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Behavioral Responses to Wealth Taxation: Evidence from a Norwegian Reform

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Abstract

How do wealthy individuals respond to wealth tax reforms? We analyse behavioral responses to intensive margin variation in wealth tax rates, estimating the causal effects of an unprecedented municipal wealth tax reform in Norway. We leverage variation from the single-period municipal reform reducing the marginal tax rate (MTR) on wealth exclusively in the northern Norwegian municipality of Bo from 0.85% to 0.35%, since 2021. Mimicking the behaviour of a tax haven, Bo represents the first municipality in Norway to unilaterally reduce the municipal wealth tax rate since 1978. We document a significant 60% increase in average taxable wealth in response to a 1 percentage point drop in the wealth tax rate. The elasticity of taxable wealth increases to 68.7% when focusing exclusively on wealth taxpayers. We also estimate a significant but more modest 10% jump in the weighted mass of wealth taxpayers in the treated municipality. Migration effects of the reform dominate: internal mobility of wealthy taxpayers appears as the major behavioral response to the change in the net tax rate, accounting for a large portion of the post-treatment total net wealth in the treated municipality. While these effects are pronounced at the municipal level, they do not suggest a large-scale exodus at the national level, indicating that migration to avoid wealth taxation is not necessarily an inevitable outcome of localized preferential tax regimes. These results emerge in a context of third-party reported wealth data with minimal measurement error, limited evidence of bunching, highly enforced residence-based wealth taxation, and negligible out-migration rates.

JEL-Codes: H200, H210, H240, H260.

Keywords: wealth taxation, behavioral responses, tax avoidance, migration.

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1 Introduction: motivation and contribution

How do wealthy individuals respond to reforms of the wealth tax schedule? Rigorous evidence of behavioral responses to wealth taxation in the economic literature is scant due to three main reasons: (i) wealth tax is present only in a limited set of countries with high-quality data; (ii) within-country episodes of single-period reforms allowing credible identification are rare; and (iii) most reforms impact the top of the distribution where evasion is widespread. We study intensive margin variation from a non-staggered municipal wealth tax reform reducing the marginal tax rate (MTR) *exclusively* in the northern Norwegian municipality of Bø from 0.85% to 0.35%, from 1.1.2021.¹ By doing so, we contribute to the small but growing literature on behavioral responses to wealth taxation, overcoming the set of limitations (i-ii-iii) listed above.

(i) First, wealth taxation has a long tradition in Norway since it was introduced in 1892, and never abolished. Due to the need to tax wealth and property, tax authorities in Norway collect third-party reported wealth information resulting in administrative population-wide registers, including estimation of the value of used cars. Since 2010, the precision of wealth data delivered by Statistics Norway has increased even further, because hedonic pricing was introduced to estimate the market value of real estate properties (Fagereng, Holm, & Torstensen, 2020). Therefore, by focusing on wealth tax data in the period from 2015 to the latest available data in 2022, we rely on high-quality registers with limited measurement error.

(ii) Second, the wealth tax reform in Bø is single-period and it was not reversed.² It therefore provides in principle credible identification to estimate net-tax-rate elasticities. This reform represents the first case of a municipality unilaterally reducing the municipal wealth tax rate in Norway since 1978, effectively mimicking the behavior of an offshore tax haven. By implementing this reform, the municipality of Bø violates a social norm of not engaging in unfavorable tax competition with neighboring municipalities. Why this reform is introduced specifically in Bø and not in other municipalities? In order for municipalities to reduce the local wealth tax rates, a majority of votes in the local parliament is required. After the 2019 fall election, Bø was the only Norwegian municipality in which 'Høyre' the Liberal Conservative Party had a majority of the seats in the local parliament (50%+1), as it can be retrieved from Fiva, Halse, and Natvik (2023). This highlights the uniqueness of this reform, as similar policy changes would not eas-

¹We can hypothesize that an individual with a 1 million USD (9 million NOK in 2021) in wealth tax base, would save 5,000 USD by moving to Bø.

²Notice in addition that income tax rates do not differ in Bø with respect to other municipalities.

ily be passed in other municipalities, where a coalition of parties would be needed for approval.³ Bø is located in Northern Norway and belongs to a county with a sinking population (*Nordland*), and it is otherwise a typical rural Norwegian municipality.⁴ Regardless of its limited population magnitude, the reform in Bø has received notable attention from the international press. Bø was labeled a "remote tax haven" by Forbes (12.14.2020, "[Wealthy Norwegians Are Moving To This Remote Tax Haven](#)") and was mentioned as well in The Times (1.5.2020, "[Tax breaks tempt wealthy Norwegians to Arctic islands](#)"). The case of Bø has also been mentioned by the UK Wealth Tax Commission in a background paper on the Norwegian wealth tax ([Banoun, 2020](#)).⁵

(iii) Third, most studies on behavioral effects of wealth taxation focus on reforms that impact the very top of the distribution where the share of business-owners individuals is very high (approximately 50% within the top 0.1%), and where tax evasion is a more pervasive phenomenon. Noteworthy exceptions are [Ring \(2020\)](#) for Norway and [Brülhart, Gruber, Krapf, and Schmidheiny \(n.d., 2016\)](#) for Switzerland, focusing on larger brackets of the distribution. We focus on a municipal wealth tax reform that solely modifies the tax rate without altering the exemption threshold, so the share of population affected will be approximately the top 10% of the wealth distribution, as in [Ring \(2020\)](#). This allows us to disregard (to some extent) evasion as a major confounder for the precision of the elasticity estimation. This also implies that the share of business-owners in our sample is limited (limiting the risk that undervaluation of unlisted companies alters the results).

We also innovate on previous behavioral response studies by offering the first case study of a wealth tax reform in a smaller (rural) setting. This is in principle an advantage for our identification, because it can rule out that movers to the municipality are attracted by amenities that only bigger cities can offer. The wealth tax reform can in this context also be thought of as a measure to counteract out-migration rates and sinking population, since higher tax revenues might boost expenditure on local public services that attract families and new citizens.⁶

³We model this environment in which there is alignment between the incumbent party at the national and at the local level in Appendix A.

⁴Population predictions for Bø from Statistics Norway: <https://www.ssb.no/kommunefakta/bo>.

⁵Some preliminary results on the responses to the wealth tax changes in Bø have been shown in a master thesis by [Østvik and Davik \(2022\)](#). However, they conducted their analysis in 2022, when data for 2021 were not yet available from Statistics Norway. Hence they rely on imputations for the reform year. Tax returns on income and wealth for 2021 became only available in spring 2023 on the interface microdata.no.

⁶For a survey of the evidence on sub-national tax havens, namely local governments that practice very low tax rates on income, real estate, or financial wealth in order to attract activity from other jurisdictions, see [Agrawal \(2023a\)](#).

Our analysis is based on the following steps and results. First, our identifying assumption is supported by the hypothesis that, for wealth taxpayers residing in Norway (corresponding approximately to the top 10% of the net wealth distribution), there is no other reason to move to Bø, apart from the foreseen gain due to lower taxation on their wealth holdings. We posit a location choice model and show that being a wealth taxpayer increases the likelihood of moving to Bø from other Norwegian municipalities by 0.34%, compared to movers whose wealth lies below the exemption threshold. When zooming in on individuals with a net worth of more than 10 million NOK, the likelihood of moving to Bø increases to 3.1%.

Second, we scale up to the municipality level to estimate the elasticity of the stock. The results of the municipal-level analysis document a significant 60% increase in average taxable wealth in response to a 1 percentage point drop in the wealth tax rate. Notice that this elasticity overcomes the 43% increase (after 6 years) in self-reported taxable wealth documented by [Brülhart et al. \(n.d.\)](#) for the cantons of Lucerne and Bern in Switzerland.

Switching focus, we also document a significant 10% jump in the mass of taxpayers (weighted by the municipality population share) in the treated municipality, in response to a 1 percentage point drop in the wealth tax rate. Subsequently, we investigate the degree of wealth group heterogeneity, and show that the elasticity of taxable wealth increases to 68.7% when focusing exclusively on wealth taxpayers (we confirm the hypothesis of wealth group heterogeneity as well in a triple difference - DDD - setting).

Next, we investigate whether the above results are driven by real responses or simply reported. Since our focus is on the short-run behavioral effects, mobility effects emerge as predominant. We decompose the aggregate evidence and show that the share of total net wealth owned by movers to the municipality of Bø raises from a negligible 1% to above 67% in 2020 and approximately 20% in 2021, documenting the substantial role of internal mobility of wealth taxpayers explaining the aggregate behavioral response.

Finally, we conduct a set of robustness checks to address: (i) we analyze whether the elasticity estimation at the municipal level is driven by the change in the wealth stock of stayers; (ii) we address standard endogeneity concerns inherent in the estimation of elasticity with respect to net tax rates; (ii) we dig into the issue of enforcement of residence requirements; (iii) we estimate the degree to which taxpayers bunch at the unique kink of the tax schedule to avoid taxation; and (iv) we investigate the hypothesis that increased municipal revenues attract new citizens to Bø independently from the advantages of lower wealth taxation. Let us now contextualize our contributions within the empirical literature on capital taxation.

1.1 Taxing wealth and the wealthy: a literature overview

Wealth taxes are under the spotlight. Although only a few OECD countries currently tax wealth (Colombia, Norway, Spain, Switzerland), the academic and political debate on the complementary role of wealth taxation to level the playing field is gaining momentum. The US debate was spurred by the proposal of a progressive wealth tax by [Saez and Zucman \(2019\)](#), which has been subsequently evaluated by [Kopczuk \(2019\)](#) and [Scheuer and Slemrod \(2021\)](#). In the UK, a Wealth Tax Commission composed of economists, lawyers and policymakers was created in 2020 to evaluate the need for taxing wealth. The Commission concludes in its final report ([Advani, Chamberlain, & Summers, 2021](#)) that to cover public expenses due to the recent pandemics, the UK would benefit from a one-off wealth tax (hence not an annual wealth tax) instead of increasing taxation on earnings or consumption. At the global level, the Global Tax Evasion Report 2024 ([Alstadsaeter, Godar, Panayiotis, & Zucman, 2023](#)) advocates for a coordinated global minimum wealth tax on the very rich to curb inequality in wealth.

Theoretically, the rationale for taxing wealth is not clear-cut⁷, since efficient taxation of all types of capital income would make it redundant ([Bastani & Waldenström, 2023](#)). Wealth taxation can, however, be deemed necessary to increase effective tax rates for the very rich ([Advani, Hughson, & Summers, 2023](#)), since taxing wealth will limit the role of unrealized capital gains at the very top of the income distribution. On these lines, [Piketty, Saez, and Zucman \(2023\)](#) envision the wealth tax as an important ingredient of capital taxation.

Both [Guvenen, Kambourov, Kuruscu, Ocampo, and Chen \(2023\)](#) and [Boar and Midrigan \(2023\)](#) highlight that the equivalence between taxation of wealth and capital income disappears when taking into account return heterogeneity across the distribution.⁸ These two contributions however, differ in their results. While [Boar and Midrigan \(2023\)](#) find that taxes on capital income are preferable to wealth taxes due to efficiency losses from taxing the profits of richer entrepreneurs, [Guvenen et al. \(2023\)](#) show that a wealth tax, by increasing the savings response of productive entrepreneurs with respect to capital income taxation, leads to higher aggregate productivity, output, and overall welfare. [Bjørneby, Markussen, and Røed \(2023\)](#) estimate a positive causal relationship between wealth taxation in Norway and employment growth in firms closely held by wealth taxpayers. Focusing on the consequences for social mobility, [Berg and Hebous \(2021\)](#) show that wealth

⁷Unless we explicitly assume that we care about equal or unequal allocation of wealth *per se* as in [Saez and Stantcheva \(2018\)](#): in that case welfare increases by reducing inequality in wealth across the distribution.

⁸For the empirical evidence regarding return heterogeneity, see [Fagereng, Guiso, Malacrino, and Pistaferri \(2020\)](#); [Iacono and Palagi \(2023\)](#).

taxation increases mobility in labor income.

Wealth taxes do not necessarily eliminate the risk of avoidance and evasion that taxation of capital income suffers from, since capital mobility (both across jurisdictions within countries⁹ and internationally) can pose problems even in well-functioning tax systems.¹⁰ This risk is however mitigated by the presence of third-party reporting of the wealth stock as is the case in Norway, since self-reporting leads to lack of information for policymakers at the top of the income and wealth distributions.

In order to inform the above debates on the potential desiredness and practical consequences of taxing wealth, in the last years there has been a surge in studies that try to estimate behavioral responses to wealth taxation ([Agrawal, Foremny, & Martínez-Toledano, 2024](#); [Brühlhart et al., n.d.](#); [Duran-Cabré, Esteller-Moré, & Mas-Montserrat, 2019](#); [Garbinti, Goupille-Lebret, Muñoz, Stantcheva, & Zucman, 2023](#); [K. Jakobsen, Jakobsen, Kleven, & Zucman, 2020](#); [K. Jakobsen, Kleven, Kol-srud, Landais, & Muñoz, 2024](#); [Jakurtti & Süssmuth, 2023](#); [Londoño-Vélez & Ávila Mahecha, 2021](#); [Ring, 2020](#); [Seim, 2017](#)).¹¹

While both [Seim \(2017\)](#) and [K. Jakobsen et al. \(2020\)](#) estimate net tax rate elasticities right before the abolition in Sweden (2007) and Denmark (1997), [Agrawal et al. \(2024\)](#) and [Jakurtti and Süssmuth \(2023\)](#) exploit municipal variation spurred by the reintroduction of wealth taxation in all regions of Spain *except* Madrid in 2011. [Ring \(2020\)](#) exploits municipal variation caused by the different valuation of taxable real estate between Norwegian municipalities, to estimate the effects of wealth taxation on savings, by comparing households living near municipal boundaries. [Alstadsæter, Bjørneby, Kopczuk, Markussen, and Røed \(2022\)](#) follow [Ring \(2020\)](#) in focusing purely on the effects of the Norwegian wealth tax on real active saving, hence implying a lower elasticity than for taxable wealth which generally includes avoidance and evasion responses.

Table 1 provides a more comprehensive and updated overview of research on the topic of behavioral responses to wealth taxes, divided into panel (a) Effect on taxable wealth, and panel (b) Effect on savings.

In summary, from Table 1, it emerges that the only studies in addition to ours that focus on the effect on wealth stock and that utilize municipal variation for identification are [Agrawal et al. \(2024\)](#) and [Jakurtti and Süssmuth \(2023\)](#) for Spain

⁹[Wilson and Wildasin \(2004\)](#) reviews the theoretical literature on capital tax competition between jurisdictions. For other references on the tax competition among local governments, see [Eugster and Parchet \(2019\)](#); [Lyytikäinen \(2012\)](#).

¹⁰[H. Kleven, Landais, Muñoz, and Stantcheva \(2020\)](#) survey the literature on the topic of taxation and mobility.

¹¹A survey of this emerging literature up until 2021 can be found in [Advani and Tarrant \(2021\)](#).

Table 1: Behavioral responses to wealth taxation: an overview of the literature

(a) Effect on taxable wealth	Country	W. bracket	Time	Elast.	Identification
Londoño-Vélez and Ávila Mahecha (2021)	COL	top 1%	1 year	0.6-2%	Bunching at tax notch
K. Jakobsen et al. (2020)	DEN	top 1-2%	8 years	1-11%	DiD (tax schedule)
Agrawal et al. (2024)	ESP	top 1%	6 years	8-10%	DiD (municipal tax rates)
Duran-Cabré et al. (2019)	ESP	top 1%	4 years	15-32%	DiD (regional tax rates)
Jakurti and Stüssmuth (2023)	ESP	top 1%	6 years	42-51%	DiD (municipal tax rates)
Garbinti et al. (2023)	FRA	top 3%	5 years	0.5%	Dynamic bunching
Zoutman (2018)	HOL	n.a.	4 years	12-14%	DiD (tax schedule)
Iacono and Smedsvik (2024)	NOR	top 10%	2 years	60%	DiD (municipal tax rates)
Seim (2017)	SWE	top 4%	n.a.	0.3%	Bunching at tax kink
Brülhart et al. (2016)	SWI	top 34%	5 years	34%	DiD (canton tax rates)
Brülhart et al. (n.d.)	SWI	top 34%	5 years	18-43%	DiD (canton tax rates)
(b) Effect on savings	Country	W. bracket	Time	Elast.	Identification
Alstadsæter, Bjørneby, et al. (2022)	NOR	top 10%	2 years	6.6%	DiD (tax schedule)
Ring (2020)	NOR	top 10%	5 years	0.05%	Boundary DD

Note: This table is adapted from Table 2 (page 115) in [Brülhart et al. \(n.d.\)](#), and updated with the latest references in the literature on behavioral responses to wealth taxation. It is in alphabetical order with respect to countries. To make the comparison of elasticities meaningful across countries, it is divided into panel (a) Effect on taxable wealth, and panel (b) Effect on savings. Wealth bracket indicates the share of wealth owners that is affected by the reform studied. Time indicates the time horizon post-reform. Elasticity refers to the semi-elasticity of taxable wealth to changes in the tax schedule or tax rates. Notice that semi-elasticities are expressed as percentage effect on taxable wealth of a 1 percentage point wealth tax rate decrease.

(focusing on the capital Madrid), and [Brülhart et al. \(n.d.\)](#) for Switzerland (the cantons of Bern and Lucerne). The elasticity column in Table 1 also shows that elasticities tend to be higher in these contexts, with respect to studies that use tax schedules as the source of identification. Notice also that our study is the first reform in a smaller (rural) municipality, helping to isolate the behavioral responses from other confounders. The lower average wealth stock in such smaller municipalities may explain the larger semi-elasticity of taxable wealth we observe.

Although the estimation of elasticity at the municipal level points to significant effects on taxable wealth and on the weighted mass of taxpayers, the low share of wealthy individuals at the national level that moved to Bø to benefit from the wealth tax reform cannot be deemed as a large exodus. We provide more discussion on this in section 6, where we try to contextualize our results within the broader sample of wealthy taxpayers in Norway, and analyzing whether the ‘no-exodus’ to Bø can be explained by out-migration rates.

The paper proceeds as follows. Section 2 introduces the data utilized and the major institutional details. Section 3 elaborates on our identification strategy, while section 4 presents the results of the analysis at the municipality level. Section 5 includes all the robustness checks, before section 6 discusses the implications of the results, and section 7 concludes.

2 Data and institutional details

Our analysis is based on Norwegian administrative tax records on wealth for the years 2015 – 2022.¹² We focus on pre-tax wealth because we aim to estimate the effect of changes in tax rates on wealth holdings before taxation. For each adult individual i , the following definitions of gross personal wealth, debt, and the resulting net wealth are considered. All wealth variables are measured on the last day of the year (31.12).

Gross wealth [$gw_{i,t}$]: estimated personal gross wealth, including estimated market values of real and financial capital. Real capital includes the estimated market value of the primary dwellings, secondary dwellings, land, and buildings related to business activity (business assets). Financial capital includes cash, domestic deposits, foreign deposits, government and corporate bonds, bond funds and money market funds, shares in stock funds, other taxable capital abroad, and outstanding claims and receivables.¹³

Private debt [$d_{i,t}$]: private debt to Norwegian and foreign creditors (consumer debt, student debt, and long-term debt), including debt related to shares in real estate companies.

Taxable net wealth [$tnw_{i,t} = \lambda_t * (gw_{i,t}) - d_{i,t}$]: this variable constitutes the tax base and it is computed by the tax authorities by discounting market values in $gw_{i,t}$ by a factor $0 < \lambda_t < 1$ and following the assessment rules shown in table 2.¹⁴

Descriptive statistics on taxable net wealth are produced in Appendix D. At the national level, positive average net wealth grows from approximately 1,012 million Norwegian kroner in 2015 to approximately 1,579 million kroner in 2021 (175 thousand 2021 USD, with a USD 1 = NOK 9 exchange rate), with the universe of wealth owners dropping from 795380 in 2015 to 758068 in 2022.

Table 2 shows that the tax rates have been mostly stable at 0.85% throughout the period of analysis, with the exception of a rise to 0.95% in 2022.¹⁵ A rate of

¹²Data are retrieved from microdata.no, an online interface administered by Statistics Norway. Notice that the data is anonymized and subject to 2% bottom and top winsorization only when we retrieve graphical outputs. In all regressions instead, there is no winsorization in the underlying data. The same data access has been used by [Iacono and Palagi \(2023\)](#).

¹³Note that since entrepreneurs self-report wealth held within unlisted firms to the Norwegian tax authorities, $gw_{i,t}$ is, therefore, not completely based on third-party reporting.

¹⁴The variable taxable net wealth - tnw - is made available by Statistics Norway from tax returns, hence after the valuation assessment, and it is described in more detail here: <https://www.ssb.no/a/metadata/conceptvariable/vardok/18/nb>. The same variable has been used in [Iacono and Palagi \(2023\)](#).

¹⁵Let us compare wealth taxation with taxation of capital income. Assuming a rate of return on wealth of 5%, taxing wealth at a 1% rate would correspond to taxing income from capital at a rate of 20%. This implies that the elasticity of the wealth stock to a change in the wealth tax rate of 1 p.p. should be discounted by a factor of 20 to obtain the corresponding elasticity with respect to changes in the taxation of capital income.

Table 2: The net wealth tax schedule in Norway, 2015 – 2022

Year	MTR/Exemption		Tax valuation: % of estimated market value				
	(Municipal+state) MTR	Exemption (1000NOK)	Primary Home	Holiday Home	Secondary Home	Business Property	Shares
2015	$0.7 + 0.15 = 0.85$	1200	25	70	70	70	100
2016	$0.7 + 0.15 = 0.85$	1400	25	70	80	80	100
2017	$0.7 + 0.15 = 0.85$	1480	25	70	90	90	90
2018	$0.7 + 0.15 = 0.85$	1480	25	70	90	80	80
2019	$0.7 + 0.15 = 0.85$	1500	25	70	90	75	75
2020	$0.7 + 0.15 = 0.85$	1500	25	70	90	65	65
2021	$0.7 + 0.15 = 0.85$	1500	25	70	90	55	55
2022	$0.7 + 0.25(0.4) = 0.95(1.1)$	1700	25	70	95	75	75

Note: This table shows marginal tax rates; the exemption threshold constituting the unique kink of the wealth tax schedule; and tax valuation rules: the % of the estimated market values that gives the tax base for primary and secondary dwellings, holiday homes, business property, and shares. In 2022, the higher marginal rate of 1.1 kicks in only for wealth above 20 million NOK.

0.7% is paid to the municipality of residence, topped up by a 0.15% accruing to the central state (that was increased to 0.25% in 2022). Municipalities can, in principle, unilaterally modify their wealth tax rate; however, Bø is the first Norwegian municipality to do so since 1978 (more discussion on the factors that led to this unprecedented reform can be found both in subsection 5.6 and Appendix A). Currently, no other municipalities have followed Bø's reform. The schedule of the wealth tax is designed throughout the period of analysis as a flat tax with a unique kink at the exemption threshold, as in equation (1).

$$wtax_{i,t} = \tau_t (tnw_{i,t} - \text{Exemption}_t) \mathbf{1} [tnw_{i,t} > \text{Exemption}_t] \quad (1)$$

The only exception to this is the final year 2022, where an additional kink for ultra-wealthy individuals has been introduced, with an overall marginal tax rate of 1.1% for all wealth that overcomes 20 million NOK. For the case of co-habiting couples (married or not), the exemption threshold doubles, and the wealth tax is computed at the household level. The exemption threshold gradually rises up to 2018, then it remains stable at 1500 thousand NOK from 2019 up to 2021, before it rises again in 2022 to 1700 thousand NOK. The exemption threshold lies roughly at the P_{85-90} of the wealth distribution in 2015 – 2022, according to Thoresen, Ring, Nygård, and Epland (2022), implying that it is roughly the top 10% of the net wealth distribution paying taxes on wealth (see Halvorsen and Thoresen (2021) for an assessment of the distributional effects of wealth taxation).

In addition, notice that valuation rules for different assets were modified in the period under analysis: the discount of the market value of secondary dwellings has been gradually reduced to 5%. Shares and business property were discounted gradually more in between 2017 – 2021 to incentivise portfolio diversification, be-

fore the discount was reduced to 25% in 2022 for both assets. As duly highlighted in [Thoresen et al. \(2022\)](#), valuation is based mainly on third-party reporting, with the exception of unlisted firms. All in all, this shows a mixed picture regarding taxation of wealth in Norway: first, tax rates have remained stable with the exception of the jump in 2022. Second, exemption threshold has monotonically increased throughout the period. Third, valuation discounts have been on the rise up to 2021 leading to a less stringent taxation of wealth, before they were reduced again in the last year under analysis.

3 Identification strategy

In this section, we present the identification strategy for our quasi-natural experiment. Recall that we are trying to estimate the causal impact of the sudden wealth tax reform in the municipality of Bø (our treatment T) on the mobility of wealth taxpayers (the outcome Y_1), and on their wealth holdings. In other words, we study behavioral responses to wealth taxation by exploiting a municipal reform reducing the MTR (marginal tax rate) exclusively in the municipality of Bø from 0.85% to 0.35%. We believe this municipal variation produces neat and credible identification because it is the only municipal reform of the wealth tax rate in the period 2015 – 2022. In addition, the exemption threshold does not vary in the period 2019 – 2021 when the treatment hits.

3.1 Expected mobility of wealth taxpayers

Ideally, we would like to satisfy the Conditional Independence Assumption (CIA) ([Rubin, 1974](#)) implying that the expected mobility of wealthy individuals is equal for the treatment and control groups (individuals above and below the wealth tax exemption threshold), conditional on other characteristics of the municipality (X_m) that are not related to wealth tax rates:

$$(Y_0, Y_1) \perp\!\!\!\perp T \mid X_m \quad (2)$$

In other words, our strategy relies on the identifying assumption that the treatment (the reduction of the municipal wealth tax rate announced in December 2019 and implemented on January 1, 2021) occurs in a quasi-random manner in Bø and is not correlated with Bø's observable characteristics (say, per capita public spending). This would be equivalent to stating that, for wealth taxpayers residing in Norway, there is no other reason to move to Bø, apart from the foreseen gain due

to lower taxation on their wealth holdings. If this identifying assumption holds, then we can interpret the mobility effect of the reduction in the municipal wealth tax rate on the wealth of taxpayers in a causal fashion.

3.2 Zooming in on residents of Bø and movers

To empirically test our identifying assumption, we start by providing descriptive statistics on adult residents and movers to Bø within the period under analysis (2015 – 2022). We define immigrants as individuals who are residents in Bø in year t and who resided in another municipality in Norway at $t - 1$.¹⁶ The sample of residents and movers to Bø is presented in table 3 together with descriptive demographic information.

Table 3: Residents (1st of January) and movers to Bø, 2015-2022

	2015	2016	2017	2018	2019	2020	2021	2022	Tot.(sum/avg)
Residents	2129	2223	2235	2239	2225	2194	2210	2199	17661
Avg age	55.23	55.24	55.07	54.86	55.12	55.31	55.49	55.67	55.25
Avg Net Wealth	701,45	747	748,89	779,63	822,83	912,51	1319,39	1445,82	937,06
Movers to Bø	81	83	81	67	74	108	97	115	704
Avg age	35.76	39.59	38.2	41.85	39.7	45.59	39.88	40.64	40.31
Avg Net Wealth	124,27	284,06	383,73	525,07	565,23	10652,8	5289,19	3617,05	3283,43

Note: This table shows the yearly number of adult residents in the municipality of Bø on the 1st of January, plus average age and net wealth in thousand NOK. Second, it shows the number of individuals who have changed their residence during the year, from another municipality in Norway (where they resided on 1.1) to Bø. We also document their average age and net wealth in thousand NOK. Note that we include only individuals 18+ years old who were alive throughout the period.

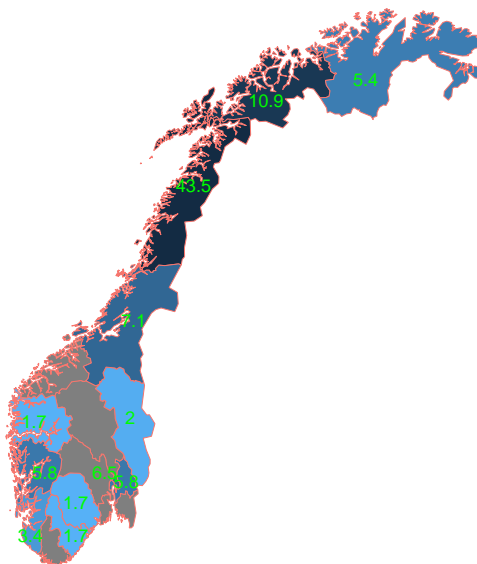
Table 3 shows that although the tax reform is not in place before the 1.1.2021, a relatively higher number of individuals (108) move to the municipality of Bø during 2020. This might be explained by the fact that taxpayers who wish to be subject to the new regime start to move their residence in 2020 to be residents of Bø from the start of the fiscal year 2021 and avoid disputes with the tax authorities. Notice as well that the average net wealth of movers to Bø increases dramatically from 2020 to 2022, while less of a dramatic jump is visible when focusing on all residents of the municipality.

At this point, however, we cannot yet infer anything regarding mobility effects because the above sample (row 4 in table 3) also includes individuals who could have moved to Bø for reasons other than the tax reform. An obvious concern is that 2020 was the year the COVID-19 pandemic hit Norway, leading to a

¹⁶There is no substantial evidence of in-migration from abroad. Norway is one of the few European countries with taxation of wealth (the others being Spain and Switzerland), hence moving to Bø from most countries would not entail a reduction in the wealth tax paid.

large number of sudden layoffs (Alstadsæter et al., 2020). Consequently, some individuals might have relocated to countryside locations such as Bø and worked remotely from there. However, Bø is not adjacent to any major Norwegian cities, so relocation to such a remote rural setting would likely be relevant only for individuals originally from the area or those who had invested in properties there before the pandemic. Figure 1 illustrates the counties of origin (based on the residence in 2019) for movers to Bø. Almost half of all movers (43.5%) come from the same county - *Nordland* - while lower fraction of movers come from big cities in the south of the country. This demonstrates that the behavioral responses in terms of migration have been costly for neighboring municipalities, which lost a fraction of their wealthy residents, leading to a potentially substantial drop in tax revenues after the reform in Bø.

Figure 1: Movers to Bø, based on residence in 2019



Note: The figure displays the different counties of origin (based on residence in 2019), for individuals who moved to Bø in 2020, or 2021, or 2022. Akershus 5.8%, Oslo 6.5%, Hedmark 2%, Telemark 1.7%, Aust-Agder 1.7%, Rogaland 3.4%, Hordaland 5.8%, Sogn og Fjordane 1.7%, Trøndelag 7.1%, Nordland 43.5%, Troms 10.9%, Finnmark 5.4%. Darker blue for counties with a higher percentage. Grey for counties with no movers.

To investigate the mobility of wealth taxpayers further, we focus now exclusively on the residents and immigrants to Bø who have paid a positive amount of wealth tax in each year (both to the central state and to the municipality). The number of wealth taxpayers for both residents and immigrants, together with their average age and net wealth is shown in table 4.

First, we document a fivefold jump in the magnitude of movers for 2020, from

Table 4: Residents of Bø (1.1) and movers to Bø (only wealth taxpayers), 2015-2022

	2015	2016	2017	2018	2019	2020	2021	2022	Tot.(sum/avg)
Residents	172	159	150	173	178	190	245	235	1481
Avg age	65.73	64.5	64.81	64.98	65.67	65.57	65.46	65.73	65.35
Avg Net Wealth	4289,49	5396,66	7486,30	6821,42	6966,99	6993,28	17183,9	18592,62	10028,33
Immigrant	6	6	<5	<5	5	28	13	15	73
Avg age	n.a.	n.a.	n.a.	n.a.	n.a.	59.5	61.27	54.75	56.4
Avg Net Wealth	n.a.	n.a.	n.a.	n.a.	n.a.	142000	66884,3	23316,97	79115,29

Note: This table shows the yearly number of residents (wealth taxpayers, on 1.1) in the municipality of Bø, together with their average age and net wealth in thousand NOK. In the second set of rows, we show the number of wealth taxpayers who become new residents of Bø during the year. We also document their average age and net wealth in thousand NOK. Due to anonymity regulations, the interface microdata.no automatically delivers a missing unit when the actual number of a table output is below 5 individuals. This applies to row 4 in 2017 and 2018. The total number of new residents wealth taxpayers is therefore only a lower bound. Note that this applies only when retrieving a table output. In other words, when running a regression the actual number of immigrant wealth taxpayers is utilized without restrictions.

the negligible amounts of 2018 and 2019. Second, the average net wealth of the 68 movers to Bø that pay wealth taxes is 79, 11 million NOK (8, 79 million in 2021 USD), approximately an eightfold jump with respect to the average net wealth of all 1481 adult residents of Bø who are wealth taxpayers, owning an average of 10,02 million NOK. It is precisely the discontinuity caused by the exemption threshold of the wealth tax schedule (being or not being a wealth taxpayer) that we intend to exploit in the next subsection.

3.3 Location choice model

We test our identification strategy by exploiting the discontinuity created by the exemption threshold between wealth taxpayers and non-payers of the wealth tax (recall that this cut-off lies approximately at the 9th decile of the net wealth distribution). To this end, we run a location choice model on the lines of [H. J. Kleven, Landais, and Saez \(2013\)](#). In Appendix B, we explain the theoretical reasoning behind such models.

Our sample is constituted by all individuals in Norway who move their residence at least once in the period under analysis (2015 – 2022), to *any* other municipality in the country. This delivers a sample of 1, 641 million individuals. What is the likelihood that the chosen municipality is Bø, conditional on the mover being a wealth taxpayer, or having a net wealth above a certain threshold?

[Treatment and control groups] Within this sample of movers, wealth taxpayers constitute our treatment group, with a potential incentive to change their residence to Bø in the post-treatment years, to pay a lower amount of taxes on their wealth. Notice that we select into treatment only individuals that have paid a pos-

itive amount of taxes on wealth in each year from 2015 to 2022. The wider control group is instead composed of individuals who did not pay any amount of wealth tax. This implies that the latter individuals hold an amount of gross wealth below the lowest threshold to pay any wealth tax, corresponding to 1,5 million NOK in the period 2019 – 2021 (roughly 165 thousand USD in 2021). Selecting a more restricted control group (e.g., net wealth right below the exemption threshold) would deliver a higher likelihood of moving to Bø. Our results below can therefore be interpreted as lower-bound estimates.

[Treatment year] Recall that the reduction in the municipal tax on wealth was voted upon and announced by the municipality council in December 2019. Although the drop in the tax rate at the municipal level would be in place only from 1.1.2021, wealth taxpayers who want to be subject to the new tax regime start to move their residence during the previous year, to be residents of Bø from the start of the fiscal year 2021 and avoid disputes with the tax authorities. We therefore define 2020 as the treatment year. We believe that the risk of anticipation effects in 2019 is rather low because the announcement of the tax reform was done only during the last month of 2019 (precisely 19th December), hence realistically only a few individuals might have reacted to that immediately by moving their residence before the last day of the year. Another reason that supports our argument is that in the announcement it was not specified that the lower tax rate would already yield by 1.1.2020.

[Model specification] Because the introduction of the tax cut takes place in a single municipality at a given point in time without any staggered roll-out and with limited risk of anticipation effects, we posit the canonical two-way fixed effects (TWFE) difference-in-differences model, estimated on individual-level data:

$$M_{i,t} = \delta_i + \tau_t + \omega_t + \alpha * D_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t}, \quad (3)$$

where $M_{i,t}$ is a dummy identifying all individuals who have moved to Bø (row 3 of table 3), δ , τ and ω capture, respectively, individual, year and region fixed effects;¹⁷ $X_{i,t}$ contains individual-level covariates such as age and education level; $D_{i,t}$ represents the treatment group, namely wealth taxpayers in the post-treatment years, or alternatively individuals with net wealth above 10 million NOK - 1,1 million USD in 2021 - approximately the top 1% of the wealth distribution. $\varepsilon_{i,t}$ is the error term. Table 5 presents the results.

[Results] The results from columns (1 – 4) in table 5 are robust to the different specifications, introducing stepwise FEs for individual, time, region, and con-

¹⁷Regional fixed effects control for different characteristics of regions of Norway from which individuals are moving from.

Table 5: Location choice model: results

Treatment group:	Wealth taxpayers - top 10% (1 – 4)				-	High net wealth - top 1% (5 – 8)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
D_{it}	0.0021	0.0034	0.0034	0.0034	0.0241	0.0311	0.0311	0.031
Robust SEs	0.0004	0.0013	0.0013	0.0013	0.0057	0.0138	0.0138	0.0137
P-values	0.00	0.01	0.01	0.01	0.00	0.02	0.02	0.02
Individual FE	NO	YES	YES	YES	NO	YES	YES	YES
Time FE	NO	YES	YES	YES	NO	YES	YES	YES
Controls	NO	NO	YES	YES	NO	NO	YES	YES
Region FE	NO	NO	NO	YES	NO	NO	NO	YES
Obs.	1641386	1641386	1641386	1641386	1615509	1615509	1615509	1615509

Note: This table presents the results of the canonical TWFE DiD model that we run on all movers. We run four different specifications by introducing stepwise FEs for individual, time, region, and controls. In columns (1–4), the treatment group is individuals who pay a positive amount of wealth tax to the state and municipality. In columns (5–8), the treatment group becomes individuals with net wealth higher than 10 million NOK. Robust standard errors.

trols. Column 4 indicates that in the post-treatment years, being a wealth taxpayer increases the likelihood of moving to Bø by 0.34%, compared to movers whose wealth lies below the exemption threshold. When zooming in on individuals with a net worth of more than 10 million NOK, the likelihood of moving to Bø increases to 3.1%. This is expected because for these individuals, a drop in the marginal tax rate implies a higher post-tax net wealth.¹⁸ All in all, this constitutes a low likelihood, highlighting that moving to Bø is not a common choice for wealthy individuals moving their residence within Norway. Thus, our results suggest that the option of partially avoiding wealth taxation by relocating to Bø is rare, even though the transaction cost of this option is low (renting or buying a property and declaring a new residence can, in practice, be done within a few days).

To inspect internal validity further, we create a time-to-treatment variable to set up an event study related to the above TWFE specification. This allows us to test the hypothesis of parallel trends. We wish to test whether the increased likelihood of moving to Bø for wealth taxpayers starts before the treatment year or not. Define the time-to-treatment variable y representing the leads and lags of the treatment dummy D (following the procedure as in [Cunningham \(2021\)](#)) and rewrite the above difference-in-differences model as follows:

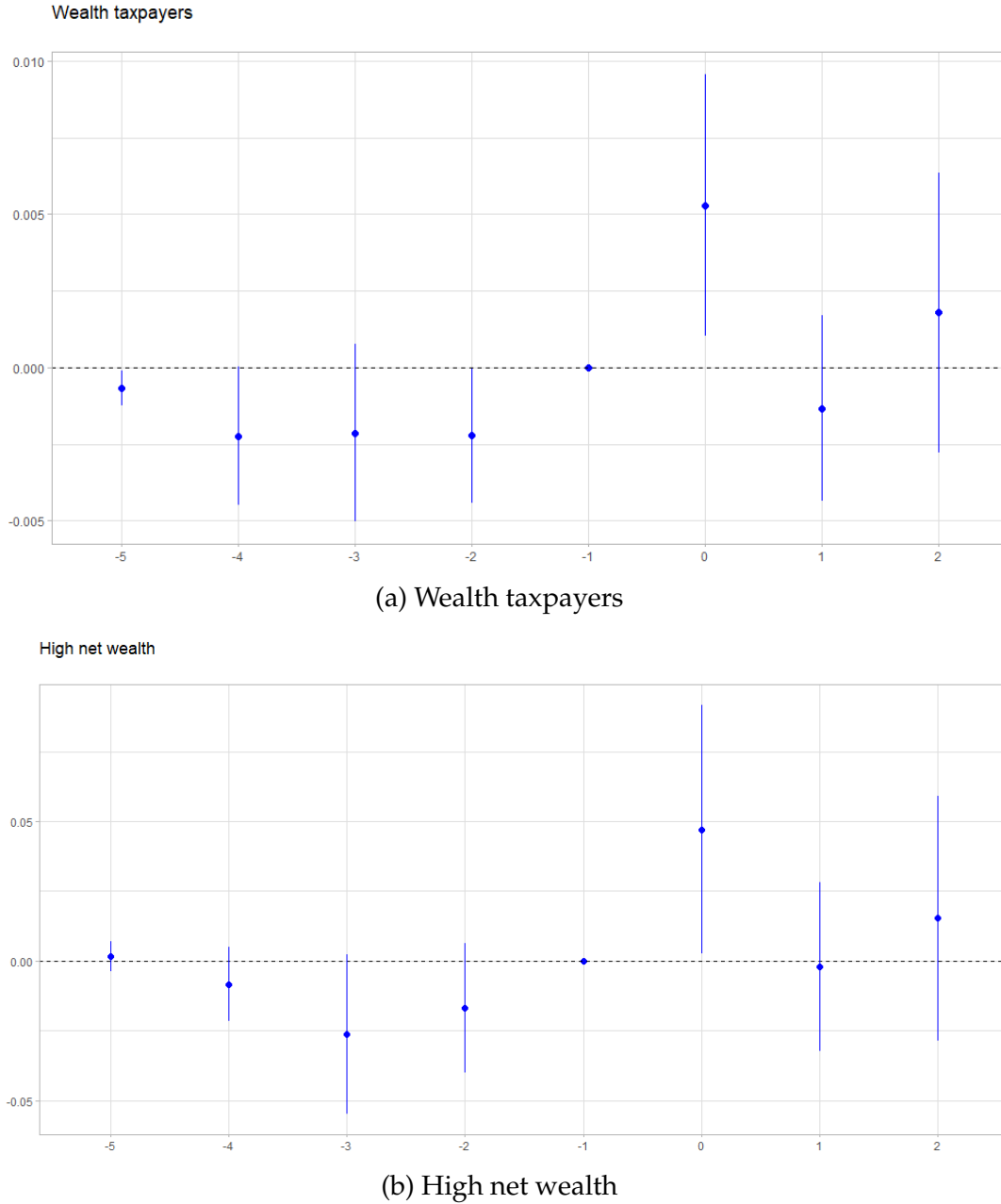
$$M_{i,t} = \delta_i + \tau_t + D_i \cdot \left[\sum_{y=-5}^{-2} \theta_y \cdot \mathbf{1}(y = t - 2020) + \sum_{y=0}^1 \beta_y \cdot \mathbf{1}(y = t - 2020) \right] + \gamma X_{i,t} + \varepsilon_{i,t}, \quad (4)$$

where $\mathbf{1}(y = t - 2020)$ are indicators for each value of the time-to-treatment variable

¹⁸Notice also that for individuals with a high net worth, the marginal tax rate (MTR) and the average tax rate (ATR) almost coincide. This is why our analysis focuses exclusively on the MTR.

y . As is common practice in the literature, we normalize with respect to $y = -1$ representing the year before treatment (2019). θ_y represents the years before the treatment (2015 – 2018), while β_y indicates the years after the treatment takes place. Figure 2 presents the results.

Figure 2: DiD event study: all movers



Note: This plot shows coefficients of the time-to-treatment variable y . Panel (a) shows wealth taxpayers, while panel (b) shows individuals with high net wealth, above 10 million NOK. Pre-treatment years are 2015 – 2019 (from lead –5 to lead –1). Post-treatment years are 2020, 2021 and 2022, re-labeled as lag 0, 1 and 2.

Figure 2 shows that the coefficients of the treatment dummy before the onset of

the treatment are not significantly different from null for both the case of wealth taxpayers (panel a) and high net wealth (panel b), indicating that we cannot reject the hypothesis of parallel trends in either case. Interestingly, the effect on the treated is approximately 0.52% in 2020 (lag 0 of panel a), but decays in 2021 – 2022. The same happens for individuals with high net wealth, where the effect on the treated is above 4.7% in 2020 (lag 0 of panel b), but decays in 2021 – 2022. This is another indication of the fact that the tax reform spurred a short-run mobility effect, that was not followed by an exodus of ultra-wealthy individuals to the municipality of Bø.

[Placebo treatment] Parallel trends confirmed in figure 2 only account for observed trends in the likelihood of moving, for individuals above or below the exemption threshold (panel a), and for individuals with more or less than 10 millions NOK in net wealth (panel b). However, there may still be unobserved confounders that could affect the mobility of different groups of the population. A placebo treatment test conducted by moving the treatment to a random pre-treatment year, helps us to understand whether the mobility response is likely due to the wealth tax reform itself, or some unobserved factors. Table 6 presents the results of the placebo treatment test, assigning the treatment year to 2018 and excluding the original treatment years 2020 – 2022 from the panel.

Table 6: Location choice model: placebo treatment

Treatment group:	Wealth taxpayers (1 – 4)				-	High net wealth (5 – 8)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
D_{it}	-0.00009	-0.00062	-0.0006	-0.00066	0.00001	0	0	-0.0003	
Robust SEs	0.00011	0.00064	0.00064	0.00063	0.00003	0.00007	0.00007	0.0002	
P-values	0.419	0.327	0.324	0.299	0.587	0.956	0.961	0.11	
Individual FE	NO	YES	YES	YES	NO	YES	YES	YES	
Time FE	NO	YES	YES	YES	NO	YES	YES	YES	
Controls	NO	NO	YES	YES	NO	NO	YES	YES	
Region FE	NO	NO	NO	YES	NO	NO	NO	YES	
Obs.	1020208	1020208	1020208	1020208	1006486	1006486	1006486	1006486	

Note: This table presents the results of the canonical TWFE DiD model that we run on all movers, however by moving the treatment year to 2018, and by excluding the original treatment years, to ensure that any significant effects observed in the placebo test are not influenced by the real treatment effects. In columns (1 – 4), the treatment group is individuals who pay a positive amount of wealth tax to the state and municipality. In columns (5 – 8), the treatment group becomes individuals with net wealth higher than 10 million NOK. Robust standard errors.

For both groups of wealth taxpayers and high net wealth owners, there is no significant difference in the likelihood of moving compared to individuals below the thresholds. Additional robustness checks, focusing on the enforcement of residence change and the presence of bunching, will be conducted in section 5.

4 Estimation of wealth elasticity

4.1 Municipal-level analysis

We move to the analysis at the municipal level for the estimation of the elasticity of the stock of wealth. We estimate the effect of a single-period municipal reform reducing the marginal tax rate exclusively in the northern municipality of Bø from 0.85% to 0.35%, on the stock of wealth (average of net wealth within the municipality), and on the weighted number of wealth taxpayers.

The panel in this analysis consists of all Norwegian municipalities in the period 2015 – 2022.¹⁹ We estimate the following model:

$$\ln(W_{m,t}) = \epsilon \cdot \ln(1 - \tau_{m,t}) + \mu_t + \omega_m + \delta(m \times t) + X_{m,t}\alpha + \nu_{m,t}, \quad (5)$$

where $\ln(W_{m,t})$ in (5) is the average taxable net wealth in municipality m and year t . Additionally, we run the same model with $\ln(n_{m,t})$ as the dependent variable, namely the number of wealth taxpayers in municipality m weighted by the municipality population share. μ , ω , and δ represent respectively time, unit, and unit interacted with time trend fixed effects. The vector $X_{m,t}$ includes controls at the municipality level such as per capita public spending,²⁰ municipal population count, average age (in logs, controlling for the non-linear relationship between age and wealth). ν are standard errors clustered at the municipality level.

The coefficient ϵ of the above model corresponds to the net-of-tax-rate elasticity of taxable wealth, or to the semi-elasticity corresponding to a 1 p.p. (percentage point) change in the net-of-tax rate. In other words, $\epsilon \cdot 100$ can be interpreted as the percentage change in taxable wealth of a 1 p.p. change in the wealth tax rate. Table 7 presents the results of the aggregate analysis.

Focusing on column 4 of table 7, we document a significant 60% (95% CI: 48 – 71%) increase in average taxable wealth in response to a 1 p.p. drop in the wealth tax rate. This elasticity therefore overcomes the 43% increase in self-reported taxable wealth (after 6 years from the 1 percentage point drop in a canton's wealth tax rate) documented by Brülhart et al. (n.d.) for Switzerland, which is currently the

¹⁹In this period there were several changes in the composition of municipalities (majority of changes due to the reform in 2020). Many municipalities have been merged, and new entities were created. The overall number of municipalities was reduced from 428 in 2015 to 356 in 2022. It is important to mention that Bø (municipality number 1867) was not affected by these changes, which implies that the panel is balanced with respect to treatment. In other words, the only analytical consequence of the municipality reform is that we have an unbalanced panel in the control group.

²⁰This variable equals total net operating expenditures, extracted from the following Statistics Norway table: 12137 - Financial key figures from the operational and balance sheet account per capita, by accounting concept (M) 2015 - 2022. This table is available here <https://www.ssb.no/en/statbank/table/12137>.

Table 7: Municipal level analysis: results

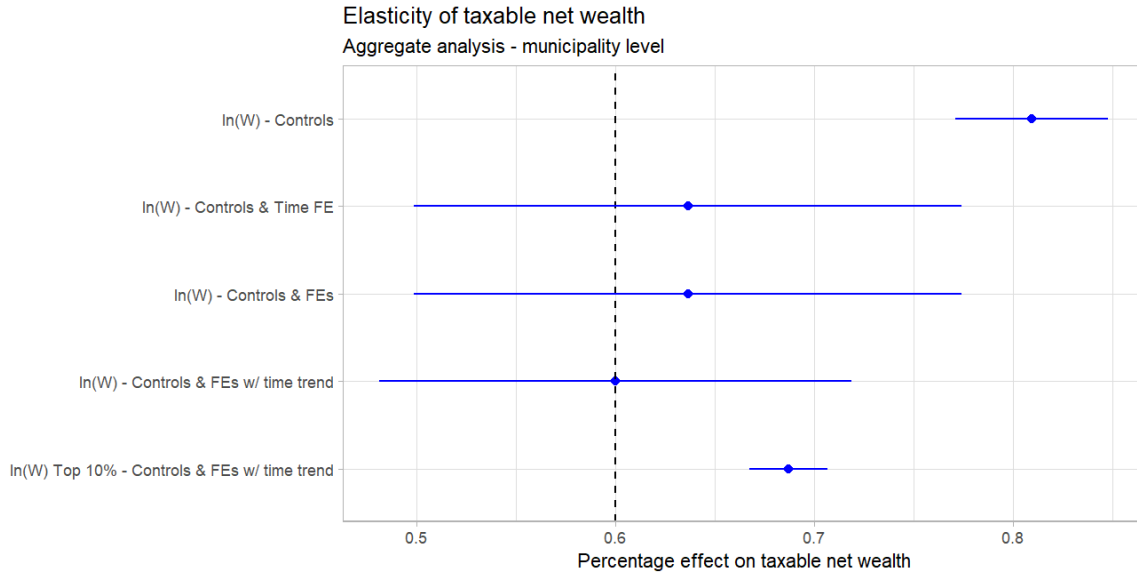
Dependent variable:	Taxable wealth $\ln(W_{m,t})$ (1 – 4)				-	Wealth taxpayers $\ln(n_{m,t})$ (5 – 8)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\ln(1 - \tau_{m,t})$	0.8092	0.6362	0.6362	0.6	-0.0123	0.1093	0.1093	0.1002
Clustered SEs	0.0197	0.0703	0.0703	0.0606	0.004	0.0075	0.0075	0.0068
P-values	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	NO	YES	YES	YES	NO	YES	YES	YES
Municipal FE	NO	NO	YES	YES	NO	NO	YES	YES
Munic. FE X Time trend	NO	NO	NO	YES	NO	NO	NO	YES
Obs.	3182	3182	3182	3182	3188	3188	3188	3188

Note: This table presents the results from regressing the average municipal taxable net wealth (in columns 1 – 4, with weighted number of wealth taxpayers in columns 5 – 8) on the net-of-wealth-tax-rate, and control variables, in the years 2015 – 2022. We run four different specifications for each model by introducing step-wise controls (per capita public spending and demographic variables) and FEs for municipality, time, region, and municipality interacted with time trends. Standard errors clustered for municipalities.

highest in the literature on behavioral responses. Focusing on column 8 of Table 7 instead, we document a significant but more modest 10% jump in the weighted mass of wealth taxpayers in response to a 1 p.p. reduction in the wealth tax rate.

[Wealth group heterogeneity] We expect the elasticity to be even higher when focusing on wealth taxpayers (approximately the top 10% of the wealth distribution): running the same model as in column 4 of table 7 with $\ln(W_{m,t})$ of wealth taxpayers as the dependent variable results in a 68.7% (SE= 0.01, p=0.00, with 95% CI: 65 – 72%) taxable wealth increase in response to a 1 p.p. drop in the wealth tax rate. In other words, estimates of the elasticity for wealth taxpayers are significantly higher, allowing us to hypothesize that the very wealthy react more strongly to tax changes than the less wealthy individuals.

Figure 3: Elasticity - Aggregate analysis and wealth group heterogeneity



Note: This coefficient plot shows results from the 4 specifications of table 7, step-wise introducing time, municipal, and municipal interacted with time trend FEs. The lowest elasticity is the 60% increase in taxable net wealth, which increases to 68.7% when focusing on the elasticity of taxable wealth of wealth taxpayers. 95% CI are plotted around point estimates.

Figure 3 summarizes the whole subsection by plotting the results from the first 4 columns of table 7, together with the estimates for the wealth taxpayers.

Another robustness check to confirm the hypothesis of wealth group heterogeneity for the elasticity of the stock can be performed on the lines of the triple difference (DDD), by running the model in (5) (column 4) on a transformed outcome (Roth, Sant'Anna, Bilinski, & Poe, 2023). Namely, we focus on the elasticity of the difference in (log) of taxable net wealth between the non-overlapping groups of wealth taxpayers and non-taxpayers, with respect to the net-of-tax-rate. The results indicate a significant 86% (SE=0.01, p=0.00) elasticity jump, confirming that the above results shown in figure 3 can indeed be interpreted as significantly different by wealth group.

4.2 Wealth of immigrant taxpayers

The elasticity of the stock estimated in subsection 4.1 provides an estimate of the behavioral responses to the municipal wealth tax reform, including both real responses and avoidance. Because our study focuses exclusively on short-run treatment effects, we expect a limited role played by real responses such as changes in consumption and savings behavior, or changes in earnings through labor supply. Our third-party reported data limits as well the role of voluntary self-disclosures,

in other words, wealth accumulation by non-movers that comes from suddenly declaring to tax authorities formerly undeclared assets, due to the lower tax rates (see [Alstadsæter, Johannesen, Le Guern Herry, and Zucman \(2022\)](#) on the effort that the Norwegian authorities have made to push wealthy individuals to disclose assets previously hidden abroad).

The total change in taxable wealth is partly attributable to in-migration to the municipality of Bø and residually due to wealth accumulation (or asset appreciation) of immobile taxpayers. The latter will be analyzed in detail in subsection 5.1, which focuses on the change in taxable wealth of stayers. A simple decomposition of the overall change in taxable wealth can be lined out as follows.

$$\Delta W_{m,t} = \Delta W_{m,t}^{\text{res}} + W_{m,t}^{\text{imm}} - W_{m,t-1}^{\text{out}}, \quad (6)$$

where $\Delta W_{m,t}^{\text{res}}$ is the wealth change from residents of Bø, also defined as the immobile taxpayers. The other two terms represent the wealth brought to Bø by immigrant taxpayers, and the wealth that movers take out from Bø.

To estimate the share of taxable wealth brought to Bø by movers, we focus on pre-reform years 2015 – 2019, and compute the percentage of all taxable wealth declared in Bø that is owned by in-movers in each given year: it lies around a negligible 1%. This share rises to over 67% in 2020 and it is approximately 20% in 2021, clearly documenting the substantial role of mobility in the aggregate wealth response to the municipal tax reform. Table 8 shows the percentage in each of the years under analysis.

Table 8: % of taxable net wealth owned by movers, Bø 2015 – 2022

	2015	2016	2017	2018	2019	2020	2021	2022
% of tnw owned by movers	0.47	0	0.42	0.98	1.04	67.73	20.79	5.53

Note: This table shows, for each of the years under analysis, the % of total taxable net wealth (tnw) in Bø (at the end of the year) that is owned by individuals that move their residence to Bø during the year, for each given year. Current prices Norwegian NOK.

All in all and not surprisingly, the mobility of wealthy taxpayers appears to have been the major force behind the behavioral response to the change in the net-of-tax-rate estimated in subsection 4.1. This is not unexpected in the short run, as an immediate response to the wealth tax competition between municipalities initiated by the municipality of Bø. The share of wealth accumulation due to mobility might however decrease in future years, also due to a potentially stronger role played by wealth accumulation of new residents from the initial post-reform years.

5 Robustness checks

5.1 Stayers

The results of the municipal-level analysis of section 4.1 might partially be driven by wealth accumulation and assets appreciation of stayers, meaning individuals that reside in Bø in pre-treatment years, and that do not change their residence in the post-treatment years. As an example, the influx of ultra-wealthy individuals may have inflated the local real estate market, especially given capacity constraints in building new houses, which could increase the value of properties owned by long-term residents.

The change in the wealth stock of stayers can therefore be thought of as a confounder, and its magnitude should be investigated in order to give a correct interpretation of the elasticity estimation. In other words, conditional on being a resident of Bø throughout the period of analysis, what is the change in taxable wealth experienced with respect to residents of other Norwegian municipalities? First, let us have a descriptive look at the wealth stock of stayers (selected in pre-treatment years) that pay a positive amount of wealth taxes.

Table 9: Stayers, 2015-2022

	2015	2016	2017	2018	2019	2020	2021	2022	Tot.(sum/avg)
All stayers (count)	2151	2151	2171	2185	2093	2018	1959	1979	16707
Avg <i>tnw</i> stayers taxpayers	2967,16	3313,8	3463,62	3215,8	3209,2	3404,95	3125,39	3689,3	3229,26
Avg wealth tax paid	14,7	16,56	17,43	16	15,50	17,44	7,98	13,93	14,67

Note: This table focuses on stayers, namely adults residing in the municipality of Bø selected in the pre-treatment year 2018; and it shows the yearly count of all stayers, plus the net wealth and amount of wealth tax paid by stayers (only for stayers who are also wealth taxpayers), in thousand NOK (this includes taxes paid to both municipality of Bø and the central state). Wealth amounts are in real terms. Note that we include only individuals above 18 years old who were alive throughout the period.

Table 9 shows that stayers of Bø have not experienced a jump in their average real net wealth holdings in the post-treatment years 2020 – 2022, compared with pre-treatment years. Although this evidence seems to be compelling, it is rather the comparison between stayers of Bø and residents of other municipalities in Norway that will disentangle whether stayers have experienced a jump in their wealth holdings caused by the influx of wealthy movers to Bø. Therefore, we estimate the following model at the individual level, selecting stayers of Bø into the treatment group and residents of other municipalities in Norway into the control group.

$$\ln(W_{i,t}) = \epsilon \cdot \ln(1 - \tau_{m,t}) + \mu_t + \omega_i + X_{i,t}\alpha + \nu_{m,t}, \quad (7)$$

where $\ln(W_{i,t})$ in (7) is the average taxable net wealth held by stayers of Bø in year t . $\tau_{m,t}$ is the wealth tax rate, which becomes different in Bø after the reform kicks in. Additionally, we run the same model focusing on wealth taxpayers. μ , ω represent respectively time and individual fixed effects. ν are standard errors clustered at the municipality level.

Table 10: Stayers: results

Dependent variable:	Stayers $\ln(W_{i,t})$ (1 – 3)		Stayers (wealth taxpayers) $\ln(W_{i,t})$ (4 – 6)			
	(1)	(2)	(3)	(4)	(5)	(6)
$\ln(1 - \tau_{i,t})$	-0.3179	-0.0157	0.0324	-0.135	-0.03	0.0037
Clustered SEs	0.0135	0.0026	0.0035	0.0084	0.0027	0.0032
P-values	0.00	0.00	0.00	0.00	0.00	0.24
Individual FE	YES	YES	YES	YES	YES	YES
Age	NO	YES	YES	NO	YES	YES
Time FE	NO	NO	YES	NO	NO	YES
Obs.	19988749	19988749	19988749	4353445	4353445	4353445

Note: This table presents the results from regressing the average municipal taxable net wealth (in columns 1 – 3, with focus on wealth taxpayers in columns 4 – 6) on the net-of-tax-rate, and control variables, in the years 2015 – 2022. We run three different specifications for each model by introducing step-wise controls (age) and FEs for individuals and time (year). Standard errors clustered for municipalities.

Results from table 10 indicate that, compared to average taxable net wealth in other municipalities of Norway, stayers of Bø in the post-treatment years have experienced a 3.24% increase in their wealth stock, which however drops to a not significant 0.37% when we focus on a sample of exclusively wealth taxpayers. If anything, this indicates that the municipal-level elasticity result of section 4.1 cannot be driven by the change in the wealth stock of stayers (via real estate prices or other unobserved channels).

5.2 Addressing endogeneity concerns

The challenge of estimating correctly identified effects on income or wealth from a change in the net-of-tax-rate comes from the fact that the marginal tax rates (MTR) is influenced by the level of taxable income (wealth), introducing endogeneity problems (a survey of the literature on the estimation of the elasticity of taxable income is offered by [Saez, Slemrod, and Giertz \(2012\)](#)).

One standard way to overcome this is to utilize tax reforms, introducing exogenous variation in the net-of-tax-rate, plus carefully selecting the treatment group based only on pre-reform characteristics ([Weber, 2014](#)). We follow this approach in this paper as well, since we utilize a municipal tax reform and past outcomes from the net wealth distribution to select individuals into the treatment and control

group, across the exemption threshold of the wealth tax schedule. [K. M. Jakobsen and Søgaaard \(2022\)](#) highlight however that since variables such as income and wealth are affected by mean reversion, trend differentials will arise across the distribution. Trend differentials across the distribution imply serial correlation and a violation of the parallel trends assumption in the DiD setting.

In our setting, this violation would yield if the net wealth time trend for the top 10% of the net wealth distribution (the portion of individuals paying the wealth tax) is different from the trend for the bottom 90% of the distribution in the pre-treatment years. This would lead to serial correlation in outcomes and invalidate the assumption of common pre-trends tested in section 3.

We follow the roadmap described in [K. M. Jakobsen and Søgaaard \(2022\)](#) by first investigating trend differentials. One way to analyze trend differentials in the growth of net wealth for the different portions of the distribution is to focus on wealth concentration and top shares. If top shares are stable, then we can disregard the hypothesis that different portions of the distribution grow unbalanced. We are interested in the period 2015 – 2019 which corresponds to our pre-treatment years. The net wealth series from Statistics Norway²¹ document that in the period from 2015 to 2019 the top 10% share lies in between 50,6% and 53,5%. Overall, this shows that within such a short range of years, wealth concentration at the top is rather stable, confirming that the growth in net wealth between our treatment and comparison groups is not substantially different.

Second, to complement the above descriptive evidence, we again run the model specification as in equation 3, introducing individual-level time trends in (log) of net wealth in the set of controls. This gives a treatment coefficient of 0.0032 (SE=0.0012, p=0.009), negligibly different from the column 4 coefficient of table 5 of 0.0034. Results in table 12 and figure 4 documenting parallel trends in pre-treatment years in Appendix C.

5.3 Enforcement

Norway has been practicing a residence-based tax system since 1882 ([Gerdrup, 1998](#)), meaning that it is not possible to relocate wealth and be subject to the preferential tax regime without changing fiscal (personal) residence. This simplifies our approach because by observing the mobility of people we infer the mobility of capital. This also leaves less scope for tax avoidance, and it provides within-country studies of behavioral responses to wealth and capital taxation with an advantage

²¹The shares for the net wealth distribution by Statistics Norway are available in the following table: <https://www.ssb.no/statbank/table/10318/>.

compared to cross-country approaches since residence-based tax systems are more difficult to enforce across nations (H. Kleven et al., 2020).

However, there is still a need to discuss the issue of enforcement as an important robustness check for the mobility effects. Do the local or central authorities have the capacity to monitor that wealth taxpayers have indeed moved to Bø (a real migration response), instead of simply renting or buying a property and moving the residence fictitiously to be taxed under the preferential regime (a reported response)?

We have first inquired about the details of this matter through correspondence with the Norwegian Tax Authority (*Skattetaten*). They declare that the official rule for people with more than one house at their disposal is that one is a fiscal resident in the municipality in which one spends most nights throughout the year.

How is this enforced in practice? Although the Norwegian tax authority declares that this is ultimately based on trust and that the taxpayers have the legal responsibility to obey this rule, they clearly state that if they have any reason to believe that a taxpayer is cheating on the municipality of residence, they would put in practice further investigation.

One indication that can lead to further investigation is when they see that individuals have an attachment of some kind (e.g., *de-facto* couples or marriage) to some other individuals or to a household but declare that they reside in a different location than the latter. This is mostly the case for students, who happen to change their actual domicile or residence often during the years of higher education.

As a robustness check on our estimates of mobility effects for movers, we use a variable from Statistics Norway called *Municipality Residence - Actual address*.²² In this variable the Norwegian Tax Authority in cooperation with Statistics Norway has further investigated and settled cases in which the residence of individuals was disputed.

We investigate the number of individuals for whom the municipality of residence in the main residence variable utilized in Section 3 does not coincide with the revised residence (actual address). This applies only to a total of 50 individuals throughout the 8 years under analysis, implying that only 0.003% of the full sample is affected. Most importantly, no wealth taxpayer is affected, confirming that this issue mostly yields for students. This confirms that the enforcement issue does not affect the main results.

²²More information on the Statistics Norway variable "Municipality Residence - Actual address" is available [here](#).

5.4 Behavioral responses: Bunching

Can individuals influence the assessment of their wealth tax base in order to avoid taxation? The extent of bunching evidence at the unique kink point of the wealth tax schedule (as originally done for the elasticity of taxable income in [Saez \(2010\)](#)) is a further check for the validity of our estimates on taxable wealth elasticity to the wealth tax rate.²³ [Ring \(2020\)](#) shows evidence of limited (if any) bunching at the unique threshold of the wealth tax schedule in Norway. However, he focuses on pooled data for 2010 – 2015, which only minimally overlap with our period of analysis 2015 – 2022. We, therefore, complement his analysis with the evidence below.

One channel through which individuals govern their pre-tax net wealth accumulation is through labor supply and savings behavior ([Ring, 2020](#)). The other channel is through strategic reporting and tax optimization. The assessment of taxable wealth in Norway is made for financial wealth by the Norwegian tax authorities based on market value information on asset ownership and debt, reported by third parties such as banks and employers ([Thoresen et al., 2022](#)). Notice that third-party reporting does not apply to cryptocurrency holdings within online crypto wallets, hence in this case wealth registers at our disposal face self-reporting limitations as is the case for surveys on wealth in other countries. Notice as well that pension wealth is not subject to wealth taxation. For real wealth such as real estate, the market value of properties is estimated via hedonic price modeling developed by Statistics Norway ([Fagereng, Holm, & Torstensen, 2020](#)). This reduces by a large extent the risk of strategic reporting and tax minimization behavior.

We focus on the full population of adult residents in the years 2015 – 2022 and exclude married and cohabiting couples for which the wealth tax base is computed at the household level rather than at the individual level, by doubling the threshold. Descriptive statistics on taxable net wealth and bunching evidence for each year under analysis are produced in Appendix [D](#).

A visual inspection of the mass of taxpayers within the interval around the kink point for the wealth tax (1.5 million NOK in all years up to 2021, roughly the 9th decile of the net wealth distribution) in figure [6](#), leads to rejecting the hypothesis of substantial bunching. Exclusively in year 2020 there is a higher frequency of individuals below the kink point, within 20 thousand NOK from the tax threshold.

Although a more rigorous analysis of bunching evidence would require the

²³Tax evasion is not the primary focus of our analysis, as that has been shown by [Alstadsæter, Johannesen, and Zucman \(2019\)](#) to be a relevant issue in Norway only for the ultra-wealthy households. In this robustness exercise, we focus on whether individuals bunch at the exemption threshold of the wealth tax, which lies constantly around the 9th decile of the net wealth distribution in the period under analysis.

construction of a counterfactual distribution, as is standard in the literature²⁴, we believe that the results of the bunching exercise in Ring (2020) for 2010 – 2015, jointly with the evidence of the subsequent years 2015 – 2022 lead to safely disregard the hypothesis of meaningful bunching. According to Ring (2020), this could be because, given the institutional details regarding wealth tax base assessment, most households do not possess the technology or resources to bunch. Limited evidence of bunching can therefore be interpreted as a signal of limited avoidance possibilities, at least for wealth owners who do not possess businesses. For these individuals, moving to another jurisdiction represents in principle a more feasible option to avoid taxation.

5.5 Local government revenues and expenditures

To what extent can we disregard the hypothesis that individuals changing their residence choose Bø due to its characteristics (e.g. per capita expenditure on local public services), rather than paying less taxes on wealth? Recall that in the individual analysis (location choice model) of section 3.3, we control for region fixed effects, to cancel away all time-invariant differences in the region of origin of movers. In the aggregate analysis of section 4.1, we control for per capita net operating expenditures by the municipality, representing expenditures on local public services that might attract movers.

We add some institutional details and descriptive evidence in this subsection. In principle, in the post-treatment years 2020 – 2022, the increased tax revenues due to the immigration of wealthy individuals might potentially lead to a jump in per capita expenditure (e.g., by subsidizing the per child cost of kindergarten or similar measures to attract movers), and therefore lead to an increase in in-migration rates. We believe that this concern is limited, due to a revenue equalization scheme that redistributes revenues from municipalities with excess tax revenues to the other municipalities (Borge, Krehic, Nyhus, Rattsø, & Sørensen, 2022). More precisely, due to this revenue equalization scheme imposed by the central government, for each 1 NOK of excess tax revenue in per capita terms, each municipality is forced to pay back 0.6 NOK to the other municipalities experiencing a deficit in tax revenues (Ring, 2020). This scheme therefore implies a partial neutralization of the increased revenues from the wealth tax in Bø in the post-treatment years, so that the potential effect on local public services is limited.

To complement this hypothesis, we provide some descriptive evidence on the

²⁴Notice that, due to the technical limitations of the data access at our disposal (through the interface microdata.no), we are not able to construct a counterfactual distribution around the kink using the .ado file provided by Chetty, Friedman, Olsen, and Pistaferri (2011).

revenues and expenditures of the municipality of Bø. In Table 14 in Appendix E we present the key variables from the municipality budget for Bø in the years 2015 – 2022. Table 14 shows that aggregate expenditure at the municipality level (total net operating expenses) jumps up in 2022 but did not increase at all in the post-treatment years 2020 – 2021. The tax revenues on income and wealth (including natural resources taxes) increased by 51.68% in 2021, and by more than 115% in 2022 (based on the 2020 level), driven by the jump in wealth tax revenues due to the immigration of wealthy individuals that started in 2020. If this proceeds in the following years, it can be reasonable to expect that aggregate expenditures will be uplifted in response. Figure 7 in Appendix E decomposes the aggregate expenditure time series in the municipality of Bø (total net operating expenses from table 14) into per capita expenditures in different subareas, confirming that no significant jump is detectable for the post-treatment years.

All in all, revenue analysis in the years to come will increasingly reflect the mobility of wealthy individuals into Bø, with potential effects on the decision of non-wealthy movers as well. For the period under analysis in this work, we can however disregard that these aspects crucially influence the results.

5.6 The role of political parties

In this subsection, we discuss the potential interaction between wealth tax reform at the municipality level and the role of the incumbent party of the national government.²⁵ First, notice that with the exception of 2022, the same party is in power at both the national and municipal level in the period of analysis, namely *Høyre*, the main center-right liberal party in Norway. This continuity in the ruling party allows us to rule out the possibility that the design and implementation of the wealth tax reform were influenced by interference from competing political parties.

Following the municipality’s announcement in December 2019 of a reduction in the wealth tax rate, which could have led to a sudden budget deficit starting in 2022, the governing coalition publicly committed to compensating the municipality for any potential shortfall (only partially mitigated by the revenue equalization scheme between municipalities). Nevertheless, in 2021, immediately after the Labour Party (Arbeiderpartiet), Norway’s main center-left party, won the elections, they announced that starting in 2022, they would cease compensating Bø for any potential loss in tax revenues. However, as indicated in Table 14, the compensation promised by the governing coalition was ultimately unnecessary, as Bø

²⁵We model this environment in which there is alignment between the incumbent party at the national and at the local level in Appendix A.

experienced a surplus in tax revenues. In contrast, it is the municipality of Bø that returned a fraction of their excess tax revenues to the state from 2021 onwards, partially compensating other municipalities for their revenue losses.

6 Discussion

To contextualize the findings of this study, it is important to note that, while the design of the single-period, unprecedented municipal wealth tax reform in a rural Norwegian setting offers clean identification and reveals real behavioral responses, movers to Bø represent a relatively small segment of the overall Norwegian wealth taxpayer population. As such, the external validity of these results, particularly if applied to reforms in more urban settings, should be interpreted with caution.

The number of movers to Bø is however substantial relative to the municipality's population: 280 wealth taxpayers out of 2751 total residents in post-reform 2021, which means that wealth taxpayers constitute approximately 10% of the local population. It is reasonable to hypothesize, also due to short-run capacity constraints in real estate, that the influx of wealthy individuals could not have been substantially higher.

From a national perspective, the magnitude of the migration responses to Bø documented in subsection 3.2 and by our location choice model in subsection 3.3 can be judged as limited: there is no large-scale exodus from other municipalities to Bø, conditional on being a wealth taxpayer, and controlling for individual-level confounders and region fixed effects. Although the fact that Bø is a remote location in the north of the country helps us to exclude that other observable covariates could attract both new citizens and new wealth taxpayers, the limited magnitude of mobility is a noteworthy result in itself, indicating that migration to avoid wealth taxation is not an inevitable outcome of localized preferential tax regimes.

One potential explanation for the 'no-exodus' result could be that, for wealthy individuals with substantial gains from preferential tax regimes, relocating to a more favorable tax jurisdiction outside Norway might be more attractive than moving to a rural area in northern Norway with a declining population and limited amenities. Table 11 shows, however, the limited magnitude of the out-migration phenomenon, with a fraction between 1.83% and 3.3% of all movers being wealth taxpayers, for each year of the period under analysis (recall that the fraction of wealth taxpayers in the adult population is approximately 10%).

Table 11: Out migration of wealth taxpayers, 2015 – 2022

	2015	2016	2017	2018	2019	2020	2021	2022
Moving out (count)	34742	38463	34869	32701	25437	25722	33225	31304
Moving out - Wealth taxpayer	792	707	694	912	686	694	860	1034
Moving out - % of wealth taxpayer	2.2	1.83	1.99	2.78	2.69	2.69	2.58	3.3
Moving out - High TNW (count)	50	51	48	51	41	39	65	109

Note: This table shows the magnitude of out-migration between 2015 and 2022. First line shows out-migration in the whole adult population. Second line shows the amount of wealth taxpayers migrating out of Norway. Third line shows the % of out-movers that are wealth taxpayers. Last line shows movers with taxable net wealth above 10 million NOK.

In other words, table 11 shows that wealth taxpayers are under-represented in the population of out-movers, with respect to their share in the main population of adults. The result of ‘no-exodus’ to Bø can therefore only to a limited extent be explained by out-migration rates. This descriptive evidence from Norway appears to be in line with estimates of limited out-migration of the wealthy from Sweden and Denmark to avoid wealth taxation, as shown in [K. Jakobsen et al. \(2024\)](#). They document that the overall annual net-migration rates out of Sweden and Denmark are below 0.01%.

6.1 Tax competition and race to the bottom

The tax competition initiated by the municipality of Bø in 2021 to attract wealthy citizens introduces new policy options for other municipalities considering lowering their tax rates. Since Bø’s reduction in the wealth tax rate did not provoke a retaliation from central authorities, other municipalities are more likely to follow. This is because Bø’s reform challenges the social norm against municipal competition through preferential wealth tax regimes. Consequently, the next municipality to adopt a similar reform will face lower costs.

[Agrawal \(2023b\)](#) reviews a set of strategies for promoting jurisdictional cooperation in tax policy, to limit the degree of tax competition. He shows that partial harmonization dominates other strategies, such as minimum tax rates or complete harmonization. In the context of our study, it might then be desirable to develop increased coordination between central and local authorities regarding wealth taxation, to minimize the scope for unhealthy competition by municipalities, resulting in tax optimization strategies by wealthy individuals.

The lack of cooperation could result in a potentially distortive race to the bottom in the municipal wealth tax rates. In the hypothetical case in which all municipalities adjust their wealth tax rates downward, the resulting new equilibria

will imply a lower overall wealth tax rate (keeping the state tax rate fixed at 0.15% and tax rates on capital incomes untouched). This race to the bottom could subsequently lead to (i) reduced tax revenues for all municipalities, *ceteris paribus*, with respect to the equilibrium revenues prior to the municipal reform in Bø; (ii) increased concentration of wealth at the top of the distribution, as documented for the case of Switzerland by [Marti, Martínez, and Scheuer \(2023\)](#). There is currently no evidence of a race to the bottom in wealth tax rates, as no other municipalities have followed the path set by Bø's fiscal reform.

7 Concluding remarks

Behavioral responses to wealth taxation are crucial for policymakers to understand the economic consequences in terms of efficiency and equity that such a tax can induce. Existing empirical evidence from countries with wealth taxes has shown significant negative impacts on reported taxable wealth (or positive impacts from lowering tax rates and/or raising exemption thresholds). However, much of this evidence primarily reflects mobility effects and avoidance behavior rather than genuine changes in saving and consumption patterns. Notably, in the case of Norway, [Ring \(2020\)](#) examines geographical discontinuities created by valuation procedures and documents a positive overall effect of the tax on savings.

This work contributes to the growing literature on wealth taxation by providing evidence of short-run behavioral responses to an unprecedented municipal wealth tax reform in a northern municipality in Norway. The study shows that wealthy individuals partially respond to preferential tax regimes by relocating their residence, resulting in a significantly higher concentration of wealth in the treated municipality compared to the rest of Norway. However, the overall magnitude of the mobility responses is limited, suggesting that preferential tax regimes in remote locations may not be particularly successful due to various constraints.

Over the next decade, it will become clearer whether Bø's experiment with unilaterally lowering the wealth tax has led to increased investments and job creation, or whether it has had detrimental permanent effects on other municipalities due to reduced tax revenues. Focusing on the impact on business owners, [Bjørneby et al. \(2023\)](#) have demonstrated that the Norwegian wealth tax stimulates employment growth in companies closely held by taxpayers. Their national-level analysis could be adapted to within-country reforms, such as the one examined in this research, to provide additional evidence in the ongoing debate about whether the wealth tax adversely affects job creation.

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A Appendix: A simple model of the tax reform in Bø

Consider a municipality, M , that is contemplating a reform of the local wealth tax rate, τ_w , as it has been the case for Bø. The reform can only be implemented if it receives approval in the local council, and if there is alignment with the incumbent party at the national level (to avoid retaliation).

A.1 Political Environment

Let the probability of the reform passing be $P(\text{reform})$, which depends on two main factors:

1. **Local Political Majority:** The probability of passing the reform increases if the incumbent liberal conservative party, denoted as P_I , holds a majority in the local council (which was indeed the only case in Norway after the 2019 municipal elections).
2. **National-Local Political Alignment:** The reform is also more likely if the party in control at the local level, P_I , is aligned with the party at the national level, P_N .

We express $P(\text{reform})$ as:

$$P(\text{reform}) = f(\text{Majority}, \text{Alignment}),$$

- Majority = 1 if P_I holds a majority in the local council, and 0 otherwise.
- Alignment = 1 if $P_I = P_N$ (local and national incumbents are aligned), and 0 otherwise.

Assume that if both conditions are satisfied, the reform passes with a high probability:

$$P(\text{reform}) = \alpha \cdot \text{Majority} + \beta \cdot \text{Alignment}$$

where $\alpha, \beta > 0$. In the case of Bø, Majority = 1 because the incumbent party, $P_I = \text{Høyre}$, held the majority in the local council after the 2019 election. Plus, Alignment = 1 because $P_I = P_N$, implying political alignment at the national and local levels. Thus:

$$P(\text{reform}) = \alpha + \beta$$

This leads to a high probability of the reform being passed, which explains why Bø was able to implement the wealth tax reduction when other municipalities, lacking these conditions, could not.

B Appendix: location decision model

In this section of the Appendix, we present the theoretical framework supporting the empirical location choice model of Section 3.3. Consider a location decision model where individuals choose among different municipalities (locations) based on utility derived from each municipality's characteristics. Let the indirect utility function U_{ij} for individual i choosing location j be defined as:

$$U_{ij} = V_{ij} + \epsilon_{ij} \quad (8)$$

where V_{ij} is the deterministic component of the utility, and ϵ_{ij} is the stochastic component, assumed to follow an extreme value (Gumbel) distribution. To relate this to the setting of our analysis, V_{ij} might be specified as:

$$V_{ij} = \alpha_j + \epsilon_{ij} \quad (9)$$

where α_j represents the municipality fixed effects, capturing the characteristics of location j . Now, suppose individual characteristics such as the wealth stock (w_i) interact with location characteristics, such as the municipal tax rate on wealth (τ_j). In this case, the utility function could be modified to include interaction terms:

$$V_{ij} = \alpha_j + \beta(w_i \cdot \tau_j) + \epsilon_{ij} \quad (10)$$

where β is a parameter that measures the interaction effect between the individual wealth stock y_i and the municipal tax rate on wealth τ_j in location j .

Assume τ_j is higher in metropolitan areas compared to rural areas, as it happens to be the case in our analysis with Bø lowering the municipal tax rate. For an individual with a net wealth stock (w_i) below the threshold for paying the wealth tax, the higher tax rate in a metropolitan area might not significantly reduce their utility, whereas for a wealth-rich individual, it might substantially reduce their utility. In this framework, individual characteristics (w_i) matter for location decisions because they interact with location characteristics (τ_j), altering the utility derived from different locations and influencing the choice of location.

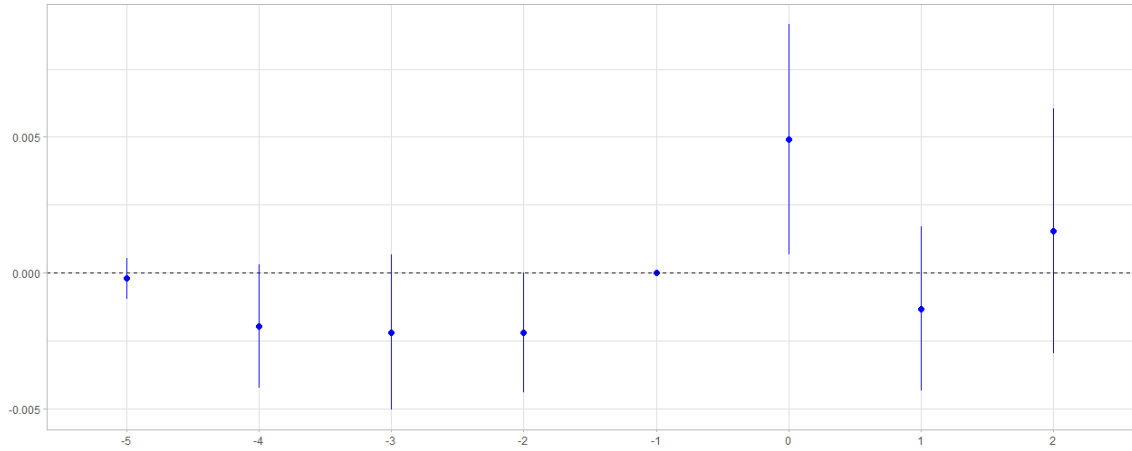
C Appendix: time trends

Table 12: Location choice model with time trends

	(1)	(2)	(3)	(4)	(5)
D_{it}	0.0021	0.0034	0.0034	0.0034	0.0032
Robust SEs	0.0004	0.0013	0.0013	0.0013	0.0012
P-values	0.00	0.01	0.01	0.01	0.009
Individual FE	NO	YES	YES	YES	YES
Time FE	NO	YES	YES	YES	YES
Controls	NO	NO	YES	YES	YES
Region FE	NO	NO	NO	YES	YES
Time trends	NO	NO	NO	NO	YES
Obs.	1641546	1641546	1641546	1641546	1641546

Note: This table presents the results of the canonical TWFE DiD model that we run on all movers. We run five different specifications by introducing stepwise FEs for individual, time, region, controls, and individual-level time trends in (log) of net wealth.

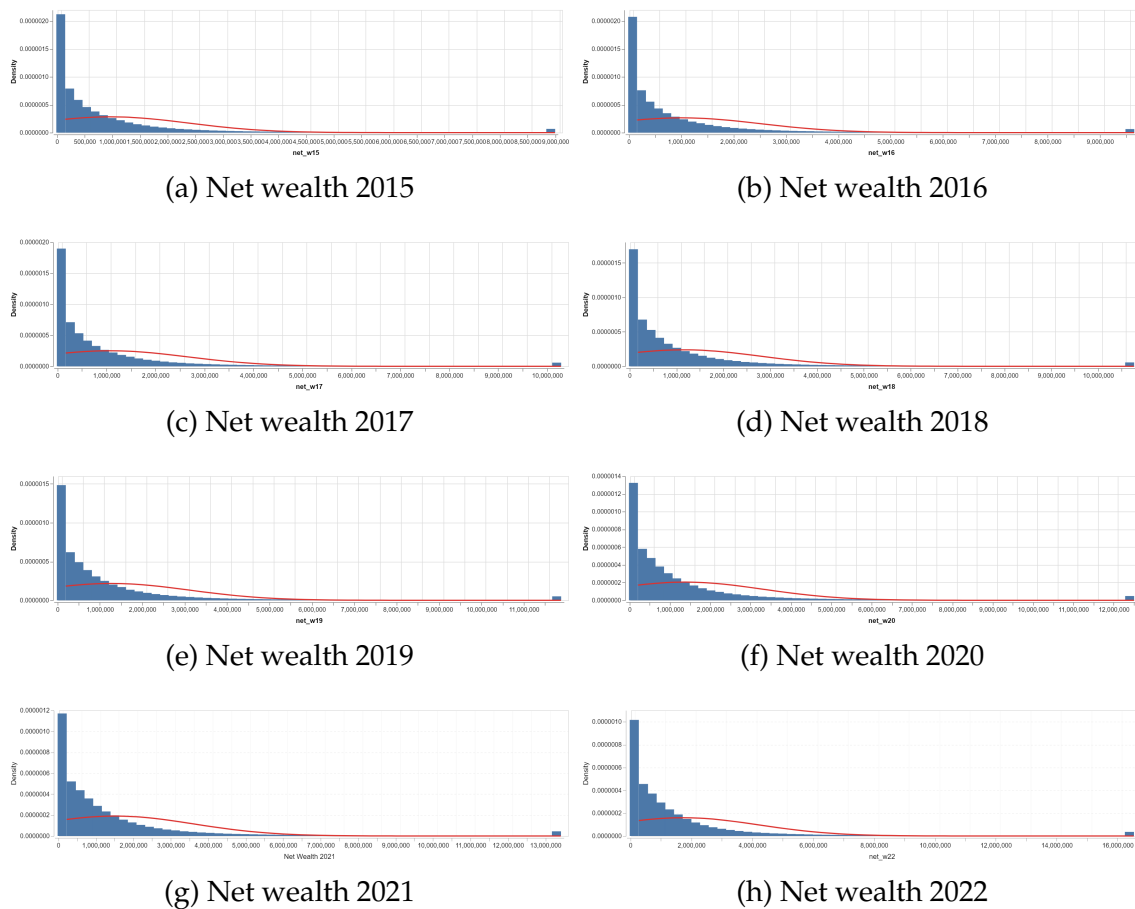
Figure 4: DiD event study - all movers with time trends (column 5)



Note: This plot shows coefficients of the time-to-treatment variable y . Pre-treatment years are 2015–2019 (from lead -5 to lead -1), with the coefficient for the year before the treatment 2019 set to null. Post-treatment years are 2020–2022, relabeled as lag 0 to lag 2.

D Appendix: Descriptive statistics - Taxable Net Wealth

Figure 5: Taxable net wealth 2015-2022



Note: The density distribution of net wealth in the period 2015 – 2022. Notice that negative values of the distribution have been truncated. The red line represents the normal distribution. The highest mass at the very top of the distribution is due to 2% winsorization. Notice that the data is anonymized and subject to 2% bottom and top winsorization only when we retrieve graphical outputs. In all regressions instead, there is no winsorization in the underlying data.

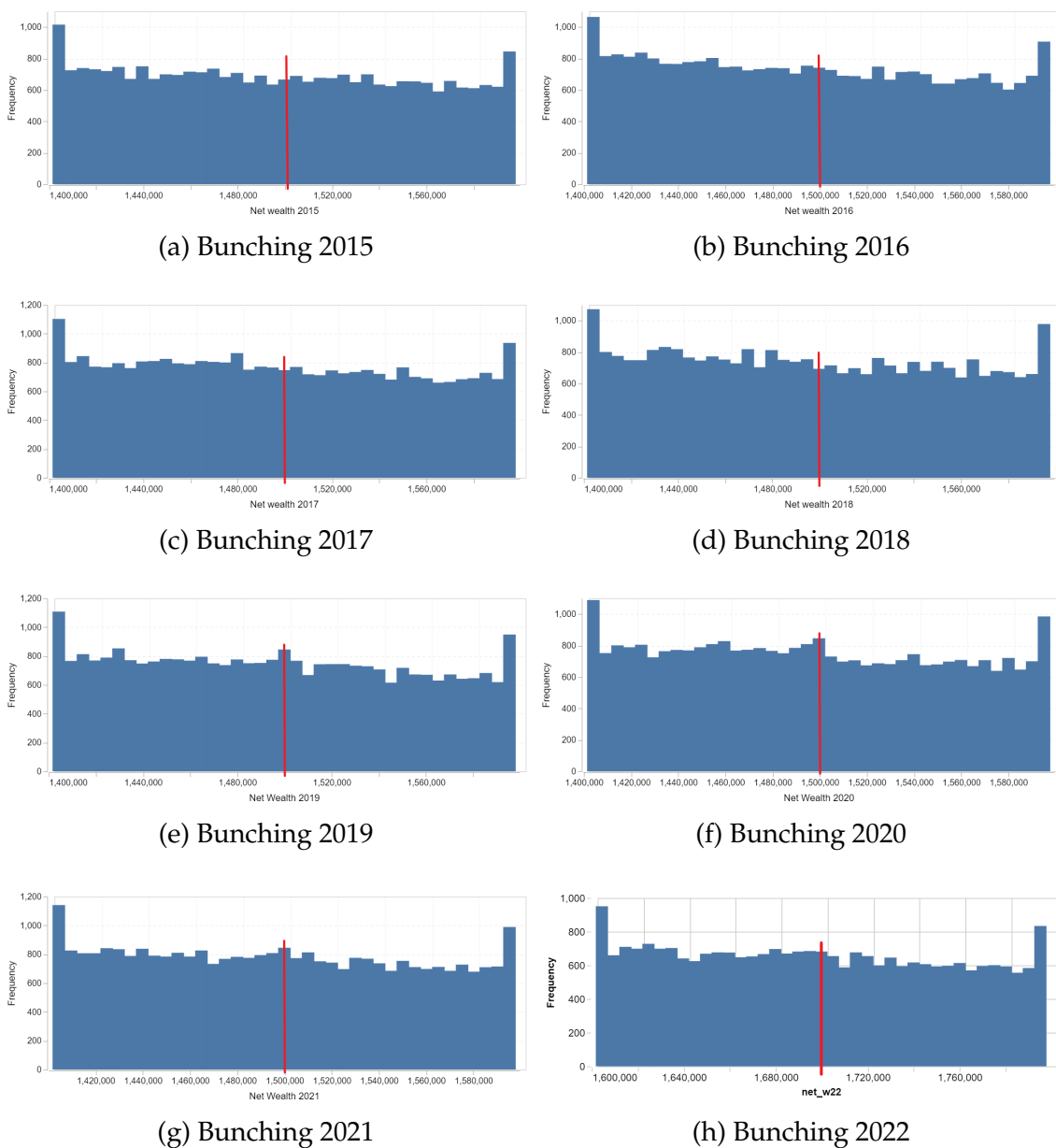
Table 13: Taxable Net Wealth

Variable	Avg	Std.dev.	Individuals	1%	25%	50%	75%	99%
Net Wealth 2015	1012553	1542446	795380	112	127000	505000	1220000	9980000
Net Wealth 2016	1070347	1673800	833912	91	124000	514000	1280000	10900000
Net Wealth 2017	1140504	1784782	820639	84	139000	552000	1360000	11700000
Net Wealth 2018	1182462	1822800	776767	74	153000	586000	1420000	11900000
Net Wealth 2019	1279623	1968503	756603	66	171000	639000	1520000	12800000
Net Wealth 2020	1345087	2039073	744597	70	190000	684000	1610000	13200000
Net Wealth 2021	1435654	2149419	746135	67	202000	740000	1730000	13800000
Net Wealth 2022	1579571	2490672	758068	151	209000	780000	1840000	16500000

Note: Net taxable wealth in the period 2015 – 2022. Average, standard deviation, number of individuals, and percentile thresholds. Notice that we drop individuals with negative net wealth, and wealth amounts are in current prices Norwegian kroner NOK. The Statistics Norway variable used is **Taxable Net Wealth - Skattepliktig nettoformue**.

D.1 Bunching evidence

Figure 6: Bunching 2015-2022



Note: Frequency (number of individuals on the y-axis, and net wealth (in between 1.4 and 1.6 million NOK, current prices) for 2015 – 2021 on the x-axis. Exclusively for 2022, the range is in between 1.6 and 1.8 million NOK, current prices. The width of each bin is set to 5 thousands NOK. Notice that the higher mass of individuals at both left and right tails is due to 2% data winsorization. Notice that the data is anonymized and subject to 2% bottom and top winsorization only when we retrieve graphical outputs. In all regressions instead, there is no winsorization in the underlying data.

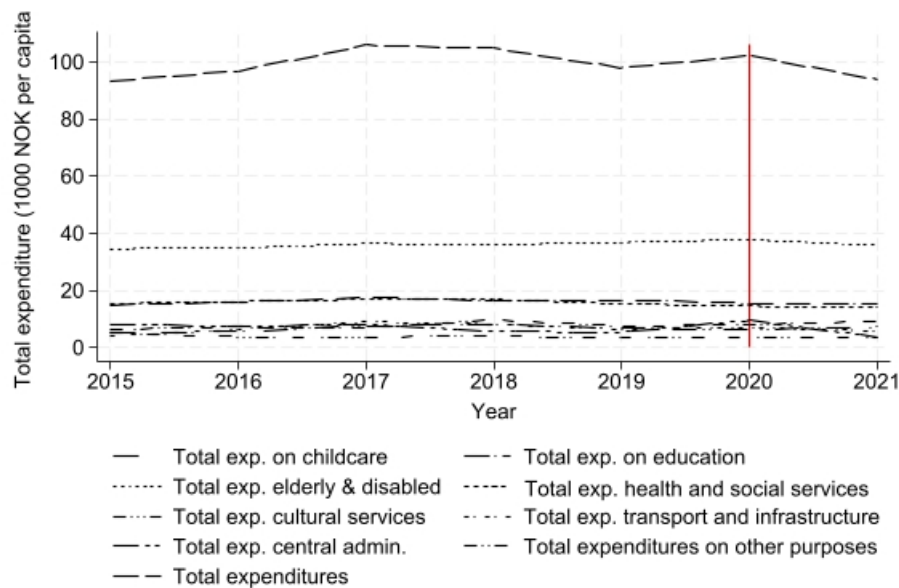
E Appendix: Municipal revenues and expenditures

Table 14: Revenues and expenditures, Bø 2015 – 2022

	2015	2016	2017	2018	2019	2020	2021	2022
Total gross operating expenses	265490	278271	299017	302602	304937	300161	302234	334653
Total corrected gross operating expenses	229414	239179	256562	260119	263110	257208	258395	281323
Total net operating expenses	192247	206244	221659	223540	226229	222376	218827	248492
Total gross operating income	261837	277659	290838	300894	292028	292185	301256	311852
Net operating result	2426	5143	-1335	5542	-4467	17383	69859	-24515
Tax on income & wealth incl. nat. resources	45774	52119	54762	61567	64569	63494	96312	136672
(% change in tax on income & wealth)	n.a.	13,86	5,07	12,43	4,88	-1,66	51,68	41,9
Total property tax	458	7266	7315	7340	7394	5900	5829	2869
Unrestricted revenues	170362	176933	180049	182475	188170	191162	204304	202087
Total gross investment expenses	13722	17369	31695	32944	17276	35381	16738	20451
Net debt	222920	224862	237410	253760	261591	280621	280779	288834
Long-term debt excl. pension obligations	284473	256723	265045	300047	308548	325220	342956	370124
Pension liability	446813	470273	484316	496727	517083	509274	495852	528278

Note: This table showing revenues and expenditures in Norwegian kroner (1000 NOK) for the municipality of Bø in the years 2015 – 2022, is extracted from the following Statistics Norway table: 12137 - Financial key figures from the operational and balance sheet account per capita, by accounting concept (M) 2015 - 2022. This table is available here <https://www.ssb.no/en/statbank/table/12137>.

Figure 7: Total municipality expenditures in Bø



Note: Total municipality expenditures for Bø (municipality number 1867). Data are extracted from the Local Government Dataset by Fiva et al. (2023). All variables are measured in constant NOK 1000 per capita (the variable CPI2011 is used as a deflator).

F Appendix: Reproducibility and Open Science

F.1 Reproducibility

We believe in the importance of reproducibility of scientific research, on the lines of this manifesto for open science practices [Munafò et al. \(2017\)](#). Our data access (the interface [microdata.no](#)) has the advantage of ensuring immediate and full reproducibility of results. With the more traditional data access to Norwegian registers and microdata, it is not straightforward to reproduce the authors' results since data access is costly and entails long delivery waiting time.

In our case, subject to affiliation with a Norwegian higher education or research institution ([Get microdata.no access](#)), data access through the [microdata.no](#) interface is immediate and free of charge. Microdata.no is currently working with access solutions for researchers at international universities and research institutions. The set of codes to fully replicate the results of this work (upon granted access to Microdata.no) will be made available to reviewers to ensure a transparent code review process, and upon publication, they will be made publicly available on Open Science Framework here: [osf.io/a5ysc/](#).

F.2 Readme and instructions to replicators

The following codes replicate the content of this work. The [microdata.no](#) codes are all self-contained, independent from each other, and do not need to be run in a specific order.

- 'Code1_descriptives' can be used to replicate all content in subsection 3.2: descriptive statistics in table 3, and table 4. Content of figure 1 is plotted in R, code available here [osf.io/a5ysc/](#).
- 'Code1_allmovers' can be used to replicate all content in subsection 3.3: regression output in table 5, and table 6. Regression output in figure 2 is plotted by using library 'coefplot' in R, codes and figures in .png available here [osf.io/a5ysc/](#).
- 'Code2' can be used to replicate all content in subsection 4.1: regression output in table 7. Regression output in figure 3 is plotted by using library 'coefplot' in R, codes and figures in .png available here [osf.io/a5ysc/](#).
- 'Code2_decomposition' can be used to replicate table 8 in subsection 4.2.
- 'Robustness_stayers' replicates all content in subsection 5.1.

- 'Robustness_time_trend' replicating content in subsection 5.2: regression output in table 12 in Appendix C. Regression output in figure 4 in Appendix C is plotted by using library 'coefplot' in R, codes and figures in .png available here osf.io/a5ysc/.
- 'Robustness_enforcement' replicating content in subsection 5.3;
- 'Robustness_bunching' replicating content in subsection 5.4, shown in in Appendix D: figure 5, table 13, and figure 6. Figures are plotted by using the Vega editor on the microdata.no interface ([Vega editor](#)).
- 'Out_migration' code replicating table 11 in section 6.