

Tax Evasion and Tax Avoidance*

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Abstract

Exploiting rich administrative data and salient policy variation, we study the substitution between illegal tax evasion and legal tax avoidance. By increasing its enforcement effort, the Norwegian government pushed many wealthy individuals to disclose assets previously hidden abroad. We find that the taxes paid by these individuals rise 30% at the time of disclosure and that the rise is sustained over time. After stopping to evade, taxpayers do not start avoiding more. Our results suggest that cracking down on evasion by the wealthy can be an effective way to raise tax revenue, increase tax progressivity, and ultimately reduce inequality.

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1 Introduction

Tax enforcement is a key margin of tax policy throughout the world. In recent years, governments in rich countries have taken ambitious steps to crack down on the tax evasion of the wealthy. On a priori grounds, enhancing tax enforcement at the top of the wealth distribution is desirable for at least three reasons: these taxpayers are liable for a large fraction of total taxes; their share of income and wealth has increased in many countries over the last decades (Alvaredo et al., 2018); and recent evidence suggests that they have particularly high evasion rates (Alstadsæter et al., 2018). It is not clear, however, that fighting illegal tax evasion by the wealthy necessarily increases tax revenue. Because they have many opportunities for legal avoidance, the rich may simply start avoiding more when they are compelled to evade less.

This paper asks a simple question: how substitutable are tax evasion and tax avoidance at the top of the wealth distribution? If they are not very substitutable, cracking down on evasion by the rich may be an attractive way to boost tax collection, increase the effective progressivity of the tax system, and reduce inequality. But if they are very substitutable, the net effect on government revenue may be small—or even negative.

To shed light on this question, we exploit salient policy variation and detailed administrative data from Norway. The Norwegian tax administration operates a tax amnesty program, under which taxpayers who voluntarily disclose assets hidden abroad pay no penalties and suffer no criminal sanctions. The amnesty was very rarely used until the Norwegian government launched a series of policy initiatives to reduce offshore tax evasion in 2008. This effort led around 1,500 taxpayers to disclose previously unreported foreign assets and income over the period 2008-2016. This represents a large sample of wealthy taxpayers who started to evade less at a well-defined point in time; the question we address in this paper is whether they also started to avoid more.

The Norwegian context is attractive to study the interplay between tax avoidance and tax evasion for several reasons. First, it provides exogenous variation in the decision to evade taxes, namely changes in enforcement efforts that increased the risk of detection for tax evaders and pushed many of them to use the amnesty. While identifying substitution between two types of behavior generally raises concerns about endogeneity, these concerns are thus alleviated in our context. Second, because it has a wealth tax, Norway maintains high-quality, population-wide data on wealth that enable us to study evasion and avoidance responses among the very rich—households with dozens of millions of dollars in net wealth or more. These responses are of particular interest to policy-makers, yet they have proven elusive to study so far, due to insufficient sample sizes in the datasets traditionally used to study tax evasion (such as

randomized tax audits). Last, while tax evasion and tax avoidance are notoriously difficult to capture empirically, the rich Norwegian administrative data allow us to construct clean measures of both.

Our dataset covers the entire Norwegian population and combines detailed income and wealth information from tax returns; information on amnesty participation and corrections to previously filed tax returns; corporate ownership information from the shareholder register; residence information from the population register; and information on cross-border bank transfers flowing in and out of personal accounts from the currency register. The ability to match information about bank transfers to other administrative sources is an important data innovation, which allows us to study the transfers made by amnesty participants before, at the time, and after they disclose assets. To our knowledge, it is the first time that wealth data matched to cross-border bank transfer data are analyzed to study tax evasion and avoidance.

We estimate how reported wealth, income, and taxes paid—as well as the use of several well-defined tax avoidance techniques—change around the time taxpayers use the amnesty. Methodologically, we compare the taxpayers who used the amnesty (i.e., who disclosed hidden assets) to taxpayers with similar wealth, income, and age who did not in an event-study framework.

Our first set of results documents that tax evasion decreases considerably when taxpayers disclose foreign assets under the amnesty. At the time of disclosure, we observe a sharp increase in reported net wealth (of around 60%) and income (of around 25%), as well as a corresponding increase in taxes paid (of around 30%). Amnesty participants also make large transfers of money from their foreign bank accounts to their domestic accounts. These transfers make it impossible for them to continue hiding wealth as they used to do, since Norwegian banks automatically report account balances and income directly to the tax authority.

Importantly, amnesty participants report higher net wealth, income, and taxes paid throughout the four-year period we follow them after they participate in the amnesty, with no decline over time. This represents our first evidence that substitution between evasion and avoidance is low.

Our second set of results provides direct evidence that amnesty participants do not increase their use of legal tax avoidance techniques at the time they use the amnesty and thereafter. We consider the key forms of avoidance available to wealthy Norwegians documented in the literature. First, taxpayers can defer personal taxes on capital income by holding assets through separate legal entities (personal holding companies). Second, they can reduce their wealth tax

liability by investing in unlisted shares and real estate, which in Norway are taxed at only a fraction of market value. Third, they can avoid Norwegian taxes by moving their tax residence to a foreign country. Our results indicate that amnesty participation is associated with no—or almost no—change on these key avoidance margins. Moreover, we do not find evidence that amnesty participants start transferring more money abroad after using the amnesty.

Our last analysis investigates the hypothesis that the lack of substitution between tax evasion and tax avoidance is because tax evaders had already exhausted all avoidance opportunities before entering the amnesty. We document that the probability to use various avoidance techniques rises strongly with wealth, but that tax avoidance is far from systematic even at the very top of the wealth distribution. We also show that before using the amnesty, amnesty participants were not more likely to avoid taxes than similarly wealthy non-participants; hence, they had ample scope to increase tax avoidance at the time and after they used the amnesty.

Overall, our results suggest that cracking down on tax evasion by the wealthy can be an effective way to increase tax collection, increase the effective progressivity of the tax system, and hence ultimately reduce inequality. There is a widespread view (e.g., Landier and Plantin, 2017) that tax avoidance makes it hard—if not impossible—to increase taxes on the rich and maintain a progressive tax system. However, our results show that by strengthening their enforcement efforts, the Norwegian authorities were able to increase taxes paid by a sizable fraction of Norway’s wealthiest taxpayers by an impressive 30%—and that this increase was sustained over time. This finding suggests that tax enforcement has a critical role to play for the sustainability of progressive taxation in a globalized world.

Do our findings generalize to other settings? Because wealthy individuals are generally believed to have more tax avoidance opportunities than others and because, within the population of wealthy tax evaders, we should expect the evaders with more avoidance opportunities to be most inclined to use the amnesty, our estimates may be seen as an upper bound for substitution between evasion and avoidance in the entire population. That said, our results speak most directly to the literature that studies the effect of tax amnesties.¹ It informs ongoing policy discussions about amnesty programs in countries that have introduced such programs (e.g., the United States, Germany, and Italy) and others that consider doing so.

More broadly, our paper contributes to the large literature on the effects of government policies aimed at reducing tax evasion (see Slemrod, 2018 for a survey). Recent initiatives studied in

¹Johannesen et al. (2018) study the effect of the U.S. offshore voluntary disclosure program on reported income and tax revenue. Data on U.S. state amnesties were analyzed by Mikesell (1986), Fisher et al. (1989), and Crane and Nourzad (1990). None of these studies consider the interplay between evasion and avoidance.

the literature include the introduction of electronic filing (Okunogbe and Pouliquen, 2018); new forms of third-party information reporting to improve the tax compliance of small firms (Slemrod et al., 2017; Naritomi, 2016); withholding taxes on credit card sales to limit evasion of sales taxes (Brockmeyer and Hernandez, 2018); and crackdowns on offshore tax evasion (Johannesen and Zucman, 2014). It also informs the large literature studying tax avoidance behavior among high earners, such as corporate executives (Goolsbee, 2000), professional footballers (Kleven, Landais and Saez (2013), and inventors (Akcigit, Baslandze, and Stantcheva, 2016).

The rest of the paper proceeds as follows. Section 2 describes the data. Section 3 develops the empirical strategy. Section 4 presents the results. Section 5 concludes.

2 Background and data

For the purposes of our analysis, we combine data for the entire population of Norway from a number of different administrative sources.

We obtain de-identified data on taxable wealth, taxable income and tax liabilities from the Norwegian tax authorities. Since Norway levies a tax on net wealth, the wealth information is comprehensive and includes a detailed decomposition on asset classes such as deposits, housing, bonds, equities, and mutual fund shares. For most income and asset categories, tax authorities receive information from third parties, such as employers and banks. Other items, such as foreign and unlisted securities, are self-reported by the taxpayers. For key income and asset categories, our dataset includes information about both the amount originally claimed by the taxpayer and the amount on the most recent tax return after any corrections made by tax authorities.

We add information about participation in the tax amnesty program. In Norway, tax evaders can generally escape penalty taxes and criminal sanctions if they voluntarily provide information about unreported income and wealth sufficient for the tax administration to assess the correct amount of taxes owed up to ten years back in time.

As shown in Figure 1, participation in the amnesty correlates strongly with the enforcement efforts of the tax authority.² Only a few handfuls of taxpayers used the amnesty before 2008

²A theoretical literature shows that amnesties have more participants if combined with enhanced enforcement (Stella, 1991; Baer and Le Borgne, 2008). Another reason for the increased use of the amnesty from 2008-2009 may be the series of data leaks from tax havens, such as Swiss Leaks and Panama Papers, which may have increased the perceived risk of both criminal investigation and public exposure for offshore tax evaders (Johannesen and Stolper, 2017). Moreover, a scandal in 2007, widely covered in Norwegian media, where the Mayor of Oslo was accused of hiding money on Swiss bank accounts by his ex-son-in-law and ultimately had to resign may also have contributed to the surge in amnesty in participants in 2008-2009.

when the authorities had virtually no way of detecting offshore tax evasion. The first wave of disclosures began when the Norwegian government stepped up its enforcement efforts by concluding a number of bilateral tax treaties with tax havens such as Jersey (October 2008), the Cayman Islands (April 2009), Luxembourg (July 2009), and Switzerland (August 2009). The treaties were signed in the context of a coordinated crackdown on tax havens by G20 countries (Johannesen and Zucman, 2014) and allowed tax authorities to request bank information from cooperating tax havens on a case-by-case basis. The second wave occurred after the signature in November 2013 of a multilateral convention providing for an automatic exchange of bank information between a large number of countries, including key tax havens (see Zucman, 2015, for a global analysis of these policy developments).

Between 2008 and 2016, around 1,500 individuals participated in the amnesty (excluding a small number of participants whose cases were dropped because the amounts were negligible or no tax evasion was actually committed). This group of primarily wealthy individuals who acknowledged hiding assets abroad is large relative to the size of the Norwegian population. To fix ideas, there were 3.8 million adults in Norway in 2007 (the year before amnesty participation picked up), of which 38,000 in the top 1% of the wealth distribution. Our sample of 1,500 tax evaders is also large relative to the number of wealthy people typically sampled and found evading taxes in random audits or randomized controlled trials—two of the key sources used to study tax evasion (e.g., Slemrod et al., 2001; Slemrod, 2018).

We match income, wealth, tax, and amnesty data to comprehensive information about cross-border bank transfers collected by the Norwegian customs authorities. For each transfer involving a personal account in a Norwegian bank, we observe the transferred amount, the owner of the Norwegian account, and the country of the foreign bank account. Last, we add information from the corporate shareholder register to study the use of holding corporations to avoid taxes, and information from the population register to study migration.

Table 1 reports summary statistics for the population of amnesty participants (which we equivalently call “disclosers”) in Column (1) and all other Norwegians in Column (2). These statistics are for the year 2007, i.e., before anyone (except for a handful of cases) used the amnesty (see Figure 1). As shown in Panel A, disclosers are older and more likely to be male, married and foreign born.

More importantly, as shown in Panel B, amnesty participants tend to be very wealthy: the average participant reported more than \$3 million of taxable net wealth on their tax return in 2007, which is around 150 times more than the average non-participant. The true difference

in net wealth is even larger because the tax returns filed in 2007 do not include the offshore assets subsequently disclosed under the amnesty. The differences in income and taxes paid between participants and non-participants are smaller, because many participants are retired and therefore earn no wages.

The probability to use the amnesty rises sharply with wealth. It is only around 0.03% for households in the bottom 99% of the Norwegian wealth distribution, but reaches 2% in the top 1%, 6% in the top 0.1% and 11% in the top 0.01%—a group that includes households whose wealth exceeds \$40 million. That is, between 2008 and 2016, 11% of Norway’s richest people voluntarily declared that they were hiding assets abroad. Our setting thus provides a rare chance to study the tax avoidance decisions of the very wealthiest, whose opportunities for tax avoidance are abundant.³

In Panel C, we report summary statistics for the use of the key tax avoidance techniques available to rich Norwegians, some of which we use as outcomes in our causal analysis below.

First, a well-known tax planning technique in Norway involves investing in unlisted shares: since no market price is available for such securities, they enter the wealth tax base at the tax value of the underlying business assets, which typically implies a significant rebate.⁴ Similarly, the tax value of housing assets is only a relatively small fraction (never more than 20%) of the market value. Panel C shows that in 2007, disclosers own unlisted shares at a tax value of more than \$2,100,000 and housing assets at a tax value of \$300,000, which compares to \$16,000 and \$25,000 in the rest of the population. The remarkably low value of housing assets reflects the gap between market prices and appraisal values for tax purposes.

Second, as of 2006, equity dividends and capital gains are taxable when distributed to individual shareholders, but tax free when distributed to corporate shareholders. This provides an incentive for owning shares through a holding corporation. As documented by Alstadsæter et al. (2012), 8% of Norway’s individual shareholders transferred their shares to a holding company in 2005 in preparation of this reform. Individual income taxes can be deferred, in principle indefinitely, if earnings are retained within the holding companies. The table shows that around 0.75% of the disclosers founded a holding company in 2007 compared to 0.05% in the rest of the population.

³Alstadsæter et al. (2018) compare the wealth of amnesty participants in Norway and Sweden, and the wealth of Scandinavian households caught in leaks from offshore financial institutions (HSBC Switzerland and Mossack Fonseca). They find a similar wealth gradient in the probability to own offshore assets in these various samples: in all cases the probability to hide assets abroad rises sharply with wealth, including within the very top groups of the distribution.

⁴Gobel and Hestdal (2015) estimate that the tax rebate to the most liquid unlisted equities is around 70% and exceeds 90% for a set of unlisted equities that were eventually listed.

Third, a number of countries offer low tax rates to wealthy residents. There is evidence that taxation affects migration decisions at the top (Kleven et al., 2013; Kleven et al., 2014; Akcigit, Baslandze, and Stantcheva, 2016). Around 0.1% of non-disclosers emigrated from Norway in 2007. The corresponding number for disclosers is 0.00% (which is almost by construction, since disclosers need to be tax residents in Norway in some year after 2007 in order to participate in the amnesty).

Fourth, until 2009 there was a wealth tax rebate if the combined wealth and income tax liabilities exceeded 80% of the taxpayer's taxable income (Melby and Halvorsen, 2009). A similar system generally applies in other countries that have wealth taxes (see, e.g., Jakobsen et al. 2018 for an analysis in Denmark). In effect, Norwegian taxpayers who managed to report little taxable income (e.g., by investing in securities that do not pay dividends) could avoid a sizable part of their wealth tax liability. The table shows that 6.5% of the amnesty participants benefited from this rebate in 2007 as compared to 0.3% of the non-participants.

Fifth, the introduction of the personal dividend tax in 2006 created an incentive for owners of closely held businesses to pay out dividends in 2005 (Alstadsæter and Fjærli, 2009). We construct an indicator for taking full advantage of this opportunity for tax avoidance by paying out all the retained earnings of a closely held firm in 2005. As shown in the table, 6.7% of amnesty participants engaged in this type of tax avoidance as compared to 0.7% in the rest of the population.

Panel D summarizes cross-border bank transfers in 2007. Amnesty participants received transfers of around \$13,000 on average from foreign banks and transferred around \$16,000 to foreign accounts while the corresponding figures were \$1,400 and \$700 for non-participants. Tax havens accounted for around 25% of both incoming and outgoing bank transfers within the group of amnesty participants and a considerably smaller fraction for others.⁵

In brief, disclosers are markedly different from the rest of the Norwegian population: they are much richer, and before using the amnesty they engaged more in tax avoidance— although not systematically. In Column (3) of Table 1, we explore how much of these differences can be explained by different demographic characteristics. Specifically, for each amnesty participant, we identify all the non-participants with the exact same demographic characteristics (age, number of children, etc.) and take the average of their covariates. This procedure creates one synthetic non-participant for each participant with identical demographics, and we compute the average covariates for this synthetic sample. The differences between amnesty participants and non-

⁵We define the set of tax havens in the same way as Johannesen and Zucman (2014).

participants decrease somewhat when balancing the demographic characteristics, but remain large.

3 Empirical model

To study whether tax evasion really decreases around amnesty participation and whether avoidance rises, we use an event-study framework. Specifically, we estimate how reported wealth, income and tax liabilities — as well as some of the indicators of tax avoidance described above — evolve around the time hidden assets are disclosed. Our estimating sample spans the period 2002-2013 and covers the entire adult population of Norway as of 2007, around 3.8 million adults, including the 1,485 amnesty participants.

Indexing individuals by i and years by t , we estimate the following model:

$$\log(Y_{it}) = \alpha_i + \gamma_t + X'_{it}\psi + \sum \beta_k D_{it}^k + u_{it}$$

where α denotes individual fixed effects, γ denotes calendar year dummies, and D^k denotes dummies for year k relative to the year of the event. The event time dummies are the main variables of interest and measure the change in the outcomes of disclosers relative to the pre-disclosure reference year, over and above the change observed for the control group of non-disclosers.⁶ Including a control group in the analysis allows us to employ both individual fixed effects and a full set of time dummies, which is not possible in empirical designs that identify event-time dummies exclusively from differences in the timing of the event (Borusyak and Jaravel, 2017).

We also include a set of non-parametric controls for wealth, income, and age to ensure comparability of the disclosers (our treated group) and non-disclosers (our control group). This is important in light of our results described above that disclosers are quite different than other Norwegians.

Specifically, we divide the sample of disclosers into ten equally sized groups based on their net wealth in 2007. We then assign non-disclosers to these wealth groups and introduce a separate set of time dummies for each group. The event dummies are thus estimated conditional on wealth-specific time trends, and the changes in behavior around disclosure are identified from a comparison with non-disclosers that have similar net wealth. This procedure allows us to

⁶Since evaders disclosing offshore wealth in the beginning of year 0 can incorporate the disclosed wealth into the tax return for year -1 , we let year -2 , the last year for which the tax return has definitely been submitted at disclosure in year 0 , be the omitted event time category.

control for differential wealth trends across the distribution due, for instance, to differences in portfolio composition (e.g., the rich have a higher share of their wealth invested in equities, and equity prices can rise faster than housing prices in the short or medium run). To account for the life-cycle dynamics of income and wealth, we similarly allow time trends to vary across taxpayers with different ages (6 age groups) and income in 2007 (10 income groups).

4 Results

4.1 Tax evasion

Our first finding is that the wealth reported by amnesty participants on their tax return jumps sharply at the time they use the amnesty. As shown in Figure 2A, reported net wealth follows the same trend among disclosers and non-disclosers in the years -5 to -2 (where 0 is the year when the disclosers use the amnesty). The net wealth reported by disclosers then increases by 0.5 log-points (around 65%) relative to non-disclosers between years -2 and 0 . The effect of the amnesty shows up as soon as year -1 because tax evaders using the amnesty in the beginning of year 0 can report the disclosed assets on the tax return for year -1 .

It is instructive to compare the magnitude of the increase in wealth around disclosure to recent evidence that Scandinavians who evaded taxes through accounts at HSBC Switzerland held on average 40% of their true net wealth on the undeclared Swiss accounts (Alstadsæter et al., 2018). The estimated wealth increase of 65% implies an offshore wealth share of exactly 40% under the assumption that amnesty participants disclosed all of their offshore assets. This result suggests that offshore tax evasion not only decreases, but literally ends at the time of participation in the amnesty.

As shown in Figure 2B, the results for reported taxable income are similar to those for reported wealth. From year -5 to -2 , the incomes of disclosers and non-disclosers evolve in parallel; there is then a differential increase of almost 20% from year -2 to 0 for disclosers. It is not surprising that income increases less than wealth in relative terms since many disclosers have labor or pension income that is unaffected by the disclosure.

Tax liabilities follow the same qualitative pattern as wealth and income as shown in Figure 2C. Taxes paid jump by almost 30% from year -2 to 0 . Importantly, the magnitude of the rise at the time of disclosure corresponds to what one would mechanically expect given the differential increase of 20% in taxable income and 65% in taxable wealth, and the marginal tax rates that apply to income and wealth.

Last, we study the dynamics of transfers from foreign to Norwegian bank accounts. Whenever disclosers repatriate assets back to Norway, continued tax evasion becomes virtually impossible because Norwegian banks provide detailed information about account balances and capital income to the tax authorities. To relate the change in cross-border transfers to the value of disclosed assets, we scale each taxpayer's transfers by her net wealth in 2007, measured at market value and including any assets subsequently disclosed.

As shown in Figure 2D, disclosers exhibit almost the same trend in incoming bank transfers as the control group of non-disclosers from year -5 to -1 . Then in both years 0 and 1 , transfers exceed the level in the reference year -2 by the equivalent of 8% of 2007-wealth (above and beyond the corresponding time difference in the control group). Transfers remain higher than the reference year through to year 4 and the cumulated coefficients imply that around 25% of 2007-wealth is repatriated between year 0 and 4 . Recall that disclosed assets amount to around 40% of total wealth (reported plus previously hidden) for the average discloser. Our results thus imply that more than 60% (i.e. 25% / 40%) of the disclosed assets are repatriated during the four years following amnesty participation. The remaining 40% either stay abroad (but start being reported to the tax authorities instead of being hidden as previously), are consumed, or are repatriated to Norway more than four years after amnesty participation.

Moreover, we find no evidence that amnesty participants make more outgoing transfers after using the amnesty. Cumulative transfers to foreign banks (whether located in tax havens or not) from year 0 to 4 are not statistically higher for disclosers than for our control group (with cumulated point estimates for the event-time dummies close to 0). One traditional concern with tax amnesties is moral hazard: Some tax evaders may use them, and then a few years down the road start evading even more than previously, if they feel they will always be able to come clean if need be. We do not find evidence of such negative dynamic effect of participating in the amnesty on tax compliance.

In brief, the results presented so far show that tax evasion drops when taxpayers disclose offshore assets: wealth, income, and tax liabilities all increase significantly. The increased reporting comes with a significant repatriation of assets, and there is no indication that tax evaders start hiding assets abroad again a few years after using the amnesty.

Crucially, the rise in wealth, income, and taxes at the time of disclosure is sustained throughout the event window. There are no signs that the tax bases and tax liabilities of disclosers decrease after the initial surge, which would be the case if disclosers were gradually adopting tax avoidance techniques to compensate for the discontinued tax evasion. In fact, four years

after disclosure the tax liabilities of disclosers continue to be around 30% higher than in reference year -2 relative to the control group. While the results so far cannot rule out that the increase would have been even larger absent changes in tax avoidance, we can firmly reject the hypothesis that tax evasion and tax avoidance are perfect substitutes.

4.2 Tax Avoidance

The first avoidance outcome we study is emigration out of Norway. As shown in Figure 3A, emigration rates decline slightly among non-disclosers relative to disclosers (the opposite sign as what one might expect if there was a causal effect of amnesty participation on emigration decisions); however, the estimated coefficients are very small (at most 0.01%) and always statistically insignificant.

Our next avoidance outcome is the founding of a holding company. As shown in Figure 3B, there is a clear and statistically significant increase in incorporations of Norwegian holding companies by disclosers in year -1 . Some amnesty participants do seem to prepare for a tax-efficient repatriation of assets; however, the size of the estimated coefficient (around 1%) suggests that this is a very small minority.

We also investigate how investment in tax-favored asset classes—housing and unlisted equities—evolves. Both of these asset classes enter the wealth tax base with as little as 20% of their market value. As shown in Figures 3C and 3D, there is no statistically significant change in the investments made by amnesty participants vs. other Norwegians. This result is inconsistent with the hypothesis of a substitution toward this avoidance technique as evasion ends. If anything, there is a slight decrease in housing wealth and unlisted equities for disclosers. These individuals could have chosen to invest all their repatriated wealth into lightly taxed housing or unlisted equities—yet this is not what they chose to do.

The two remaining avoidance techniques described above cannot be studied in the present framework, because they were not available in the years that tax evaders used the amnesty. The tax saving from having closely held firms pay out dividends existed only in 2005, and the possibility to obtain a wealth tax rebate when total (income plus wealth) taxes owed exceeded 80% of income ended in 2009.

4.3 The scope for substitution

One might imagine that amnesty participants did not increase tax avoidance because they were already using all available opportunities for tax avoidance fully. This would be the case if there

is a pecking order in tax planning, whereby taxpayers first exhaust the opportunities for legal avoidance before considering those for illegal evasion.

To investigate whether there was indeed a scope for amnesty participants to increase tax avoidance, we compare their use of various avoidance techniques to that of non-participants before they used the amnesty (Figure 4). As tax avoidance opportunities may vary widely with wealth, it is important to compare individuals who are equally wealthy. We therefore compute the average of the avoidance indicators, for amnesty participants and non-participants separately, within groups of taxpayers with very similar wealth: each group constitutes 0.01% of the wealth distribution (less than 400 individuals). We then take the average of the avoidance outcomes, for amnesty participants and non-participants separately, within nine broader wealth groups with a zoom on the very top (bottom 50%, next 40%, next 9%,... up to the top 0.01%). This procedure effectively compares amnesty participants and non-participants within a large number of small bins where wealth is almost identical, and pools these comparisons within a smaller number of bins to reduce noise and facilitate visual exposition.

As a specification check, we first use net wealth as an outcome (Figure 4, top left panel). While amnesty participants are generally much wealthier than other Norwegians (including within broad wealth groups), our two-step procedure effectively eliminates this difference as intended. Wealth outcomes are almost identical from the lowest wealth group (the bottom half of the wealth distribution) through to the highest group (the top 0.01%).

We find that for all of the five avoidance outcomes we consider, there is a pronounced wealth gradient: richer people avoid more. But controlling for wealth, avoidance is similar across amnesty participants and non-participants. Ownership of a holding company increases from a few percent for the bottom 99% to almost 60% percent for the top 0.01%, with only small differences between amnesty participants and non-participants (Top right panel). Amnesty participants have slightly more housing assets than non-participants, but slightly less unlisted shares (Middle panels). They generally have similar propensities to maximize dividend payments out of closely held firms in 2005 and to obtain a wealth tax discounts under the 80% rule (Bottom panels).

Overall, the results indicate that the probability to use various avoidance techniques rises with wealth. But tax avoidance is far from systematic at the top of the wealth distribution, and before they used the amnesty, amnesty participants were not more likely to avoid taxes than similarly wealthy non-participants. They had therefore ample scope to increase tax avoidance at the time and after they used the amnesty.

How then can we explain the lack of avoidance responses we find? Wealthy taxpayers have access to many well-defined tax avoidance opportunities, but these are not costless. Emigration can entail high pecuniary and non-pecuniary costs. Creating a holding company can enable one to postpone individual income taxes at a modest administrative costs, but one may also want to access the liquidity retained in the holding (e.g., to consume), and this is not entirely trivial. Reallocating wealth to unlisted shares or housing has a cost too, as it may move investors away from the optimal risk-return frontier and reduces liquidity. One may interpret our results as showing that these costs exceed the benefits of avoiding taxes—a counter-intuitive result given the high marginal tax rates that apply at the top of the distribution in Norway, and the widespread view that avoidance opportunities at the top have low marginal costs (Landier and Platin, 2017). If this interpretation is correct, the very low substitution between evasion and avoidance we estimate is informative for countries where marginal tax rates at the top are lower than in Norway and the marginal cost of avoidance is no lower—which probably includes the majority of the world’s advanced economies.

5 Conclusion

What have we learned from this paper? In our view the main lesson is that fighting tax evasion can be an effective way to collect more tax revenue from the wealthy, increase the progressivity of the tax system—and ultimately reduce inequality.

This result was far from obvious. In a field experiment in Minnesota where randomly selected taxpayers were informed that the returns they were about to file would be “closely examined”, Slemrod et al. (2001) find that high-income treated taxpayers paid less tax relative to the control group—suggesting substitution away from evasion toward legal avoidance. In our setting where we can observe a large sample of very wealthy tax evaders with ample access to tax avoidance opportunities, several clear-cut measures of evasion and avoidance, and follow taxpayers over time, we can rule out that such substitution is significant.

Our research design and data deliver clear, compelling, and consistent results. By boosting its enforcement effort, the Norwegian government induced a large sample of wealthy individuals to disclose previously hidden assets. The taxes paid by these amnesty participants jump by a striking 30% at the time they use the amnesty. The increase in wealth, income and taxes is sustained over time. The decrease in evasion is not accompanied by an increase in the key forms of tax avoidance documented in the Norwegian context, such as emigration and investment in tax-favored asset classes. And these results cannot be explained by a lack of avoidance

opportunities among amnesty participants.

Our results inform the global policy debate about the desirability of fighting tax evasion at the top end of the wealth distribution. They suggest that tax enforcement policies have an important role to play for the sustainability of progressive taxation in a globalized world.

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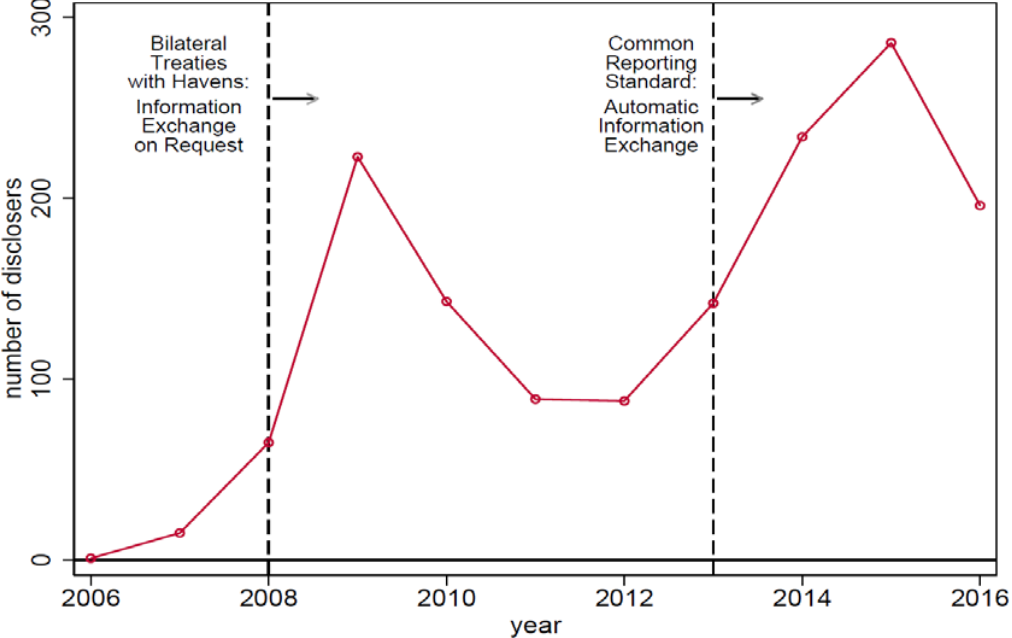
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Table 1: Descriptive statistics

	(1)	(2)	(3)
	Disclosing assets	Not disclosing assets	
		All	Balanced on demographics
Number of individuals	1 485	3 808 966	-
Panel A: Demographics			
Age	58	46	58
Number of children	2,2	2,3	2,2
Married	59%	43%	59%
Male	66%	50%	66%
Foreign born	22%	12%	22%
Panel B: Reported wealth, income and tax liabilities			
Net wealth (USD tax value)	3 106 924	19 520	65 753
Income (USD tax value)	187 158	55 656	65 051
Tax liabilities (USD tax value)	81 647	13 713	16 049
Panel C: Avoidance			
Housing wealth (USD tax value)	297 379	25 751	34 448
Unlisted shares (USD tax value)	2 168 343	16 094	25 639
Founding holding company	0,74%	0,05%	0,05%
Emigrates	0,00%	0,11%	0,13%
Benefits from 80% rule	6,53%	0,33%	0,40%
Maximizes dividends from closely held firm (2005)	6,67%	0,69%	0,40%
Panel D: Bank transfers			
From foreign countries (USD)	13 547	683	1 268
- of which from tax havens (USD)	3 590	88	134
To foreign countries (USD)	15 848	1 430	2 131
- of which to tax havens (USD)	4 051	81	138

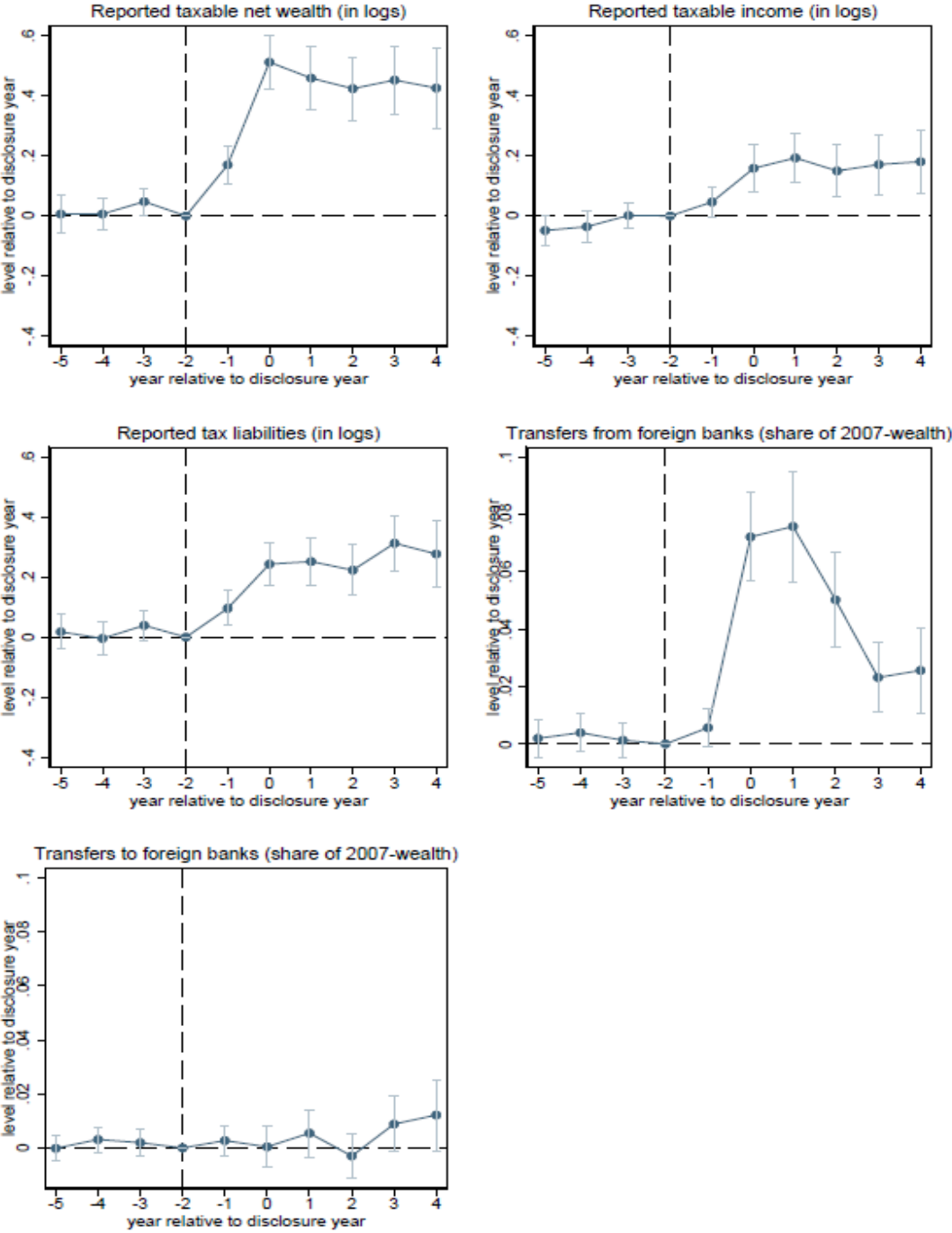
Note: The table shows descriptive statistics as of 2007 for the 1,485 individuals who disclosed offshore assets under the Norwegian tax amnesty (Column 1); for the rest of the population (Column 2); and for a weighted subsample of non-disclosers with the same demographics as disclosers (Column 3). Panel A shows average values for demographic variables: age, number of children, marital status, gender and an indicator for being born outside of Norway. Panel B shows the taxable net wealth and income reported on the tax return and the resulting tax liabilities (in USD converted from NOK at the exchange rate 5.86); Panel C shows tax avoidance indicators: the tax value of housing assets and unlisted shares (in USD), an indicator for founding a holding company, an indicator for moving the residence out of Norway; and indicator for benefitting from using the 80% rule to obtain a wealth tax discount and an indicator for paying out all retained earnings of a closely held firm prior to the 2006 tax reform. Column D shows cross-border bank transfers (in USD): from all foreign countries, from tax havens, to all foreign countries and to tax havens where tax havens are countries not complying with the OECD principles of transparency and cross-border information exchange (Johannesen and Zucman, 2014).

Figure 1: Disclosures by year



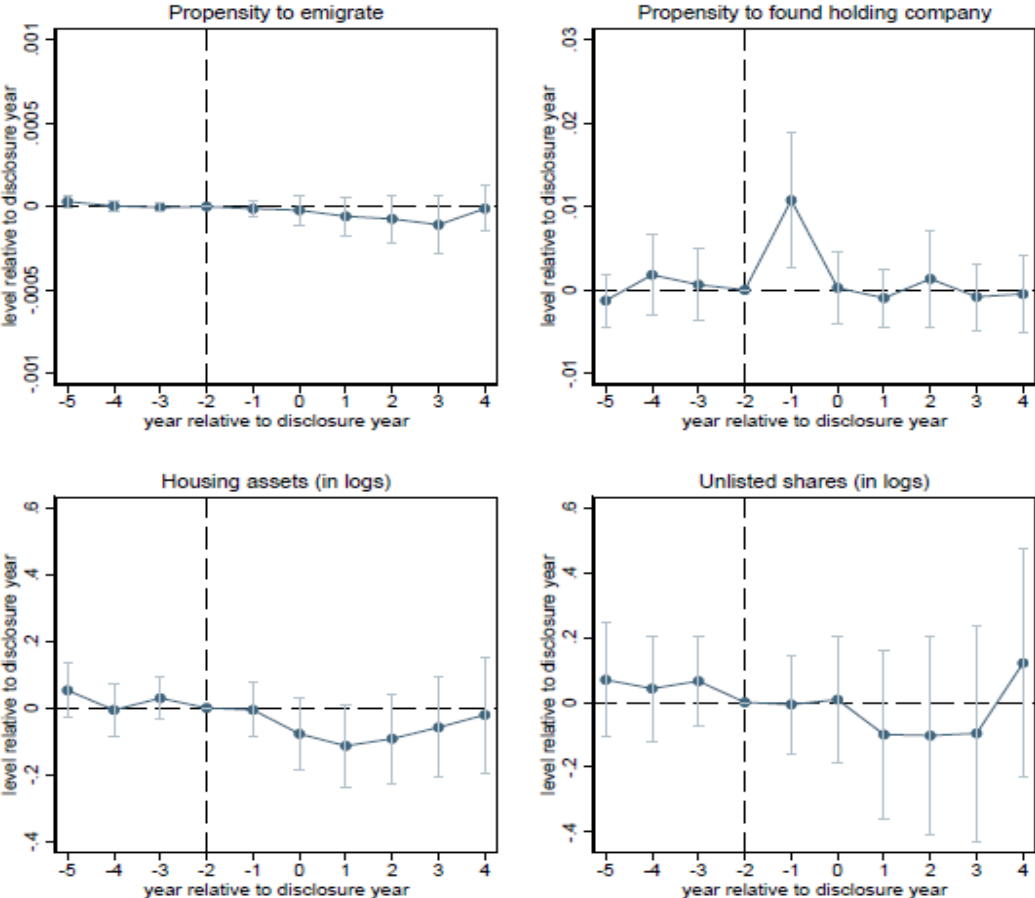
Note: The figure shows the number of participants in the Norwegian voluntary disclosure scheme by year of first contact with the tax authorities. The dashed vertical lines indicate major tax enforcement initiatives during the sample period: a series of bilateral treaties with tax havens about information exchange on request starting in 2009 and the multilateral convention adopting the automatic information exchange in 2013.

Figure 2: Tax evasion around amnesty participation



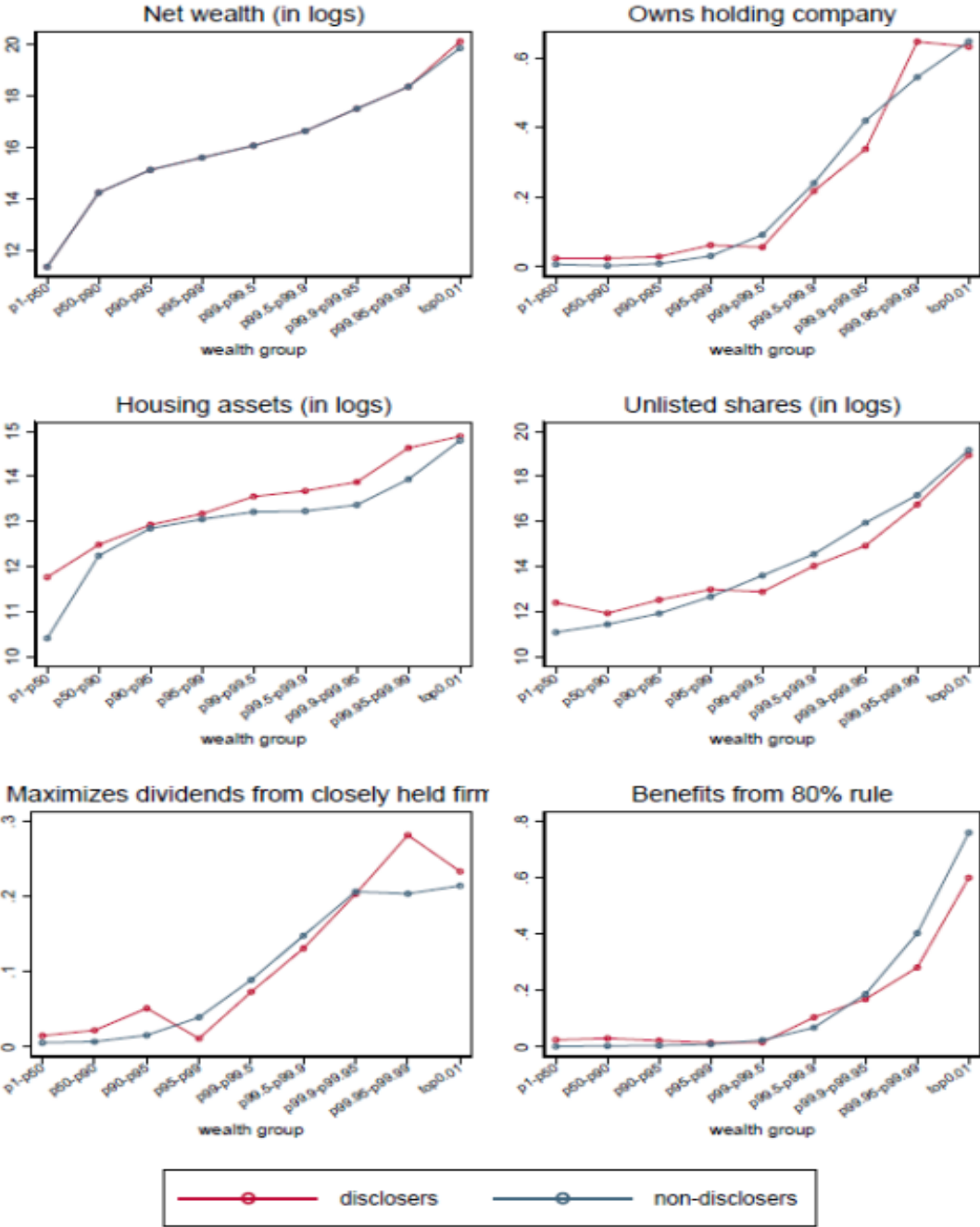
Note: the figure shows point estimates for event time dummies (with 95% confidence bands) obtained from a model with individual fixed effects, calendar time dummies interacted with indicators for wealth, income and age and a full set of event time dummies (disclosure is year 0 and year -2 is the omitted category). The outcomes are reported net wealth (in logs), reported income (in logs), tax liabilities (in logs), bank transfers from foreign countries (normalized by wealth in 2007) and bank transfers to foreign countries (normalized by wealth in 2007).

Figure 3: Tax avoidance around amnesty participation



Note: the figure shows point estimates for event time dummies (with 95% confidence bands) obtained from a model with individual fixed effects, calendar time dummies interacted with indicators for wealth, income and age (in 2007) and a full set of event time dummies (disclosure is year 0 and year -2 is the omitted category). The outcomes are an indicator for emigration, and indicator for founding a holding company; the taxable value of housing assets (in logs) and the taxable value of unlisted shares (in logs).

Figure 4: Tax avoidance before amnesty participation



Note: the figure shows, by location in the net wealth distribution, the average of the following outcomes: net wealth at market value (upper left), an indicator for owning a holding company (upper right), the tax value of housing assets (middle left), the tax value of unlisted shares (middle right), an indicator for paying out all retained earnings from a closely held firm just before tax reform in 2006 (bottom left) and an indicator for using the 80% rule to obtain a wealth tax discount (bottom right). To account for differences across disclosers and non-disclosers in the distribution of wealth within the nine wealth groups, the figures are constructed by, first, taking averages within much narrower wealth groups, each containing 0.01% of the population and then averages of those within the nine broader wealth groups shown in the figure. The measure of net wealth is constructed from tax information by stepping the value of assets and liabilities up to market value (see Alstadsæter et al, 2018 for details)