the different groups before the reform (i.e., $g_i(0) \perp\!\!\!\perp Z_i$).

Identifying the compliers

Under these conditions, we have:

$$\mathbb{E}[D_i|Z_i = 1] - E[D_i|Z_i = 0] = \mathbb{P}[D_i(1) > D_i(0)] \tag{14}$$

This tells us that the proportion of compliers is identified by the change in the probability of taxpayers locating below the simplification threshold.

Local Average Treatment Effect

Using the monotonicity and independence assumptions, the average change in growth rate when the policy goes into effect identifies:

$$\mathbb{E}[g_i|Z_i = 1] - \mathbb{E}[g_i|Z_i = 0] = \mathbb{E}[g_i(1) - g_i(0)|D_i(1) > D_i(0)] \times \mathbb{P}[D_i(1) > D_i(0)] \tag{15}$$

which is Equation 14 multiplied by the "*local average treatment effect*" (LATE) of bunching on simplified reporting, $E[g_i(1) - g_i(0)|D_i(1) > D_i(0)]$. It follows we can divide divide Equation 15 by Equation 14 to identify this LATE in growth rate:

$$\frac{\mathbb{E}[g_i|Z_i = 1] - \mathbb{E}[g_i|Z_i = 0]}{\mathbb{E}[D_i|Z_i = 1] - \mathbb{E}[D_i|Z_i = 0]} = \mathbb{E}[g_i(1) - g_i(0)|D_i(1) > D_i(0)] \tag{16}$$

Estimating the elements of the theoretical framework

For taxpayers affected by the reform, we can directly observe $\mathbb{E}[g_i(1)|Z_i = 1]$. Relying on the validity of our control group, we can estimate $\mathbb{E}[g_i(0)|Z_i = 0]$ as the average reported growth rate among control taxpayers.

We can observe $D_i(1)$, thanks to taxpayers who locate below the simplification threshold after the reform (i.e, with a negative normalized growth rate - NGR). The observation of the NGR allows thus to compute $\mathbb{E}[D_i|Z_i = 1]$ as $\mathbb{P}[g_i < 0|Z_i = 1]$, which corresponds to the share of affected taxpayers with negative NGR.

Finally, we cannot observe the remaining part of the denominator of the LATE (i.e., $\mathbb{E}[D_i|Z_i = 0]$). Therefore we use our control group and define a relevant *placebo* threshold (as explained in subsubsection 4.2.2) for taxpayers in the control group, such that the probability for taxpayers affected by the reform to cross the simplification threshold absent the reform would be identical to that of taxpayers from the control group to cross this placebo threshold.[31] Concretely, we compute this placebo threshold so as it is at the same distance from the control group as the actual simplification threshold is for the affected group.[32] We therefore can estimate $\mathbb{E}[D_i|Z_i = 0]$ (i.e., $\mathbb{P}[g_i < 0|Z_i = 0]$) as the share of taxpayers from the control group whose NGR is negative. More details on the computation of the sample counterparts are presented in subsubsection 4.2.3.

[31] It would be irrelevant to look at taxpayers from the control group who locate below the simplification threshold since by construction of the control group, these taxpayers are much further away above the threshold than the taxpayers affected by the reform. Therefore, absent the reform, the probability of taxpayers in the control group crossing the simplification threshold is not comparable with that of the affected taxpayers.

[32] Once computed the NGR for the affected and control groups, we show in Figure A.10 that before the reform, for each affected group, the distribution of the NGR is the same for both the affected and the control groups. In Figure A.11, we provide the same evidence for the 2011 reform.