

A wealth tax at work^{*}

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Abstract

Over the past decade, the question of whether and how to tax household wealth has risen to the forefront of policy debates across the world. Norway belongs to only a handful of countries that (still) levy an annual net wealth tax. We exploit rich Norwegian administrative data to perform descriptive analyses that address questions at the focal point of the wealth tax debate. We discuss how the taxation of wealth fits in with the personal income tax. We further investigate the redistributive effects of wealth taxation, and explore the extent to which wealth taxation may cause adverse liquidity effects for private firms. Finally, we consider the effects of wealth taxation on charitable giving. Taken together, we see the evidence presented here as not weakening the case for upholding the tax: we find favorable distributional effects and the efficiency losses appear to be limited.

Keywords: Wealth tax, administrative data, distributional effects, efficiency loss

JEL codes: H21, H23, H25, H31

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1 Introduction

After being in decline for several decades, there are calls for bringing back the annual net wealth tax, a yearly tax on the value of assets minus debt. This has been spurred by both politicians and academics in the U.S., pointing to the wealth tax as an instrument to offset the increased wealth concentration in the country. It is argued, for example, that a tax on net wealth would play a major part in making the super-rich of the U.S. bear more of the tax burden, counteracting the democratic threat of excessive wealth concentration (Saez and Zucman, 2019a,b). There is increased attention devoted to this type of taxation elsewhere too. For example, the U.K. established a Wealth Tax Commission, which recently delivered their final report, see Advani, Chamberlain, and Summers (2020).

Norway is one of the few OECD countries that still levy a comprehensive annual tax on net wealth; Switzerland, Spain, and to some extent the Netherlands, are the others.¹ In 2021, Norwegian wealth above 1.5 million Norwegian kroner (NOK)² is taxed at a rate of 0.85 percent, with some important valuation discounts, for example for primary housing. The tax revenue from wealth taxation is modest, only approximately 15 billion NOK per year, which corresponds to around 1.1 percent of the total tax revenue and 0.4 percent of GDP.

A summary of the experiences from a “wealth tax country” can inform the discussion of wealth taxation. The debate in Norway primarily follows a standard discussion of trade-offs between redistribution and efficiency. Taxation of wealth is seen by supporters as an important tool for reducing economic inequality, whereas others warn about detrimental efficiency effects, for example following from the taxation suppressing the behavior of investors and entrepreneurs. In Norway, as in many other countries, wealth is much more unequally distributed than income, and a progressive wealth tax could be an efficient tool to redistribute economic resources. But this could come at a high cost if the distortions from this type of taxation are large.

The main contribution of the present study is to bring forward evidence on the various dimensions of the wealth tax issue based on information from a country still levying the tax. The contribution primarily consists of reporting empirical evidence. First, however, we refer to possible justifications for wealth taxation based on general tax arguments, in particular discussing wealth taxation as a supplement to the personal income tax. As part of this discussion we refer to empirical evidence on how detrimental this type of taxation is with respect to saving and wealth formation behavior. Although still relatively thin, the empirical literature on how the wealth tax works on various dimensions of economic activity is growing, see for example contributions by Ring (2019) and Brülhart, Gruber, Krapf, and Schmidheiny (2020), based on Norwegian and Swiss data, respectively.

Second, the increased international attention devoted to wealth taxation is to a large extent induced by its expected capacity to redistribute economic resources. Here, we show to what extent it does in the Norwegian case, employing micro data to show how the wealth tax burden is distributed by income and wealth. Given that the Norwegian wealth tax scheme includes a number of discounts, which means that taxable wealth deviates from (real) market wealth, we show how the tax is distributed by market wealth. However, as the wealth tax is seen as supplementing the personal income tax, the main focus is on how it is distributed by income.

¹France had an annual wealth tax until recently, when it was turned into a tax on real estate only. The Netherlands levy a de-facto financial wealth tax by using imputed returns on financial income. Also Belgium and Italy levy wealth taxes on selected items.

²Roughly equal to 140,000 euros or 160,000 US dollars (when using exchange rates for 2020; 1 U.S. dollar = 9.40 NOK and 1 Euro = 10.72 NOK).

Third, we address the problem of liquidity aspects of wealth taxation. Taxation of wealth implies that it is not the actual return earned on assets that are taxed. Instead, it is equivalent to taxing presumptive, imputed returns. Guvenen, Kambourov, Kuruscu, Ocampo-Diaz, and Chen (2019) argue that a wealth tax therefore could be preferred to a tax on capital income, as it shifts the tax burden towards unproductive entrepreneurs, and raises the savings rate of the productive ones. This perspective is not shared by all, see for example (Kopczuk, 2019). Rather, the wealth tax can be criticized exactly on these grounds: although the entrepreneur or investor may not earn any money, the tax liability will still be positive if the capital value of the assets remains positive. Specifically, investments in start-ups, which are likely to generate low returns in their first few years of operation, could be harmed; indeed, this is a central reason for why the wealth tax is under substantial pressure in Norway. The present study devotes particular attention to this aspect of wealth taxation by identifying firms which may find their financial situation constrained by the wealth tax.

Fourth, we also draw attention to other effects that bear on the wealth tax question. We have already mentioned the potential externality that comes from wealth concentration leading to unevenness of political power. Another important consequence, which has received some attention, is the effect on tax evasion. According to Alstadsæter et al. (2019), the richest Scandinavians keep a substantial part of their wealth in offshore tax havens. The wealth of the top 0.01 of Norwegian households increases by about 25 percent if offshore wealth is included. In the following, however, we shall direct attention to another aspect of wealth taxation – how wealth taxation influences charitable donations. If we find traces of the wealthy instead of paying tax would use their capital to support charitable organizations, the case for wealth taxation is weakened. We shall therefore take a closer look at the relationship between wealth and donations, and how wealth taxation may influence donation behavior.

The wide range of empirical evidence presented here can be produced because of our access to a quite unique selection of micro data from administrative registers.³ In many other countries, obtaining information on wealth and wealth distributions poses a challenge. For example, in the U.S., given that the Survey of Consumer Finances (which includes detailed information about wealth) is subject to response bias, one has used more indirect methods to assign wealth at the individual level. One technique is based on scaling up or capitalizing income observed on tax returns to get measures of wealth, see Saez and Zucman (2016), Saez and Zucman (2020), and (Smith, Zidar, and Zwick, 2020). A key part of our data compilation is individual data on wealth, which is based on data from income tax returns and other administrative registers for the whole Norwegian population. As the tax on annual net wealth is administered through the same system as the personal income tax, wealth information is part of the data obtained from the register of income tax returns, assembled in the Income and Wealth Statistics for Households (Statistics Norway, 2019). It adds to the quality of the data used here that most of the wealth components are third-party reported. There are, however, measurement problems involved, which we will return to.

The remainder of the paper is organized as follows. Section 2 informs about the wealth tax scheme and places it in the overall personal income tax system of Norway. In Section 3 we probe deeper into the individual wealth data, providing descriptions of individual wealth and the components. Further, in Section 4 we discuss how wealth and the wealth tax are distributed. In Section 5 we direct attention to the role of wealth owners, and the tax imposed upon them, for the working of the economy. In addition to providing evidence on effects on savings, investments and entrepreneurship, we are particularly interested in discussing the relationship between the taxation of the owner and the financial situation at the firm

³Denmark is another country with rich administrative data on individual wealth, see Boserup et al. (2018), although the Danish wealth tax was repealed in 1996.

level. We are able to do this as our data includes a link between firm information and individuals (the Shareholder register). In Section 6 we describe other uses of wealth, with relevance for the tax question, such as support to charities. Section 7 concludes the paper with a summary of the main arguments for and against letting the annual wealth tax be part of the tax system for individuals.

2 The Norwegian wealth tax and its role in the dual income tax

2.1 *Taxation of wealth under pressure*

Only three OECD countries currently levy an annual tax on net wealth, Spain and Switzerland, in addition to Norway, compared to twelve countries in 1990.⁴ In contrast, 26 of the 35 OECD countries had taxes on wealth transfers in 2017 (OECD, 2018). For a long time, Norway belonged to the group of countries which combined both types of wealth taxation. In 2014 the inheritance tax was repealed, and now the annual tax on net wealth is under pressure. However, at the moment, the ruling centre-right coalition is in favor of keeping the wealth tax.

One may say that the wealth tax scheme already has been diluted, as we recently have seen both reduced rates and increasing use of deviations from the market value benchmark. This is seen in Table 1, which shows the development in the scheme from 2000 to 2021. The table shows that the move towards more lenient taxation of wealth has come both through reduced rates and through specific valuation concessions. Whereas the highest rate was 1.3 percent under the two-tier wealth tax, until 2010, it went down to 1.1 percent, and from 2015 the rate has been 0.85 percent.⁵ At the same time the basic allowance has been increased, from less than 0.5 million Norwegian kroner (NOK) in 2009, to 1.5 million NOK in 2021. However, it can be argued that the exemption threshold is still relatively low, which may have contributed to the controversies concerning taxation of moderately wealthy taxpayers with low cash income. We shall soon come back to what this means in terms of the share of the population paying the tax and the size of revenues.

The tax revenue from wealth taxation is relatively modest. In 2019, the revenue from wealth taxation accounted for 1.1 percent of total tax revenue and 0.4 percent of GDP.⁶ An important reason for not generating more revenue is the tax favored treatment of primary housing. Table 1 shows that the favorable tax treatment of housing in the wealth tax has been fixed at 75 percent after the valuation system was reformed in 2010.⁷ Whereas a valuation system based on historical production prices was used until 2010,⁸ from 2010 and onwards the tax administration operates a completely new valuation procedure. The new procedure is based on hedonic regressions⁹ to predict the market value for each Norwegian house. The regressions account for the property's location, floor area, year of construction and type of dwelling. The table also shows that the (old) production value system is still in place for cabins and other

⁴It should be noted that the schemes of the three countries are quite different. See Scheuer and Slemrod (2021) for more details on (present and previous) wealth taxes of European countries.

⁵The wealth tax rate is in fact divided into a national level part and a local (municipality) part. This implies that the municipality may opt for setting a lower rate than the maximum rate. This has been neglected until recently, when we saw the first example of politicians at the local level reducing the rate to attract (wealthy) people to locate in their area.

⁶Shares are higher for Switzerland, but lower for Spain (Perrett, 2020).

⁷Prior to 2010, the valuation of primary housing was based on an uprating from the previous year's value, see Table 1, where the change in the system is indicated by a horizontal bar.

⁸It was commonly acknowledged that the old system was flawed and it grew unpopular both because old historical values were generally wrong and as it was not able to control for regions experiencing widely different price increases.

⁹In the following, we shall see that the change to this new scheme is exploited to obtain empirical evidence on the effect of wealth taxation on savings behavior (by Ring (2019)).

leisure properties.¹⁰ The new procedure implies adjustments from one year to another through updated regressions, entered into the pre-filled income tax returns.¹¹

Importantly, the valuation system is primarily based on third-party reporting. One exception is the valuation system for unlisted firms for which tax values are established by the book value of underlying assets. This means that for example goodwill and other intangible assets are not valued at all. This is a major measurement problem and likely belongs to the “substantial administrative challenges” that make Boudway and Pestieau (2019, p. 3) “to raise red flags” about wealth taxation.

The preferential treatment of shares and operating assets has received substantial attention, as this has been introduced to moderate the expected negative effects of wealth taxation on savings and investments. We see that the discount has increased from 0 in 2016 to 45 percent for 2021. This also means that the preferential treatment of investments in primary dwellings and holiday homes, as compared to investments in business activities, is reduced.

The preferential tax treatment of housing is augmented by no longer taxing imputed rent from owner-occupied housing in the personal income tax, which ended in 2005. It can be argued that this, to some extent, is counterbalanced by the local property tax. However, the property tax is a matter of choice, in the sense that municipalities can opt to use it and decide which type of properties to tax. In this perspective this type of taxation is not identical to a wealth tax, as it simply reflects local communities choosing between different levels of public goods (Scheuer and Slemrod, 2021). It is most common to tax primary housing and holiday homes through property taxation. We have seen a move towards more use of this type of taxation over the years, i.e., more municipalities increase local budgets by levying a property tax.¹²

It should also be noted that the Norwegian scheme, until 2009, included a cap for which the total tax liability of the income and wealth, as a fraction of taxable income, could not exceed. This tax regulation went under the name “the 80 percent rule”, as the total of income and wealth tax could not exceed 80 percent of the net tax base (ordinary income).¹³

In Table 2 we refer to the inheritance tax system as it was before it was terminated in 2014. The abolition was done without any large consequences for the tax revenue, as it generated only approximately 2.3 billion NOK in 2013,¹⁴ corresponding to approximately 0.2 percent of the total tax revenue.¹⁵

In terms of total tax revenue from property taxation (or overall wealth), Norway is found below the median among OECD countries, and far below, for example, France, the U.K., and the U.S. (OECD, 2018).

¹⁰There is a regression-based system under development for leisure homes too. A reliable price model for cabins and other leisure properties is likely more information demanding.

¹¹The house owner may appeal if the predicted market value is believed to be above actual market value.

¹²Although whether to levy a property tax is left to local governments to decide, there are some general (national) guidelines that apply. The central government sets the maximum rate. Presently, the rates may vary from 0.1 to 0.5, after the maximum rate was reduced from 0.7 to 0.5 in 2020. Municipalities that have introduced property tax use the same calculated market value, as seen for the taxation of wealth, or they could use their own methods for calculating property values. The latter is particularly relevant for cabins and other holiday homes, as a national system for deriving market values for this type of property has not yet been established. The regulations state that the tax value cannot in any case exceed 70 percent of the market value. Most municipalities establish the tax base after withdrawal of a basic allowance.

¹³In Spain there is a similar 60 percent rule, as total income tax and wealth tax must not exceed 60 percent of taxable income. Also previous schemes of other countries have included such caps, see Scheuer and Slemrod (2021).

¹⁴A modest revenue effect is a standard criticism of the inheritance/estate tax; see for example Bernheim (1987).

¹⁵Although the inheritance tax is no longer part of the Norwegian tax system, at the same time as the system was abolished, there was a change in the treatment of intergenerational transfers in the personal income tax that may have a substantial effect on tax revenues. The so-called continuity principle in income taxation was introduced, which means that heirs and recipients of gifts step into the tax basis and other tax positions of the giver and the deceased.

Table 1. The annual net wealth tax scheme, 2000–2021

	Rate/allowance		Tax value: value adjustment from previous year's value (until horizontal bar) and discount wrt market value (after)				Shares
	Rates	Allowances	Primary	Holiday	Secondary	Business	
		(in 1000 NOK)	home	home	home	property	
2000†	0.9/1.3	120/540	+10	+10	+10	+10	35/0
2001†	0.9/1.3	120/540	+15	+15	+15	+15	35/0
2002†	0.9/1.3	120/540	0	0	0	0	35/0
2003†	0.9/1.3	120/540	-5	-5	-5	-5	35/0
2004†	0.9/1.3	120/540	0	0	0	0	35/0
2005§	0.9/1.3	151/540	0	0	0	0	35
2006	0.9/1.3	200/540	+25	+25	+25	+25	20
2007	0.9/1.3	220/540	+10	+10	+10	+10	15
2008#	0.9/1.3	350/540	+10	+10	+10	+10	0
2009	1.1	470	+10	+10	+10	60	0
2010	1.1	700	75	+10	60	60	0
2011	1.1	700	75	0	60	60	0
2012	1.1	750	75	+10	60	60	0
2013	1.1	870	75	0	50	50	0
2014	1.0	1000	75	+10	40	40	0
2015	0.85	1200	75	0	30	30	0
2016	0.85	1400	75	0	20	20	0
2017	0.85	1480	75	0	10	10	10
2018	0.85	1480	75	0	10	20	20
2019	0.85	1500	75	0	10	25	25
2020	0.85	1500	75	0	10	35	35
2021	0.85	1500	75	0	10	45	45

†There is no discount on shares traded on the stock exchange, the discount on other shares is 35 percent.

§The last year with a separate allowance scheme for tax class 2 (joint taxation of spouses).

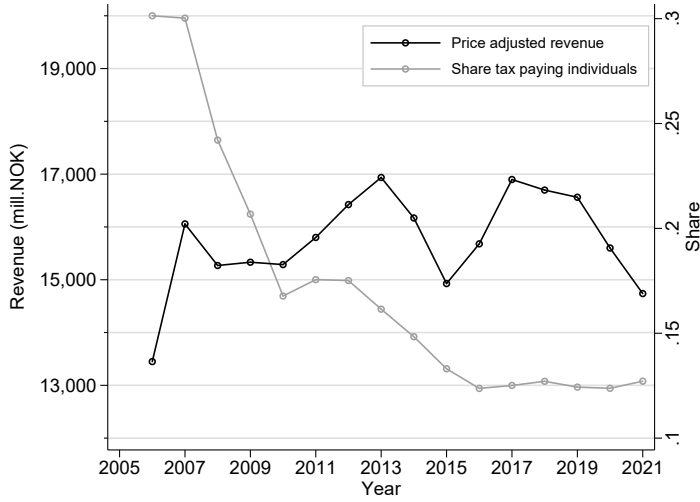
The last year with a cap on the sum of wealth and income taxes as a fraction of taxable income.

Notes: The horizontal bars refer to a change in the system, moving from a system where values are adjusted from the value of the previous year to a system based on (market) values for each year. For example, +10 means that tax values that year were increased by 10 percent from previous year's values.

Table 2. The inheritance tax, 2000–2013

	Children		Other heirs	
	Rates	Allowances (in 1000 NOK)	Rates	Allowances (in 1000 NOK)
2000–2002	8/20	200/500	10/30	200/500
2003–2008	8/20	250/550	10/30	250/550
2009–2013	6/10	470/800	8/15	470/800

Notes: According to this, a transfer from parents (in 2013) of 1 million NOK resulted in 39,800 NOK in tax (19,800+20,000). If the bequest instead came from an aunt, the tax would have been 56,400 NOK (26,400 + 30,000).

Figure 1. The development in tax revenue and share of population remitting the wealth tax, 2006–2021

Notes: The black dotted line shows the price adjusted revenue measured by the vertical axis at the left-hand side, whereas the grey dotted line gives the share of households remitting the tax measured by the vertical axis at the right-hand side.

2.2 Less taxpayers but stable tax revenue

The development in the wealth tax scheme has resulted in a clear reduction in the number of individuals subject to the tax. This is shown in Figure 1¹⁶; where the share of households remitting the tax is measured by the vertical axis at the right-hand side. However, despite narrowing the target group for this type of taxation, the figure also shows that the tax revenue is relatively stable in real terms (measured by the vertical axis at the left-hand side). This is partly explained by developments in the size of endowments and how they are distributed, which we will return to in Section 3. Thus, despite a substantial increase in the allowance, which has resulted in a sharp reduction in the share of taxpayers, the revenue is less affected. This means that fewer people, on average, pay a larger amount now.

¹⁶We have extended the time series to 2021 by employing a tax-benefit model (Aasness et al., 2007) for 2019–2021.

2.3 How does the wealth tax accord with the personal income tax?

2.3.1 Main characteristics of the Norwegian dual income tax To what extent a tax system for individuals also should include taxation of wealth depends on the design of the personal income tax system. In the following we shall therefore first refer to features of the dual income tax system of Norway and, next, discuss arguments for supplementing the system with a separate scheme for taxation of wealth.¹⁷

Since 1992 Norway has had a “dual income tax” system, which consists of a combination of a low proportional tax rate on capital income and progressive tax rates on labor income. This system proliferated throughout the Nordic countries in the early 1990s.¹⁸ The Norwegian version had for a long time a flat 28 percent tax rate levied on corporate income, capital and labor income coupled with a progressive surtax applicable to labor.

The dual income tax system can be seen as a tool to approach a comprehensive income tax, where all income is only taxed once, see (Sørensen, 2005, 2007). Double taxation of dividends was abolished, as taxpayers receiving dividends were given full credit for corporate taxes remitted and the capital gains tax system exempted gains attributable to retained earnings taxed at the corporate level.

As the wedge between the top marginal tax rate on labor income and capital income increased over time, taxpayers faced stronger incentives to convert labor income into capital income for tax purposes, as documented by Thoresen and Alstadsæter (2010). The 1990s saw increasing pressure on the dual income tax system, resulting in numerous “patches.” As these were not entirely successful, the reform of 2006 emerged as an attempt to create a system that would prevent taxpayers from transforming labor income into capital income.

The tax reform of 2006 introduced taxation of dividends and capital gains at the individual level, the so-called Shareholder model. Shareholder income below an imputed “normal” return (rate-of-return allowance, or RRA) is tax-exempt at the shareholder level, because such income has already been subject to corporation tax at a rate corresponding to the capital income tax rate. But dividends and capital gains in excess of the RRA are subject to a personal shareholder income tax, which implies that by an appropriate choice of tax rates, the sum of the corporation tax and the personal shareholder income tax (approximately) corresponds to the top marginal tax rate on labor income. Thus, dividends and capital gains are taxed by 46.7 percent at the margin (in 2021).

The background for the adjustments of the tax system in 2013–2019 is different from the considerations underlying the 1992 and 2006 reforms.¹⁹ Now it is the level of the basic tax rate applicable to capital and business profits that creates tensions. A tax on corporate profits of 28 percent was low at the time of its introduction in 1992, but in subsequent decades Norway was left behind in international tax competition, ending up with statutory tax rates well above the average in the OECD, in EU-28 and among neighboring countries. As a result, the rate was reduced from 28 percent in 2013 to 22 percent in 2019. The Norwegian dual income tax maintains the link between the corporate tax and the tax on capital income (both 22 percent). This illustrates that, for a small economy like Norway, there are constraints invoked by developments abroad, which in this case has implications for taxation of firms and capital income.

¹⁷Recall that we return to evidence in the context of a standard trade-off between distortionary taxation and redistribution in the next sections: evidence on wealth tax efficiency effects are presented in Section 5, whereas Section 4 presents descriptions of distributional effects of wealth taxation.

¹⁸The dual income tax was introduced in Sweden in 1991, in Norway in 1992, and in Finland in 1993. The idea originated in Denmark, where it was implemented in 1985.

¹⁹We refer to the tax changes 2013–2019 as “adjustments” instead of a “reform”, which corresponds to description of the Ministry of Finance.

2.3.2 Is there a role for taxation of wealth in a dual income tax system? Under which conditions does the wealth tax belong to an optimal tax system? Scheuer and Slemrod (2021) discuss this in terms of the Atkinson-Stiglitz theorem, and argue that initial inequality in wealth may implicate separate taxation of wealth (in addition to taxation of labor income).²⁰ Further, there are important similarities between taxing capital wealth and taxing capital income, which may mean that a recurrent tax on wealth is unnecessary if capital income is effectively taxed (Keen, 2015). Discussions of justifications of wealth taxation in both Boadway and Pestieau (2019) and Kopczuk (2019) follow this line of arguments and ask what can be achieved by wealth taxation in addition to other tax instruments, such as taxation of capital and intergenerational transfers.

With respect to the Norwegian case, recall that the inheritance tax has already been repealed. Moreover, as just discussed, when there is a link between the corporate tax rate and personal capital income taxation, as in the Norwegian version of the dual income tax,²¹ there could be a downward pressure on capital income taxation from developments abroad (as just discussed). In this perspective, an annual wealth tax can be used to achieve redistribution when capital income for various reasons is more leniently taxed. Taxation of wealth is then seen as supplementing the capital income taxation. In this perspective, wealth taxation may serve a “redistributive backstop” mechanism (Halvorsen and Thoresen, 2021). We interpret the arguments made by both Piketty (2014) and Atkinson (2015) as supportive of this view. Although Boadway, Chamberlain, and Emmerson (2010) are skeptical towards an annual net wealth tax, they note that, in a dual income tax system, where capital income is taxed at a uniform, relatively low rate, wealth taxation may be used as an additional policy instrument to achieve redistributive objectives.

Against this reasoning, one could argue that after the tax reform of 2006, see Section 2.3.1, the taxation of extraordinary rent is taken care of by the new Shareholder model (for taxation of capital gains and dividends). If the shareholder tax works well, the argument that taxation of wealth is imperative for taxation of rich people may not be so compelling.

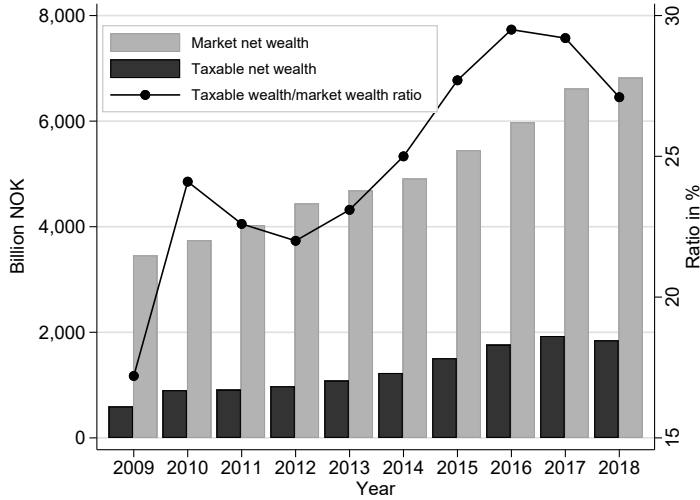
However, there are other assets, for which a wealth tax may act as a supplement to the personal income tax. A standard argument is that a wealth tax is convenient for taxation of assets for which measures of asset income are not readily observable (Boadway et al., 2010). For example, a tax on the value of owner-occupied housing is a way of taxing its imputed return, given that there is no tax due on the imputed rental income from owner-occupied housing. This is the case in Norway, which abolished its imputed housing rent system in 2005. From this perspective, the large valuation discount on primary housing, see Section 2.1, makes little sense. Although there is also a local property tax that adds to reducing the gap between the taxation of housing and other items, to levy a property tax is locally decided and effective tax rates are low.²²

²⁰See also Bastani and Waldenström (2020) on wealth taxation in an optimal tax perspective.

²¹This is not necessary. In the Swedish version of the dual income tax, there is no longer a correspondence between taxation of the corporate sector and capital income in the personal income tax.

²²With respect to the latter, let us use property tax on primary housing of Oslo as an example. Given a house valued at 10 million NOK, the tax base after the valuation discount (30 percent) and allowance (NOK 4 million), is NOK 3 million, which is taxed by 0.3 percent rate. The house owner must then pay 9,000 NOK in property tax per year. If we instead let the imputed rent from this house be taxed by the capital income system, and assume a fairly low rate of return (2 percent), the tax will be 44,000 NOK (given the present tax rate at 22 percent).

Figure 2. Market net wealth and taxable net wealth in billion NOK and the ratio between them in percent



Notes: The bars show the market net wealth (grey bar) and taxable net wealth (black bar) for households, measured by the vertical axis at the left-hand side. The black dotted line shows the share of taxable wealth to market wealth, measured by the right-hand side vertical axis.

3 Wealth and its composition

3.1 Market wealth and taxable wealth

As discussed in Section 2, both non-financial and financial assets are valued below the market price for wealth tax purpose. Table 1 demonstrates that this particularly concerns the valuation of the primary dwellings, but also the tax values of financial securities, such as shares and mutual funds, have recently been reduced. The discounts contribute to real household wealth, which we refer to as market wealth, differing from taxable wealth. When we compare total taxable wealth with total market wealth (reported to the tax authorities), it becomes apparent that taxable wealth only represents a smaller fraction of “actual” wealth.²³ In Figure 2 we compare wealth according to the two definitions for the years 2009–2018. Total taxable net wealth in households amounted to roughly 1,800 billion NOK in 2018, whereas market wealth is estimated to 6,800 billion NOK. Thus, the share of taxable wealth to market wealth is less than 30 percent. This clearly illustrates that the discounts of the wealth tax are substantial.

Figure 2 also shows that the ratio has increased over the time period from 2009 to 2018. Overall wealth according to the comprehensive wealth concept increases steadily over the period, but the percentage increase in taxable wealth is larger. However, the ratio is lower in 2017 and 2018 compared to 2016. We attribute this to the changes in the discount in the valuation of shares in from 2016 to 2018, from 0 to 10 percent, and then to 20 percent in 2018 (see Table 1).²⁴

²³One should keep in mind that reported wealth is also underestimated, as for example for unlisted firms. Recall also that it has been established that tax evasion is substantial among the rich of Norway (Alstadsæter et al., 2019).

²⁴This has continued after 2018, reaching a 45 percent discount in 2021.

Table 3. Composition of household net wealth, 2018

	Billion NOK	Percentage of total wealth	Percentage of households holding assets
Estimated non-financial wealth	7,240	69.8	81.8
Principal residence	6,089	58.7	69.2
Other owner-occupied dwellings	709	6.8	10.5
Other non-financial assets	442	4.3	57.2
Financial wealth	3,131	30.2	99.2
Bank deposits	1,207	11.6	99.1
Mutual funds and other invest.	126	1.2	28.4
Shares and other equities	1,372	13.2	19.9
Shares savings account	128	1.2	13.0
Other financial wealth	299	2.9	39.2
Estimated gross wealth	10,371	100	99.2
Liabilities	3,546	34.2	85.6
Estimated net wealth	6,825	65.8	80.9
Wealth tax	15.1	0.1	14.8

Notes: The table gives the values for each asset in 2018 and their share of the total wealth. The share of households holding each asset is also reported.

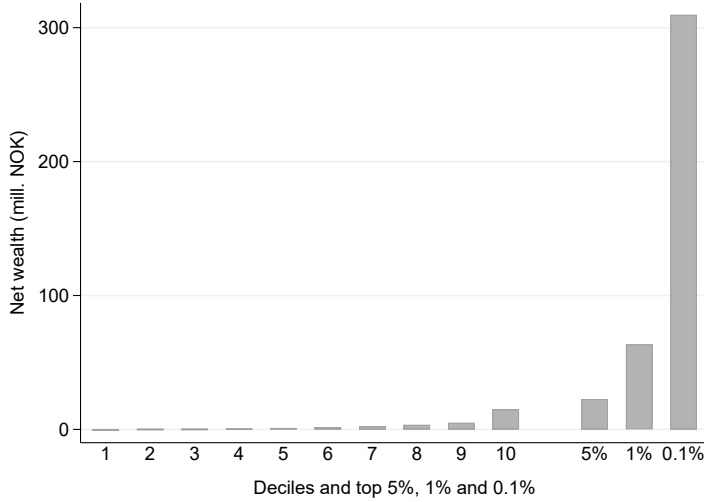
3.2 *Wealth composition of households*

Table 3 presents the asset composition of households in 2018.²⁵ This pattern does not deviate much from compositions of other OECD countries, see Balestra and Tonkin (2018). Non-financial assets constitute the largest share of total wealth for households and the single most important non-financial asset is the principal residence. Approximately 69 percent of all households owned a principal dwelling in 2018. Owning a second dwelling has become increasingly popular in Norway in recent years. However, this asset is still only owned by 11 percent of all households and the estimated value is 700 billion NOK, or about 7 percent of total wealth. The single most important financial asset is the value of stocks and shares (both listed and unlisted), which accounted for 13 percent of total wealth. Roughly 20 percent of households owned these types of assets in 2018.

Norwegian households are among the most indebted households in Europe, according to Balestra and Tonkin (2018). In 2018 liabilities as a share of total wealth amounted to 34 percent. The sum of total debt, 3,545 billion NOK, exceeded the sum of total financial wealth (3,130 billion NOK). About 81 percent of all households have positive net wealth in 2018, with a net worth of 6,800 billion NOK. As wealth taxes amounted to 15 billion NOK in 2018, we understand that the take in of wealth tax is small compared to total wealth, only around 0.1 percent is collected each year.

²⁵Confer Appendix A.1 and Epland and Kirkeberg (2012) for more details about these data.

Figure 3. Distribution of net market wealth, 2018



Notes: Households are ranked according to net wealth and divided into deciles and top 5%, 1% and 0.1%. The bars show average net real wealth (market wealth).

3.3 Distribution of wealth and some selected assets

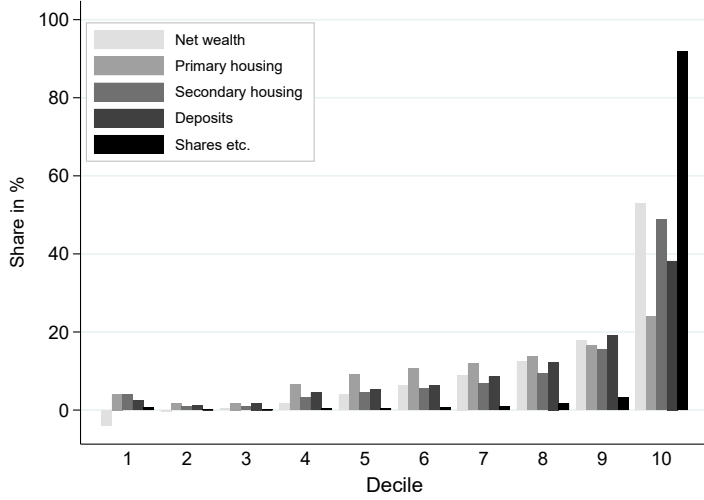
Similar to what is observed for other countries, the distribution of net wealth is very skewed in Norway. In terms of the share of household net wealth owned by the top 10 percent of the wealth distribution, Norway is around the average of the OECD countries, which was 52 percent in 2015 (Balestra and Tonkin, 2018).²⁶ Before looking at the distribution of shares of wealth, we describe, in Figure 3, the distribution of net market wealth across deciles, and for the top 5, top 1, and top 0.1 percent of the distribution. Figure 3 depicts an extremely skewed distribution of wealth. For example, whereas average net wealth in decile 10 is approximately 15 million NOK, the average wealth for the top 0.1 percent is 310 million NOK. There are however other countries with an even more skewed distribution, as measured by the top 1 percent share (Balestra and Tonkin, 2018); for example, Denmark, Germany, the Netherlands, and the U.S. are all above Norway in 2015. Importantly, the estimates of top wealth shares do not account for tax evasion, to which the upper part of the distribution (likely) contributes more than others: Alstadsæter et al. (2019) find that for the top 0.01 percent of Norwegian households, wealth increases by about 25 percent when offshore wealth is included.

A key to understand how the wealth tax works is to obtain information about how assets are distributed with respect to wealth levels. Another important dimension, given that we are primarily interested in how the wealth tax is distributed by income, is the relationship between income and wealth, which we shall return to soon. With respect to the distribution of assets, Figure 4 shows distributions of selected assets with respect to net wealth.²⁷ Given that housing wealth is the most important wealth component (see Table 3), the distribution of this asset is important. The value of the primary home has a more equal distribution compared to second homes, which is expected given the high number of homeowners in Norway. Nonetheless, primary home housing wealth is also concentrated at the top of the wealth distribution, explained primarily by households at the top owning more expensive dwellings. Further, one-third of all

²⁶Confer Cowell and Van Kerm (2015) and Alvaredo et al. (2018) for general discussions of wealth distributions and their sources.

²⁷Note that pension wealth is not part of the wealth according the definition of wealth used here.

Figure 4. Shares of annual wealth and selected wealth assets by deciles of annual wealth, 2018



Notes: Households are ranked according to net household wealth and divided into deciles. The bars show average shares for net wealth, primary housing, secondary housing, deposits and shares, in that specific order.

households in the 10th decile owned a secondary dwelling, compared to 11 percent among all households.

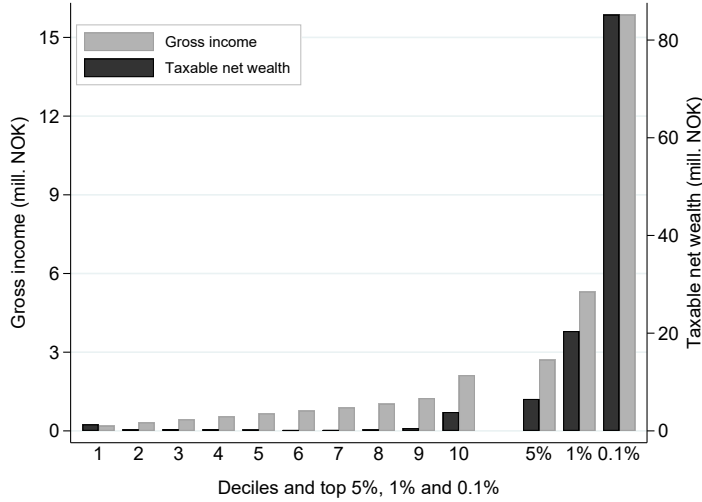
Another important component in a distributional perspective is shares. Figure 4 shows that shares are extremely concentrated at the top end of the distribution. The top decile owned nearly 92 percent of all assets related to shares in 2018, while households belonging to the lower deciles mostly do not own this type of assets.²⁸

As already noted, a second important element for the distributional implications of wealth taxation is the how wealth relates to income. This is shown in Figure 5, demonstrating that wealth is much more unequally distributed than income. If decile 1 is left out, Figure 5 shows that wealth basically is increasing in income. But the result for decile 1 illustrates that there are households which are “wealth-rich” but “income-poor” and who therefore may encounter problems in remitting a wealth tax. This is often referred to as a main problematic aspect of a yearly tax on wealth. Explanations for having low income and high wealth vary: we find both old-age pensioners, with relatively small pensions, and business-owners with temporary business losses (“bad year”) in this group (Halvorsen and Thoresen, 2021).²⁹

²⁸As a result of this, capital income components as dividends and capital gains are also extremely concentrated to the top end of the income distribution, which has received a lot of attention from an income inequality perspective, see Thoresen, Bø, Fjærli, and Halvorsen (2012).

²⁹Of course, the agents could borrow against their own wealth. For example, for older people, banks offer annuitizing the house wealth into an income stream for the rest of the person's life.

Figure 5. The relationship between gross income and taxable wealth, 2018



Notes: Households are ranked according to household equivalent income and divided into deciles and top 5%, 1% and 0.1%. The bars show the average gross income (grey bar) and average taxable wealth (black bar).

4 Distribution of the wealth tax

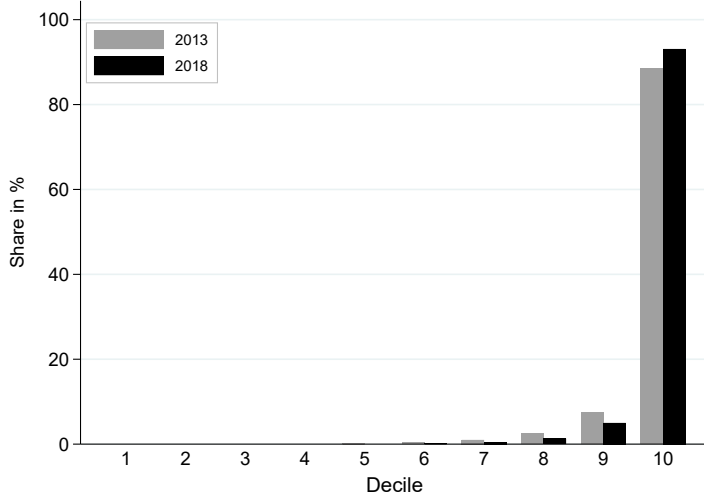
4.1 Tax burden measured against income and wealth distributions

Next, we turn the attention to the distribution of the wealth tax burden. Although the number of contributions are limited, we note that there is increased attention on the redistributive effects of wealth taxation; see, for example Krenek and Schratzenstaller (2018) on redistributive effects of the introduction of an annual net wealth tax at the EU level, and Kuypers, Figari, and Verbist (2020), Lawless and Lynch (2016) and Fuest et al. (2018) for discussions of the redistributive effects of wealth taxation in six European countries, Ireland, and Germany, respectively. In the following we first focus on the distribution of the wealth tax burden on annual measures of income and wealth, before in the next subsection, we explore how it is related to income when measuring income over a longer period, including life-cycle income, based on Halvorsen and Thoresen (2021).

First, however, in Figure 6 we describe how the wealth tax burden is associated with wealth. The difference between taxable wealth and reported (market) wealth explains why the wealth tax burden does not simply follow from the level of wealth. However, we see that taxes are almost entirely paid by households at the top of the wealth distribution: 93 percent of all wealth taxes were remitted by households belonging to the top decile in 2018, and less than 1 percent (in total) by households in deciles 1 to 7. However, it is worth noting that the tax represents only a small share of total wealth, even for the wealthy. In 2018, the yearly tax on net wealth amounted to 0.3 percent of total wealth (on average) for the wealthiest 10 percent of households, and 0.6 percent for the wealthiest 1 percent of households.

Although, recently a discount on shares in the wealth tax was reintroduced, progressivity appears to have been strengthened between 2013 and 2018, as seen in Figure 6. The increase in the basic allowance has contributed to this, resulting in fewer people with relatively low wealth owing the tax in 2018 than in 2013, see Figure 1.

Figure 6. Share of wealth tax by deciles of annual wealth, 2013 and 2018



Notes: Households are ranked according to net household wealth and divided into deciles. The bars show the share of annual wealth tax remitted for each decile in 2013 (grey bar) and in 2018 (black bar).

Further, in Figure 7 we show the distribution of wealth tax with respect to gross income.³⁰ For comparison we also show how the income tax is distributed. As more than 60 percent of all wealth taxes were remitted by the households in the tenth decile in 2018, the wealth tax is seen as increasing the total tax progressivity of the system for taxation of income and wealth, combined. However, Figure 7 demonstrates that the wealth tax deviates from the taxation of income at the low end of the income distribution, which follows from the pattern revealed by Figure 5. The share of the wealth taxes paid by households belonging to the bottom income decile is larger than the shares in deciles 2 and 3. Next, we refer to empirical evidence on the effect of the definition of income for depictions of distributional effects of the wealth tax.

4.2 Distributional effects for other income concepts

Halvorsen and Thoresen (2021) examine the distributional effects of the Norwegian wealth tax for alternative measures of income. Figure 8 summarizes the main findings of the analysis.³¹ The figure shows wealth-tax shares by deciles for four different income concepts: annual individual income, annual household income, household income over time (8–19 years) and lifetime income. Importantly, in contrast to Figure 7, the tax burden is measured in terms of share of income, which means that the U-shape of the distribution becomes quite discernible. For annual income at the individual level, which is often the methodology applied to show distributional effects in governmental documents (of Norway), we see that the largest shares of the wealth tax are borne by individuals with high and low income, decile 1 and decile 10, whereas the rest of the tax burden is relatively uniformly distributed on deciles 2–9.

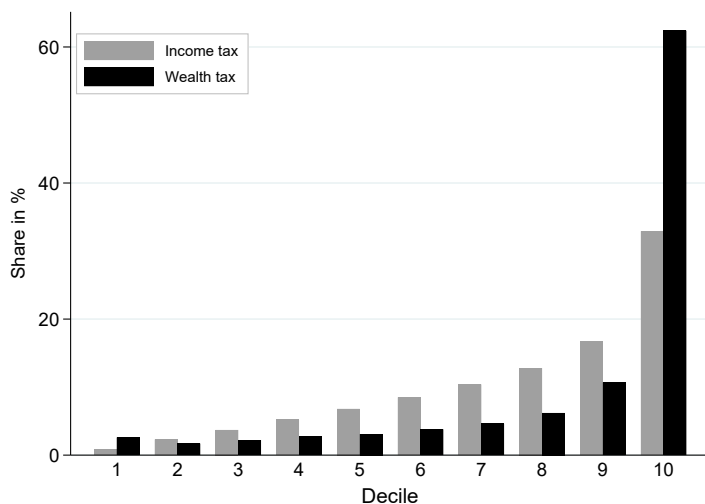
Halvorsen and Thoresen (2021) put forward four main reasons for the lowest income decile showing such a high wealth-tax burden: the joint wealth of couples, life-cycle effects, transitory low returns (or losses), and inheritance. The effect of the joint wealth of couples is reflected by the distribution for annual household income: the move from individual to household income³² reduces the tax burden of the wealth

³⁰See more details about this income concept in Section A.1 of the Appendix.

³¹Note that this study uses data for 2011.

³²Recall that Figure 7 is based on household income.

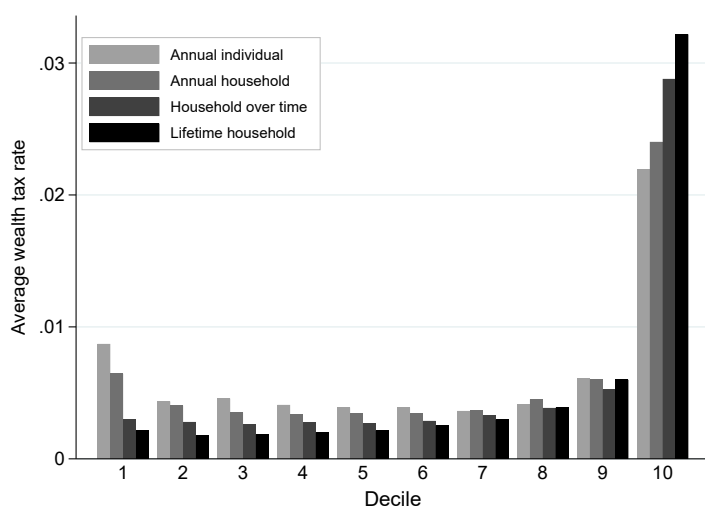
Figure 7. Shares of income and wealth taxes by deciles of gross income, 2018



Notes: Households are ranked according to gross income and divided into deciles. The bars show the share of income tax (grey bar) and wealth tax (black bar) remitted.

tax in the lower part of the income distribution, increases it in the top decile, and leaves deciles 7–9 largely unaffected. Further, the next income definitions account for the life-cycle and transitory low returns. The shift from annual household income to average income over a longer period of time (8–19 years) reduces the wealth tax burden in decile 1 in particular. Finally, the use of lifetime household income as an income concept implies that there is a high tax concentration in the upper part of the income distribution and the share of decile 1 now becomes quite similar to the other low-income deciles.

Figure 8. Annual wealth tax as share of gross income by deciles for four different definitions of income, 2011



Note: Housholds and individuals are ranked according to four income concepts: annual individual gross income, annual household gross income, average household gross income over time (8-19 years) and average lifetime household gross income. The bars show the wealth tax as share of income for the different income concepts. Source: Halvorsen and Thoresen (2021)

5 Behavioral responses to wealth taxation

5.1 Which responses?

Wealth taxation is expected to change behavior and therefore assumed to be distortionary. A core concern is that business owners may invest less in the presence of a wealth tax. Such effects may be caused by distortionary effects operating through the net-of-wealth-tax rate of return, or they may be caused by adverse liquidity effects inflicted upon the owner by the wealth tax. In the following we discuss to what extent taxation of wealth is distortionary, primarily by reviewing the empirical literature on the behavioral response to wealth taxes. We are primarily concerned with real effects on investments and employment, but as we shall see, effects also come in the form of financial manipulations intended to reduce the tax burden. At the extreme, people may flee the country to avoid the tax.

With reference to the ongoing debate surrounding the wealth tax in Norway, there is a specific concern regarding to what extent business-owners are credit constrained by their wealth not generating any income. Persons may face high costs of remitting the tax simply because their investment has not generated any income yet, although the value of the firm could be high. We will return to empirical evidence on the likely prevalence of such circumstances in Section 5.4, where we discuss the issue by describing the financial situation of Norwegians subject to wealth tax.

Corresponding to the measurement of income response to tax change, which often is discussed in terms of the elasticity of taxable income, one may summarize the effect of wealth taxation on wealth by the elasticity of taxable wealth, $\varepsilon = \frac{\partial W}{\partial(1-\tau)} \frac{1-\tau}{W}$, where W is wealth and $1 - \tau$ is the net-of-tax rate on wealth. As wealth tax rates are generally around 1 percent, this can also be interpreted as the percentage change in reported wealth in response to a 1 percentage point increase in the wealth tax rate (Advani and Tarrant, 2020). The elasticity of taxable wealth measures effects directly on owners. In the following we present the findings of the literature when differentiating between studies using Norwegian data and others.

As already noted in the discussion of the dual income tax and taxation of wealth in Section 2.3.2, the wealth tax question should not be discussed in isolation from the overall design of the tax system. A key question is what one may achieve by taxing wealth which cannot be accomplished with a tax on capital income. We return to this question in Section 5.3.

5.2 Behavioral response estimates

5.2.1 International evidence The behavioral responses to wealth taxation saw little empirical attention until Seim (2017), who carefully documented strong evasion responses. A modest, but non-negligible, portion of taxable wealth for Swedish taxpayers near the wealth tax threshold was the value of their cars. Seim could observe third-party reported values for household car values – a reasonable proxy for their true, unevaluated value – while the tax authorities could not and therefore relied on self-reported values. In a bunching design setting, Seim finds that Swedes systematically underreported the values of their cars, which accounted for a majority of the excess mass of households observable near the wealth tax threshold. While the visual evidence is striking, the semi-elasticities of taxable wealth to the after-tax rate-of-return are quite modest, in the range of 0.09–0.27. In a counterfactual exercise, he finds that, absent the opportunity to misreport car values, there would be little excess mass around the threshold. Seim makes the point that it may be difficult to capture all behavioral responses to wealth taxation through bunching, and considers responses to a shift in the tax threshold as well. This exercise does not yield considerable statistical power and does not suggest any sizable responses.

The contribution of Zoutman (2018) pushes the empirical literature forward by using a particular reform of the Dutch tax system as a quasi-experiment. He employs a difference-in-differences methodology to identify the effect of the reform on reported financial wealth. The reform removed the capital income tax and replaced it with a de-facto financial wealth tax of 1.2 percent. It may be considered a financial wealth tax, rather than a comprehensive wealth tax as in Norway, as it had an exception for owner-occupied housing (as housing was subject to capital income taxation). The study transfers the total effect of the reform into a single measure, corresponding to the relative change in the after-tax gross rate of return. The overall wealth elasticity is relatively large, 13.8 after four years, and the short-run elasticity (one year) is only slightly smaller. This rather speedy response is taken as suggestive evidence that households' reporting behavior, rather than real behavior, was affected by the new wealth tax incentives.

Further evidence is presented by Jakobsen, Jakobsen, Kleven, and Zucman (2020), who study the effect of a wealth tax reform on the accumulation on taxable wealth in Denmark. A range of reforms starting in 1989 and ending with the complete removal of the wealth tax in 1996 are used to estimate taxable wealth elasticities in a difference-in-differences framework. Their study indicates that taxable wealth is highly elastic to its tax rate. Relative to the previous studies, the Danish setting offers opportunity to study the responses of the very wealthy, as the now-defunct Danish wealth tax only applied to the very wealthiest – those in the top 1–2 percent of the taxable wealth distribution. They find that reduced taxation of wealth leads to a gradual and persistent increase in taxable wealth, even after accounting for the mechanical wealth-increasing effects of relaxed taxation. The implied semi-elasticities of taxable wealth to the after-tax rate-of-return are large; 5.9 and 11.3 for two of the reforms they study, respectively.

Further, Jakobsen et al. (2020) use a simple life-cycle model to transfer these elasticity estimates into structural primitives. A key finding is that the estimate of the elasticity of intertemporal substitution (EIS) is large, around 2, and in some specifications as large as 6. Jakobsen et al. (2020) emphasize that this is a much larger estimate than seen in the literature.³³ The resulting simulated long-run effects of the tax reforms are sizeable, increasing reported wealth by 19 to 31 percent after 8 years. The authors acknowledge that the implied high EIS may be driven by evasion or avoidance responses. These may be particularly important in their empirical setting, where the wealth tax primarily affected households in the very top of the taxable wealth distribution. A consequence of studying very wealthy households is that a large fraction of these households are entrepreneurs. While Jakobsen et al. (2020) clearly strengthens the case for significant behavioral responses to wealth taxation, there is still highly limited evidence as to whether such responses are real, meaning that households change their saving behavior, or if they are driven by changes in evasion or avoidance behavior. Clearly, once a wealth tax is removed, there are substantially weakened incentives to deflate taxable wealth.

In the interpretation of the results, the authors note that most assets in Denmark at the time were third-party reported, which limits the scope for tax evasion. However, business assets are self-reported. Thus the inclusion of a large fraction of entrepreneurs in their sample would likely allow misreporting to play a significant role.

In Switzerland, Brülhart, Gruber, Krapf, and Schmidheiny (2020) find that wealth holdings are very responsive to wealth taxation, when using inter-cantonal time variation in the identification of effects. They use two datasets, one based on aggregate data across cantons and one micro dataset for two cantons (Lucerne and Bern). The wealth tax elasticities (see above) obtained from the aggregate data and a difference-in-differences empirical strategy are large, 43.2 after 6 years. Then the corresponding estimate

³³Best, Cloyne, Ilzetzi, and Kleven (2020) provide an overview of estimates.

for the rate of return elasticity also becomes large, above 1. In supplemental analyses, Brülhart et al. (2020) use micro-level survey data for two of the cantons in their data to explore the composition of the effects. They find that mobility and house price appreciation explains almost half of the estimated effect on taxable wealth, and find no evidence of real saving responses making a meaningful contribution.

While the findings of Brülhart et al. (2020) clearly question whether wealth taxation leads to real effects in the form of dissaving, they are far from conclusive. In their administrative data, self-reported data items do not allow the authors to eliminate misreporting (i.e., evasion) in their estimated effects. Their survey data point toward little-to-no real effects, but these data only cover a small part of their overall sample, and the authors do not provide confidence intervals on their estimates that could be used to statistically rule out a sizable contribution from real responses. However, these findings certainly enrich the empirical literature by highlighting the ambiguity in whether strong dissaving responses to wealth taxes are prevalent.

With data from Colombia, Londoño-Vélez and Ávila-Mahecha (2020) exploit variation in wealth tax rates and exemption thresholds with both bunching and differences-in-differences techniques to study how Colombian taxpayers respond to wealth taxation. They find strong, immediate reporting responses that have large revenue responses. The ability to evade through misreporting can limit tax revenues by as much as 20 percent in the Colombian setting. A particular contribution of this paper is to carefully document exactly how wealthy taxpayers may evade. Linking administrative data with the leaked Panama Papers, they show that the very wealthiest hide assets from taxation through opaque legal structures and the use of tax havens. In a related analysis, Londoño-Vélez and Ávila-Mahecha (2021) provide additional evidence on how strengthening enforcement and altering incentives may have a large effect on compliance, and therefore on the revenue obtainable through taxing wealth. In particular, they find that, once compliance is achieved, it is rather persistent, pointing toward lasting revenue gains from encouraging compliance. The authors further find that leaked information that could cause authorities to identify evaders (i.e., the Panama Papers) is effective in encouraging ex-ante evaders to disclose their assets.

While most research considers the effects of altering or removing an existing wealth tax, Duran-Cabré, Esteller-Moré, and Mas-Montserrat (2019) study the (re-)implementation of an annual wealth tax in Spain. Their findings particularly highlight the role of avoidance responses in an avoidance-friendly wealth tax scheme. Also with Spanish data, Martínez-Toledano (Martínez-Toledano) finds that capital income is highly responsive to changes in capital income taxation, which is consistent with the highly responsive wealth tax base found in other countries. There is also Spanish evidence of an effect on tax migration. Agrawal, Martínez-Toledano, and Foremny (2021) find that differential wealth tax rates within a country can have a large effect on within-country tax migration.

5.2.2 Evidence from Norway Given that Norway is one of the few countries with a wealth tax scheme in place, we have recently seen increased attention devoted to Norwegian evidence. In one study, Bjørneby, Markussen, and Røed (2020) utilize the changes in the Norwegian wealth tax scheme 2005–2017 to identify effects on employment from imposing a wealth tax on the owners of small and medium sized firms. They employ a saturated control function approach for identification. Given a pre-determined portfolio composition and overall wealth, they calculate wealth tax exposure under all of the wealth tax systems that were in place during 2005–2017. They then use wealth tax exposure under the prevailing rules for identification while controlling for effects of wealth tax exposure under non-prevailing schemes.³⁴

³⁴The authors compare it to the standard identification strategy of the elasticity of taxable income, as in Gruber and Saez (2002). It follows that Bjørneby et al. (2020) instead of using the predicted tax level based on pre-tax income or wealth as

A positive relationship between wealth taxation and employment growth is found, and they argue that a likely explanation for this counterintuitive result is the presence of avoidance responses. When entrepreneurs are more exposed to the wealth tax, they may wish to invest more in non-taxable assets, such as the human capital of their firms. Consistently, they find no positive effect on the firm’s investments in physical capital.

It is worth discussing exactly how counterintuitive these findings are. There are two main reasons for why we might expect the effect to go in the opposite direction (i.e., wealth taxes cause lower employment growth). First, wealth taxes may constrain the entrepreneurs. However, as we shall see in Section 5.4, the set of entrepreneurs for whom the wealth tax constitutes a large share of firm revenue or their own personal financial resources is rather small. Thus, the fact that liquidity constraints do not play a dominating role in setting is not so surprising. Second, wealth taxes may disincentivize households from accumulating more wealth, and thereby reduce entrepreneurial activities and hire fewer workers. However, the international literature, discussed in the previous section, gives no clear-cut evidence on this; if anything it highlights the potential for tax avoidance, which is the channel that may rationalize the finding that employment growth increases.

Berzins, Bøhren, and Stacescu (2019) and Ring (2019) are two studies which use the valuation system of primary housing (see Table 1) to identify effects.³⁵ Given that the wealth tax represents a constraint on firm liquidity, Berzins et al. (2019) find that increase in the wealth tax, measured in terms of the tax payment per unit of liquid assets, leads to higher dividend and salary payments to the shareholder, which in turn gives lower investment and lower growth. The effect on employment is also negative, but not statistically significant.

In terms of identification, Ring (2019) takes the use of the valuation system further and uses the new assessment system from 2010 and onwards (see Table 1) in a regression discontinuity framework to obtain an estimate of wealth tax effects on saving behavior. As the predicted values derived from the hedonic regressions used to establish taxable property value also include municipal fixed effects, one sees substantial variation in taxable wealth across small geographical areas (across municipal borders). The results suggest that saving is increasing in wealth tax exposure. For each additional krone pushed above the tax threshold, households increase their yearly saving by 0.04, which can be explained by the income effect dominating the substitution effect. The majority of the increase in savings is financed by increased labor income.

Ring (2019) exploits the fact that the new assessment methodology introduced in 2010 created geographic discontinuities in wealth tax exposure across most municipal boundaries in Norway. As the tax authorities used a hedonic pricing model that was saturated with fixed effects, otherwise similar households saw very different tax assessments on their homes and therefore overall taxable wealth as of 2010. This provides identifying variation in whether and how much households paid in wealth taxes. In contrast to the studies highlighted in the previous section, Ring (2019) focuses on responses that are third-party reported; namely, financial saving and labor earnings. This implies that the scope for households to respond through evasion (i.e., misreporting) is greatly reduced. As a consequence, he finds no evidence of dissaving in response to increased wealth tax exposure. On the contrary, more exposed households appear to increase how much they save, and finance the additional saving through increasing their labor supply.

These findings are found to be consistent with income effects dominating substitution effects. An important contribution of the study by Ring (2019) is to highlight the extent to which the identifying

an instrument in the empirical approach (as is standard in the ETI literature), it enters directly in the regressions.

³⁵Other sources of variation exist as well. For example, Berg and Hebous (2021) find a link between wealth taxation and economic mobility using changes to the taxation of married couples in the mid-2000s.

variation is on the extensive versus intensive margin (with respect to tax exposure), which allows the findings to more accurately inform theoretical models of capital taxation. He finds that in his main sample of analysis, the effects on the marginal return on taxable wealth are larger than those on the average return on taxable wealth, which suggests that if intertemporal substitution effects are important, they should come into play in this setting. If the geographic variation primarily changed the average, but not the marginal after-tax return on wealth, the theoretical implications are more clear-cut in that income effects cause more saving. To illustrate how such findings can inform structural parameters such as the EIS, Ring (2019) calibrates a life-cycle model to the saving and labor earnings responses, allowing the model to account for the fact that the extensive- and intensive-margin effects may differ. This exercise is consistent with an EIS below 0.3 at the 10 percent significance level and 0.5 at the 5 percent significance level. In other words, estimates are considerably smaller than that needed to calibrate the findings in Jakobsen et al. (2020), but consistent with recent quasi-experimental evidence on the EIS, see Best, Cloyne, Ilzetzi, and Kleven (2020)).

5.2.3 Avoidance and evasion As already clearly shown, there are challenges differentiating between real effects and evasion/avoidance behavior in the interpretation of responses to wealth tax. For example, taxpayers may have taken advantage of differences in valuations to reduce the tax bill. These are examples of legal tax avoidance. At the extreme one may avoid the tax by simply fleeing the country or the region. Brülhart et al. (2020) report such effects between cantons (with different tax levels) in Switzerland.³⁶

Another option is to maintain residency but move the wealth out of the tax-paying country. If, in this case, the wealth is not reported to the tax authorities, we enter into the realm of tax evasion rather than avoidance. According to Waldenström (2018), an important reason behind the termination of the Swedish wealth tax (in 2006) was alleged capital flight to offshore tax havens. As already noted, substantial tax evasion of this type in the Scandinavian countries is found by Alstadsæter, Johannesen, and Zucman (2019), and in Norway in particular. They use leaked customer lists from offshore financial institutions and show that offshore tax evasion is highly concentrated among the rich in the Scandinavian countries. Astonishing, the 0.01 percent richest households evade about 25 percent of their income and wealth taxes.

5.3 Tax on wealth versus tax on capital income

5.3.1 Are wealth and capital income taxes economically identical? As already argued, an important question is how a tax on wealth fits into the overall tax mix; i.e., is wealth tax desirable given the existence of other tax instruments (Kopczuk, 2019). Boadway and Pestieau (2019) maintain that a wealth tax adds relatively little to taxes on capital and capital income already in place (for Canada). They argue that the negative social consequences of wealth concentration are better addressed by reform of existing capital income taxes and by considering wealth transfer (inheritance) taxation. For Boadway and Pestieau (2019), the substantial administrative challenges in measurement, collection and coverage for annual wealth taxes are alone enough to be sceptical about taxation of net wealth.

Although similar, the two types of taxation are not identical, and it can be useful to think of a wealth tax as a tax on the normal rate of return (Scheuer and Slemrod, 2021). If, as in Kopczuk (2019), the rate or return is seen as consisting of three components – the normal rate, risk, and rent, wealth taxation shifts the burden from risk and rents towards the normal rate of return, where rents stand for any extraordinary

³⁶Bach, Bozio, Guillouzoic, and Maltouyres (2021) find no effect of wealth taxation on expatriation in France when exploiting changes to the tax treatment of retiring entrepreneurs.

returns that are not competed away (for example, due to market power, private information, or government protection), or results from misreporting of income. Although a shift towards less taxation of rent is not normally advisable, Guvenen et al. (2019) argue that there are advantageous effects from such a move. The argument is that taxation of wealth instead of capital income shifts the tax burden towards unproductive entrepreneurs, and raises the savings rate of productive ones. Guvenen et al. (2019) demonstrate this by employing a calibrated model, in which replacing the capital income tax with a wealth tax in a revenue-neutral fashion increases aggregate productivity and output. They conclude that wealth taxation has the potential to raise productivity while simultaneously reducing consumption inequality.³⁷ However, these effects partially rely on more productive entrepreneurs expecting higher after-tax returns under a wealth tax than a capital income tax and therefore choose to invest more. There is little empirical evidence to speak to how well this describes the behavior and preferences of (would-be) entrepreneurs. For example, if entrepreneurs have a target level of future wealth, a wealth tax, as opposed to a capital income tax, may make it differentially easier to hit this target for more productive entrepreneurs. More productive entrepreneurs may therefore respond by putting less initial capital into their business or investing less time and effort, which could lower rather than raise aggregate productivity.

However, heterogeneous returns may not reflect productivity differences across entrepreneurs – high returns may also mirror windfall gains, rents, or excessive profits. As emphasized by Scheuer and Slemrod (2021), the implications for taxation are quite different dependent on whether returns are above the standard rate. Fagereng, Guiso, Malacrino, and Pistaferri (2020) (with Norwegian data) is one of the few studies which have explored the extent and nature of return heterogeneity. They find that individuals earn markedly different average returns on their net worth and on its components. Moreover, returns are positively associated with wealth: moving from the 10th to the 90th percentile of the net worth distribution increases the return by 18 percentage points (and 10 percentage points if looking at net-of-tax returns). These basic findings suggest that the efficiency concerns of capital income taxation raised by Guvenen et al. (2019) are of practical relevance. However, to dig deeper into the tax implication one should preferably obtain more information on to what extent the heterogeneity can be explained by various sources, such as rents.

5.3.2 Empirical illustrations of implications of shift to capital income In Figure 9 we illustrate to what extent a move towards taxing capital income instead of financial wealth is expected to result in a very different development in revenue over the time period from 2008 to 2018. We do this by presenting figures for capital income and financial wealth obtained from the Income and Wealth Statistics for Households (Statistics Norway, 2019) over the time period. We focus on financial wealth, as capital income basically reflects returns of financial wealth. For example, as seen in Section 2, there is no imputed rent from owner-occupied housing in Norway.

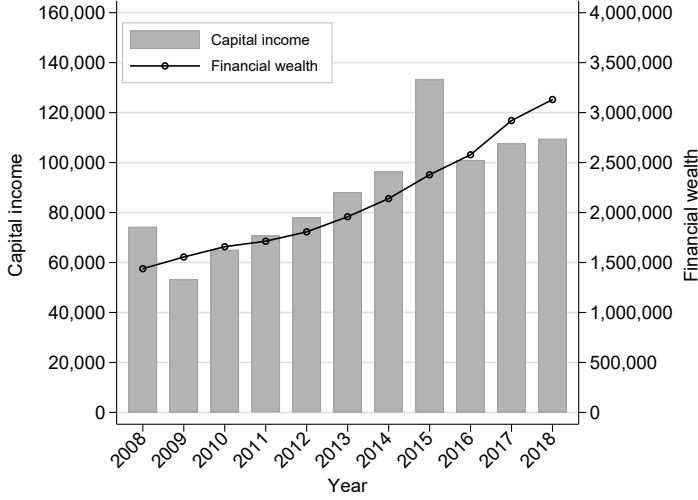
The main message of Figure 9 is that there is a relatively stable relationship between the two (although 2015 stands out), with capital income/financial wealth ratios hovering around in the range of 3.5–4.5 percent. Thus, Figure 9 gives support to assuming a close correspondence between taxation of capital income and net wealth in terms of tax bases over time.

Next, in Figure 10 we demonstrate how a move from wealth taxation to an increase in the taxation of capital income changes the distribution of the tax burden. As for the main analysis of Section 4, we let households be ranked by gross income.³⁸ More specifically, the tax change implies that the loss in tax

³⁷Of course, one could argue that this goes against the main objective of the wealth tax as a device for redistribution.

³⁸The Norwegian tax-benefit model LOTTE-Skatt (Aasness, Dagsvik, and Thoresen, 2007) is employed in this simulation.

Figure 9. Capital income and financial wealth, 2008–2018



Notes: Capital income is measured by the vertical axis at the left-hand side, whereas financial wealth is measured by the vertical right-hand side axis. Bars show the value of capital income and the dotted line provides the financial wealth values.

revenue from abolishing the wealth tax in 2021, which is approximately 15 billion NOK, is retrieved by an increase in tax rate for ordinary income (the net-income tax base for which capital income enters). This implies that the tax rate for ordinary income is increased by roughly 1 percentage point.

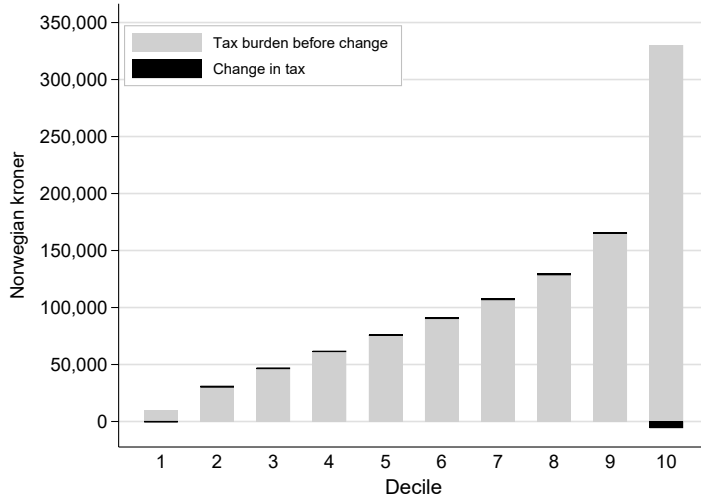
Figure 10 demonstrates this move increases has a small impact on the the distribution of tax burdens, as indicated by the (black) addition at the top of each bar (for increase in the tax burden) and negative values for gainers of this change (decile 1 and decile 10). As households in decile 10 (of the gross income ranking) pay more than 60 percent of the wealth tax, see Figure 7, these households benefit from this change. But we also see that the households in decile 1 gain, which is explained by wealth taxation representing a relatively large part of the overall tax for this group, see Figure 7. In summary, this shift moves the tax burden from the top of the distribution to taxpayers in deciles 2–9; the total effect on income inequality depends on the weights given to the gains in deciles 1 and 10, respectively.

5.4 The economic significance of the wealth tax for private businesses

In the following we provide descriptive evidence on the potential adverse effects of wealth taxation on entrepreneurs' liquidity. To do this, we merge financial, tax-return data for both firms and individuals through private-firm ownership registers. We provide precise variable definitions and describe these data sources in Section A.2 of the Appendix. As a likely policy counterfactual is the removal of entrepreneurial assets from the wealth tax base, we define the notion of marginal wealth taxes as the additional amount of wealth taxes entrepreneurs owe due to the fact that private equity is included in the wealth tax base. We calculate this by obtaining a measure for the mechanical reduction in wealth taxes the entrepreneur would experience if private equity did not enter the wealth tax base. This measure has the benefit of partially removing wealth tax effects arising due to entrepreneurs owning expensive durable consumption assets, such as, e.g., secondary homes.

We then study how large the marginal wealth tax is in comparison to firm and entrepreneur financial characteristics. We focus on the ratio of marginal wealth taxes to firm revenues. Because revenues are

Figure 10. Change in tax burden by gross income: abolishing the wealth tax and increasing the capital income tax



Notes: The figure shows effects of revenue-neutral change: abolishing the wealth tax and increasing the capital income tax. Households are ranked according to gross income and divided into deciles. The bars consist of a grey part measuring the total tax burden prior to the tax change, whereas the black part of the bars represent the change in tax resulting from the tax change.

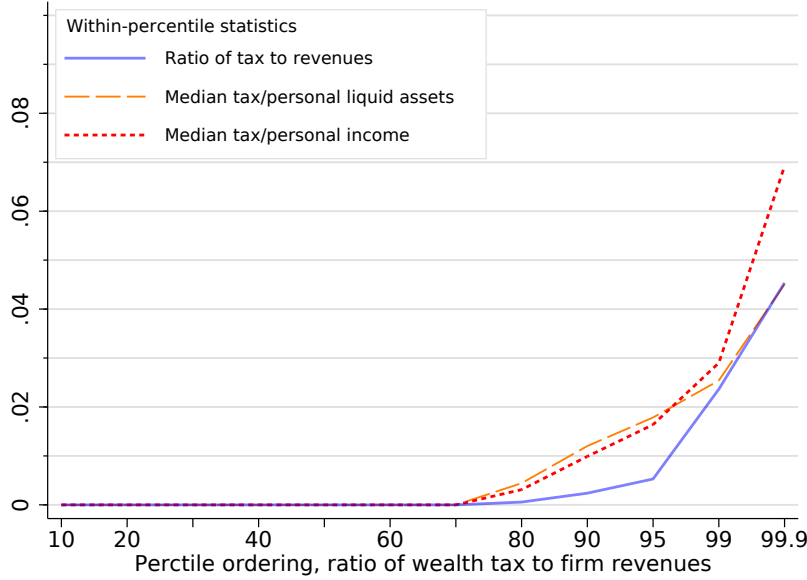
largely strictly positive, this implies that our measure is well-defined for a broad sample of firms. This ratio provides an illustrative measure of the potential economic significance of the wealth tax for the firm. To simplify our empirical analysis, we focus on entrepreneurial households who only own one firm, which, in turn, is only owned by that one household. This gives us approximately 300,000 household-firm-year observations over the period 2005–2018.

In what follows, we discuss our descriptive findings. Figure 11 sorts entrepreneurs by the ratio of marginal wealth taxes to their firms’ revenues. If we look at the 99th percentile on the horizontal axis, we see that the ratio of the marginal wealth tax liability to revenue (the solid line) is around 2.5 percent. In other words, 99 percent of the entrepreneurs in our sample face a marginal wealth tax of less than 2.5 percent of their firm’s revenue. Secondly, from the long-dashed line, we see that among the entrepreneurs whose ratio of marginal wealth taxes to firm revenues is above the 99th, but below the 99.9th percentile, the median ratio of marginal wealth taxes to their personal liquid assets is approximately 2.7 percent. From the short-dashed line, we see that the median ratio of marginal wealth taxes to personal income is about 7 percent.

These findings suggest that, even when zooming in on the top 1 percent most exposed entrepreneurs, entrepreneurs still have liquid assets or personal incomes that are 37–40 times larger than their marginal wealth tax bill. This is not to say that marginal wealth taxes cannot constrain entrepreneurial activities, but it suggests that these problems are not widespread.

Next, in Figure 12 we show how the distribution of the wealth tax burden, as measured by the ratio of marginal wealth taxes to firm revenues, varies across years (in Panel A) and by the age of the firm (in Panel B). In Panel A, we see that the 90th percentile (solid line) has remained consistently low, below 0.25 percent, for the last decade. For the far-right tail (short-dashed line, providing the 99.5th percentile), however, we see a clear increase from 2006 to 2011, despite increases in the wealth tax threshold during

Figure 11. The distribution of marginal wealth tax from entrepreneurial assets scaled by firm revenues and the ratio of marginal wealth tax to personal liquidity



Notes: The solid line shows the percentiles of the ratio of marginal wealth taxes to firm revenues. Marginal wealth taxes measure how much more entrepreneurs pay in wealth taxes because entrepreneurial assets enter the wealth tax base. The long-dashed line describes the median ratio of marginal wealth taxes to personal liquid assets (deposits, publicly traded stocks, mutual funds, and publicly traded bonds) within a given percentile of marginal wealth taxes to firm revenues. The small-dashed line shows the median ratio of wealth taxes to the amount of personal income.

this period. Part of this growth can be attributed to decreases in the equity valuation discount from 35 percent in 2005 to 0 percent in 2008. The subsequent rise during 2009–2011 may perhaps be attributed to overall rising wealth values, see Figure 2.³⁹

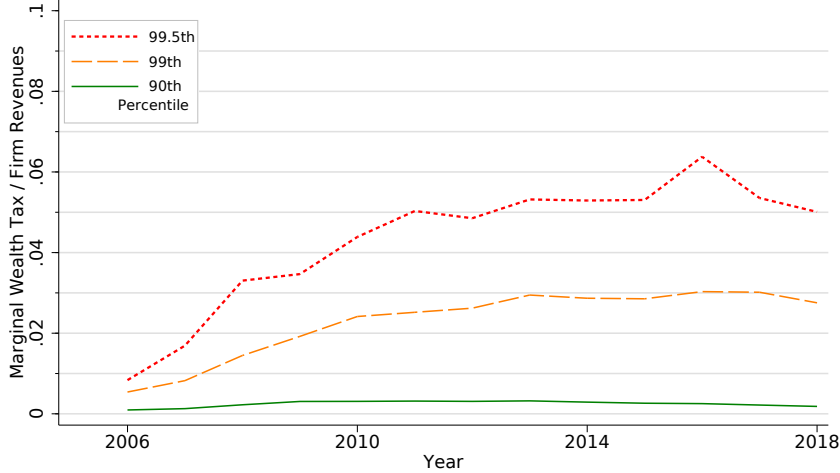
In Panel (B), we consider how wealth tax exposure varies by the age of the firm. Wealth taxes are often considered particularly harmful for younger, growing firms who may have little excess liquidity. However, this figure shows that the most exposed young firms are considerably less exposed than the most exposed older firms. This is consistent with younger firms having less book assets which effectively shields them from wealth taxation. This represents important information, as a likely detrimental effect of wealth taxation may come from younger firms being more dependent on the financial resources of their owners (Ring, 2020).

We have also considered how wealth tax exposure varies by the age of the entrepreneur, see Figure 15 in the Appendix. Because housing wealth enters with a discount, but debt enters at its full value, younger mortgage-indebted households tend to have very low taxable wealth. Taxation of private equity is thus likely to have a smaller effect on their wealth tax bill, as it is much less likely that the private equity value assessment is above the wealth tax threshold. Younger entrepreneurs also tend to own younger, smaller firms, with fewer book assets, and thus the wealth tax contribution of private equity may be fairly small. Our descriptive evidence is quite consistent with this. To some extent, the existing wealth tax regime seems to shield younger entrepreneurs from wealth taxation.

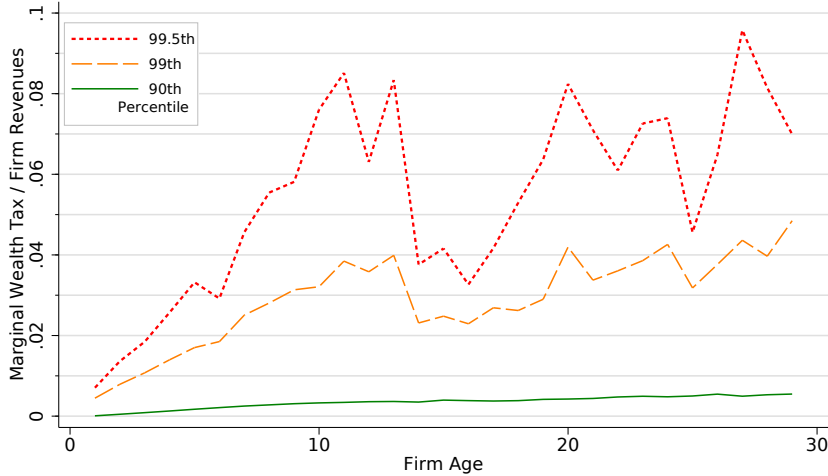
³⁹Interestingly, there is no evidence of a spike in the ratio of wealth taxes to revenues during the financial crisis. While this may, to some extent, be attributed to equity values and revenues moving somewhat in tandem, it is most likely explained by the fact that wealth tax paying entrepreneurs did not see substantial revenue fall during the crisis.

Figure 12. Top percentiles of wealth tax burden, measured as the ratio of marginal wealth tax to firm revenues

Panel A: Top percentiles of marginal wealth tax to firm revenues by year



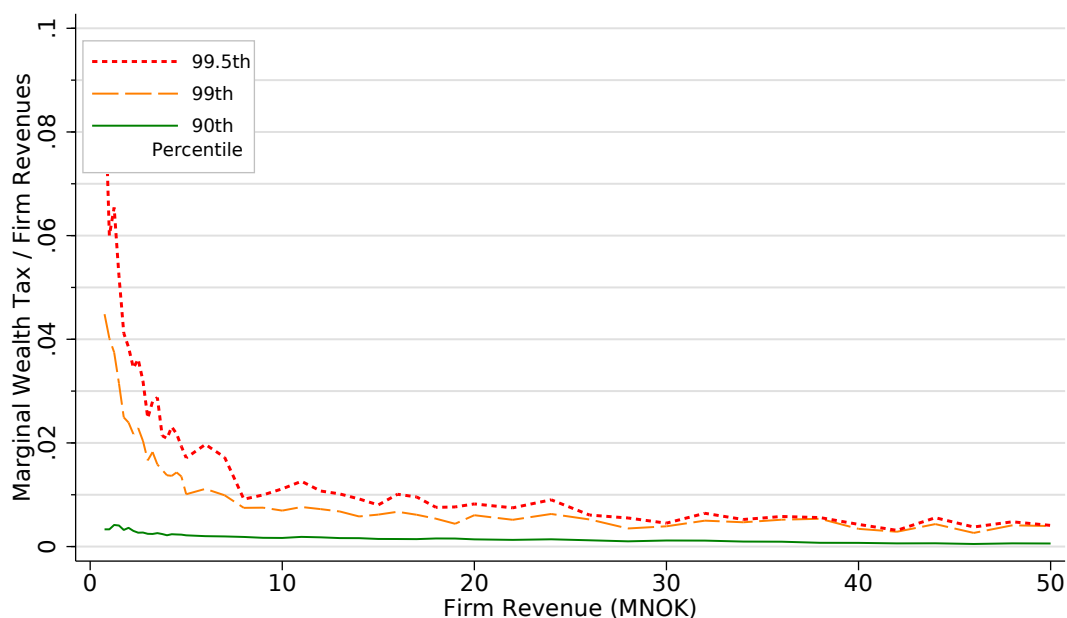
Panel B: By the age of the firm



Notes: The figure plots the top percentiles of marginal wealth tax to firm revenues and how they vary by year in Panel (A) and by the age of the firm in Panel (B). For example, from Panel (A), we see that 99.9 percent of entrepreneurs had a ratio of marginal wealth taxes to their firm's revenues that was lower than approximately 3.5 percent in 2009.

Thus far, we have examined the relationship between wealth taxes and firms' revenues while focusing our discussion on the numerator. Of course, this ratio may become inflated if revenues are particularly low. To obtain further understanding of this, we study how this ratio varies by the firm's revenues, in Figure 13. The long-dashed line takes a value of around 4 percent for firms with revenues below 1 million NOK. This means that 99.5 percent of entrepreneurs whose firms have revenues below 1 million NOK face marginal wealth taxes below 4 percent of their firms' revenues. Following the dashed lines towards the right, we see that both the 99th and 99.5th percentile decrease exponentially as revenues rise. For firms with revenues exceeding 20 million NOK, we see that 99.5 percent of the entrepreneurs face marginal wealth taxes in the range 0.5–1 percent of revenues. In other words, large ratios of wealth tax to revenue primarily accrue to

Figure 13. Ratio of marginal wealth tax to firm revenues and how it varies with the amount of firm revenues



Notes: This figure plots the top percentiles of the ratio of marginal wealth taxes to firm revenues, and how it varies with the total amount of firm revenues.

firms with small revenues. This is not necessarily what one might expect if businesses tend to obtain a valuation that is commensurate with their revenues.

It is particularly interesting to see that even for the 99.5th percentile of the wealth tax to firm revenue ratio, the tax burden (as we measure it here) is below 1 percent for firms with more than 10 million NOK in revenues. The cases where the ratio is fairly high, above, e.g., 5 percent, are found among firms with less than 2–3 million NOK in revenues. The firms driving the high exposure cannot be young, low-revenue firms, as we previously showed how younger firms are not particularly exposed, which suggests that these firms rather are older low-revenue firms. Then an important question becomes how much weight the policymakers should assign to the problems of this type of firms when setting the tax schedule, or how small-firm liquidity issues may be addressed.

6 Other effects of wealth taxation

6.1 Does the wealth tax constrain charitable behavior?

The distribution of donations The case for a wealth tax goes beyond its effects on key economic dimensions, such as saving and redistribution. In the following we point to other effects that may be given weight in the wealth tax question. In the next subsection we point to potential democratic problems following from excessive wealth concentration. But first we shall discuss how wealth taxation may crowd out private donations. The point of departure is that when donation behavior is negatively influenced by wealth taxation, there is a potential positive effect of wealth staying at private hands instead of being taxed, it increases support to charities. Then, support to, for example, humanitarian organizations can be done directly by the individual instead of letting the money go through the public sector, involving costly tax

collection and a bureaucratic allocation system. In the following we explore this issue by looking at how the tax price elasticity of donations varies with respect to wealth tax exposure.

The effect of taxation of net wealth on donations goes to the core on the relationship between the individual and the commons, as it connects to the enduring question of governmental versus private financing of public goods, discussed in Andreoni (2006) and Andreoni and Payne (2013). When charitable donations result from purely altruistic motives, tax-financed public support may crowd out private donations dollar-for-dollar, as suggested by Warr (1982) and Roberts (1984).⁴⁰ Auten, Clotfelter, and Schmalbeck (2000) and List (2011) discuss relationships between wealth and donations based on evidence from the U.S. For example, Auten et al. (2000) note that the wealthiest 1.4 percent of decedents are responsible for 86 percent of charitable giving from bequests.

Although there are some well-known single examples of individuals whose bequests have contributed to society, Norway has a very weak philanthropic tradition (Sivesind, 2015). Whereas giving as percentage of GDP is 1.4 in the U.S. and 0.54 in the U.K., it is only 0.11 in Norway (OECD, 2020). A standard explanation for such patterns is that social democratic policies have not supported philanthropy because the Scandinavian type welfare state reduces the need for such additional support.⁴¹

However, recently there have been increased efforts from Norwegian politicians to encourage private donations. Most importantly, donations to nonprofit charitable institutions and religious organizations (approx. 400 organizations) are since 2003 tax deductible in the tax base for ordinary income (net-income tax base), which means that (for 2021) the government pays 22 percent of donations up to a limit of 50,000 NOK.

In the following we shall exploit that the household register data (see Appendix A.1) can be combined with information on donations. Given that donations are deductible in income, the Norwegian system includes a third-party system for information collection on donated amounts. Organizations included in a pre-announced list of charities and religious organizations report supported amounts at the individual level electronically to the tax administration, which in turn assign them to pre-filled income tax returns. Thus, we have access to high-quality data of all charitable donations (above 500 NOK) for the whole population. In the following we use the administrative data on donations for each year from 2012 to 2017 to see how wealth taxation influences donations. Similar to Bakija and Heim (2011) and Almunia, Guceri, Lockwood, and Scharf (2020) we use panel data in the estimation of relationships.

First, Figure 14 describes the relationship between wealth and donations for a single year. The figure reveals a clear positive relationship, although decile 1 does not comply perfectly with the overall pattern.⁴² Given that average household wealth in decile 10 is approximately 15 million NOK, see Figure 3, less than 2,000 NOK in average donations illustrates that philanthropy is not a dominant characteristic of the Norwegian society.

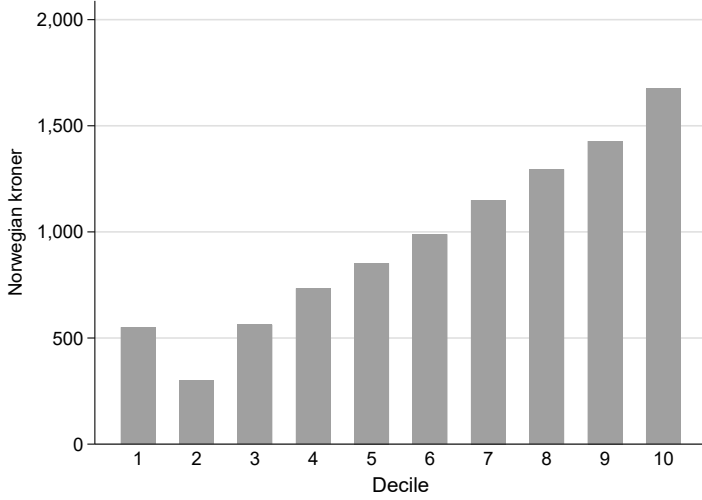
Identification of effects of wealth taxation on donations Next, we present some results from a regression where we use donation data for 2012–2017, see Appendix A.3 for descriptive statistics about the data. As

⁴⁰Roberts (1984) claims that the expansion of government services for the poor since the Great Depression (in the U.S.) was accompanied by an equal decline in charitable giving for the poor, with the result that the government dollars had no net effect on alleviating poverty. It should, however, be noted that, according to Andreoni (2006, p. 1215), this assertion is primarily theoretical.

⁴¹Many of the organizations receiving private support operate humanitarian aid programmes in foreign countries. However, the Norwegian government is heavily involved in this type of activity as it is committed to use more than 1 percent of GNI on aid.

⁴²Recall that we have argued that households found in decile 1 in terms of annual gross income may have higher permanent income, see Section 4.2.

Figure 14. Distribution of individual donations by market wealth in deciles, 2018



Notes: Individuals older than 25 ranked by their household wealth.

the focus here is on effects on donations from the wealth tax, and donations are influenced by the tax treatment through the personal income tax over the time period, it is challenging to isolate the effect of the wealth tax. In addition, as we saw in Section 2, Norway had an inheritance tax until 2014, which also likely influenced donation behavior. We shall therefore discuss the relationship between wealth taxation and donations in terms of addressing effects on the price elasticity of donations, obtained by the tax treatment of donations in the personal income tax. Given that the donations are tax-favored through the personal income tax,⁴³ we investigate to what extent the tax price elasticity of giving (due to the personal income tax), varies with respect to the individual being susceptible to wealth taxation or not.

We present regression results from a number of fixed effects regressions, exploiting the panel dimension of the data we have access to, explaining how the price of donations influence charitable donations.⁴⁴ The tax price is 1 minus the tax on ordinary income (up to a threshold), given that the tax on ordinary income varies between 28 and 24 percent over the period we have data for. We estimate tax price elasticities for individuals exposed and not exposed to the wealth tax, where the estimate for the latter group reflects interaction between wealth taxation and the treatment of the donations in the personal income tax. Here, the effect of the wealth tax on donations is thereby explained by variation in the price sensitivity of donations with respect to the personal income tax. Having an intertemporal optimization model in mind, we conjecture that a wealth tax makes charitable donations come early, reflecting that the agent saves subsequent wealth tax on each krone donated. Further, we may hypothesize that due to the interaction between the personal income tax and the wealth tax, 1 krone saved by the tax subsidy via the personal income tax is less valuable for a person in wealth tax position, resulting in less price sensitivity.

The overall efficiency of tax treatment in order to encourage donations depends on to what extent agents' donation behavior is price and income elastic. Subsidizing charitable donations may be desirable if it induces large enough increases in donations (Saez, 2004; Diamond, 2006). The optimal tax subsidy increases with the responsiveness of the donor to the subsidy. Thus, given that we look at the contribution

⁴³See Saez (2004) on the optimal tax treatment of charitable donations.

⁴⁴Nygård et al. (2021) uses a more elaborate identification technique, employing a change in the valuation system of housing as an instrument in a difference-in-differences setting.

Table 4. Explaining donation behavior. Fixed effects regression results

	All		In wealth tax position	
	Extensive margin	Intensive margin	Extensive margin	Intensive margin
log price of giving	-0.566*** (0.038)	-0.421*** (0.056)	-1.140*** (0.037)	-1.420*** (0.147)
log disposable income	0.005*** (9.1e-5)	0.061*** (0.001)	0.004*** ((4.9e-4))	0.023*** (0.002)
Net wealth	1.5e-10*** (1.3e-11)	6.5e-10*** (4.8e-11)	4.1e-11*** (1.4e-11)	7.5e-10*** (5.5e-11)
Inherit. tax abolished	-0.021*** (4.1e-4)	0.135*** (0.002)	0.041*** (0.001)	0.125*** (0.006)
Age-squared	2.0e-4*** (1.1e-6)	1.4e-4*** (6.1e-56)	2.3e-6 (5.3e-6)	3.5e-4*** (2.2e-65)
Children	0.006*** (2.1e-4)	0.032 (0.001)	0.004*** (0.001)	0.008* (0.005)
Number of obs.	17,822,705	2,028,194	1,538,584	300,092

Notes: Fixed effects panel data regressions with donation as the explained variable.

Estimates obtained by employing dataset based on third-party reported information on donations, 2012–2017, added to data from the Income and Wealth Statistics for Households.

by the wealth tax on the price responsiveness due to the tax subsidy working through the personal income tax, a smaller price effect caused by wealth taxation, is *ceteris paribus* an unfavorable effect of the tax.

However, we find opposite effects, individuals susceptible to wealth tax show more tax subsidy responsiveness, see Table 4. This is found for the tax price elasticity estimates both of the intensive and extensive margins. Whereas the overall tax price elasticity of the extensive margin is around -0.6 and the overall intensive margin price elasticity is approximately -0.4,⁴⁵ the elasticities for individuals in wealth tax positions are higher, -1.1 and -1.4 for the extensive and intensive margin, respectively.⁴⁶ Importantly, results are in accordance with the findings of Nygård, Ring, and Thoresen (2021), who uses other techniques in the identification of effects. In summary, these results do not point to any detrimental effects of wealth taxation on donations, given the operationalization we have used here.

6.2 Power and prestige of the rich

Sometimes it is argued that wealth should be taxed because it generates benefits for its owners, such as power and prestige, and therefore represents a democratic problem. Saez and Zucman (2019b) argue that for this reason the wealth taxation may exceed the level following from standard welfarist arguments. In fact, Carroll (2000) suggests that the saving behavior of the wealthy is consistent with an interpretation of wealth as a source of utility in its own right.⁴⁷ Saez and Stantcheva (2018) discuss several rationalizations

⁴⁵These estimates are larger than seen in Almunia et al. (2020), who report intensive-margin price an intensive-margin elasticity of about -0.2 and an extensive-margin elasticity of -0.1 . However, Bakija and Heim (2011) report larger estimates: the (intensive margin) elasticity of charitable giving in response to a persistent change in price is larger than -1 .

⁴⁶As seen in Table 4, regressions control for disposable income, net wealth, a time dummy for the period after termination of the wealth tax, age (squared) and number of children.

⁴⁷Max Weber called the phenomenon of individuals valuing wealth per se the “capitalist spirit” (Saez and Stantcheva, 2018).

for this, given that standard preferences, depending only on consumption, cannot explain the patterns of wealth accumulation. They argue that adding wealth in the utility function changes the optimal taxation of capital, leading to taxation of capital, as long as society puts low marginal welfare weights on wealth holders and society follows the inverse elasticity optimal tax rule. However, others, as Boadway et al. (2010) and Jacobs (2013), emphasize that power and status may be seen as ad hoc motives, and taxation on such grounds might not be easily defended.

7 Conclusion

For several decades the annual wealth tax has been in decline, such that at the beginning of the 2020s only three countries in the OECD-area uphold a comprehensive yearly taxation of net wealth. But as there are increasing concerns about effects of excessive wealth concentration world wide, the wealth tax is back on the policy agenda in several countries. For example, it has recently received substantial attention in the U.S., both from academics and politicians.

Given the increased attention devoted to this type of taxation, we argue that one may learn from the experiences of a country which still has this type of taxation in place. Although the Norwegian yearly wealth tax has been under substantial threat of elimination the last decade, it has persisted. In the following, we summarize the main arguments for and against this type of taxation by referring to the Norwegian version of the tax and by summing up the main findings reported here.

A potential deficiency of the Norwegian wealth tax is that it does not generate substantial revenue, only roughly 15 billion NOK, which corresponds to a little more than one percent of the total tax revenue. However, this is not due to difficulties in collecting or assessing the tax, nor it is driven by sizable behavioral responses. Rather, the low wealth-tax revenue is a policy choice that is driven by the presence of valuation discounts (on, e.g., housing), and a relatively modest nominal tax rate. One could interpret the valuation discounts and the modest nominal rate as a sort of political compromise that has ensured the wealth tax' survival. As the wealth tax burden on most households is rather small, the political incentives to abolish it are quite modest.

Importantly, the revenue collected primarily comes from people who have the capacity to bear the tax burden. In other words, the tax scores well on redistribution. Furthermore, in the Norwegian case, one could argue that there are constraints on the taxation of capital income, illustrated by the tax rate on capital income moving down to 22 percent due to international "race to the bottom" tendencies in the taxation of firms. In this perspective, one may view the wealth tax as a supplement to the personal income tax, enhancing overall tax progressivity.

Additionally, our exploration of potential liquidity constraints among taxpayers do not reveal any clear indications of wealth taxation representing an excessive burden for typical entrepreneurs. Given that wealth taxes are considered particularly harmful for younger, growing firms which may have little liquidity, we have particularly investigated the scope for wealth-tax induced illiquidity in this group. Our analyses suggest that the scope of such liquidity effects are quite limited.

More essentially, with respect to efficiency loss, our review of the evidence from econometric analyses do not point to unambiguous harmful effects on investments and employment from wealth taxation. In particular, recent evidence from Norway indicate small distortionary effects that go in the opposite direction of what policymakers and economists often expect. For example, the extensive study by Ring (2019) finds no evidence of dissaving in response to increased wealth tax exposure. On the contrary, more wealth tax exposed households appear to increase their saving and finance the additional saving through increased

labor supply.

However, this review has also paid attention to the effect of wealth taxation on other dimensions. With respect to tax evasion, the evidence reported by Alstadsæter et al. (2019) is alarming: the wealth of the top 0.01 of Norwegian households increases by about 25 percent if offshore wealth is included. Further, we have also looked at effects of the wealth tax on charitable donations and find no indications of any detrimental effects of wealth taxation on people's charitable behavior.

Finally, we would like to emphasize that a main facilitator for upholding the Norwegian wealth tax is the extensive third-party wealth reporting system developed by the tax administration. Third-party reporting both contributes to information about the wealth of taxpayers being reliable, adding to the horizontal equity effects of the system, and implies that the administrative compliance burden on taxpayers is low. In particular, we would like to emphasize that the procedure for measuring house values based on hedonic regressions, initiated in 2010, represented a major move forward in this respect. We expect to see further developments along these lines, which may facilitate for more efficient and fair tax collection through the wealth tax in the future.

References

- Aasness, J., J. K. Dagsvik, and T. O. Thoresen (2007). The Norwegian tax-benefit model system LOTTE. In A. Gupta and A. Harding (Eds.), *Modelling our Future: Population Ageing, Health and Aged Care, International Symposia in Economic Theory and Econometrics*, pp. 513–518. Elsevier Science.
- Advani, A., E. Chamberlain, and A. Summers (2020). A wealth tax for the UK. Wealth Tax Commission. Final Report, U.K.
- Advani, A. and H. Tarrant (2020). Behavioural responses to a wealth tax. Wealth Tax Commission. Evidence Paper 5, U.K.
- Agrawal, D. R., C. Martinez-Toledano, and D. Foremny (2021). Paraisos fiscales, wealth taxation, and mobility. Working Paper.
- Almunia, M., I. Guceri, B. Lockwood, and K. Scharf (2020). More giving or more givers? The effects of tax incentives on charitable donations in the UK. *Journal of Public Economics* 183, 104–114.
- Alstadsæter, A., N. Johannesen, and G. Zucman (2019). Tax evasion and inequality. *American Economic Review* 109(6), 2073–2103.
- Alvaredo, F., L. Chancel, T. Piketty, E. Saez, and G. Zucman (2018). *World Inequality Report 2018*. Belknap Press.
- Andreoni, J. (2006). Philanthropy. In S.-C. Kolm and J. M. Ythier (Eds.), *Handbook of the Economics of Giving, Altruism and Reciprocity*, pp. 1201–1269. Elsevier.
- Andreoni, J. and A. A. Payne (2013). Charitable giving. In A. J. Auerbach, R. Chetty, M. Feldstein, and E. Saez (Eds.), *Handbook of Public Economics*, Volume 5, pp. 1–50. Elsevier.
- Atkinson, A. B. (2015). *Inequality: What Can be Done*. Harvard University Press.
- Auten, G. E., C. T. Clotfelter, and R. L. Schmalbeck (2000). Taxes and philanthropy among the wealthy. In J. B. Slemrod (Ed.), *Does Atlas Shrug? The Economic Consequences of Taxing the Rich*, pp. 392–424. Russell Sage, New York.
- Bach, L., A. Bozio, A. Guillouzouic, and C. Malgouyres (2021). Escape or play again? How retiring entrepreneurs respond to the wealth tax. Working Paper.
- Bakija, J. and B. T. Heim (2011). How does charitable giving respond to incentives and income? new estimates from panel data. In *Economic Analysis of Tax Expenditures*, Volume 64, pp. 615–650. National Tax Journal.
- Balestra, C. and R. Tonkin (2018). Inequalities in household wealth across OECD countries: Evidence from the OECD Wealth Distribution Database.
- Bastani, S. and D. Waldenström (2020). How should capital be taxed? *Journal of Economic Surveys* 34(4), 812–846.
- Berg, K. and S. Hebous (2021). Does the wealth tax improve equality of opportunity? evidence from Norway. Working Paper.

- Bernheim, B. D. (1987). Does the estate tax raise revenue? *Tax Policy and the Economy* 1, 113–138.
- Berzins, J., Ø. Bøhren, and B. Stacescu (2019). Shareholder illiquidity and firm behavior: Financial and real effects of the personal wealth tax in private firms. Manuscript, Norwegian Business School.
- Best, M. C., J. Cloyne, E. Ilzetzki, and H. J. Kleven (2020). Estimating the elasticity of intertemporal substitution using mortgage notches. *Review of Economic Studies* 87(2), 656–690.
- Bjørneby, M., S. Markussen, and K. Røed (2020). Does the wealth tax kill jobs? Technical report, IZA Institute of Labor Economics.
- Boadway, R., E. Chamberlain, and C. Emmerson (2010). Taxation of wealth and wealth transfers. In S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, G. M., P. Johnson, G. Myles, and J. Poterba (Eds.), *Dimensions of Tax Design: The Mirrlees Review*, pp. 737–814. Oxford University Press.
- Boadway, R. and P. Pestieau (2019). Over the top: Why an annual wealth tax for Canada is unnecessary. Commentary no. 546, C.D. Howe Institute.
- Boserup, S. H., W. Kopczuk, and C. T. Kreiner (2018). Born with a silver spoon: Danish evidence on intergenerational wealth formation from cradle to adulthood. *The Economic Journal* 128, F514–F544.
- Brülhart, M., J. Gruber, M. Krapf, and K. Schmidheiny (2020). Behavioral responses to wealth taxes: Evidence from Switzerland. Manuscript.
- Carroll, C. (2000). Taxes and philanthropy among the wealthy. In J. B. Slemrod (Ed.), *Does Atlas Shrug? The Economic Consequences of Taxing the Rich*, pp. 465–489. Russell Sage, New York.
- Cowell, F. A. and P. Van Kerm (2015). Wealth inequality: A survey. *Journal of Economic Surveys* 29(4), 671–710.
- Diamond, P. (2006). Optimal tax treatment of private contributions for public goods with and without warm glow preferences. *Journal of Public Economics* 90(4-5), 897–919.
- Duran-Cabr  , J. M., A. Esteller-Mor  , and M. Mas-Montserrat (2019). Behavioural responses to the (re) introduction of wealth taxes. evidence from Spain. IEB Working Paper.
- Epland, J. and M. I. Kirkeberg (2012). Wealth distribution in Norway. Reports 35/2012, Statistics Norway.
- Fagereng, A., L. Guiso, D. Malacrino, and L. Pistaferri (2020). Heterogeneity and persistence in returns to wealth. *Econometrica* 88(1), 115–170.
- Fuest, C., F. Neumeier, M. Stimmelmayer, and D. St  hlker (2018). The economic effects of a wealth tax in Germany. *IFO DICE Report* 16(2), 22–26.
- Gruber, J. and E. Saez (2002). The elasticity of taxable income: Evidence and implications. *Journal of Public Economics* 84(1), 1–32.
- Güvenen, F., G. Kambourov, B. Kuruscu, S. Ocampo-Diaz, and D. Chen (2019). Use it or lose it: Efficiency gains from wealth taxation. Manuscript, University of Minnesota.
- Halvorsen, E. and T. O. Thoresen (2021). Distributional effects of a wealth tax under lifetime-dynastic income concepts. *The Scandinavian Journal of Economics* 123(1), 184–215.

- Jacobs, B. (2013). From optimal tax theory to applied tax policy. *FinanzArchiv/Public Finance Analysis* 69(3), 338–389.
- Jakobsen, K., K. Jakobsen, H. Kleven, and G. Zucman (2020). Wealth taxation and wealth accumulation: Theory and evidence from Denmark. *The Quarterly Journal of Economics* 135 (1), 329–388.
- Keen, M. (2015). Some notes on taxing wealth. In C. Astarita (Ed.), *Taxing Wealth: Past, Present, Future*, pp. 16–20. European Commission.
- Kopczuk, W. (2019). Comment on "Progressive wealth taxation" by Saez and Zucman. *Brookings Papers on Economic Activity Fall 2019*, 512–526.
- Krenek, A. and M. Schratzenstaller (2018). A European net wealth tax. WIFO Working Papers No. 561, WIFO, Vienna.
- Kuypers, S., F. Figari, and G. Verbist (2020). An assessment of wealth taxes in a joint income-wealth perspective. EUROMOD working paper series 17/20, Institute for Social and Economic Research.
- Lawless, M. and D. Lynch (2016). Scenarios and distributional implications of a household wealth tax in Ireland. The Economic and Social Research Institute, Dublin.
- List, J. A. (2011). The market for charitable giving. *The Journal of Economic Perspectives* 25(2), 157–180.
- Londoño-Vélez, J. and J. Ávila-Mahecha (2020). Behavioral responses to wealth taxes: Evidence from a developing country. Manuscript, University of California at Los Angeles.
- Londoño-Vélez, J. and J. Ávila-Mahecha (2021). Enforcing wealth taxes in the developing world: Quasi-experimental evidence from Colombia. *American Economic Review: Insights* 3(2), 131–148.
- Martínez-Toledano, C. House price cycles, wealth inequality and portfolio reshuffling.
- Nygård, O. E., M. A. K. Ring, and T. O. Thoresen (2021). Crowding in the good? On the donation response to taxation of wealth. Manuscript, Statistics Norway.
- OECD (2018). *The Role and Design of Net Wealth Taxes in the OECD*. OECD Publishing: Organisation for Economic Co-operation and Development, Paris.
- OECD (2020). *Taxation and Philanthropy*. OECD Publishing: Organisation for Economic Co-operation and Development, Paris.
- Perrett, S. (2020). Why did other wealth taxes fail and is this time different? Wealth Tax Commission. Evidence Paper 6, U.K.
- Piketty, T. (2014). *Capital in the Twenty-First Century*. Cambridge, MA: Harvard University Press.
- Ring, M. A. K. (2019). Wealth taxation and household saving: Evidence from assessment of discontinuities in Norway. Manuscript, University of Texas at Austin.
- Ring, M. A. K. (2020). Entrepreneurial wealth and employment: Tracing out the effects of a stock market crash. Manuscript, University of Texas at Austin.
- Roberts, R. D. (1984). A positive model of private charity and public transfers. *Journal of Political Economy* 92(1), 136–148.

- Saez, E. (2004). The optimal treatment of tax expenditures. *Journal of Public Economics* 88(12), 2657–2684.
- Saez, E. and S. Stantcheva (2018). A simpler theory of optimal capital taxation. *Journal of Public Economics* 162, 120–142.
- Saez, E. and G. Zucman (2016). Wealth inequality in the United States since 1913: Evidence from capitalized income tax data. *The Quarterly Journal of Economics* 131(2), 519–578.
- Saez, E. and G. Zucman (2019a). Progressive wealth taxation. *Brookings Paper on Economic Activity Fall 2019*, 437–533.
- Saez, E. and G. Zucman (2019b). *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*. WW Norton & Company.
- Saez, E. and G. Zucman (2020). Trends in us income and wealth inequality: Revising after the revisionists. Manuscript, National Bureau of Economic Research.
- Scheuer, F. and J. Slemrod (2021). Taxing our wealth. *Journal of Economic Perspectives* 35(1), 207–30.
- Seim, D. (2017). Behavioral responses to wealth taxes: Evidence from Sweden. *American Economic Journal: Economic Policy* 9, 395–421.
- Sivesind, K. H. (2015). Giving in Norway: An ambitious welfare state with a self-reliant nonprofit sector. In *The Palgrave Handbook of Global Philanthropy*, pp. 230–248. London: Palgrave Macmillan, London.
- Smith, M., O. Zidar, and E. Zwick (2020). Top wealth in the United States: New estimates and implications for taxing the rich. Working Papers 264.
- Sørensen, P. B. (2005). Neutral taxation of shareholder income. *International Tax and Public Finance* 12(6), 777–801.
- Sørensen, P. B. (2007). The Nordic dual income: Principles, practices, and relevance for Canada. *Canadian Tax Journal* 55, 557.
- Statistics Norway (2019). *Income and Wealth Statistics for Households*. <https://www.ssb.no/en/inntekt-og-forbruk/statistikker/ifhus>.
- Thoresen, T. O. and A. Alstadsæter (2010). Shifts in organizational form under a dual income tax system. *FinanzArchiv/Public Finance Analysis* 66(4), 384–418.
- Thoresen, T. O., E. E. Bø, E. Fjærli, and E. Halvorsen (2012). A suggestion for evaluating the redistributional effects of tax changes: With an application to the 2006 Norwegian tax reform. *Public Finance Review* 40(3), 303–338.
- Waldenström, D. (2018). Inheritance and wealth taxation in Sweden. *Ifo DICE Report* 16(2), 8–12.
- Warr, P. G. (1982). Pareto optimal redistribution and private charity. *Journal of Public Economics* 19(1), 131–138.
- Zoutman, F. (2018). The elasticity of taxable wealth: Evidence from the Netherlands. Manuscript, Norwegian School of Economics.

A Data description

A.1 *Income and Wealth Statistics for Households*

Income and wealth data for Norwegian households are collected from the same source, a census-like register comprising all private household in country. Income and wealth data are compiled from various administrative and statistical registers and thereupon linked to all household members by the use of a Personal Identification Number. The main data providers are the Tax Authorities and the National Insurance Service. The single most important source is the Tax Return Register. This register gives detailed information on all kinds of taxable income and wealth, e. g. wages and salaries, self-employment income, income from property and taxable pensions, non-financial and financial assets as well as liabilities. Another important source is the Tax Register, where information on personal income and wealth taxes and social security contributions are collected. From the National Insurance Service, all types of tax-free transfers (e.g. family allowance, support to single parents etc.) are collected as well as different types of pension income (e.g. old age and disability). In addition to tax registers and social security registers some minor income and wealth items are collected from other administrative registers, for example scholarships and student debt (The State Educational Loan Fund). It should also be noted that register data are even used to collect some biographical data for individuals, such as highest level of completed education, formal marital status, citizenship, immigrant status and municipality of residence.

Table 5 gives an overview of income and wealth components included in the Income and Wealth Statistics for Households and their corresponding administrative data sources, while Table 6 reports the total amount of various income and wealth components collected in the statistics.

A.2 *Data used to study entrepreneurs' liquidity*

We use data on firm ownership from the Shareholder register. Data on firm's financials come from their tax returns. Data on household financial characteristics come from the register of tax returns. We employ the following variable definitions. Revenues correspond to the standard accounting measure of total revenues, which is variable P9000 in the firm's tax return. Liquis Assets is the sum of deposits, bonds, and public equity holdings. More specifically, we sum tax return items 4.1.1, 4.1.9, 4.1.7 (bond component), 4.1.5, 4.1.4, 4.1.7 (stock component), and 4.1.8 (ASK component), after adjusting any of these variables for valuation discounts in the wealth tax scheme so that they reflect market values. Personal Income is ordinary income before deductions, provided in item 3.4.0 in individuals' tax returns.

Figure 15 describes how the wealth tax exposure varies by age of the entrepreneur, and supplements the exposition in Section 5.4. The figure suggests that the existing wealth tax regime to a large extent shield young entrepreneurs from wealth taxation.

A.3 *Donation data*

As described in Section 6.1, the donation data are based on third-party reporting by the organizations receiving the donations. In Table 7 we report descriptive statistics for the samples used in the regressions based on the donation data, cf. Table 4. The extensive margin includes all individuals, whereas the intensive margin includes those individuals observed with only positive donations. As expected, we see that those donating tend to have higher income and wealth, and they also have higher age. Moreover, those being in wealth tax position are more likely to donate and donate more when donating.

Table 5. Income and wealth components and data sources

Income concept	Administrative register
<i>Employee income</i>	<i>Income tax return register</i>
<i>Self-employment income</i>	<i>Income tax return register</i>
<i>Income from property</i>	
<i>interest received</i>	<i>Income tax return register</i>
<i>share dividends received</i>	<i>Income tax return register</i>
<i>realized capital gains</i>	<i>Income tax return register</i>
<i>other income from property</i>	<i>Income tax return register</i>
<i>Transfers received</i>	
<i>family related allowances</i>	<i>National Insurance Service</i>
<i>housing allowances</i>	<i>Income tax return register</i>
<i>unemployment benefits</i>	<i>The Register for End-of-the-Year Certificates</i>
<i>sickness benefits</i>	<i>National Insurance Service</i>
<i>student grants</i>	<i>The State Educational Loan Fund</i>
<i>old-age, survivor & disability benefits</i>	<i>National Insurance Service</i>
<i>social assistance</i>	<i>Municipality-State-Reporting</i>
<i>private pensions</i>	<i>Income tax return register</i>
<i>Taxes paid and social security contributions</i>	<i>Tax registers</i>
Wealth concept	Administrative register
<i>Non-financial wealth</i>	
<i>primary dwelling</i>	<i>Income tax return register</i>
<i>secondary dwelling</i>	<i>Income tax return register</i>
<i>other real estate</i>	<i>Income tax return register</i>
<i>Financial wealth</i>	
<i>bank deposits and cash</i>	<i>Income tax return register</i>
<i>share of unit trusts</i>	<i>Income tax return register</i>
<i>shares, bonds and other securities</i>	<i>Income tax return register</i>
<i>private pension fund etc.</i>	<i>Income tax return register</i>
<i>outstanding debit</i>	<i>Income tax return register</i>
<i>bank deposits in foreign banks</i>	<i>Income tax return register</i>
<i>Liabilities</i>	
<i>total debt</i>	<i>Income tax return register</i>
<i>student debt</i>	<i>The State Educational Loan fund</i>
<i>consumer & credit debt</i>	<i>Register on consumer & credit debt</i>
<i>Wealth taxes</i>	<i>Tax registers</i>

Table 6. Components of household income and wealth, in billion NOK, 2018

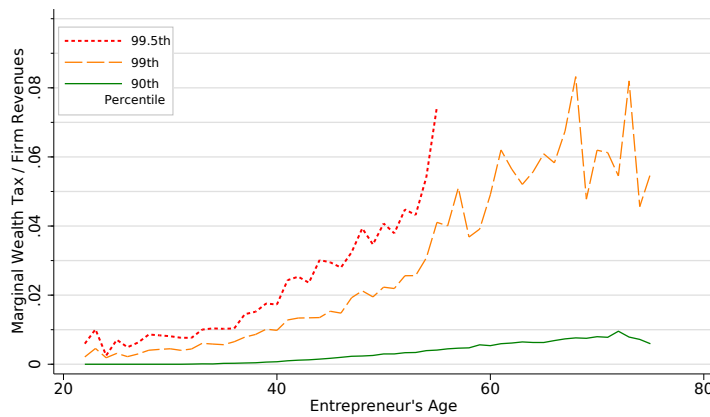
Income		Wealth	
Income from work	1,364.1	Estimated real capital	7,240.1
Wage and salaries	1,286.2	Est. market value primary dwelling	6,089.2
Net income from self-employment	77.9	Est. market value secondary dwelling	709.3
Property income	108.4	Other non-financial wealth	441.6
Interest received	12.7	Gross financial capital	3,130.9
Share dividends received	61.9	Bank deposits	1,206.9
Realised capital gains	26.6	Shares and other securities	1,371.8
Realised capital losses	8.2	Share savings account	127.8
Other capital incomes	15.3	Units of mutual funds	125.8
Transfers received	524.5	Foreign taxable wealth excl. real prop.	36.5
Taxable transfers	484.7	Other financial wealth	262.0
Social security benefits	327.4	Estimated gross wealth	10,370.9
Old-age pensions	207.0	Debt	3,545.5
Disability pension	84.4	Study debt	146.7
Work assessment allowance	31.9	Estimated net wealth	6,825.4
Service pensions etc.	71.2	Positive net wealth	7,109.7
Contractual pension	11.5	Negative net wealth	-284.3
Unemployment benefits	10.6	Property taxes	15.1
Sickness benefits	38.4		
Other taxable transfers	25.7		
Tax-free transfers	40.1		
Family allowances	14.1		
Dwelling support	2.6		
Scholarships	5.3		
Social assistance	6.5		
Basic and attendance benefits	3.4		
Cash for care	1.7		
Other tax-free transfers	6.0		
Total income	1,997.0		
Total assessed taxed and negative transfers	511.1		
Assessed taxes	499.3		
Negative transfers	11.8		
After-tax income	1,486.0		
Number of households	2,398,247		

Table 7. Descriptive statistics for donation data set, 2012–2017

	All				In wealth tax position			
	Extensive margin		Intensive margin		Extensive margin		Intensive margin	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
log donation	1.45	3.09	8.23	.88	2.22	3.62	8.31	.91
log price of giving	-.310	.0170	-.310	.0169	-.311	.0169	-.311	.0169
log disposable income	12.67	1.03	12.91	.54	12.95	.74	13.04	.69
Net wealth	1,483,311	1.1e+07	2,363,087	1.6e+07	6,968,804	3.5e+07	7,541,667	4.0e+07
Age-squared	2525.62	1284.00	2868.62	1277.08	3612.22	1071.16	3657.04	1042.11
Children	.37	.48	.36	.48	.17	.38	.18	.38
Number of obs.	17,822,705		2,028,194		1,538,584		300,092	

Note: All values measured in 2017 NOK

Figure 15. Wealth tax exposure by entrepreneur's age



Notes: This figure plots the top percentiles of the share of marginal wealth tax to firm revenue and how it varies by the age of the entrepreneur.