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# Offshore Tax Evasion and Wealth Inequality: Evidence from a Tax Amnesty in the Netherlands\*

Wouter Leenders<sup>†</sup>    Arjan Lejour<sup>‡</sup>    Simon Rabaté<sup>§</sup>    Maarten van 't Riet<sup>¶</sup>

December 2020

## Abstract

Exploiting unique datasets covering over 28,000 tax evaders in the Netherlands, we investigate the distribution of tax evasion and its implications for the measurement of wealth inequality. In contrast to Alstadsæter, Johannesen and Zucman (2019), the correction for offshore wealth has only a modest effect on top wealth shares. We show that the distributional pattern of tax evasion depends on the type of tax evasion, e.g. it depends on the offshore country of choice. We explore a number of explanations to account for the differences in results and caution against projecting distributional patterns of detected tax evasion onto still undetected evasion.

We also study the dynamic compliance behaviour of tax amnesty participants and document large and sustained increases in reported wealth of around 60% following amnesty participation. Combined with evidence of only a modest increase in the adoption of tax avoidance strategies, this suggests that amnesty participation can lead to substantial public revenue gains.

**JEL codes:** H26, H87, E21

**Keywords:** Inequality, Wealth, Tax evasion, Netherlands

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# 1 Introduction

As long as there have been taxes, people have tried to avoid and evade them. Interest in these phenomena has been fuelled by the effects on public revenues, as well as on the distribution of wealth and income. One prominent example of tax evasion is the hiding of wealth and income in tax havens. According to estimates by Zucman (2013), 8% of global financial wealth, or \$5.9 trillion, is held in tax havens. During the global financial crisis of the late 2000s, the G20 countries vowed to tackle offshore tax evasion and proclaimed the end of the “era of banking secrecy”. This determination resulted in hundreds of new tax information exchange agreements, America’s Foreign Account Tax Compliance Act, the OECD’s Common Reporting Standard, and voluntary disclosure programs, or tax amnesties. In recent years, leaks containing confidential information from financial institutions as well as academic research investigating leaks and tax amnesties have confirmed the popular narrative that tax evasion is concentrated among the wealthiest in society (Alstadsæter, Johannesen and Zucman, 2018*b*, 2019). This does not only affect public revenues, but also the measurement of wealth and income inequality. Research on inequality increasingly relies on administrative tax data and statistics on inequality will be distorted if these data fail to capture wealth hidden abroad (Atkinson, Piketty and Saez, 2011; Zucman, 2019).

We use unique microdata to study tax evasion in the Netherlands. We have received data on over 27,000 participants to the Dutch tax amnesty between the years 2002 and 2018. In addition, we have data on households who appeared in recent information requests to 4 different Swiss banks. We link these data to administrative data on income, wealth, and demographics covering the entire Dutch population.

We provide two sets of results. First, we provide a new estimate of the wealth distribution in the Netherlands by correcting for wealth hidden offshore, as done by Alstadsæter, Johannesen and Zucman (2019) for Scandinavian countries. While evasion is concentrated at the top, the correction for hidden offshore wealth is small. This can be explained by the fact that the richest households own a relatively small share of wealth declared through the amnesty: the top 0.01% owns 7% of amnesty wealth, compared to 48% in the case of Norway. The hidden wealth discovered through the information request to Swiss banks is even less concentrated.

We show that the distribution pattern of tax evasion depends on the type of tax evasion. By distinguishing offshore wealth in Belgium, Luxembourg and Switzerland, we find that concentration of tax evasion is increasing in geographical and cultural distance: over two thirds of Belgium wealth declared through the amnesty is held by the bottom 99%. For Luxembourg and Switzerland, this is only 38% and 23%, respectively.

We explore three explanations for the relatively small share of offshore wealth held by the richest households in the Netherlands: i) The incentive to evade might be small because of a low effective tax rate at the top of the wealth distribution, ii) The wealthiest households may engage in a more sophisticated form of tax evasion that escapes both the amnesty and Swiss information request

data, iii) Wealthy households who particularly dislike paying taxes may have migrated to low-tax countries in the past.

Second, we investigate whether the voluntary compliance through participation in the amnesty increases tax revenues in the longer term. Like Alstadsæter, Johannesen and Zucman (2018*a*), we find a strong and sustainable effect on declared wealth with evidence of only a moderate substitution towards avoidance techniques in later years. This implies that the increase in compliance through the amnesty program leads to a structural increase in tax revenues. The increase in compliance is strongly related to changes in the penalty rate: amnesty participation peaks each time the penalty rate increases, in particular when it increases from 0%.

Our paper contributes to the evergrowing literature on the measurement of inequality. While this measurement has improved substantially by using administrative data instead of surveys, an obvious drawback has always been the failure to capture wealth and income hidden from tax administrations. This issue has always been recognised (e.g. by Atkinson, Piketty and Saez (2011)) and even tentatively addressed (e.g. by Roine and Waldenström (2008, 2009)), but the data necessary to properly account for tax evasion was unavailable until recently. Alstadsæter, Johannesen and Zucman (2018*b*) and Alstadsæter, Johannesen and Zucman (2019) document the distribution of hidden wealth by linking individuals found in the *Panama Papers* and the *Swiss Leaks*, as well as tax amnesty participants to population-wide administrative records.

Our paper represents a test of the methodology used in Alstadsæter, Johannesen and Zucman (2019) to assign hidden wealth to different households across the wealth distribution. We paint a less optimistic picture of the suitability of tax amnesties to gauge the distribution of wealth hidden offshore. Wealthy households who use more sophisticated evasion techniques may not feel threatened by recent compliance actions and refrain from entering the amnesty. In that case, amnesty participants would be a poor representation of households who still engage in tax evasion. Furthermore, it would be instructive to compute the effective tax rate across the wealth distribution, in a similar vein to Saez and Zucman (2019). This would show whether the incentives for tax evasion are simply too small for the wealthiest members of society.

Our second contribution is to the research on tax evasion. The empirical literature on tax evasion has been reviewed extensively by Slemrod and Yitzhaki (2002) and Slemrod (2007, 2019). In the context of offshore tax evasion, a lot of attention has been paid to the effects and pitfalls of the information exchange between countries (Johannesen, 2014; Johannesen and Zucman, 2014). Londoño-Vélez and Ávila Mahecha (2019) show that offshore tax evasion increases in response to wealth tax hikes, which touches on our hypothesis that wealthy households in the Netherlands may simply not face sufficient incentives to evade taxes. Johannesen et al. (2018) evaluate American enforcement actions to fight offshore evasion and find that most revenue is collected from so-called “quiet disclosers”, households that start declaring foreign wealth without admitting prior non-compliance. Alstadsæter, Johannesen and Zucman (2018*a*) study to what extent amnesty par-

ticipants engage in tax avoidance strategies after declaring their previously hidden wealth. Our analysis confirms that the reduction in tax evasion that occurs when wealth is declared through the amnesty is only very partially, if at all, offset by an increase in tax avoidance.

The remainder of this paper is organized as follows. In Section 2, we give an overview of the institutional context and describe the data we use. Section 3 presents the change in the wealth distribution in the Netherlands when offshore wealth is incorporated. Section 4 analyses the behaviour of amnesty participants. Section 5 concludes.

## 2 Background and data

### 2.1 Institutional background

#### 2.1.1 Taxation of income and wealth

The taxation of personal income and wealth in the Netherlands is governed by the 2001 Income Tax Law, which divides income into three separate “boxes” (Cnossen and Bovenberg, 2001). Each box taxes a different type of income according to different tax rules. *Box 1* taxes labour income, profits from unincorporated firms and imputed rental income from owner-occupied housing at progressive rates varying from 37% to 52%.<sup>1</sup> Mortgage interest payments related to the owner-occupied house can be deducted from taxable income in *Box 1*. *Box 2* taxes profits distributed to taxpayers who own at least 5% of a corporation at a 25% rate.<sup>2</sup> All corporate profits (distributed or not) are subject to the corporate income tax (20-25%). *Box 3* covers all other wealth, with the exception of pension wealth (e.g. personal savings, second homes and investments that do not exceed 5% ownership). The return on *Box 3* wealth is presumed to be 4%, which is then taxed at a flat rate of 30%. Effectively, the taxation in *Box 3* corresponds to a 1.2% wealth tax, which was made progressive in 2017 with rates ranging from 0.8% to 1.6%.

Pension contributions are exempt from the income tax and are taxed at reduced rates in *Box 1* when paid out during retirement.<sup>3</sup> Pension wealth nor its return are taxed.

Inheritances are taxed at progressive rates depending on the relationship to the deceased person. Since 2010, the tax rates for inheritances received by partners and children are 10% and 20%.<sup>4</sup> Inheritances received by others are taxed at 30% and 40%. The transfer of business wealth is largely untaxed: the first €1,071,987 is entirely exempt, and 83% of the remainder is also exempt.<sup>5</sup>

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<sup>1</sup>Tax brackets and rates vary slightly over the years, but these numbers are representative for our study.

<sup>2</sup>Manager directors are required to pay themselves a “competitive” salary which is taxed in *Box 1*.

<sup>3</sup>A substantial part of taxes in *Box 1* consist of social security contributions. Individuals above the statutory retirement age do not pay social security contributions and therefore face lower rates.

<sup>4</sup>The size of the exemptions also depends on the relationship and can amount to about €600,000 for spouses.

<sup>5</sup>For this, certain conditions have to be met. The company must engage in business activities that exceed the mere management of wealth. In addition, the business must have been owned by the previous owner for at least one year. The new owners should remain owners for at least five years.

### 2.1.2 Avoidance channels

Tax avoidance is a key dimension to take into account when analysing tax evasion and the effectiveness of tax amnesty policies. First, households may not engage in tax evasion if they have ample opportunities to avoid paying taxes legally. Second, the increase in tax revenues from households that participate in a tax amnesty may be muted if households set up tax avoidance schemes following their amnesty participation.

Incorporation of household wealth can be an avoidance strategy for households who intend to accumulate wealth without distributing because undistributed profits are only subject to the corporate income tax. In addition, this strategy offers large benefits when the wealth is bequeathed, as described above. Depending on the rate of return, it may instead be preferable to remain unincorporated and pay the implicit wealth tax in *Box 3*.

The value of owner-occupied dwellings is not taxed as personal wealth (*Box 3*), but mildly taxed as imputed income (*Box 1*). The imputation rules imply that the taxes paid on owner-occupied dwellings can be up to 3 to 4 times smaller than wealth in *Box 3*. As a result, there is a strong incentive to invest in owner-occupied housing rather than financial wealth.<sup>6</sup>

There are also incentives to transfer wealth at the level of the family. Wealth can be transferred tax free from parents to children, for any purpose (€25,000 a year) or for housing related expenditure (up to €50,000 before 2012, €100,000 from November 2013). Combined with the preferential tax treatment of owner-occupied dwellings, the tax burden of the family as a whole can be reduced by transferring wealth to a child in order to buy a house.

### 2.1.3 Tax amnesty

Ever since the introduction of the income tax in the Netherlands in 1914, the possibility of avoiding criminal prosecution by voluntarily declaring previously evaded taxes has been an essential component of Dutch tax law (Feenstra and Perdaems, 2017). Today, the tax administration can claim back taxes over a period of 12 years. The penalty rate on evaded taxes was reduced in the case of voluntary disclosure, down to 0% in 1998.<sup>7</sup> In July 2009, the penalty rate was increased to 15% of the evaded tax liability, and to 30% in 2010. In 2013 the penalty was temporarily set to zero in order to attract more amnesty participants. At the same time, penalty rates of 30% in 2014, and 60% in 2015 were announced. In 2016 the penalty rate was raised to 120% (see Table 1), before the amnesty program was abolished altogether on January 1st, 2018.<sup>8</sup> As of this date, voluntary disclosure does no longer guarantee lower penalty rates and the avoidance of criminal prosecution.

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<sup>6</sup>See also Van Ewijk and Lejour (2019).

<sup>7</sup>In cases of involuntary disclosure, the fine can amount to at most 300% of evaded taxes.

<sup>8</sup>It remains possible to make use of the amnesty program when disclosing wealth and income on pre-2018 tax returns.



Table 1: Penalty rates

From:	Until:	Maximum penalty rate
January 1st, 1998	December 31st, 2009	0%
January 1st, 2010	June 30th, 2010	15%
July 1st, 2010	September 1st, 2013	30%
September 2nd, 2013	June 30th, 2014	0%
July 1st, 2014	June 30th, 2015	30%
July 1st, 2015	June 30th, 2016	60%
July 1st, 2016	December 31st, 2017	120%

*Note:* This table shows the maximum penalty rates in the amnesty program and is adapted from Feenstra and Perdaems (2017).

#### 2.1.4 Information exchange and tax treaties

The changes in the Dutch amnesty rules reflect the changing international environment. Until the beginning of the 2000s, the detection probability for offshore wealth was essentially zero as offshore centers did not exchange information with tax authorities. The few cases of detected offshore evasion occurred after data leaks at financial institutions, such as those at the Luxembourg bank *KB Lux* in 2000 or the more famous HSBC case known as *Swiss Leaks*.

In July 2005, the member states of the European Union (EU) implemented the Savings Directive to support the taxation of foreign-held savings and associated interest payments. Under the Savings Directive, which covered all EU member states and a number of offshore centres, countries could comply by either 1) automatically exchanging information on foreign households with the home country, or 2) levying a withholding tax on foreign households, which is then remitted to tax authorities without revealing the households' identities. The Savings Directive suffered from important limitations in the sense that it could easily be circumvented by 1) moving assets to countries not covered by the Directive, 2) transferring the ownership of the assets to an intermediate corporation or trust, and 3) converting the savings account into an asset type not covered by the Directive (Johannesen, 2014).

The Savings Directive was repealed in 2015 as it had become obsolete due to the adoption of a directive on the mandatory automatic exchange of information between tax administrations.<sup>9</sup> Under the new directive, EU member states are required to implement the OECD's Common Reporting Standard (CRS), which covers a larger number of countries and assets than the Savings Directive.

The most relevant dates for the Netherlands are 2010, when Belgium switched from levying a withholding tax on interest payments to exchanging information; 2015, when Luxembourg did the same; and 2016 when both countries committed to the CRS. Switzerland started exchanging

<sup>9</sup>Council Directive 2014/107/EU

information under the CRS for the first time in 2018.

During 2015-2018, the Dutch tax administration made information requests to 4 Swiss banks, based on the Dutch-Swiss tax treaty. After an unsuccessful legal appeal by a UBS client in Switzerland, information about direct account holders with a residence in the Netherlands was transmitted to the Dutch tax administration.

Offshore tax evasion appears to have become more risky for tax evaders. This may have been partially offset by evaders setting up even more opaque structures involving countries not yet committed to the exchange of information (Johannesen, 2014; Johannesen and Zucman, 2014).

## 2.2 Data

### 2.2.1 Administrative datasets

We use administrative data on income, wealth and demographic variables maintained by Statistics Netherlands. In addition, we have separate data that distinguish domestic wealth from wealth held abroad. These administrative data cover the entire Dutch population.

The wealth data are recorded at the household level and make use of a wide variety of sources. These sources include the income tax (which includes a tax on financial wealth), the corporate tax (which records wealth held in corporations), the Dutch cadastre (for real estate), and data collected by financial institutions (obliged to provide this information to the Dutch tax administration). The wealth data do not cover all wealth in the national accounts. In particular, it leaves out most pension wealth, which amounts to 40% of all assets in the Netherlands. Another limitation of our data is that closely held assets are valued at book-value instead of market value. Recent research suggests that this type of wealth may therefore be underestimated by a factor 2 (Ministerie van Financiën, 2020).

### 2.2.2 Amnesty and information exchange

**Amnesty data** We have access to unique data on the Dutch tax amnesty program. It covers all the participants to the program between 2002 and 2018. We observe the following variables: date of participation to the amnesty program, the amount of previously undeclared wealth (self-declared) and the amount of revenue that is recovered through taxes, interest and fines. The amount of hidden wealth is measured imprecisely: the self-declared amount is not always reported and missing for all participants before 2011. We use an alternative approach to verify the amount of hidden wealth that relies on the amount of tax recovered through the amnesty. Using this variable, we can approximate the total of hidden wealth using the tax code. Appendix 5 describes in more details our approach and provides evidence regarding the accuracy of our imputation method based on the comparison of declared and imputed hidden wealth.

We restrict the initial sample of participants in the analysis from Section 3 onwards. First, we

consider only participants from year 2008 onward, as we want at least one year with pre-amnesty wealth and we cannot observe wealth before 2007. Second, we consider only amnesty participants who have in fact evaded taxes.<sup>10</sup>

Panel A of table 2 presents descriptive statistics on the amnesty data. We observe a total of 27,710 amnesty participants over the years 2002-2018. Participants are predominantly male (68%) and are 65 years old on average. The average amount of hidden wealth is €435,000, while the median is only €143,000. There are no major differences between the different waves of the data, except for year 2012 when the mean hidden wealth is €1.5 million, due to a small number of very large hidden wealth holdings.

The number of participants, however, varies a lot from year to year. This is graphically illustrated in Figure 1, showing the timing of participation to the amnesty program. Interestingly, the number of participants by date exhibits large spikes just before the increases in the penalty rate. This behavioural response to the change in penalty rates is particularly pronounced in 2009 and 2014, just before the end of amnesty periods with 0% penalty rates.<sup>11</sup> In Figure 2, we decompose wealth declared through the amnesty program into different origin countries. In all years, Switzerland accounts for the bulk of amnesty wealth, with Belgium and Luxembourg accounting for most of the remainder.

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<sup>10</sup>A number of individuals participated in the amnesty program but did not have to pay any additional taxes. This may be due to the fact that their wealth was already reported (through third party reporting) or not subject to taxation (through a bilateral tax treaty).

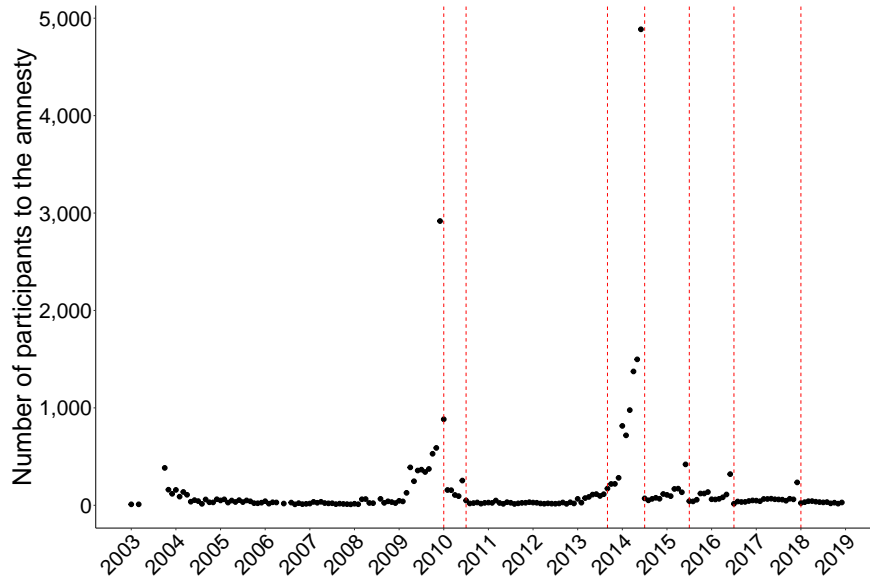
<sup>11</sup>Note that the date of participation to the amnesty is not precisely measured before 2011 in the amnesty data, which results in less clear bunching in participation for those years.

Table 2: Descriptive statistics on amnesty program and Swiss information request

Year	Observations	Demographics		Hidden wealth			
		Mean age	Share women	Mean	Q1	Median	Q3
<b>A. Amnesty program</b>							
All	27,710	65	32	435,427	48,308	142,954	404,120
2002	20	65	5	286,017	75,197	166,420	364,720
2003	709	63	25	222,401	21,000	62,741	207,075
2004	823	62	29	270,953	19,845	68,100	215,870
2005	469	65	29	412,796	41,775	117,666	358,758
2006	234	66	34	530,882	43,035	121,858	451,095
2007	244	67	26	573,413	65,314	167,404	452,366
2008	396	66	28	553,770	61,943	185,704	497,756
2009	6,324	64	32	493,550	58,787	170,325	469,060
2010	1,814	64	31	547,041	45,037	148,925	431,320
2011	349	65	39	448,667	42,925	140,583	415,200
2012	256	67	37	1,469,531	67,189	240,337	653,037
2013	1,581	66	31	642,238	90,200	278,166	672,191
2014	10,716	65	33	412,176	56,558	156,400	409,929
2015	1,612	65	37	295,927	39,454	105,387	258,427
2016	919	64	33	230,917	32,941	88,416	211,891
2017	878	63	36	194,238	19,660	52,783	161,254
2018	366	63	35	174,527	19,025	47,895	142,895
<b>B. Swiss information request</b>							
All	616	65	40	143,561	40,968	84,716	190,012

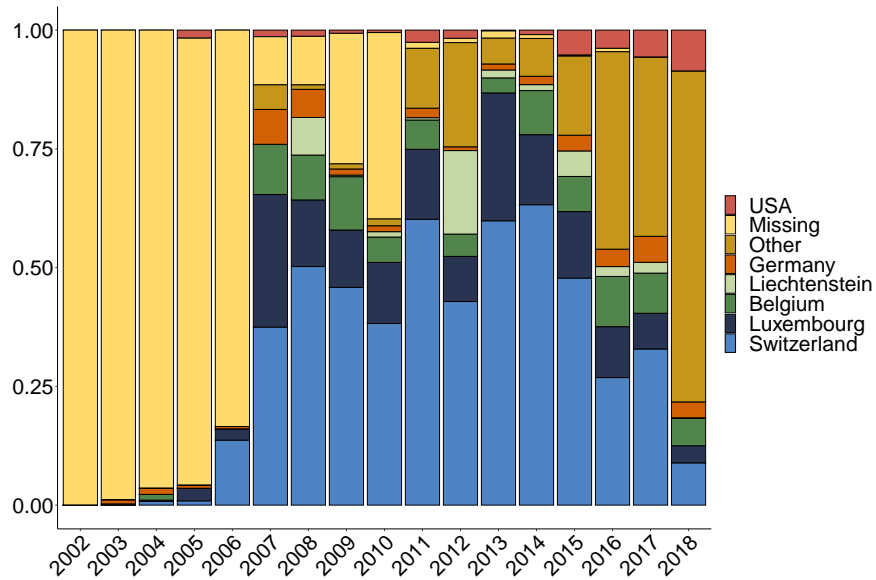
*Note:* This table describes the two data sources used to quantify offshore wealth. The amnesty dataset contains all the participants to the amnesty program. Hidden wealth is imputed on the basis of the amount of tax recovered by the tax administration (see Appendix A). The Swiss data contains all the previously undeclared accounts that were transmitted to the tax administration through the information exchange program. Hidden wealth is the amount reported on the account by the banks.

Figure 1: Amnesty participation by month



*Note:* This figure shows the number of declarations of offshore wealth for each month between January 2005 and December 2018. This number is almost identical to the number of amnesty participants, except for a small number of cases of participants who enter the program multiple times. Before 2011, we do not observe the precise date when participants first registered for the amnesty. Instead, we observe the date when the tax administration starts the amnesty process. Due to output restrictions, we cannot disclose the precise number of declarations for months when this number lies below 10. The red lines denote changes in the penalty rate from 0% to 15%, 30%, 0%, 30%, 60%, 120% and 300% (see Table 1).

Figure 2: Origin of amnesty wealth by year



*Note:* This figure shows the origin country of of wealth declared through the amnesty program. Before 2011, the category “Missing” includes cases with multiple origin countries.

**Swiss information request** One of the challenges with voluntarily tax amnesties is their representativeness for households who have not yet declared their hidden wealth. To investigate this

issue, we use data on households who were found to have evaded taxes on bank accounts held at four banks (UBS, Credit Suisse, Julius Bär and BNP Paribas). These data are the result of information requests that the Dutch tax administration filed between 2015 and 2018 on the basis of the bilateral tax treaty between the Netherlands and Switzerland. The households covered by the information requests had previously been sent a letter by their Swiss bank asking for a confirmation that their wealth had been declared to the relevant tax authorities. The data consist of the account balance on February 1, 2013, December 31, 2013, December 31, 2014, December 31, 2015 and December 31, 2016, taxes, fines and interest payments recovered.

These data differ crucially from the amnesty data in that tax evasion was uncovered involuntarily. As such, it may be more representative of undeclared wealth that has not yet been detected by the Dutch tax administration. On the other hand, the information request covers only direct owners of Swiss bank accounts, a relatively unsophisticated type of tax evasion.

Panel B of Table 2 presents descriptive statistics on the Swiss information request. We observe 616 individual accounts, which corresponds to a very small share all the Swiss accounts held by Dutch citizens<sup>12</sup> The average amount hidden is significantly lower than in the amnesty data (€144,000). The mean is also closer to the median and lower than the third quartile. This suggests that there are fewer very large amounts hidden in the Swiss data.

This small number of observations and relatively low wealth holdings can have multiple, related explanations. First, the information request targeted four Swiss banks which may hold only a small fraction of Dutch households' Swiss wealth. Second, the banks may not have sent a letter to all owners of non-declared accounts and more sophisticated tax evasion structures, involving offshore companies or trusts, may have gone unnoticed completely.

## 3 Wealth inequality and tax evasion

### 3.1 Who evades taxes?

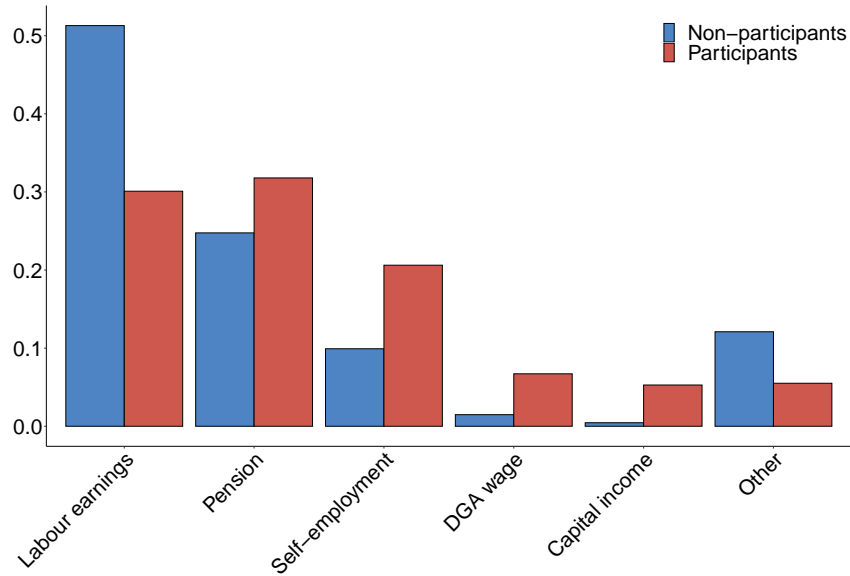
By linking the amnesty data to information on households' income and wealth, we get a sense of the types of households who have evaded taxes. In Figure 3, we group amnesty participants and non-participants by their household's main income source. Participants are overrepresented in the categories "Pension", "Self-employment", "DGA wage"<sup>13</sup>, and "Capital income". While the "Pension" category may simply reflect the higher age of amnesty participants, the other categories point to the less extensive third-party reporting that these sources of income are subject to (Kleven et al., 2011).

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<sup>12</sup>Around 15,000 Swiss accounts are declared each year according to the tax data.

<sup>13</sup>This is the "competitive" salary that manager directors (*Directeur-Grootaandeelhouder*) are required to pay themselves.

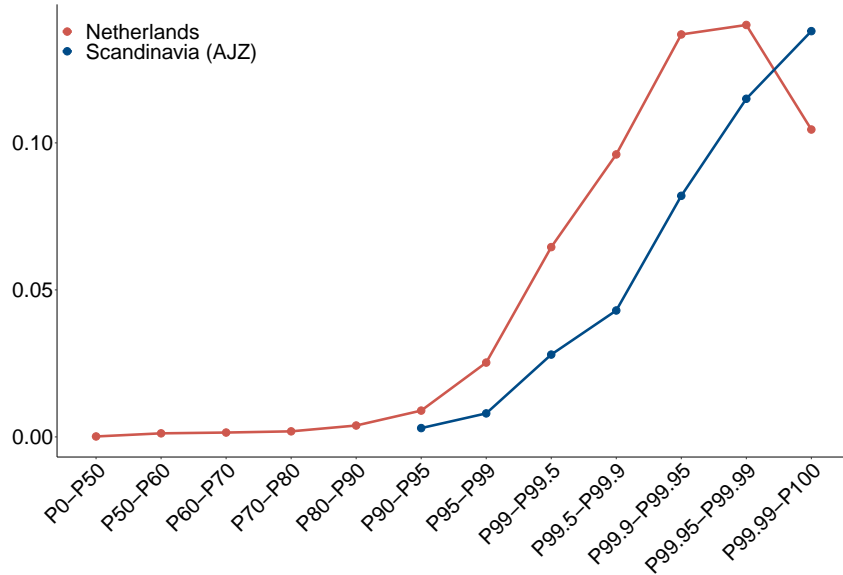
Figure 3: Main source of income



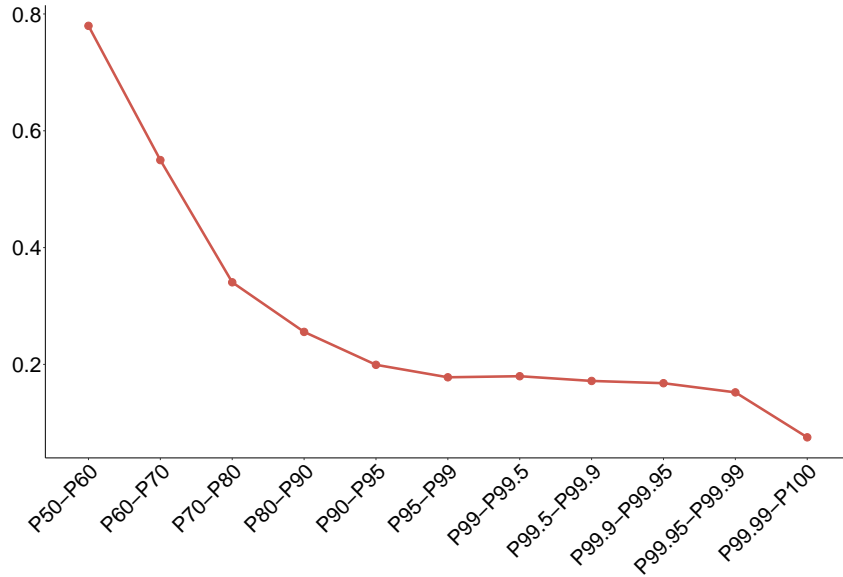
*Note:* This figure shows the main source of income for amnesty participants and the rest of the population. For over half of non-participants “labour earnings” constitutes the main source of income, while this is the case for only 30% of amnesty participants. Note that these categories are defined on the basis of declared income (i.e. excluding hidden income).

Next, we consider the likelihood of participating in the amnesty by wealth group in Figure 4. For this purpose, we add wealth declared through the amnesty and wealth discovered through the Swiss information request to the amount of wealth in the administrative records in 2007. Compared to Alstadsæter, Johannesen and Zucman (2019), amnesty participation in the Netherlands is more prevalent among all wealth groups, with the exception of the top 0.01%. Still, the likelihood of amnesty participation increases strongly with wealth such that for the wealthiest households over 10% participated in the amnesty. A second difference with the findings by Alstadsæter, Johannesen and Zucman (2019) concerns the share of hidden wealth in total wealth, conditional on hiding wealth. While this share is essentially constant for the wealth groups within the top 10% in Scandinavia, it falls from just under 20% for the first half of the top 10% to only 7.5% for the top 0.01%.

Figure 4: Amnesty program: intensive versus extensive margin  
 (a) Probability to participate in amnesty



(b) Share of wealth declared through amnesty (% of total wealth)



*Note:* Panel A of this figure shows the fraction of households in each wealth group who participated in the tax amnesty over the period 2008 to 2018 (extensive margin). Wealth groups are defined in terms of 2007 wealth. The Scandinavian data represent the probability of Norwegian and Swedish households to declare wealth through the amnesty and are taken from Alstadsæter, Johannesen and Zucman (2019), Appendix G, Table 2. Panel B shows the share of wealth declared through the amnesty as a share of total wealth, including amnesty wealth, conditional on amnesty participation (intensive margin).

Ultimately, what matters is the distribution of hidden wealth. Figure 5 reports the share of wealth (including wealth declared through the amnesty program and wealth discovered through the Swiss information request) and the share of amnesty wealth owned by each wealth group. The top



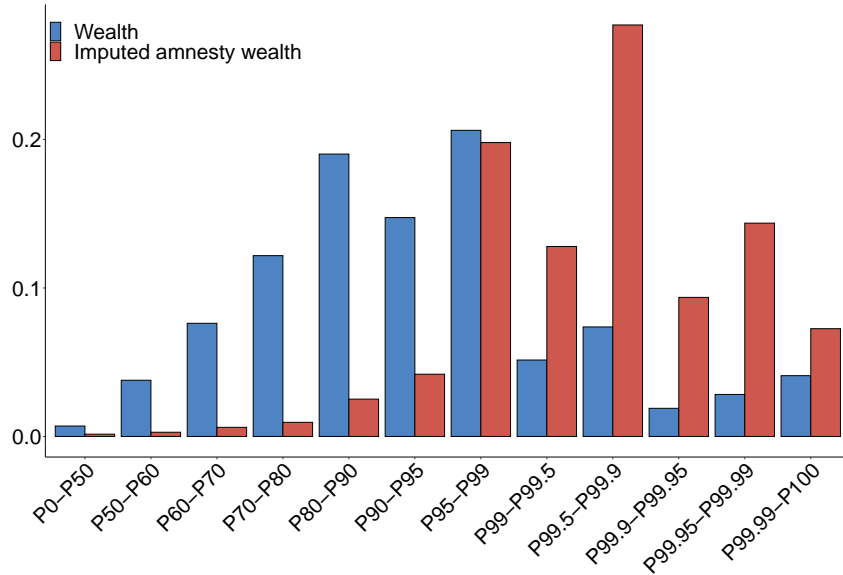
0.01% owns 4% of wealth and over 7% of amnesty wealth.<sup>14</sup>

By decomposing amnesty wealth into the origin countries, we find interesting differences. Focusing on the three most important origin countries in Panel B of Figure 5, amnesty wealth that was hidden in Belgium appears to be the least concentrated with the top 0.1% accounting for less than 4% of Belgian amnesty wealth. Conversely, the top 0.1% of households owns almost a third of all amnesty wealth originating from Switzerland. This finding emphasises that different types of tax evasion are practiced by different groups in the population. To the extent that still ongoing tax evasion structures differ from the ones used by amnesty participants, the distribution of tax evasion may also differ.

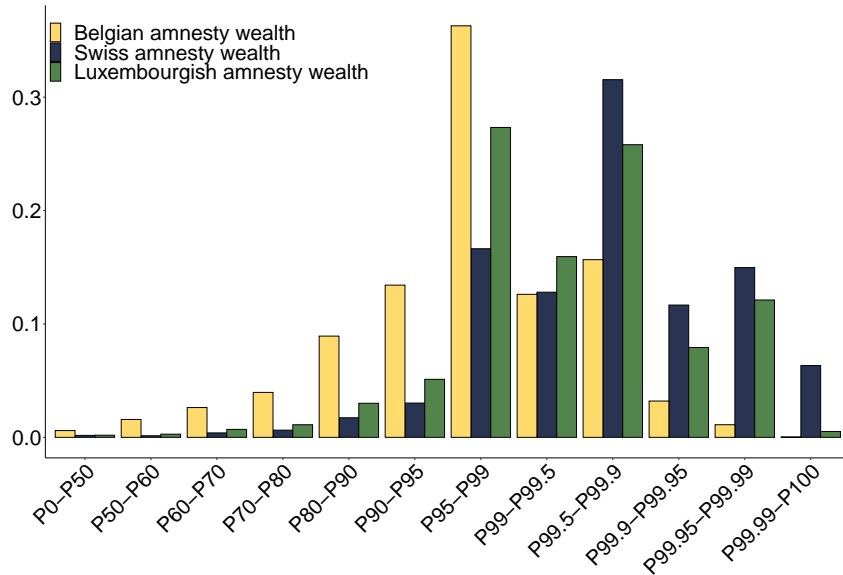
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<sup>14</sup>While amnesty wealth is more highly concentrated at the top than total wealth, Scandinavian amnesty wealth is even more concentrated: the top 0.01% owns almost 48% of all amnesty wealth.

Figure 5: Distribution of wealth and amnesty wealth  
(a) Share of total wealth and amnesty wealth by wealth group



(b) Share of amnesty wealth with different origin countries by wealth group



*Note:* Panel A of this figure shows the share of wealth and amnesty wealth held by each of the wealth groups. Panel B shows the share of amnesty wealth originating from Belgium, Luxembourg, and Switzerland held by each of the wealth groups.

### 3.2 Evasion-adjusted wealth distribution

Statistics Netherlands has published consistent series of wealth inequality for the universe of Dutch households for the period 2011-2017 (Van Den Brakel and Pouwels-Urlings, 2019). According to these estimates, the top 10% accounts for 64% of wealth in 2017. However, pension assets are not included in this definition of wealth. In more recent work, Statistics Netherlands has estimated

wealth inequality in a manner consistent with the national accounts for the years 2015 and 2016 (Bruil, 2019). By including pension assets, the top 10% wealth share falls to the mid-40s. As such, wealth inequality appears to be relatively low in international comparison; the top 10% share is equal to 73% in the US and 55.3% in France (data from 2014, [wid.world](#)).<sup>15</sup>

An important shortcoming of traditional wealth inequality estimates is that they ignore offshore wealth, as it is observed in neither survey nor administrative data. This issue has been addressed first by Roine and Waldenström (2008, 2009) for the case of Sweden and most recently by Alstadsæter, Johannesen and Zucman (2018*b*, 2019) for a larger number of countries. The exercise typically starts by taking an estimate of total offshore wealth that belongs to a country and assigning this amount to different wealth groups.

Zucman (2013) estimates that 8% of global financial wealth or \$5.6 trillion is held in tax havens, most of it undeclared to tax authorities. Alstadsæter, Johannesen and Zucman (2018*b*) assign this total to individual countries using statistics collected by the Bank for International Settlements regarding the owners of deposits held in tax havens. According to this method, the Netherlands' offshore wealth is equal to 6% of GDP in 2007 and 8.8% in 2015, less than the international average of 9.8%. One should keep in mind that almost 80% of Dutch assets are real estate or pension assets, neither of which can be offshored easily.

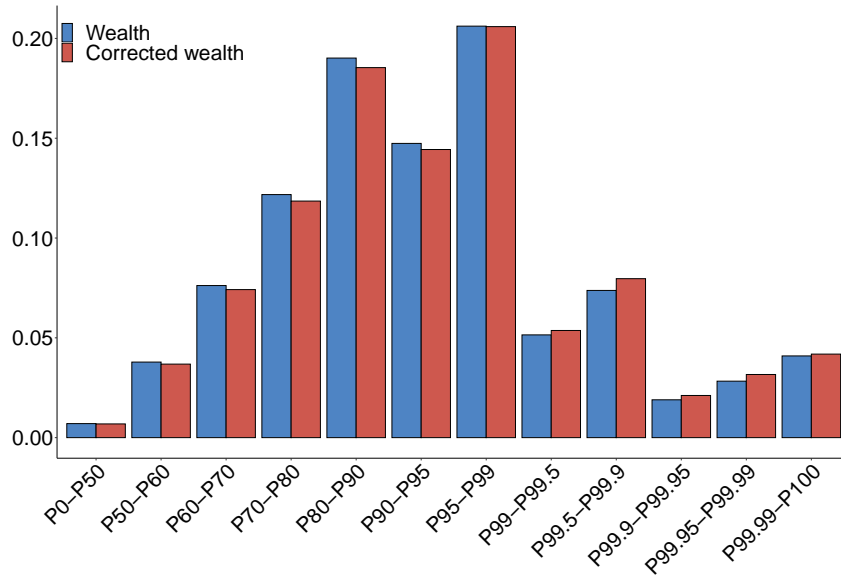
The effect of offshore tax evasion on inequality statistics depends on (i) the amount of offshore wealth and (ii) the concentration of offshore wealth. Alstadsæter, Johannesen and Zucman (2019) find that in Norway offshore tax evasion is almost entirely concentrated among the top 0.1%. The share in total wealth owned by the top 0.1% increases from 8.4% to 9.8% when unreported offshore wealth is taken into account.

Performing this exercise for the Netherlands results in a small adjustment of top wealth shares as can be seen in Figure 6: the top 0.1% increases from 8.8% to 9.4%, less than half the adjustment for Norway. Mechanically, the difference can be explained by the fact that wealth declared through amnesties is substantially less concentrated in the Netherlands compared to Norway. If we were to include pension assets in our definition of wealth (as done by Alstadsæter, Johannesen and Zucman (2019)), this adjustment would likely be even smaller, simply because the share of offshore wealth in total wealth would fall.

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<sup>15</sup>An important limitation of both Dutch estimates is that closely held assets are valued at book value. According to new research, this may result in an understatement of this asset by a factor 2 (Ministerie van Financiën, 2020). Statistics Netherlands is currently revising its method of valuing such assets and we do not attempt to correct for this at the moment.

Figure 6: Evasion-adjusted wealth distribution



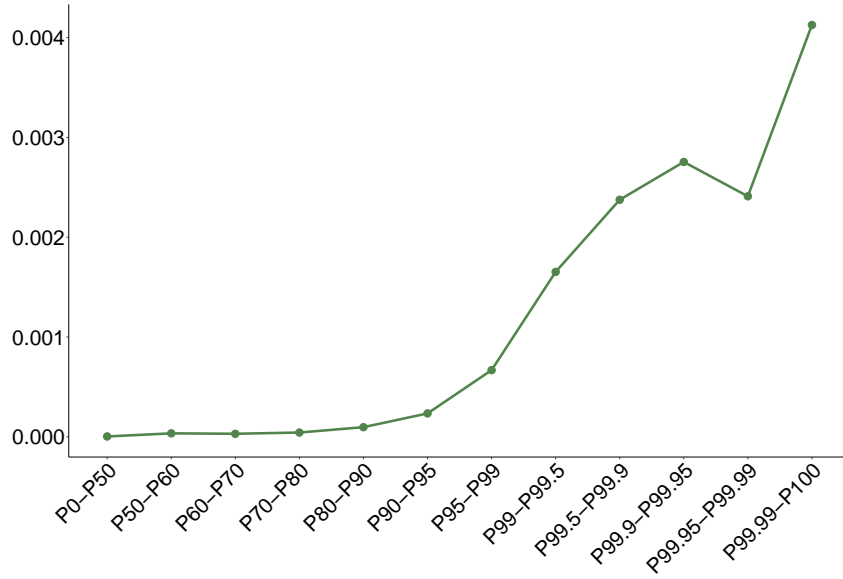
*Note:* This figure shows the distribution of wealth, before and after assigning offshore wealth using amount of offshore wealth held by Dutch households reported by Alstadsæter, Johannesen and Zucman (2018b) and the distribution of wealth declared through amnesties.

### 3.3 Representativeness of the amnesty

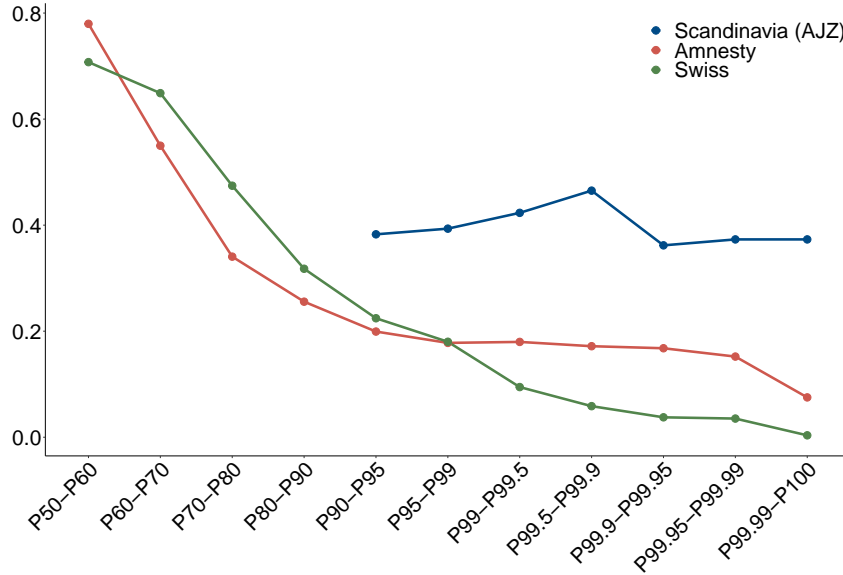
A key assumption for assigning offshore wealth to wealth groups is that the distribution of amnesty wealth is representative for the distribution of hidden wealth. For this purpose, we investigate the group of households discovered as tax evaders through the Swiss information requests. While the discovery of tax evasion was involuntary from the perspective of the evaders, it cannot be considered to be random as it is the result of a specific enforcement action and legal context, i.e. the Dutch-Swiss bilateral tax treaty.

First of all, the number of households, 616, is a lot lower than found through the tax amnesty. Despite this difference, the slope in Figure 7 is remarkably similar to that in Figure 4: the probability to appear in the Swiss group request is low for all groups below the top 10% and increases strongly for the top groups. In panel B of Figure 7, we compare the share of Swiss wealth in total wealth to that for amnesty reported in panel B of 4. This share is extremely low for the highest wealth groups: less than 10% for all groups in the top 1%.

Figure 7: Swiss information request: intensive versus extensive margin  
 (a) Probability to appear in Swiss information request



(b) Share of hidden wealth (% of total wealth)

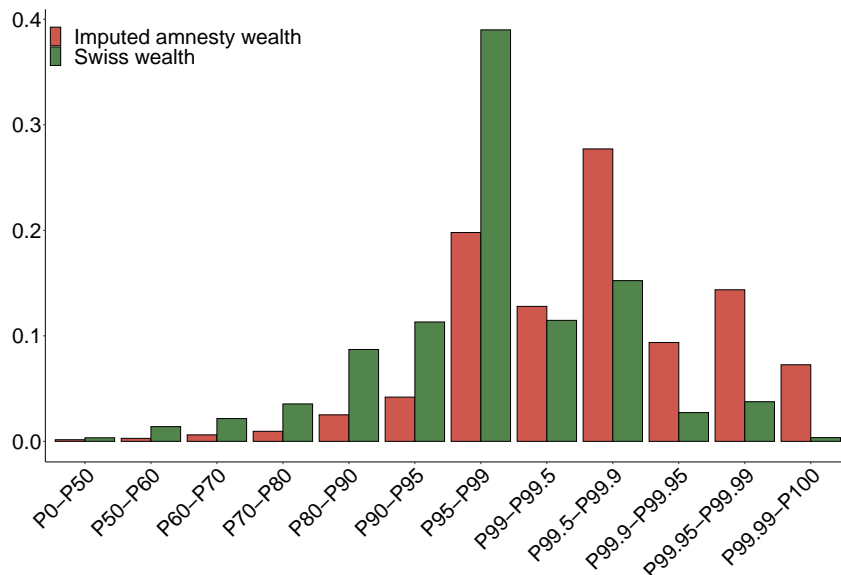


*Note:* Panel A of this figure shows the fraction of households in each wealth group who were discovered through the Swiss information request (extensive margin). Wealth groups are defined in terms of 2007 wealth. Panel B shows the share of wealth discovered through the Swiss information request as a share of total wealth (including Swiss wealth), compared to the share declared through the amnesty (intensive margin). The Scandinavian data represent the intensive margin of Scandinavian households with an account at HSBC Switzerland and are taken from Alstadsæter, Johannesen and Zucman (2019), Appendix E, Table 6.

Turning to the distribution of wealth discovered through the Swiss information request, we find in Figure 8 that it is less concentrated than wealth declared through the amnesty, with the top 0.1% owning less than 7% compared to 31% of amnesty wealth. On the one hand, this is surprising as this

discovery of tax evasion was involuntary. On the other hand, the information request only concerned direct owners of Swiss bank accounts. Zucman (2013) and Johannesen (2014) provide evidence that an increasing share of Swiss bank accounts are part of legal structures that obfuscate the ultimate owner. Consequently, the adjustment to the wealth distribution using the Swiss information request is negligible.

Figure 8: Distribution of amnesty wealth and Swiss information request wealth

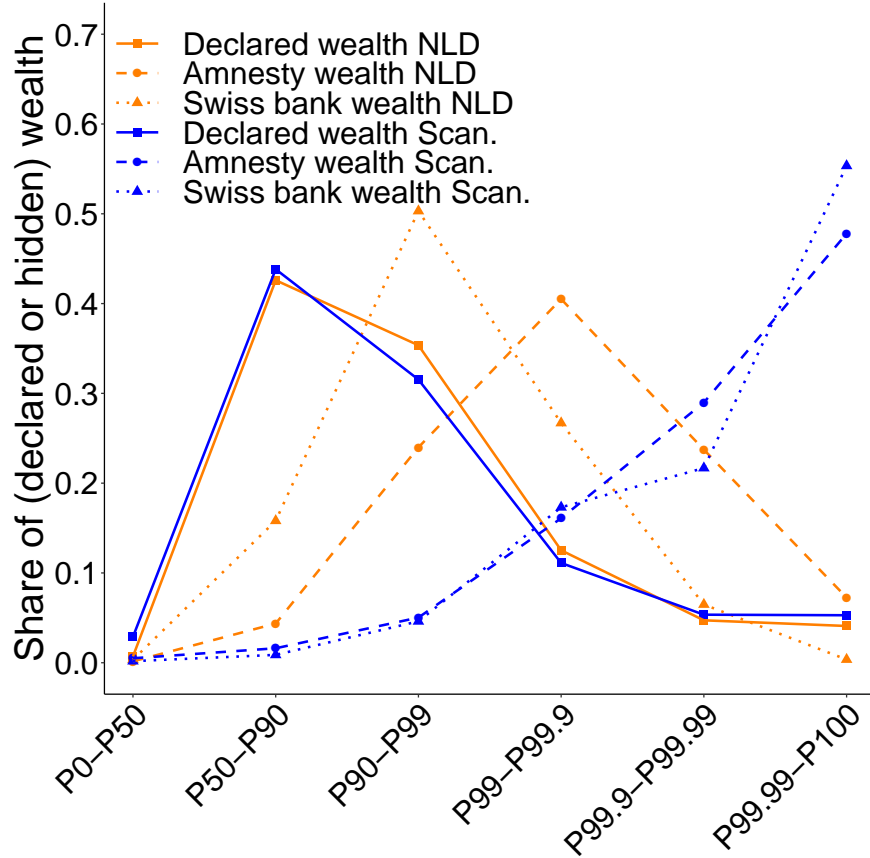


*Note:* This figure shows the share of amnesty wealth and Swiss wealth held by each of the wealth groups. Wealth groups are defined in terms of 2007 wealth.

### 3.4 Discussion of the results

Our results differ from the evidence in Alstadsæter, Johannesen and Zucman (2018b) and Alstadsæter, Johannesen and Zucman (2019). We confirm the finding that hidden wealth is concentrated at the top, but the wealthiest households in the Netherlands appear to own a far smaller share of it than in Scandinavian countries (see Figure 9). We offer some indicative evidence that may help explain these differences.

Figure 9: Distribution of wealth in the Netherlands and Scandinavia



*Note:* This figure shows the distribution of declared and hidden wealth in the Netherlands and Scandinavia. For Netherlands, the figure reproduces the information of figures 5 and 8. Results from Scandinavia are reproduced from Alstadsæter, Johannesen and Zucman (2019) (Figure 4, panel A). Note that “Swiss bank” does not refer to the same type of data in both cases (information request for Netherlands, HSBC leaks for Scandinavia)

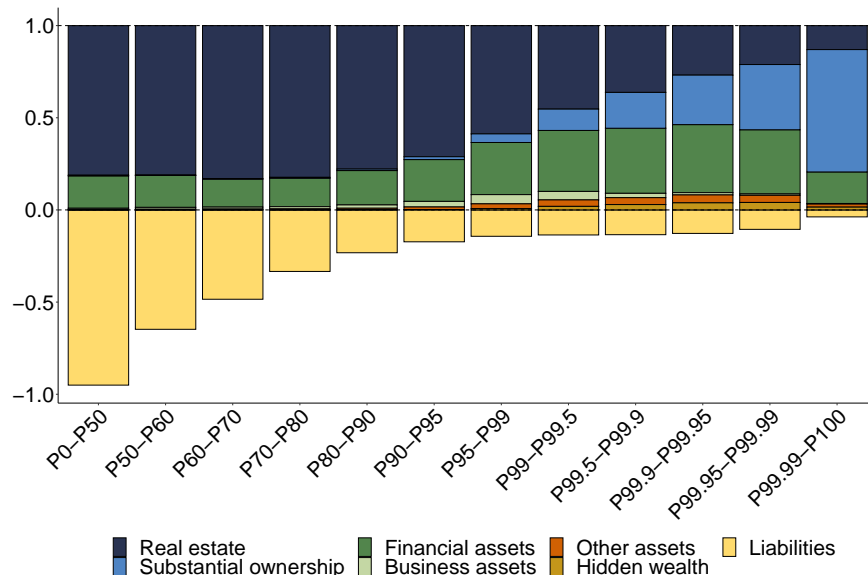
### Effective tax rate at the top of the wealth distribution

While the effect of the tax rate on tax evasion is theoretically ambiguous, empirical evidence suggests that tax evasion is higher when tax rates are higher (Kleven et al., 2011). We do not know the exact effective tax rate across the wealth distribution in the Netherlands, but the structure of wealth shown in Figure 10 offers important insights. At the top, the vast majority of wealth is held as “substantial ownership”, which refers to cases when a household owns over 5% of a company. Profits are taxed by the corporate tax, but accumulated profits remain untaxed until distributed. Distribution of profits is avoided by taking out loans from the company which can be used to finance personal consumption. In 2016, manager directors owed a total of €55 billion, almost 8% of GDP, to their companies (Ministerie van Financiën, 2019). Accumulating wealth as “substantial ownership” may thus provide an interesting legal alternative to hiding wealth abroad.

However, this does not directly explain the differences observed with the Nordic countries, as wealth accumulation through retained profits is possible in most countries. Appendix 5 compares

the difference in tax rates for income and wealth in more detail. The effective tax rate on distributed profits (corporate tax plus the taxation of dividends) is substantially lower in the Netherlands. The higher effective tax rate in the Nordics could result in higher rates of evasion at the top.

Figure 10: Structure of wealth, 2007



*Note:* This figure shows the decomposition of assets for different wealth groups in 2007. Wealth groups are defined in terms of 2007 wealth. “Substantial ownership” refers to corporate wealth in cases where a household’s ownership share exceeds 5%.

## Sophisticated evasion techniques

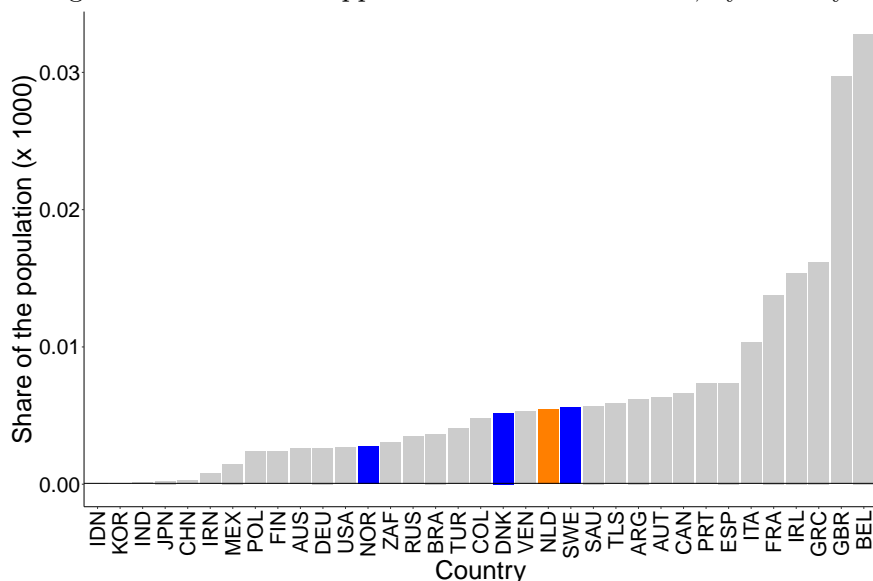
The relatively low share of hidden wealth found at the top of the distribution could also be explained by the type of evasion we are able to detect in the tax amnesty and Swiss information request. In both cases, one could expect that the most sophisticated type of evasion would be under-represented. This is particularly likely for the Swiss data as it contains only individual accounts,<sup>16</sup> which is arguably a rather naive evasion technique. Moreover, the Netherlands’ proximity to Belgium, Luxembourg, and to some extent Switzerland, means that the logistical cost of hiding wealth abroad is small even for moderately wealthy households. The implication is that a higher share of hidden wealth is owned by wealth groups lower in the distribution. Finally, interest in amnesty participation increases with the likelihood of detection, and might therefore be less appealing for more sophisticated evaders. Under the (rather plausible) hypothesis that the degree of sophistication of evasion is positively correlated with the level of wealth, we could then expect evasion to be less common at the top in the data we use.

<sup>16</sup>One important difference between the Swiss data they use (HSBC leaks) and the one we use is that the former includes holding as well as individuals accounts. Even though there are only a small number of holding accounts in Alstadsæter, Johannesen and Zucman (2019) (40), it could partly explain the differences observed in the distribution of Swiss hidden wealth.



While the Netherlands is often used as a conduit country for profit shifting by multinational corporations (Lejour, Möhlmann and Van 't Riet, 2020; Tørsløv, Wier and Zucman, 2020), it is unclear whether wealthy Dutch households can access the same resources.<sup>17</sup> Figure 11 presents the number of entities (individuals, companies or firms) appearing in the *Panama Papers*, *Offshore Leaks* and *Swiss Leaks*,<sup>18</sup> as a proportion of the population size. The Netherlands does not appear to be an outlier compared to other countries, including the Nordic ones. Still, it remains difficult to draw definitive conclusions from these data and more could be learned from investigating leaks with more complex types of tax evasion such as the Panama Papers and comparing these to the amnesty participants.

Figure 11: Number of appearances in ICIJ datasets, by country



*Note:* For a selection of 35 countries, we present the number of entities appearing in the ICIJ datasets as a proportion of the population size. Highlighted countries are The Netherlands (orange) and Scandinavian countries (Denmark, Norway, Sweden, in blue). *Source:* ICIJ, accessed in June 2020

## Migration

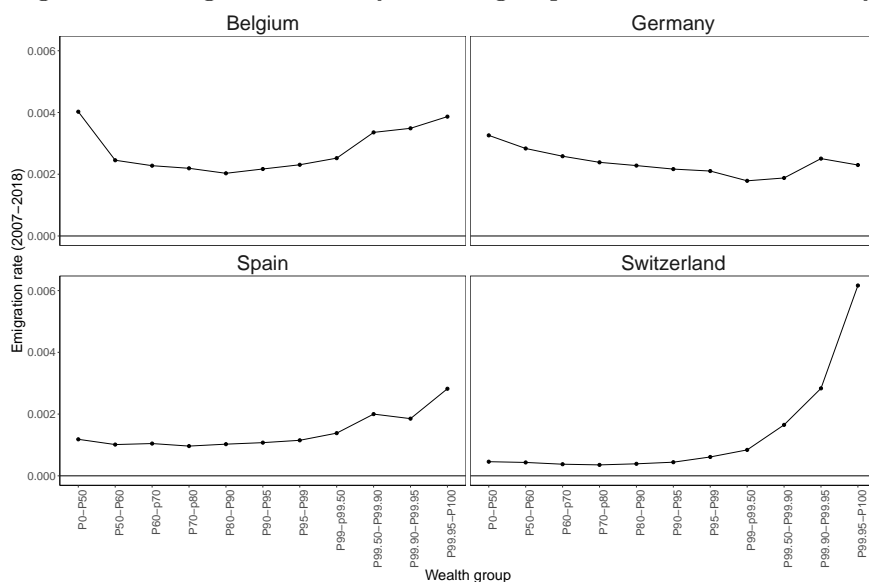
A radical alternative to tax evasion is migration. Rather than breaking the law, households can escape the law entirely by moving one's legal residence. Kleven et al. (2020) reviews a growing body of research that studies the interaction of taxation and migration and points to an increasing number of favourable tax schemes for wealthy foreigners. Geographical and cultural proximity with countries like Belgium, Switzerland and Luxembourg makes it less costly for the wealthiest Dutch

<sup>17</sup>Anecdotally, there does seem to be some overlap. The 2nd richest family Van Der Vorm, who made their fortune after the sale of the cruise line *Holland America Line*, based their holding company HAL Holding N.V. in Curaçao, one of the former Netherlands Antilles. The corporate structure also includes an office in Monaco and a Bermuda trust. In 2016, a number of the Van Der Vorm family members appeared in the Panama Papers with undeclared Bermuda trusts.

<sup>18</sup>Made publicly available by the ICIJ consortium <https://offshoreleaks.icij.org/>.

households to emigrate in order to pay less taxes. As an illustration of this potential channel, Figure 12 presents emigration rates (defined as the probability to emigrate at least once between 2007 and 2017) to different countries for different wealth groups (defined by 2007 wealth).<sup>19</sup> We present three frequent destinations (Belgium, Germany and Spain) along with Switzerland. It appears that the wealth gradient of migration is relatively flat for the first three (with some mild patterns: U-shaped for Belgium, decreasing for Germany, and increasing for Spain). The gradient is much stronger for Switzerland, with a rate increasing from virtually 0 to a rather high level of 0.6% for the top 0.05%. This is confirmed by Table 3 showing the five most popular countries of destination by wealth group. Switzerland is not a very frequent destination overall, but is the most common destination country for the wealthiest group. To the extent that migration can be an alternative to tax evasion, this could partly explain the result we observe. If we do not observe a lot of very rich evaders, it may be because they may have legally migrate in the past.<sup>20</sup>

Figure 12: Emigration rate by wealth group and destination country



*Note:* This figure shows the probability to emigrate to different countries, by wealth group. We consider only individuals born in the Netherlands and registered in the Netherlands in 2007. The emigration rate gives, for each country and wealth group, the probability of migrating there between 2008 and 2018.

<sup>19</sup>In this figure, we focus on individuals born in the Netherlands, but the results hardly change if we include people born elsewhere.

<sup>20</sup>Migration among the highest wealth groups was sufficiently common for the Dutch rich list *Quote 500* to introduce a separate ranking for wealthy Dutch individuals living abroad in 2014. In earlier years, the Belgian town Brasschaat with a population of less than 40,000 and located fewer than 10 kilometres from the Dutch border accounted for 18 of the list's 500 members.

Table 3: Main countries of destination and associated share of total emigration, by wealth group

Wealth group	1st destination		2nd destination		3rd destination		4th destination		5th destination	
	Country	Share	Country	Share	Country	Share	Country	Share	Country	Share
P0-P50	Belgium	0.16	Germany	0.13	UK	0.08	USA	0.05	Turkey	0.05
P50-P60	Germany	0.15	Belgium	0.13	UK	0.06	USA	0.06	Spain	0.05
P60-p70	Germany	0.15	Belgium	0.13	UK	0.07	Spain	0.06	USA	0.06
P70-p80	Germany	0.15	Belgium	0.14	UK	0.07	Spain	0.06	USA	0.06
P80-P90	Germany	0.14	Belgium	0.13	UK	0.08	USA	0.07	Spain	0.06
P90-P95	Belgium	0.13	Germany	0.13	UK	0.08	France	0.07	USA	0.07
P95-P99	Belgium	0.13	Germany	0.12	UK	0.08	France	0.07	USA	0.07
P99-p99.50	Belgium	0.12	France	0.09	UK	0.09	Germany	0.09	USA	0.07
P99.50-P99.90	Belgium	0.14	UK	0.1	USA	0.09	Spain	0.08	Germany	0.08
P99.90-P99.95	USA	0.14	Belgium	0.11	UK	0.1	Switzerland	0.09	Germany	0.08
P99.95-P100	Switzerland	0.16	USA	0.11	Belgium	0.1	UK	0.09	Spain	0.07

*Note:* This table ranks the most common emigration destinations by wealth group over the period 2007-2018. Wealth groups are defined in terms of 2007 wealth. For each wealth group, we present the first five countries of destination and the share of total migration of the group it represents. For example: the main country of emigration (between 2008 and 2018) for individuals of the bottom half of the wealth distribution (in 2007) is Belgium. Belgium amounts to 16% of total migration of that wealth group.

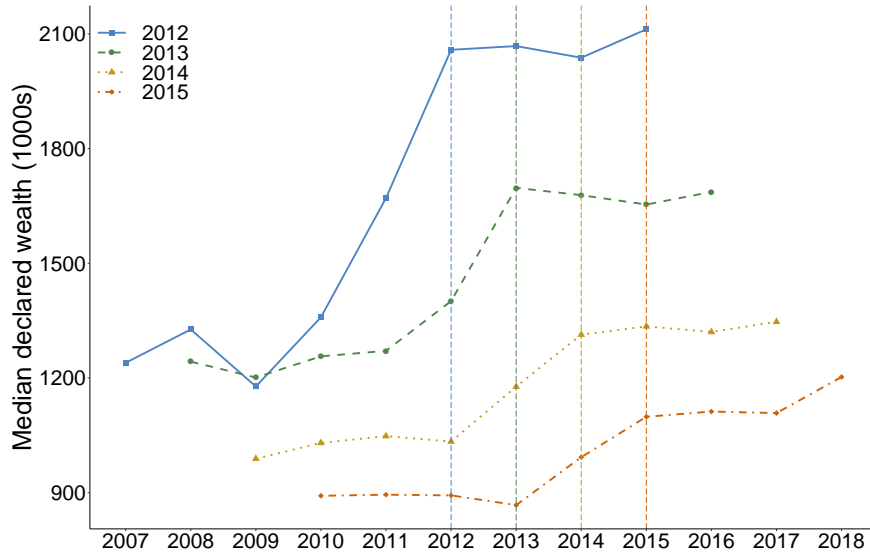
## 4 Behavioural responses to the amnesty program

In this section, we study the wealth dynamics of amnesty participants, following Alstadsæter, Johannesen and Zucman (2018a). The objective is twofold. First, we can document the type of wealth or income that is hidden. Second, it is a way of assessing the effectiveness of policies aimed at curbing tax evasion. From a revenue perspective, reducing tax evasion is desirable only to the extent that it is not compensated by tax avoidance. In this section, we quantify the tax avoidance effect that follows the declaration of previously hidden wealth.

### 4.1 Wealth and income dynamics for participants

We first present raw descriptive statistics of the evolution of wealth held by amnesty households in Figure 13. In each “amnesty cohort”, wealth increases substantially about two years before the wealth is formally declared through the amnesty. This can be explained by the provision that tax returns can be adjusted retrospectively up to two years after filing without any sanction. The wealth increase in the figure understates the amount of wealth declared through the amnesty because amnesty wealth may have already been transferred as a bequest or gift.

Figure 13: Evolution of participants' declared wealth around amnesty



*Note:* This figure shows the evolution of wealth for different “amnesty cohorts”. Wealth starts to increase 2 years before the household actually enters the amnesty because tax returns can be adjusted retrospectively up to 2 years after filing without sanction.

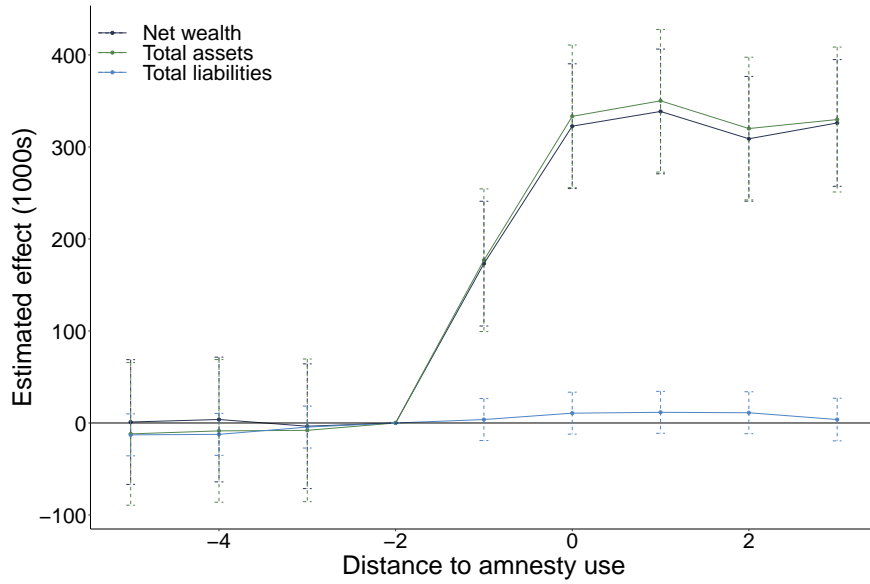
To quantify the magnitude of this change, we estimate the impact of participation to the amnesty on a large set of wealth and income outcomes in an event-study design. To control for trends over time and individual fixed effects, we select a control group of non-participants. For each individual in the treatment group (amnesty participants), we find an exact match based on the following variables: gender, age, and decile of wealth in period  $t-2$ ,  $t-3$  and  $t-4$  before participation to the amnesty. We then estimate the effect of the amnesty participation on wealth declared in tax records using the following event-study specification:

$$Y_{it} = \gamma_t + \lambda X_{it} + \sum_{k \neq -2} \beta_k D_{k,i} + \epsilon_{it} \quad (1)$$

With  $Y_{it}$  a given outcome variable,  $\gamma_t$  year dummies and  $D_k$  dummies for the distance to the amnesty participation, interacted with the treatment dummy for participation to the amnesty. Figures 14 to 18 present the estimated  $\beta_k$  coefficients for different outcomes.

**Effect on total wealth** From in period  $t - 2$ , we observe that total assets gradually increase by €300,000, around +60% of a pre-amnesty wealth level of approximately €500,000.). The effect seems stable, even though we observe a small decrease after a few years, that we discuss in section 4.2. This suggests that individuals who declare their previously hidden wealth do not largely compensate by a later decrease in their wealth, either through real responses or substitution with tax avoidance. As liabilities do not increase much, the effect observed on net wealth is entirely driven by the increase in declared assets.

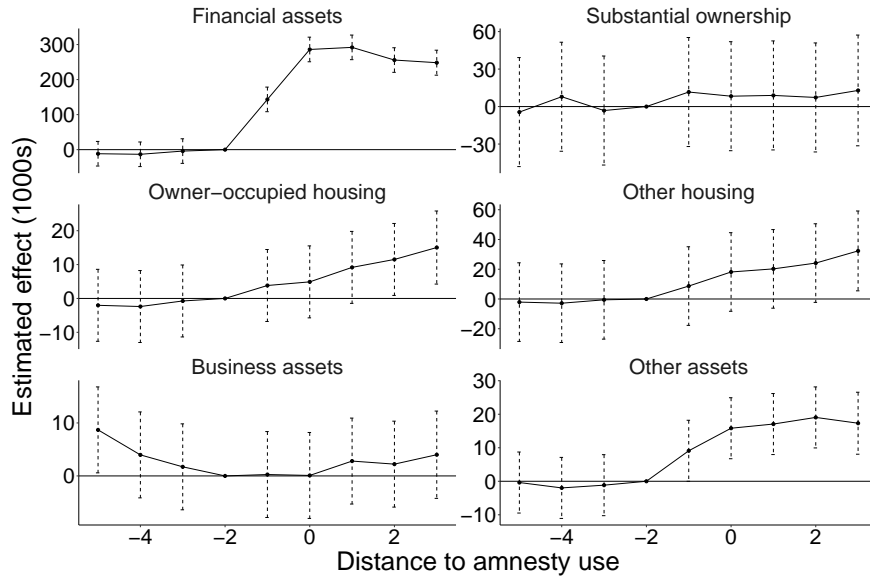
Figure 14: Estimation results: Total wealth, assets and liabilities



*Note:* This Figure present the  $\beta$  coefficients of the estimation of equation 1 using net wealth (dark blue line), total assets (green line) and total liabilities (light blue line). The 0 in the x-axis corresponds to the year of the participation to the amnesty. Some effects can be observed before as tax declaration of t-1 and t-2 can also be modified.

**Effect by type of assets** Figure 15 decomposes the effect on total assets into the different categories available in our dataset: financial assets, business assets, owner-occupied and secondary houses, substantial ownership (*Box 2* wealth) and other assets. The patterns in these estimations suggest that the voluntary disclosure program durably increased the declared amount of financial assets, other assets and housing assets.

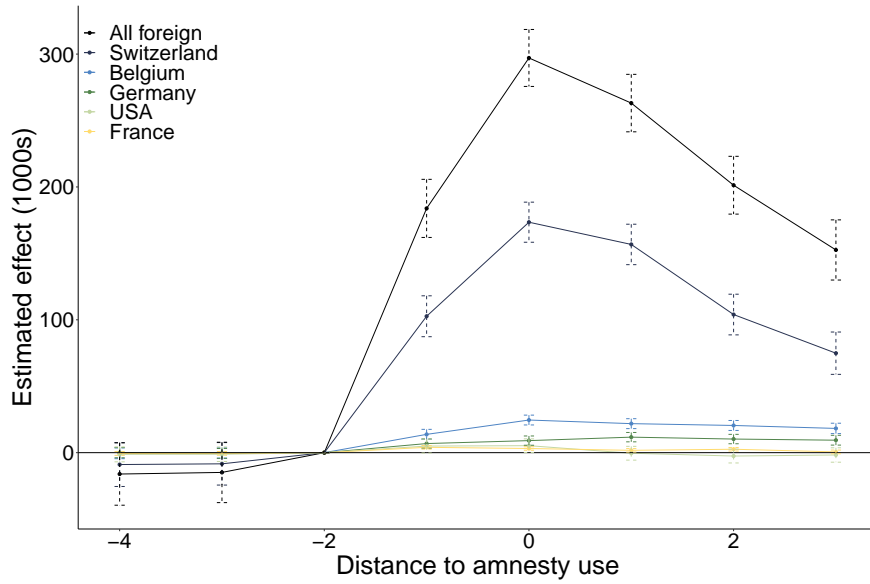
Figure 15: Estimation results: By type of asset



*Note:* This Figure present the  $\beta$  coefficients of the estimation of equation 1 for different types of assets. The 0 in the x-axis corresponds to the year of the participation to the amnesty. Some effects can be observed before as tax declaration of t-1 and t-2 can also be modified.

**Effect on foreign assets** Figure 16 uses the wealth held (through bank accounts and securities) in different countries, and declared as part of *Box 3* wealth, as an outcome variable. Interestingly, there is a large increase in the wealth declared in all foreign countries, almost equal to the estimated increase in financial wealth presented in Figure 15. The decomposition by country of origin shows that a large share of the wealth (more than 50%) was previously hidden in Switzerland, followed by Belgium to a much smaller extent. In terms of dynamics, declared foreign wealth shows a steep decrease following the first sharp increase after amnesty participation. This implies that the wealth is either consumed, bequeathed, repatriated or transferred to countries that do not exchange information with the Netherlands.

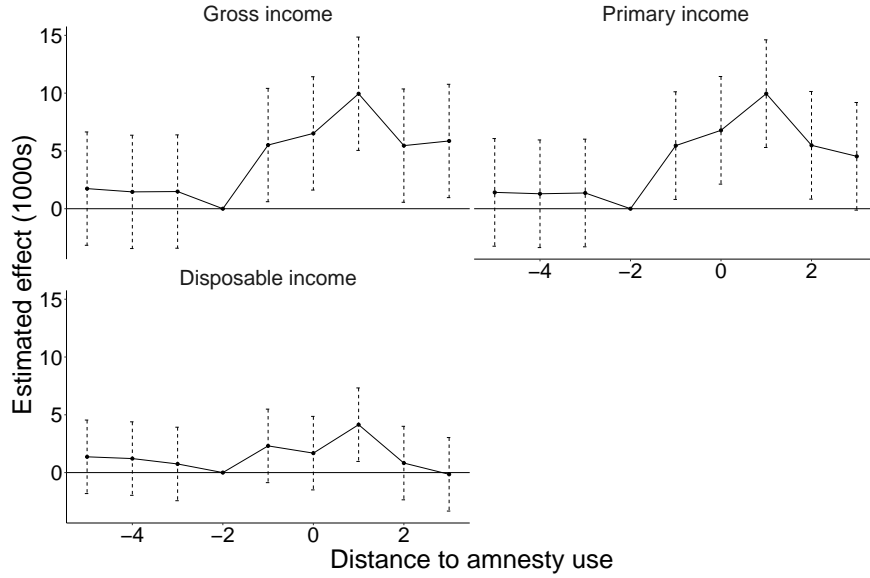
Figure 16: Estimation results: Foreign assets



*Note:* This Figure present the  $\beta$  coefficients of the estimation of equation 1, using total assets declared in different countries as explained variables.

**Effect on income** Finally, we estimate the effect of amnesty participation on income. We use three different types of income. Primary income includes include most taxable labour and capital income. Gross income adds to primary income a number of transfers such as unemployment insurance or social assistance, that are not very relevant for the population of interest. The comparison with disposable income is more interesting as it subtracts all the taxes and contribution paid to the gross income. Figure 17 exhibits an increase in the primary and gross income with the amnesty. Disposable income, on the other hand, shows a more muted increase and ultimately returns to the pre-amnesty trend: the increase in taxes paid offsets the increase in income.

Figure 17: Estimation results: Income



*Note:* This Figure present the  $\beta$  coefficients of the estimation of equation 1, using income as explained variables. Income is computed at the household level. Primary income consists in personal income from different sources (labor and capital). Gross income is equal to primary income adding contributions paid and transfers received. Disposable income is the after tax household income.

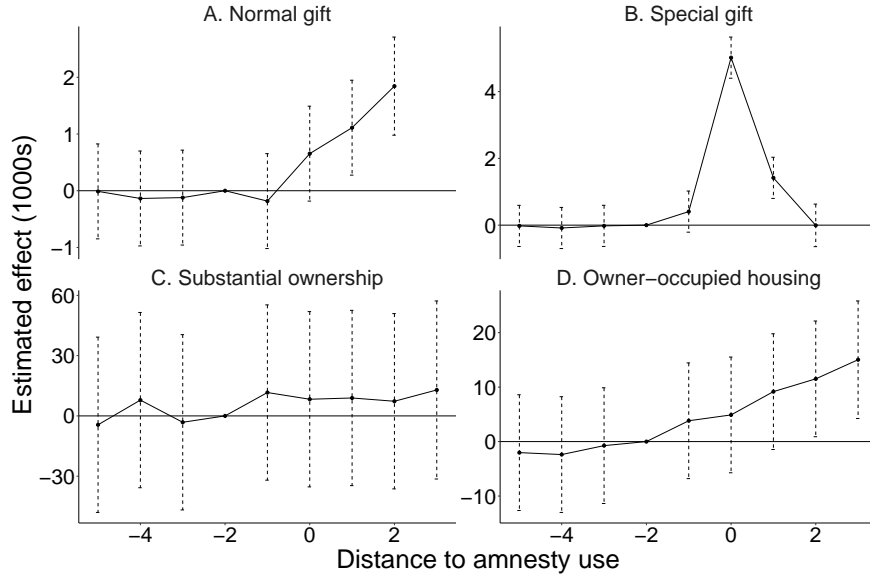
## 4.2 Tax avoidance responses

In figure 15, declared wealth increases sharply around the year of amnesty participation, but starts to decrease after a few years. In particular, we see a decrease in declared financial assets. In section 2, we described the potential channels for tax avoidance, namely to change the composition of assets towards “substantial ownership” of corporations and owner-occupied housing, as well as to transmit wealth to family members. The first two channels will only impact the composition of wealth, whereas the third will change the level.

Figure 18 presents the event-study results for all these channels. There is no clear shift of wealth towards “substantial ownership”, but we do find that amnesty participants are more likely to transfer wealth (both as conventional gifts or as gifts with the explicit goal of buying real estate). Furthermore, the amount of owner-occupied housing owned by amnesty participants increases following the amnesty. As such, we do find some evidence of substitution of tax evasion for tax avoidance, in contrast to Alstadsæter, Johannesen and Zucman (2018a), but the magnitudes are modest.



Figure 18: Estimation results: Avoidance channels



*Note:* This Figure present the  $\beta$  coefficients of the estimation of equation 1, for different potential sources of tax avoidance. Panel A presents the result for the usual financial gift to an heir. Panel B presents the results for the special gift for an owner-occupied house purchase. Panel C and D reproduce Figure 15 for two assets types that are potential avoidance channels (“substantial ownership” and owner-occupied housing)

## 5 Conclusion

While tax administrations have made considerable progress in fighting it, tax evasion remains a seemingly inextricable part of our world. The measurement of inequality has to account for this fact and this paper attempts to do so for the Netherlands. We apply the same methodology as Alstadsæter, Johannesen and Zucman (2019), which leads to only a small adjustment of top wealth shares. Our finding emphasises the importance of the assumed distribution of hidden wealth. If tax evasion discovered through tax amnesties or information exchange differs substantially from current evasion strategies, the distribution of tax evasion in the past may not be representative of that today. In our data, the concentration of tax evasion depends on the offshore country of origin and is increasing in geographical and cultural distance. Whereas most wealth hidden in Belgium, which shares both a border and a language with the Netherlands, was owned by the bottom 99%, the reverse was true for Luxembourgish and Swiss offshore wealth.

We show that tax amnesties can structurally raise declared wealth and find only a very moderate substitution from tax evasion towards avoidance. For a comprehensive evaluation of tax amnesties, it would be necessary to compare this revenue gain to a potential loss of revenue because tax amnesties may induce households to start evading taxes (Langenmayr, 2017).

In any case, our results suggest that current compliance actions, which are ultimately our data sources, leave the Netherlands’ wealthiest households relatively unaffected. Our analysis does not

allow us to distinguish between explanations that rely on tax avoidance, more sophisticated tax evasion or a higher level of virtue among the very rich. Future research could explore these competing explanations, first of all by computing detailed effective tax rates across the wealth distribution. By expanding the study of amnesties, leaks and information exchange to more countries and cases, we could get a better understanding of the different types of tax evasion and their distinct distributional patterns.

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# Appendices

## A. Construction of the hidden wealth variable

This appendix describes the construction of the hidden wealth variable in the amnesty data presented in section 2. The dataset contains information on tax evaders who voluntarily entered the program. They would then declare the wealth or income they had hidden from the tax administration, and pay taxes plus an additional fine. The amount of the fine depends on the date of participation to the program (the schedule is presented in Table 1).

We have the following information regarding wealth hidden abroad. First, we have the amount of hidden wealth that is reported by the amnesty participant when they first register for the amnesty program. Second, we have the different components of the amount that is ultimately claimed by the tax administration, i.e. back taxes, interest on those taxes, and a penalty. We can use the tax code to approximate the amount of hidden wealth using the tax component.

The first measure may not be entirely accurate as it is self-reported and there is no explicit verification of this amount. We observe a large number of missing or unrealistically low amounts, suggesting that participants may not report their hidden wealth accurately - possibly because they may not know the exact amount. The second measure is based on the amount in back taxes ultimately established by the tax administration. To convert this amount into the stock of hidden wealth, we need to make assumptions on the number of years covered by the taxes. In most cases, taxes can be recovered up to 12 years before the participation to the amnesty. Households can legally amend their tax returns up to two years after filing, which means that taxes would cover at most 10 years.<sup>21</sup> We then impute hidden wealth by dividing the amount of taxes recovered by 10 and then by 1.2%, the tax rate relevant for most cases of hidden wealth:

$$\text{Imputed wealth} = \frac{\text{taxes recovered}}{10 \times 1.2\%} \quad (\text{A.1})$$

All the results of the paper are computed based on this imputed amount of hidden wealth. This choice is driven by two main reasons. First, we consider the imputed amount as more reliable as it is based on taxes actually paid as opposed to a self-reported amount. Second, the declared wealth variable is only available from 2011 onwards, while we can use the imputation method for all years.

As a robustness test, Figures A.1 and A.2 present sensitivity analyses for the two possible measures of hidden wealth. As they are subject to very different sources of measurement error, consistency between the two variables is somehow reassuring, as it shows that the measurement errors do not induce major systematic biases.

Panel A of Figure A.1 presents the average imputed wealth as a function of the declared wealth, along with the 45 degree line and a simple OLS estimation of the imputed wealth over the declared

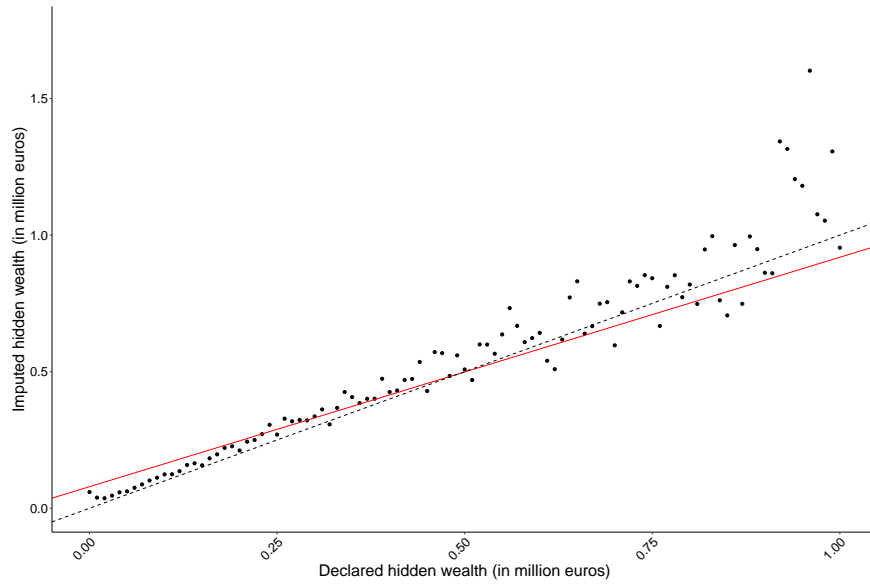
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<sup>21</sup>Based on discussions with the tax administration, the actual average number of years lies slightly, but not much below 10. For this reason, our imputed value can be interpreted as a lower-bound.

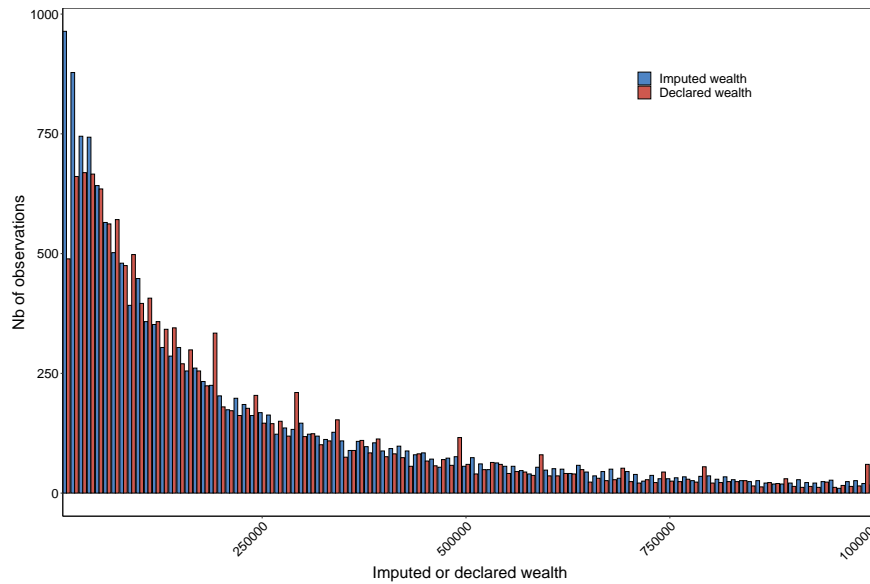
wealth. The relationship between the two variables is strong (coefficient of 0.84 for the regression). The imputed value is higher for higher level of declared wealth. This can be due to a more difficult assessment of their own wealth for very wealthy evaders. Panel B of Figure A.1 present the distribution of the two variables. Both distributions are very similar, except at the bottom of the distribution where we have more individuals for the imputed variable.

Finally, Figure A.2 presents the distribution of both variables across wealth groups. Reassuringly, hidden wealth shares are very similar for the two definitions.

Figure A.1: Comparison of declared and imputed amnesty wealth  
 (a) Average by wealth bins



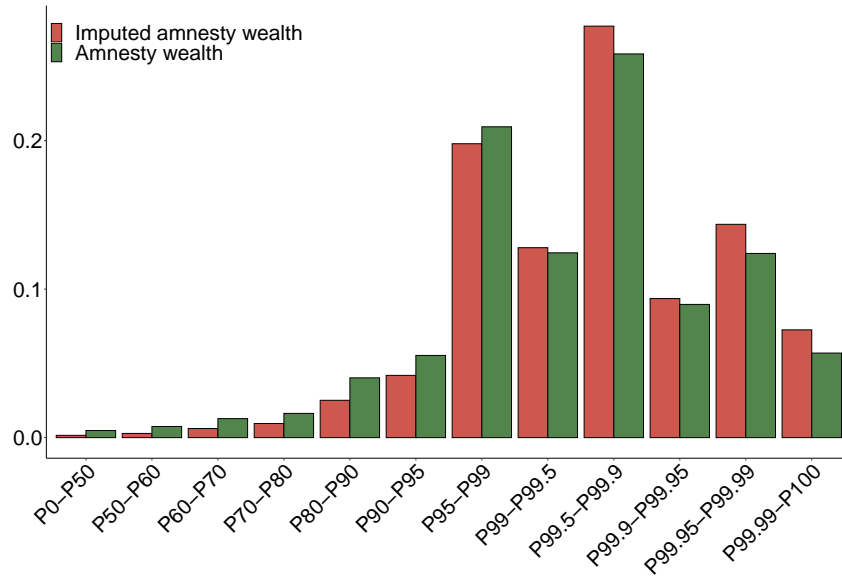
(b) Distribution



Source: Amnesty data from the tax administration.

Note: Panel (a) presents the average imputed wealth as a function of the average declared wealth in the amnesty. The black dotted line presents the 45 degree line, and the red line present the results (constant and slope) of a linear regression with the declared (imputed) wealth as independent (dependent) variable.

Figure A.2: Distribution of self-reported and imputed amnesty wealth



Source: Amnesty data from the tax administration.

Note: This figure compute the wealth shares of hidden wealth by wealth group (see section 3 for details) for the imputed and declared amount of hidden wealth.

## B. Comparison of tax system in the Netherlands and Nordic countries

In our analysis, we compare tax evasion by Dutch households to that by Scandinavian households. The Netherlands, Denmark, Norway, and Sweden are similar in terms of per capita income, openness and size of the economies. In this section we compare tax rates and rules across the different countries. Evasion decisions may have been taken many years ago, which complicates this comparison. As a baseline, we present 2007 information in Table B.1, but also note important changes such as the abolishment of certain taxes.

The following differences can be highlighted:

- Scandinavian countries have repealed wealth and inheritance taxes over the past three decades. Before 2001, the Netherlands taxed both the income from as well as the stock of wealth. This system has been replaced by a system that only taxes the stock of wealth.
- Investing in owner-occupied housing is a lot more attractive than holding bank deposits in the Netherlands. This could explain the relevance of his tax avoidance channel for the Netherlands.
- Taxes on distributed profits are higher in Scandinavian countries compared to the Netherlands. Whereas they are comparable to the personal income tax rate in the former case, the Dutch tax rate lies considerably lower.



Table B.1: Tax rates for various taxes related to wealth in the Netherlands and the Scandinavian countries

Tax	Netherlands	Denmark	Norway	Sweden
<b>A. Wealth and inheritance taxes</b>				
Wealth tax <sup>1,23</sup>	1.2%	1% (Abolished 1997)	0.9-1.1%	1.5% (Abolished 2007)
Inheritance tax (inheritance by child) <sup>4</sup>	5-27%	15%	8-20% (Abolished 2014)	10-30% (Abolished 2004)
Estate, inheritance and gift taxes (% GDP) <sup>5</sup>	0.3%	0.2%	0.1%	0.0%
<b>B. Marginal effective tax rates for household savings at 500% of average wage<sup>6</sup></b>				
Bank deposits	40%	57.8%	35%	68.8%
Shares	40%	57.8%	35%	28.3%
Owner occupied (equity/debt)	10.5% / -14.5%	21.3% / 23.1%	6.1% / 6.1%	16.7% / 41.3%
Other housing (equity/debt)	49.8% / 49.8%	58.1% / 62.1%	24.1% / 24.1%	66.6% / 87.6%
Pension (deductible/non-deductible)	0% / 0%	21.1% / 21.1%	50.6% / 50.6%	0% / 68.8%
<b>C. Tax rates on corporate profits and dividends<sup>7</sup></b>				
CIT rate	25.5%	25%	28%	28%
CIT plus tax on dividends	41.89%	57.25%	49.6%	48.16%

*Note:* All tax rates in Panel A refer to 2007, except when the tax was abolished before, in which case the tax rate in the final year before abolishment is reported. The METRs in Panel B are expressed in terms of the rate of return and are calculated using a fixed 3% pre-tax return. "Marginal" refers to the decision whether or not to increase the stock of a certain asset class.

*Sources:*

- <sup>1</sup> European Commission and EY. 2014. "Cross-country Review of Taxes on Wealth and Transfers of Wealth"
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- <sup>3</sup> The Norwegian Tax Administration. 2020. "Wealth Tax", <https://www.skatteetaten.no/en/rates/wealth-tax/?year=2007>
- <sup>4</sup> Arnd Plagge, Kenneth Scheve and David Stasavage. 2011. "Comparative Inheritance Taxation Database - Codebook"
- <sup>5</sup> OECD. 2019. "Revenue Statistics 2019", OECD Publishing, Paris.
- <sup>6</sup> OECD. 2018. "Taxation of Household Savings", *OECD Tax Policy Studies*, No. 25, OECD Publishing, Paris.
- <sup>7</sup> OECD. 2020. "Corporate Income Tax: Overall statutory tax rates on dividend income (Edition 2019)", OECD Tax Statistics (database), <https://doi.org/10.1787/20e80055-en> (accessed on 26 July 2020).

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- 2) reform of EU policies and the EU budget,
- 3) capital markets and the regulation of the financial sector and
- 4) governance and macroeconomic policy in the European Monetary Union.

Its task is also to transfer its research results to the relevant target groups in government, business and research as well as to the general public.