Does a Wealth Tax Improve Equality of Opportunity?*

Kristoffer Berg† and Shafik Hebous‡

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Abstract

Does parental wealth inequality impact next generation *labor* income inequality? And does a tax on parental wealth affect the labor income distribution of the next generation? We tackle both questions empirically using detailed intergenerational data from Norway, focusing on effects on wages rather than capital income. Results suggest that a net wealth of NOK 1 million increases wages of the children by NOK 14,000. Children of wealthy parents also have a higher labor income mobility. The estimated hypothetical wage distribution without the wealth tax is more unequal. Moreover, suggestive evidence indicates parental wealth is associated with higher labor risk taking.

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†University of Oxford (Centre for Business Taxation), kristoffer.berg@sbs.ox.ac.uk

‡International Monetary Fund (Fiscal Affairs Department), shebous@imf.org

1 Introduction

At the heart of the current debate about sharp wealth inequality is its potential impact on income inequality in the next generation—an aspect reflecting equality of opportunity.[1] If children of wealthy parents are not only more likely to earn higher capital income—as suggested in the literature[2]—but also higher *labor* income than peers from less wealthy families with otherwise similar characteristics, then parental wealth entails a privilege that reduces equal prospects of earning income. In this sense, parental wealth can affect intergenerational income mobility through affecting wages.

The debate on wealth inequality has triggered a strong interest in—and a growing recent literature on—wealth taxation. Thus far, however, the literature has not provided evidence regarding the question: does a tax on parental wealth affect the *labor* income distribution of the next generation? Arguably, it is a challenging question to answer, not least in face of demanding data requirement to establish links between parental wealth, children income when grown up, and a real-world wealth tax.

This paper empirically studies the effects of parental wealth, and its taxation during childhood, on adult wages and intergenerational labor income mobility in Norway. The wealth tax in Norway—currently one of the few wealth taxes in the world—has a relatively broad coverage, providing the advantage of studying a wide spectrum of taxpayers beyond the superrich.[3] Our research design focuses on cohorts born during 1978-1980 and estimates the effect of taxing the wealth of their parents in the late 1990s (i.e., when they were at the 'lower secondary school') on their labor income in 2010-2017 (i.e., during adulthood). We focus on three outcomes for these cohorts: i) the level of wage; ii) the position on the labor income distribution; and iii) position on the labor income distribution relative to that of their parents—a measure of intergenerational income mobility. First, we relate parental wealth to one of these outcome variables using OLS. Next, we use an instrumental variable (IV) approach to address concerns about potential effects on wages that are correlated with parental wealth and left uncontrolled for in the OLS (i.e., potential omitted variable bias due to unobserved confounders).

The main IV identification of the causal effect of parental wealth on the income of the children relies on two sources of variation: i) changes to the wealth tax rate in the late 1990s; and ii) different levels of taxation of the same level of wealth, depending on the marital status. Specifically, we exploit that the wealth tax threshold and deduction of a married couple filing jointly were higher

[1] See, e.g., Piketty and Zucman (2014), Smith et al. (2020), and Boserup et al. (2018).
[2] Fagereng et al. (2021)
[3] See Scheuer and Slemrod (2020).

than that for single filers with the same level of wealth. Thus, we estimate an IV model using wealth tax changes (due to marital status and tax law changes) as an instrument for changes in net parental wealth.[4] Moreover, we present additional results to address potential concerns about the exclusion restriction if divorce directly affects future income of the children. Specifically, we separately estimate the direct divorce effect on the income of the children from a sample of taxpayers that are out of the scope of the wealth tax throughout the entire sample period, and adjust our IV estimation accordingly. As we will explain later, this strategy plausibly provides an upper bound of the divorce effect. Furthermore, as a robustness check, we use another IV estimation exploiting a rule that limits the wealth tax if income is below a specific threshold. As it turned out, the OLS with the rich sets of covariates (to control for potential omitted variables bias) gives similar results to the other three IV models.

Our analysis yields two main results, consistent across the three considered outcome variables and different estimation methods. First, those who grow up in families with higher levels of net wealth tend to have higher labor incomes and better position on the wage distribution, controlling for the education and incomes of their parents as well as individual characteristics including education. The IV estimates suggest that a net wealth of 1 million NOK in Norway increases future annual wages of the children by about 14,000 NOK, ceteris paribus. Moreover, results suggest that the intergenerational *labor* income mobility is influenced by the stock of parental wealth, with children from more wealthy families experiencing higher labor income mobility than those from less wealthy families. Thus, this new piece of evidence suggests that the intergenerational effect of wealth is not only on capital income of the children but also on labor income even after controlling for the education of the children. Second, based on these point estimates, we estimate the counterfactual income distribution in 2017, in our sample, in the absence of the wealth tax to answer the question: What would have happened to the labor income distribution today had Norway not implemented a wealth tax in the 1990s? Our results suggest that the wealth tax has made the labor income distribution less unequal—lowering the Gini coefficient by about 1 point.

Extending the analysis to account for heterogeneous effects across wealth levels suggests that the impact of parental wealth on the labor income of the children is higher at middle levels of wealth. Intuitively for the super-rich, capital income plays a key role diminishing the importance of labor income. At the lower end, the impact of parental wealth on the labor income of the children becomes insignificant.

We are mainly interested here in testing whether parental wealth affects labor income in the

[4] A similar strategy was used in Jakobsen et al. (2020) who focus on the elasticity of savings with respect to the abolished Danish wealth tax.

next generation, while leaving a comprehensive analysis on the 'why question' (i.e., the different possible mechanisms) for future research. However, we provide new empirical evidence pointing to directions for further research on one, thus far unexplored, mechanism through which the parental stock of wealth impacts the labor income of their children. This mechanism operates through the risk profiles of decisions related to labor income—for example, because parental wealth may act as a private safety net for the children. Recall, our results mute a potential education channel when we control for higher education and the field of the study of the children.[5] This prompts us to think of further mechanisms beyond the effects of parental wealth on human capital formation. Our findings indicate heterogeneous returns to labor, as higher levels of parental wealth are associated with a higher dispersion of labor income after controlling for individual and parents' characteristics. This finding complements recent evidence on heterogeneous returns to capital as one explanation of intergenerational correlation in wealth levels (Benhabib and Bisin, 2018 and Fagereng et al., 2021). In this context, our results explicitly point to the role of the heterogeneity of labor income (in addition to capital income), associated with different levels of parental wealth, in driving heterogeneous total wealth returns.[6]

Ultimately, optimal redistribution polices are dependent on society's preferences and the social welfare function. Thus, the questions as to how much and how (if at all) the income distribution should be made more equal require normative analysis. The positive analysis in our study, however, does inform policymakers by providing empirical evidence that a wealth tax is one policy instrument that can lower the next generation income inequality.

Our study links three strands of literature. The first is the empirical literature on wealth taxation, which—as surveyed in Scheuer and Slemrod (2021)—mainly looks at two broad aspects: the behavioral (both real and evasion) responses as well as the revenue potential of various wealth tax designs (e.g., Bjørneby et al., 2020; Brülhart et al., 2019; Duran-Cabré et al., 2019; Jakobsen et al., 2020; Ring, 2020; Seim, 2017; Saez and Zucman, 2019; and Zoutman, 2018). This literature does not look at the intergenerational aspects of parental wealth. Secondly, a strand of the literature looks at intergenerational or regional income mobility but with a focus on describing patterns in the data without linking parental wealth to labor income of the children or wealth taxation (e.g., Chetty, Hendren, Kline, Saez, and Turner, 2014; Corak, 2013; Lee and Solon, 2009; and Thoresen, 2009). Finally, a related growing literature studies specific mechanisms of inequality of opportunity. For example, a series of papers—including Chetty et al. (2020), Chetty et al. (2018), and Chetty,

[5]Note also that affordability and access to high quality education is facilitated by the public education system in Norway.

[6]In some respects, our finding also complements Aghion et al. (2017), who report that the probability of becoming an inventor is positively correlated with the income of the parents even after controlling for IQ.

Hendren, Kline, and Saez (2014)—relate the distribution of students' earnings in their thirties to their parents' *incomes*. They document, inter alia, that low- and middle-income students attend selective schools at much lower rates than their peers from higher-income families with the same test scores, but those that attend these schools have similar long-term outcomes. This suggests that college attendance patterns have an upward effect on income mobility. Our study complements this literature by providing evidence linking parental wealth and labor income controlling for education and in the presence of strong provision of public education.

This paper proceeds as follows. Section II summarizes the Norwegian wealth tax during the sample period. Section III presents the identification approach. Section IV discusses the results. Section V concludes.

2 Norwegian Wealth Tax and Data

2.1 Norwegian Wealth Tax

Today, Norway is one of a few OECD countries that levies a tax on the net wealth of individuals.[7] The marginal wealth tax rate has varied considerably over time from a three-step progressive rate in the mid-90s—reaching a rate of 1.5 percent—to a flat rate from the early 2000s—currently set at 0.85 percent (left panel of Figure 1). One specific feature in the Norwegian wealth tax is its relatively low eligibility threshold, implying a significant number of taxpayers. Currently, the tax threshold is a net wealth above NOK 1.5 million (about USD 174,000)—which is simply doubled for married couples. In contrast, in the early 1990s, the threshold was different for singles (NOK 125,000) from married couples (NOK 150,000). In 1993, about 18 percent of Norwegian taxpayers were subject to the wealth tax, while in 2017 the number had dropped to 10 percent.[8]

[7] The Norwegian wealth tax was introduced in 1892. Currently, in OECD countries, in addition to Norway, Switzerland and Spain have a wealth tax. Ongoing discussions about a wealth tax are taking place in several countries including the United States, Argentina, and South Africa.

[8] See Bjørneby et al. (2020) and Ring (2020) for detailed descriptions of the Norwegian wealth tax.

Figure 1: *Wealth Tax Rates and Payments*

(a) *Top Marginal Wealth Tax Rate* **(b)** *Tax Payments: Married vs Unmarried*

To illustrate differences in taxing the wealth based on marital status in the 1990s and early 2000s, the right panel of Figure 1 shows tax payments over time for married and unmarried couples. For illustration, couples start with NOK 1,000,000 in 1993 (roughly USD 40,000 using 1993 exchange rate) and we increase the wealth at a predetermined rate of 5 percent annually. Figure 1 displays differences in tax payments between married and two types of unmarried parents before 2006, which we exploit in our identification strategy (see also Table A.1). In the case of partners with unequal wealth, there was a marriage tax benefit (the graph shows the case where one partner holds all the wealth), while in the case of partners with equal wealth, there was a substantial marriage tax penalty before 2006, while they pay the same tax whether married or unmarried after 2006.

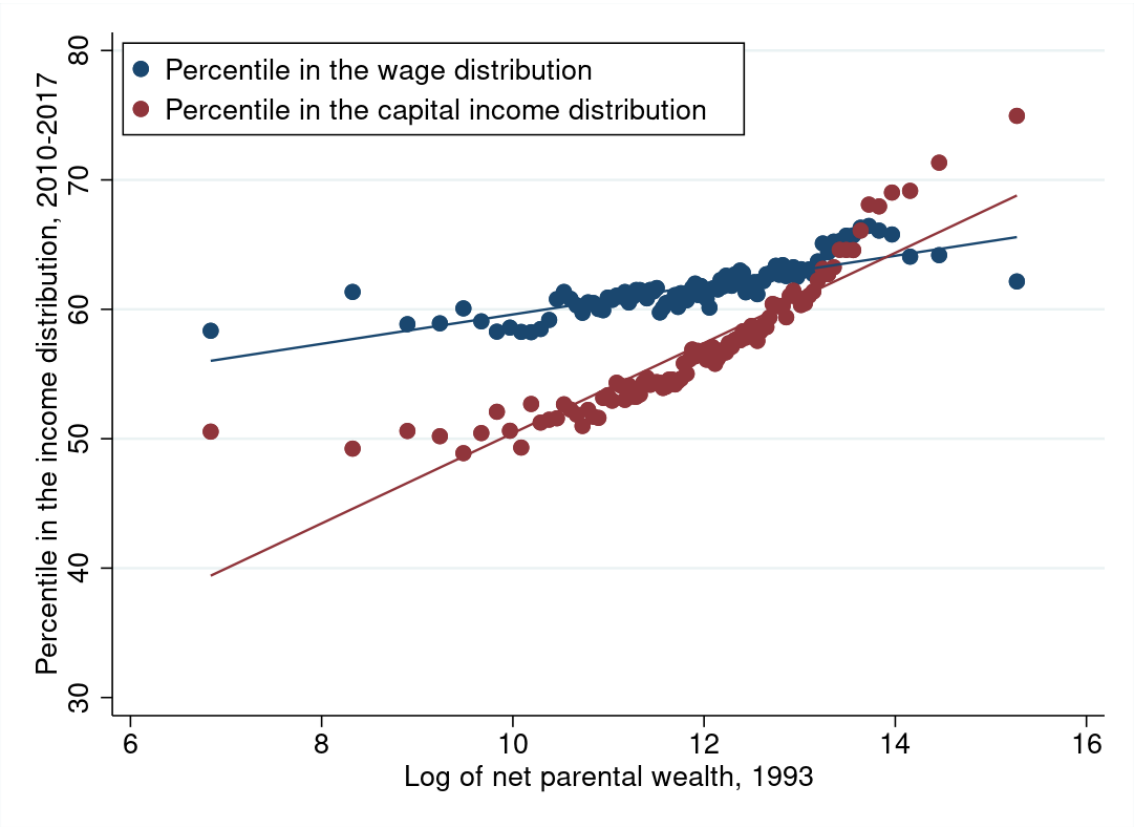
2.2 Data

The source of the data is Statistics Norway's databases including the Income Statistics for Families and Persons which contains the Register of Tax Returns and other detailed information on individuals, enabling us to link parents with their children and trace their different sources of income and their net wealth since 1993. Moreover, the database contains information about education levels, including the field of study, the place of birth, and other characteristics. Appendix A describes the definitions of all variables and presents detailed descriptive statistics in the sample distinguishing between married and unmarried taxpayers (Tables A.2, A.3, and A.4). In 1993, the average net financial wealth was 85 percent of the average wage. By 2017, the average net financial wealth had risen to 135 percent of the average wage. Unsurprisingly, wealth is concentrated at the top 10 percent wealthiest owned about half of all (positive) net wealth in Norway in 2017. Halvorsen et al.

(2021) present a rich set of stylized facts about intergenerational earnings in Norway.

Figure 2 visualizes the main finding of the paper. It presents graphical evidence showing the correlation between parental wealth in 1993 and the percentiles of the income distribution of the children in 2010-2017. The correlation patterns are estimated separately for wages and capital income, controlling for characteristics including: parental wages in 1993, birth in an urban area, age of the wage earner, age and education of the parents. Figure 2 shows that high parental wealth—during childhood—is associated with a better position in the labor income distribution when grown up. Furthermore, confirming existing studies in the literature, the upward sloping relationship is also observed between parental wealth and capital income.

Figure 2: *Parental Wealth, Wage, and Capital Income*



Note: The binned scatterplot shows the estimated relationship between net parental wealth in 1993 and the position on the labor income or capital income distribution in 2010-2017, controlling for parents and individual's characteristics including education.

3 Identification

3.1 OLS Specification

Our sample includes three cohorts born during 1978-1980. We estimate the effects of the stocks of their parental net wealth in 1998 on their wages during 2010-2017 (i.e., when they are 32-40 years old). Let $wage_{i,t}$ denote the wage of individual i with parents p in year t ($t = 2010, ..., 2017$), and $netwealth_{p_i,1998}$ denotes the total net wealth in 1998. The OLS specification is:

$$wage_{i,t} = \alpha_t + \beta\, netwealth_{p_i,1998} + \theta\, controls_{p_i,1998} + \delta\, controls_i + \epsilon_{i,t}, \tag{1}$$

where $controls_{p_i,1998}$ is a vector of characteristics of parents p including wage, education, age, and marital status in 1998; $controls_i$ is another vector of characteristics of individual i, including the age and whether the individual is born outside of Norway; α_t are year-dummies; and $\epsilon_{i,t}$ are error terms.[9]

To allow for heterogeneous effects of net parental wealth on wages (or labor income mobility) depending on the wealth level, we augment specification 1 with interaction terms between the stock of net wealth levels in 1993 and dummies categorizing levels ranging from a low (NOK 100,000 to 500,000), a middle (NOK 500,000 to 1,200,000) and a high (above NOK 1,200,000) wealth group.[10]

Reverse causality is unlikely to be a concern for specification 1 because wages of individuals during 2010-2017 do not affect the wealth of the parents in 1990s. Moreover, we are not interested in shutting down any factor that directly enables parental wealth to affect the wages of the children, and thus we do not need to control for the 'outcome'. For example, if parental wealth implies better education of the children, this is a part of the total effect that we are interested in estimating. However, in the Appendix, we do also present results after controlling for the education of the children (and discuss this in 4.2.2). One potential concern with specification 1 is that even the included rich set of explanatory variables may fail to control for potential confounders that affect wages and are potentially correlated with parental wealth *but are not directly implied by parental wealth*, such as ability. We address this concern using an IV approach.

[9] For direct comparability with the IV results (as explained below), we take 1993 as the year for the parental controls instead of 1998. OLS results with either 1998-controls or 1993-controls are very similar.

[10] An alternative model is a log-log-specification, but due to common issues with the log of 0, this specification cannot be straightforwardly implemented for our IV-approach that we explain below. Therefore, we instead estimate group-specific effects, as the benchmark model. We report log-log results too.

3.2 IV Estimation

3.2.1 Instrument

The idea is to use exogenous changes in parental wealth to account for confounding variables that can affect wages of the children. The main IV identification strategy is to exploit differences in the taxation of wealth of married, unmarried, and divorced parents throughout the 1990s and early 2000, which are described in 2.1.

Specifically, we use exogenous changes in wealth that occur because of changes in tax rules and marital status, as an instrument for actual changes in parental wealth. That is

$$\Delta taxpayment_{p_i,t} = taxrule_t(netw_{p_i,1993}, marriage_{p_i,1998}) - taxrule_{1993}(netw_{p_i,1993}, marriage_{p_i,1993}),$$

where $taxrule_t$ are the tax rules for net wealth in each year and $netw$ denotes net wealth. Increases in tax payments due to changes in the rules reduce net wealth in 1998, conditional on net wealth in 1993. The difference in taxation of the same level of wealth derives from different tax treatments based on marital status (that also change over time differently) and changes to the marital status.

Since the instrument is for the change in wealth, rather than the level of wealth, we first present the implication for the estimated IV equation and then turn to the discussion of the relevance and validity of the instrument. In the same way as for the OLS specification, we interact net wealth (changes) with dummies for being in the low, middle and high wealth group.

3.2.2 IV Equations

Let Y_i be the outcome (wages), X_i is the stock of parental wealth during childhood, Z_i is the instrument, C_i is a confounder, and ϵ_i is an error term. For illustration, we can safely drop the time dimension here. Consider

$$Y_i = \alpha + \beta X_i + \epsilon_i.$$

In the presence of omitted variable bias due to an unobserved variable C_i, the true model that identifies β is:

$$Y_i = \alpha + \beta X_i + \gamma C_i + \varepsilon_i.$$

We can divide X_i into two parts: $X_i = X_i^0 + \Delta X_i$, where X_i^0 is parental wealth in an initial period (in our case 1993—as early as the data allow) and ΔX_i is the change in parental wealth between the

initial period and some year (e.g., end of childhood). Then,

$$Y_i = \alpha + \beta(X_i = X_i^0 + \Delta X_i) + \gamma C_i + \varepsilon_i = \alpha + \beta X_i^0 + \beta \Delta X_i + \gamma C_i + \varepsilon_i.$$

An instrument, Z_i, for ΔX_i that is uncorrelated with C_i conditional on X_i^0, gives:

$$Y_i = \alpha + \beta X_i^0 + \beta(\Delta X_i \leftarrow Z_i) + \gamma C_i + \varepsilon_i,$$

where $\Delta X_i \leftarrow Z_i$ means that ΔX_i is instrumented by Z_i. Hence, our IV specification that yields unbiased estimates of β is:

$$Y_i = \alpha + \tilde{\beta} X_i^0 + \beta(\Delta X_i \leftarrow Z_i) + \varepsilon_i. \tag{2}$$

Note that $\tilde{\beta}$ may be a biased estimate of β due to the potential relationship between X_i^0 and C_i. Importantly, Z is *not* assumed to be uncorrelated with X_0, such that if we run $Y_i = \alpha + \beta(\Delta X_i \leftarrow Z_i) + \epsilon_i$, we may reintroduce omitted variable bias.

3.2.3 Exclusion Restriction and Relevance

The error term in specification 2 can be written as:

$$\epsilon_i = \delta Z_i + \gamma C_i + u_i, \tag{3}$$

where u_i are independent and identically distributed error terms. The *exclusion restriction* is $\delta = 0$, which may not hold if the instrument affects wages. In our case, a plausible suspicion would be that parental divorce (one source of variation in our instrument) directly affects earnings of the children when grown up. We account for this possibility below.

The first-stage is

$$\Delta X_i = \theta + \phi Z_i + \sigma_i, \tag{4}$$

where σ_i contains all factors that affect parental wealth other than through the instrument. Using 2SLS, we obtain $\Delta \hat{X}_i = \hat{\theta} + \hat{\phi} Z_i$ from the first stage estimation, and next the IV-estimator replaces ΔX_i by $\Delta \hat{X}_i$.

The *instrument relevance* holds if $\phi \neq 0$, and the IV-estimator $\hat{\beta}^{IV} = \hat{cov}(Y_i, Z_i)/\hat{cov}(X_i, Z_i)$ is then

$$\hat{\beta}^{IV_1} = \frac{\hat{cov}\left(\beta(\hat{\theta} + \hat{\phi} Z_i) + \delta Z_i + \gamma C_i, Z_i\right)}{\hat{\phi}\hat{var}\left(Z_i\right)} = \beta + \frac{\delta}{\hat{\phi}} + \frac{\hat{cov}\left(\gamma C_i, Z_i\right)}{\hat{\phi}\hat{var}\left(Z_i\right)} = \beta + \frac{\delta}{\hat{\phi}}, \tag{5}$$

where the last step follows from random assignment.

Thus, if $\delta < 0$ and $\phi < 0$ then there is a positive bias, b, and β^{IV} overestimates the effect:

$\beta^{IV} = \beta + b$. To relax a priori assumption that $\delta = 0$, we estimate δ to correct for the potential bias in the IV estimator of the causal effect of parental wealth on wages of the children.

3.2.4 Accounting for a Potential Bias in the IV Model

We estimate δ from a sample of individuals with wealth below the tax threshold (indexed by j), which means divorce does not affect their tax payments at all. The estimation equation of the direct effect of divorce is:

$$Y_j = \alpha + \beta X_j + \delta Z_j + \epsilon_j. \tag{6}$$

Under random assignment, the OLS estimator $\hat{\delta}$ identifies δ, allowing us to difference out the direct effect of Z_i on Y_i. The adjusted second stage in the IV estimator is:

$$Y_i^{pred} = Y_i - \hat{\delta} Z_i = \alpha + \beta X_i + \gamma C_i, \tag{7}$$

where Y_i^{pred} is the variation in Y_i that remains after accounting for the direct effect of Z_i. If δ is equal across samples, such that $Y_i^{pred} = Y_j^{pred}$, then $\hat{\delta}$ is an unbiased estimate of the true δ in our sample of interest. Hence, using the adjusted values, Y_i^{pred}, the IV-estimator identifies β:

$$\hat{\beta}^{IV_2} = \frac{cov\left(\beta(\hat{\theta} + \hat{\phi} Z_i) + \gamma C_i, Z_i\right)}{\hat{\phi} var\left(Z_i\right)} = \beta. \tag{8}$$

If $\hat{\delta}$ is larger for the low parental wealth sample, which is a plausible assumption, then our strategy likely identifies an upper bound estimate of the divorce effect on income of the children—although this assumption is not needed for the validity of our adjustment. To summarize, if the direct effect of divorce on wages of the children is independent of parental wealth, our approach identifies the effect of exogenous changes in parental wealth on wage outcomes. If instead the direct effect is higher at lower levels of wealth, then our approach to account for it is using an upper-bound estimate of the direct effect (thereby lowering the wages of children of divorced parents that pay the wealth by the same amount as for those that do not pay the wealth tax). Hence, in this case, the true effect for the wealthy is between our non-adjusted and adjusted approaches.

3.3 IV Specifications

Based on the above discussion, our IV specification is

$$\begin{aligned} wage_{i,t} = \alpha_t + \beta \left(\Delta netwealth_{p_i,1998} \leftarrow \Delta taxpayment_{p_i,1998}\right) + \xi\, netwealth_{p_i,1993} + \\ \eta\, marriage_{p_i,1993} + \theta\, controls_{p_i,1993} + \rho\, controls_i + \epsilon_{i,t}, \end{aligned} \tag{9}$$

where ΔX_i corresponds to $\Delta netwealth_{p_i,1998} = netwealth_{p_i,1998} - netwealth_{p_i,1993}$, Z_i to $\Delta taxpayment_{p_i,1998}$ and X_i^0 to $netwealth_{p_i,1993}$. In specification 9, the sources of variation in the tax treatment of the same level of wealth are tax changes over time, which also differ for the married and unmarried, and changes of the marital status for example due to divorce. Furthermore, in addition to the set of controls that we include in the OLS estimation, we control for the initial wealth levels of the parents as implied by Equation 2, and thus estimate the effect of changes in parental wealth due to exogenous tax changes and their impact on wages 12 to 19 years later.

As reported in Table A.5 in the Appendix, the $F-$statistics and R^2 form the first stage regressions support the relevance of the instrument passing the Stock-Yogo cutoffs. Moreover, we present results from adjusting specification 9 to address concerns with the exclusion restriction as in Equation 7. The Appendix presents the exact differences-in-differences design used to estimate the effect of parental divorce on wages of the children for those that not subject to the wealth tax, and how these estimates are used to adjust specification 9 (Table A.6).

4 Results

4.1 Main Results

Table 1 shows our main results. In columns 1-3, the variable of interest is total net wealth of the parents. The first column displays OLS estimation results, whereas the second column shows the IV estimation results without adjusting for the direct divorce effect on children income. Column 3 adjusts the IV model for this effect as described in Section 3. The dependent variable in the first row is the level of wages. OLS estimates suggest that, on average, a net parental wealth of NOK 1 million in Norway increases future annual labor income of the children by NOK 12,300. The effect is about twice as large if we do not include control variables (23,600, see Table A.7).[11] The IV and adjusted IV estimates are similar to those from the OLS with controls, at NOK 15,700 and NOK 14,300, respectively. The adjusted-IV point estimate is only slightly smaller than the IV indicating a relatively low potential bias from a violation of the exclusion restriction. Columns 4-6 repeat columns 1-3 but using the net *financial* wealth of the parents. Estimates are rather similar ranging from NOK 12,400 (OLS), NOK 10,000 (IV), to NOK 6,200 (adjusted IV).

After all, the similarity of the IV and OLS results lends support to the OLS specification with the full-fledged set of controls. This is indicated by comparing the OLS results with and without controls (results are in the Appendix). Including the controls substantially lowers the marginal

[11] Estimating a log-log model with OLS and all controls gives 0.0537*** (0.00128), with the number of observations dropping to 307,571.

effect of parental wealth on wages of the children, while it remains significant and becomes closer to the IV results. Another interpretation of the Adjusted IV result in levels being 0.0143 is that a one percent increase in parental wealth, at average parental wealth in 1993, leads to a 0.0157 percent increase in wage income in 2017. This is derived from estimating the elasticity for average parental wealth in 1993 and average wage income in 2018

$$\bar{\varepsilon} = \frac{\partial Y}{\partial X}\frac{\bar{X}}{\bar{Y}} = \beta\frac{\bar{X}}{\bar{Y}} = 0.0143 \times \frac{513,155}{466,032} = 0.0157. \tag{10}$$

In addition to the level of wage of the children, we consider two other dependent variables. The second row of Table 1 shows estimation results using the position of the child in the wage distribution (percentiles). This variable is particularly suitable for our IV strategy because it is unlikely that divorce directly affects the *percentile* in the wage distribution of the children of parents with wealth *more than* children with low parental wealth. Based on all estimated models (all six columns), results suggest that net parental wealth has a positive impact on the position of the child on the labor income distribution.

The outcome variable in the third row of Table 1 is a measure of intergenerational income mobility defined as the child's position on the wage distribution relative to the parents. Again, results from all estimation models indicate that net parental wealth has a positive effect on the income of the child relative to the income of the parents. Redoing the analysis using total income instead of wages yields very similar pattern, but higher estimates, which is intuitive as (parental) wealth also generates capital income (see Appendix, Table A.8).

Table 1: *Main Results*

Strategy	OLS	IV	Adjusted IV	OLS	IV	Adjusted IV
Effect of	Net parental wealth			Parental financial wealth		
On wage level	0.0123***	0.0158***	0.0143***	0.0124***	0.00997***	0.00621***
	(0.00120)	(0.00117)	(0.00124)	(0.00109)	(0.00946)	(0.000969)
On wage percentile	0.00117***	0.00124***	0.00107***	0.00113***	0.000771***	0.000455***
	(0.0000975)	(0.0000975)	(0.000102)	(0.000114)	(0.0000809)	(0.0000823)
On wage mobility	0.00121***	0.00296***	0.00268***	0.00120***	0.00243***	0.00167***
	(0.000113)	(0.000170)	(0.000176)	(0.000119)	(0.0.000161)	(0.000149)
Sample restrictions	0<PW	0<PW	100<PW	0<PW	0<PW	100<PW
N	480,971	480,971	270,995	480,971	480,971	270,995

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *All monetary amounts are measured in NOK 1000. PW is net parental wealth divided by the number of siblings in 1993. The OLS is the effect of parental wealth in 1998. The IV and Adjusted IV are the instrumented effects of the change in parental wealth from 1993 to 1998, controlling for parental wealth in 1993. The effect of the variable of interest is estimated by including separate slopes for each of the parental wealth groups NOK 100,000-500,000, 500-1,200,000 and above 1,200,000. All estimations include controls and results for these are shown in the Appendix. Controls include wages, education and age of father and mother, marital status in 1993, whether the individual earns mainly capital income, age, whether the individual is born in an urban area, and year dummies. Mobility outcomes are measured in percentiles from father's wage income in 1993 to children's wage income in 2010-2017. Standard errors are robust, clustered at the family level, and for the adjusted IV account for the estimation of the adjustment.*

All reported specifications control for wages of the parents and other parents' characteristics including education levels, marital status, and ages. Unsurprisingly, education of the parents is positively associated with wages of the children. Regarding individuals, controls include age, a dummy for being born in an urban area, and whether earnings consist mainly of capital income. Also, in Table A.10, we control for the education of the children. Results are similar and we will turn to this in section 4.2.2 The Appendix reports the full results for the controls (Table A.7).

Table 1 shows the average effect across the different wealth groups, weighted by their sample share. Table 2 presents group-specific estimation results for three ranges of net parental wealth. For the lower range (NOK 100,000 to 500,000), there is a combination of treated and untreated taxpayers by tax changes over time, and the estimates in this range are insignificant. The effect becomes significant at the middle range of wealth (between NOK 500,000 and 1.2 million). In the upper range, the effect becomes smaller but remains significant at the 1-percent level. This pattern is intuitive as at the very top of the wealth distribution, capital income becomes more important than labor income. Similarly, the effects of net parental wealth on the percentiles of the labor income distribution of the children and on their income mobility are the highest for the middle range of wealth (second and third rows of Table 2), and the effect remains significant, but smaller, at the very top.

Table 2: *Heterogeneous Effects across Wealth Levels*

Strategy	Adjusted IV		
Effect of	Net parental wealth		
On wage level	5.137	0.0380***	0.00790***
	(8.097)	(0.0116)	(0.00284)
On wage percentile	0.294	0.00226***	0.000519***
	(0.468)	(0.000712)	(0.000243)
On wage mobility	0.867	0.00528***	0.000321
	(1.368)	(0.00147)	(0.000374)
On total income	15.54	0.122***	0.131***
	(24.37)	(0.0359)	(0.0391)
Sample restrictions	100<PW<500	500<PW<1200	1200<PW
N	205,030	50,586	15,470

*Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All monetary amounts are measured in NOK 1000. PW is net parental wealth divided by the number of siblings in 1993. The OLS is the effect of parental wealth in 1998. The IV and Adjusted IV are the instrumented effects of the change in parental wealth from 1993 to 1998, controlling for parental wealth in 1993. Controls are wages, education and age of father and mother, parental wealth and marital status in 1993, whether the individual earns mainly capital income, age, whether the individual is born in an urban area and year dummies. Mobility outcomes are measured in percentiles from father's wage income in 1993 to children's wage income in 2010-2017. Standard errors are robust, clustered at the family level, and for the adjusted IV account for the estimation of the adjustment.*

We estimate the counterfactual distribution of wages in the absence of the Norwegian wealth tax, based on Equation 12 and corresponding to the estimates in column 3 of Table 1 (Figure A.1). We compute the Gini coefficients of the counterfactual and observed distributions of wages, and find that the latter is less unequal with a Gini coefficient of close 0.24 compared to the counterfactual Gini coefficient in our sample close to 0.25. Additionally, the estimated counterfactual wage distribution in the absence of the wealth tax looks very similar after taking the heterogeneous effects into account (A.2).

4.2 Extensions

4.2.1 Alternative Identification

We obtain similar results using a different identification strategy that relies on a limitation rule that caps the maximum amount of paid wealth tax if the annual income is below a specific threshold. In 1993, the limitation rule implied that if the overall tax payment was higher than 80 percent of income, the wealth tax would be reduced. In addition, the reduction was set such that the tax

rate could not be below 0.6 percent for wealth above NOK 1 Million. We replace our previous instrument with a dummy for whether either the mother or the father of the individual is subject to the limitation rule in the period 1993-1998. This produces unbiased estimates of the causal effect of parental wealth if parents with the same wealth are randomly placed below and above the limitation rule threshold, controlling for the direct effect of difference in parental incomes. Jakobsen et al. (2020) use a similar setup. In our application, however, it significantly reduces the number of observations and thus we consider it as an additional robustness check. Results are in the Appendix (Table A.9).

4.2.2 Underlying Mechanism

There can be various mechanisms behind our findings. For example, wealth can potentially affect human capital formation, and thus wages, possibly through: i) affordability of private education (particularly relevant for countries with higher private provision of education and less relevant for Norway); and ii) decision to invest in human capital (e.g., to attend a graduate school or not). We repeat the estimations behind Table 1 after controlling for higher education and the field of study (science, business, etc) of the children. Unsurprisingly, having a higher degree positively impacts wages. Importantly, the effects of net parental wealth on the wages of the children, the position on the wage distribution, and intergenerational income mobility, are very similar—slightly smaller after controlling for the education of the children (Table A.10 in the Appendix shows). This indicates that there are other mechanisms beyond the level of education of the children through which wealth affects intergenerational labor income.

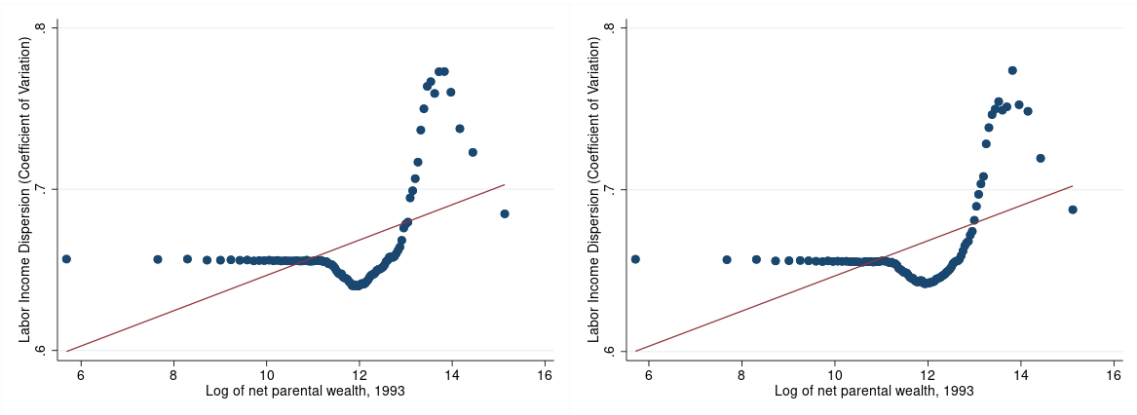
As a first assessment to trigger further research on the linkages between the stock of parental wealth and wages of the children, we compute a measure of dispersion (the coefficient of variation) of labor income corresponding to bins of the stock of parental wealth, controlling for the education of the children. This measure is indicative of "risk-taking" in the sense that wage earners' decisions can also be associated with a risk profile (e.g., via occupational choices)—for instance a graduate with a business administration degree from a wealthy family may take different career decisions, internalizing the wealth of the parents, from someone with the same degree but zero parental wealth. Next, we estimate the relationship between the wage dispersion measure and parental net wealth controlling for individual and parents' characteristics such as the level of education. We visualize the results here in Figure 3 and report the IV estimates in the Appendix (A.11).

The results in Figure 3 and the IV estimates in Table A.11 suggest a strong correlation between net parental wealth and dispersion in the returns to labor.[12] This finding indicates a novel

[12] Additionally, we do the same estimation for capital income, and also find that higher wealth is associated with

mechanism related to the recent literature on the concentration of wealth within families across generations. That literature points out to determinants such as financial risk-taking by investors and direct wealth transfers through bequest, inter alia (Fagereng et al., 2021). Thus the findings suggest that in addition to the set of reasons that generally operate through increasing capital income of the children, parental wealth appears to affect their risk-taking behavior—potentially through occupational choices, among other things—generating larger labor income dispersion for high levels of net parental wealth. This finding is also consistent with the hypothesis that parental wealth acts as an insurance in the form of a private safety net (Pfeffer and Rodems, 2021).

Figure 3: *Labor Income Dispersion and Parental Wealth Levels*



(a) *Labor Income Dispersion* **(b)** *Labor Income Dispersion, Controlling for Education*

Note: This binned scatterplot shows the estimated relationship between net parental wealth in 1993 and wage dispersion in 2010-2017, controlling for parents and individual's characteristics including education. The measure of wage dispersion is the coefficient of variation defined as the ratio of standard deviation to the mean (averaged within each bin of wealth).

5 Conclusion

The discussion on wealth inequality stresses that parental wealth is a significant predictor of future wealth of the children. Existing literature focuses on mechanisms such as wealth transfers and returns to wealth through links operating via *capital* income. Our findings add a new aspect to this discussion. Namely, using exogenous variations in parental net wealth, we find that children from wealthy families tend to have higher *labor* income and higher intergenerational *labor* income mobility. The results are very similar based on four estimation approaches (OLS with a range of controls, IV exploiting variation in wealth taxation, an adjusted version of this IV to address possible concern about the exclusion restriction, and a different IV approach using a limitation rule). Overall,

higher dispersion of capital income (i.e., risk-taking), broadly in line with Fagereng et al. (2021) (Appendix, Figure A.3).

the analysis suggests that a wealth tax brings labor income of the children closer to their peers from less wealthy families. This finding contributes to the debate on wealth taxation. It does not state that the wealth tax is the only, or the optimal, policy tool to influence intergenerational income inequality, but the results suggest that in the absence of the Norwegian wealth tax, intergenerational income mobility would have been lower.

The results from the Norwegian data in this paper are also indicative for other countries. If wealth entails a "privilege effect" on the income of the children in a country with a relatively strong provision of public goods—especially health and education—, this raises the question whether this effect is even more pronounced in countries with lower provision of public goods.

Our analysis does lend support to one—and thus far neglected—mechanism through which parental wealth impacts the income of the children. Results indicate heterogeneous returns to labor in the form of positive correlation between wage dispersion and parental net wealth. This finding suggests that the risk profile of occupational choice is influenced by the stock of parental wealth, contributing to the literature that attempts to explain why wealthy parents tend to have well-off children. Future research can shed light on further mechanisms.

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A Appendix: Data

A.1 Description of Variables

Wage income of individuals is their income as employed wage earners; *capital income* is income from capital holdings, including dividends and capital gains; *total income* is the sum of wage income, capital income, business income and taxable transfers. All three income concepts are based on information from tax returns, see Table A.2 for summary statistics for 2017.

Net wealth is tax assessed global assets of residents' net of debts. *Parental net wealth* is the sum of the wealth of the mother and the wealth of the father. Housing wealth is included. The taxable value of housing wealth was 10 percent below the assessed value in 1995 and 5 percent below in 1998. The assessed value is typically lower than the market value in the period considered (Fagereng et al., 2020).[13] *Financial wealth* is global financial assets of residents (i.e., this measure excludes housing wealth). Both wealth concepts are based on information from tax returns, see Table A.3 for summary statistics for 1993 and 1998.

Wealth and income are not adjusted for inflation, as nominal values can be transparently compared to thresholds and tax rules.

[13]Since we are interested in the effects of changes in wealth rather than the measurement of wealth, this is likely not a major challenge to our identification strategy, as a possible measurement error could be differenced out. In addition, measurement error in the right hand side variable of interest would lead to downward bias.

A.2 Summary Statistics

Table A.1: *Thresholds and Deductions in the Norwegian Wealth Tax 1993-2017*

	Singles			Married		
	Threshold 1	Threshold 2	Threshold 3	Threshold 1	Threshold 2	Threshold 3
	NOK	NOK	NOK	NOK	NOK	NOK
1993	120,000	235,000	.	150,000	260,000	.
1994	120,000	235,000	530,000	150,000	260,000	570,000
1995	120,000	235,000	530,000	150,000	260,000	570,000
1996	120,000	235,000	530,000	150,000	260,000	570,000
1997	120,000	235,000	530,000	150,000	260,000	570,000
1998	120,000	540,000	.	150,000	580,000	.
1999	120,000	540,000	.	150,000	580,000	.
2000	120,000	540,000	.	150,000	580,000	.
2001	120,000	540,000	.	150,000	580,000	.
2002	120,000	540,000	.	150,000	580,000	.
2003	120,000	540,000	.	150,000	580,000	.
2004	120,000	540,000	.	150,000	580,000	.
2005	151,000	540,000	.	181,000	580,000	.
2006	200,000	540,000	.	400,000	1,080,000	.
2007	220,000	540,000	.	440,000	1,080,000	.
2008	350,000	540,000	.	700,000	1,080,000	.
2009	470,000	.	.	940,000	.	.
2010	700,000	.	.	1,400,000	.	.
2011	700,000	.	.	1,400,000	.	.
2012	750,000	.	.	1,500,000	.	.
2013	870,000	.	.	1,740,00	.	.
2014	1,000,000	.	.	2,000,000	.	.
2015	1,200,000	.	.	2,400,00	.	.
2016	1,400,000	.	.	2,800,000	.	.
2017	1,480,000	.	.	2,960,000	.	.

Until 2006, married couples share one basic allowance and a joint threshold. From 2006, married couples share twice the threshold of singles on their total wealth. The threshold for singles and married is therefore the same independently of the distribution of couple wealth after 2006.

Table A.2: *Summary Statistics, Individuals*

Strategy	Mean in 2017			
	All	Married parents	Unmarried and divorced parents	Parents subject to limitation rule
Wage	513.155	526.999	454.621	498.572
	(372.967)	(372.580)	(368.756)	(396.903)
Capital income	31.770	31.591	32.677	104.633
	(445.701)	(363.359)	(694.284)	(831.907)
Total income	576.325	591.325	512.873	636.799
	(603.270)	(540.422)	(815.183)	(932.340)
Number of siblings	1.94	1.90	2.10	2.18
	(1.16)	(1.11)	(1.34)	(1.34)
Born in urban area	0.145	0.151	0.119	0.103
	(0.352)	(0.358)	(0.323)	(0.305)
Sample restrictions	PW>0	PW>0	PW>0	PW>0
N	63,533	51,318	12,127	2,456

Standard deviation in parentheses. All monetary amounts are measured in NOK 1000. PW is net parental wealth in 1993. Married are parents who are married to each other in 1993-1998.

Table A.3: *Summary Statistics, Parents (Main Variables)*

Strategy	Mean			
	All	Married	Unmarried and divorced	Subject to limitation rule
Married 1993	0.856			0.754
	(0.351)			(0.431)
Divorce 1993-1998	0.0552			0.101
	(0.228)			(0.301)
Net wealth, 1993	466.032	462.658	479.031	1,980.26
Median	233.756	252.307	153.497	377.764
	(6,420)	(1,096)	(14,450)	(32,420)
Net wealth, 1998	835.655	908.852	524.426	4,406.44
Median	387.268	437.132	135.752	542.002
	(4,461)	(5,530)	(8,018)	(28,810)
Financial wealth, 1993	320.826	302.948	393.668	1,781.03
Median	122.150	127.644	91.918	206.145
	(5,956)	(1,099)	(13,452)	(30,040)
Financial wealth, 1998	575.301	596.188	484.025	4,706.01
Median	138.048	150.026	84.916	249.210
	(6,703)	(6,639)	(6,974)	(32,610)
Wealth tax, 1993	3.533	3.256	4.688	23.216
Median	0	0	0	1.702
	(83.412)	(13.966)	(188.735)	(420.720)
Wealth tax 1998-rules, 1993	2.955	2.624	4.369	20.938
Median	0	0	0	1.257
	(98.126)	(11.210)	(224.388)	(498,710)
Sample restrictions	PW>0	PW>0	PW>0	PW>0
N	63,533	51,318	12,127	2,456

Standard deviation in parentheses. All monetary amounts are measured in NOK 1000. PW is net parental wealth in 1993. Married are parents who are married to each other in 1993-1998

Table A.4: *Summary Statistics, Parents (Further Variables)*

Strategy	Mean in 1993			
	All	Married	Unmarried and divorced	Subject to limitation rule
Mother's wage	105.846	107.698	98.093	95.816
	(83.144)	(81.344)	(89.831)	(90.909)
Father's wage	199.051	213.627	136.577	136.914
	(158.989)	(153.314)	(164.258)	(225.088)
Mother's capital income	7.307	6.762	9.605	20.196
	(62.510)	(55.654)	(85.728)	(139.044)
Father's capital income	30.340	32.100	22.565	171.757
	(291.760)	(286.937)	(311.184)	(947.053)
Mother's total income	127.329	130.281	114.951	131.861
	(117.451)	(111.127)	(140.487)	(169.390)
Father's total income	277.991	298.465	190.182	380.532
	(372.076)	(370.284)	(363.899)	(1,018.99)
Mother higher education	0.228	0.230	0.219	0.254
	(0.420)	(0.421)	(0.414)	(0.435)
Father higher education	0.173	0.182	0.131	0.157
	(0.378)	(0.386)	(0.338)	(0.355)
Sample restrictions	PW>0	PW>0	PW>0	PW>0
N	63,533	51,318	12,127	2,456

Standard deviation in parentheses. All monetary amounts are measured in NOK 1000. PW is net parental wealth in 1993. Married are parents who are married to each other in 1993-1998

B Appendix: Further Analysis and Results

Instrument Relevance and Validity

The effect of exogenous changes in parental net wealth, β, is identified if the change in tax payments affect net parental wealth in 1998 (relevance) and is unrelated to wages other than through net wealth in 1998 (exclusion). As reported in Table A.5, the $F-$statistics and R^2 form the first stage regressions support the relevance of the instrument passing the Stock-Yogo cutoffs.

As discussed above, to address concerns that the exclusion restriction may not hold, we employ a differences-in-differences design. The approach is to estimate the effect of parental divorce on wages of the children for those that not subject to the wealth tax, and use these estimates to adjust

our the IV estimator as follows:

$$\begin{aligned} wage_{j,t} = \alpha_t + \mu\, divorce_{p_j,1998} + \xi\, netwealth_{p_j,1993} + \\ \eta\, marriage_{p_j,1993} + \rho\, controls_{p_j,1993} + \delta\, controls_j + \epsilon_{j,t}, \end{aligned} \tag{11}$$

where $divorce_{p_j,1998}$ is a dummy that is equal to one when the parents divorce in the period 1994-1998 and zero otherwise. j is an individual with parental wealth between NOK 0 and NOK $100,000$ during 1993-1998, whereas i are individuals above NOK $100,000$. The estimation results are reported in Table A.6 in the appendix.

Next, for all levels of parental wealth, we linearly predict wages using the estimation results from Equation 11. This predicted wage is then subtracted from the observed wage for i, obtaining $w\hat{a}ge_{i,t}$:

$$\begin{aligned} w\hat{a}ge_{i,t} = \alpha_t + \beta\left(\Delta netwealth_{p_i,1998} \leftarrow \Delta\, taxpayment_{p_i,1998}\right) + \xi\, netwealth_{p_i,1993} + \\ \eta\, marriage_{p_i,1993} + \theta\, controls_{p_i,1993} + \rho\, controls_i + \epsilon_{i,t}. \end{aligned} \tag{12}$$

Table A.5: *First-Stage IV Estimation Results*

Strategy	OLS	
Effect of	Divorce IV	Limitation rule IV
On net parental wealth	-19973.74***	2094.68***
	(801.3)	(91.476)
t-value	-24.93	22.90
F-value	241.53	235.15
R^2	0.543	0.537
On parental financial wealth	-15309.36***	1994.45***
	(1578.4)	(96.06)
t-value	-9.7	10.76
F-value	289.34	245.17
R^2	0.547	0.541
Sample restrictions	PW>0	PW>0
N	480,971	480,971

*Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All monetary amounts are measured in NOK 1000. PW is net parental wealth divided by the number of siblings in 1993. The effect for Divorce IV is the predicted change in wealth tax payments given parental wealth in 1993 as a percentage of parental wealth in 1993 on the change in parental wealth between 1993 and 1998. Controls are wages, education and age of father and mother, parental wealth and marital status in 1993, whether the individual earns mainly capital income, age, whether the individual is born in an urban area and year dummies. Standard errors are robust and clustered at the family level.*

Table A.6: *Direct Effect of Divorce on Wages of Children*

Strategy	OLS
Effect of	Parental divorce
On wage	-20.58***
	(2.221)
On wage percentile	-2.112***
	(0.243)
On wage mobility	-0.951***
	(0.263)
On total income	-42.41***
	(3.007)
Sample restrictions	0<PW<100
N	199,183

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *All monetary amounts are measured in NOK 1000. PW is net parental wealth divided by the number of siblings in 1993 Controls are wages, education and age of father and mother, parental wealth and marital status in 1993, whether the individual earns mainly capital income, age, whether the individual is born in an urban area and year dummies. Mobility outcomes are measured in percentiles from father's wage income in 1993 to children's wage income in 2010-2017. Standard errors are robust and clustered at the family level.*

Table A.7: *Main Results with Effect of Controls*

Strategy	OLS	OLS	IV	Adjusted IV
Effect on		Wage		
Net parental wealth 1998	0.0236***	0.0123***		
	(0.00132)	(0.00120)		
Change in net parental wealth 1993-1998			0.0158***	0.0143***
			(0.00117)	(0.00125)
Net parental wealth 1993			0.00773***	-0.192***
			(0.000541)	(0.000580)
Parents married 1993		34.25***	33.94***	3.74***
		(1.200)	(1.208)	(.250)
Earning mainly capital income 2013-2017		-442.9***	-449.4***	-24.05***
		(0.924)	(1.132)	(1.842)
Father's wage 1993		0.172***	0.143***	-0.0492***
		(0.00334)	(0.00463)	(0.00597)
Mother's wage 1993		0.177***	0.184***	0.0297***
		(0.00546)	(0.00565)	(0.00810)
Father's age		-0.813***	-0.831***	-0.432***
		(0.096)	(0.0976)	(0.145)
Mother's age		-0.813***	-0.831***	0.364**
		(0.096)	(0.0976)	(0.171)
Father has higher education		23.46***	24.96***	3.469*
		(1.306)	(1.339)	(1.974)
Mother has higher education		24.00***	21.31***	-7.050***
		(1.081)	(1.122)	(1.554)
Age		19.54***	19.55***	2.319***
		(0.213)	(0.216)	(0.314)
Born in an urban area		15.53***	16.70***	-5.936***
		(1.249)	(1.257)	(1.929)
Sample restrictions	PW>0	PW>0	PW>0	PW>0
N	480,971	480,971	480,971	270,995

*Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All monetary amounts are measured in NOK 1000. PW is net parental wealth divided by the number of siblings in 1993. The OLS is the effect of parental wealth in 1998. The IV and Adjusted IV are the instrumented effects of the change in parental wealth from 1993 to 1998, controlling for parental wealth in 1993. The effect of the variable of interest is estimated by including separate slopes for each of the parental wealth groups NOK 100,000-500,000, 500-1,200,000 and above 1,200,000. Mobility outcomes are measured in percentiles from father's wage income in 1993 to children's wage income in 2010-2017. Standard errors are robust, clustered at the family level, and for the adjusted IV account for the estimation of the adjustment.*

Table A.8: *Total Income*

Strategy	OLS	IV	Adjusted IV	OLS	IV	Adjusted IV
Effect of	Net parental wealth			Parental financial wealth		
On total income	0.0552***	0.0850***	0.0831***	0.0512***	0.0762***	0.0710***
	(0.00851)	(0.0115)	(0.0128)	(0.00741)	(0.0120)	(0.0133)
Sample restrictions	0<PW	0<PW	100<PW	0<PW	0<PW	100<PW
N	480,971	480,971	270,995	480,971	480,971	270,995

*Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All monetary amounts are measured in NOK 1000. PW is net parental wealth divided by the number of siblings in 1993. The OLS is the effect of parental wealth in 1998. The IV and Adjusted IV are the instrumented effects of the change in parental wealth from 1993 to 1998, controlling for parental wealth in 1993. The effect of the variable of interest is estimated by including separate slopes for each of the parental wealth groups NOK 100,000-500,000, 500-1,200,000 and above 1,200,000. Controls are wages, education and age of father and mother, parental wealth and marital status in 1993, age, whether the individual is born in an urban area and year dummies. Mobility outcomes are measured in percentiles from father's wage income in 1993 to children's wage income in 2010-2017. Standard errors are robust, clustered at the family level, and for the adjusted IV account for the estimation of the adjustment.*

Table A.9: *Limitation Rule IV*

Strategy	Limitation Rule IV	Limitation Rule IV
Effect of	Net parental wealth	Parental financial wealth
On wage level	0.0161***	0.0117***
	(0.000721)	(0.000742)
On wage percentile	0.00126***	0.000915***
	(0.0000553)	(0.0000575)
On wage mobility	0.00253***	0.00215***
	(0.0000876)	(0.000109)
Sample restrictions	0<PW	0<PW
N	480,971	480,971

*Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All monetary amounts are measured in NOK 1000. PW is net parental wealth divided by the number of siblings in 1993. The IV is the instrumented effect of the change in parental wealth from 1993 to 1998, controlling for parental wealth in 1993. The effect of the variable of interest is estimated by including separate slopes for each of the parental wealth groups NOK 100,000-500,000, 500-1,200,000 and above 1,200,000. All estimation include controls and results are shown in the Appendix. Controls include wages, education and age of father and mother, marital status in 1993, whether the individual earns mainly capital income, age, whether the individual is born in an urban area, and year dummies. Mobility outcomes are measured in percentiles from father's wage income in 1993 to children's wage income in 2010-2017. Standard errors are robust, clustered at the family level, and for the adjusted IV account for the estimation of the adjustment.*

Table A.10: *Results: Controlling for Educational Level and Field*

Strategy	OLS	IV	Adjusted IV	OLS	IV	Adjusted IV
Effect of	Net parental wealth			Parental financial wealth		
On wage level	0.00921***	0.0126***	0.0115***	0.00911***	0.00776***	0.00460***
	(0.00112)	(0.000996)	(0.00109)	(0.000923)	(0.000834)	(0.000890)
On wage percentile	0.000853***	0.000912***	0.000790***	0.000795***	0.000547***	0.000302***
	(0.0000895)	(0.0000808)	(0.0000860)	(0.0000948)	(0.0000705)	(0.0000750)
On wage mobility	0.000918***	0.00267***	0.00243***	0.000889**	0.00222***	0.00154***
	(0.000107)	(0.000155)	(0.000163)	(0.000105)	(0.000150)	(0.000142)
Sample restrictions	0<PW	0<PW	100<PW	0<PW	0<PW	100<PW
N	480,971	480,971	270,995	480,971	480,971	270,995

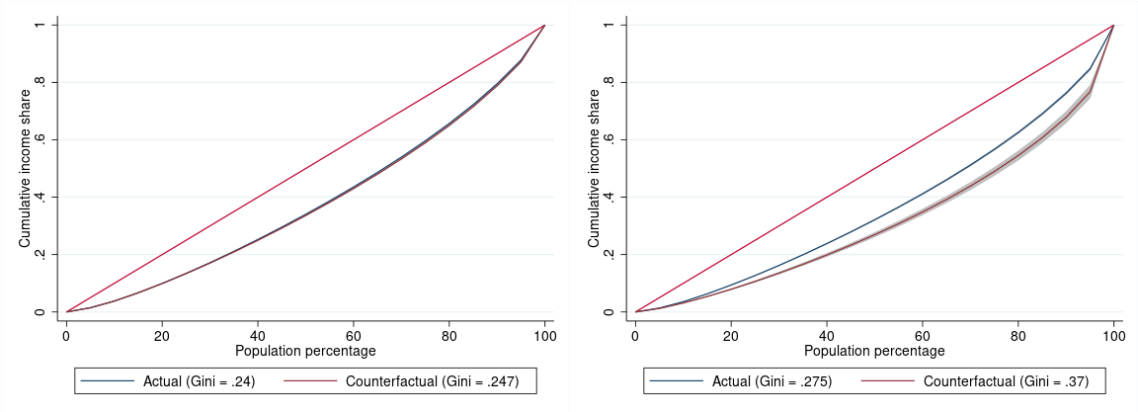
Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *All monetary amounts are measured in NOK 1000. PW is net parental wealth divided by the number of siblings in 1993. The OLS is the effect of parental wealth in 1998. The IV and Adjusted IV are the instrumented effects of the change in parental wealth from 1993 to 1998, controlling for parental wealth in 1993. The effect of the variable of interest is estimated by including separate slopes for each of the parental wealth groups NOK 100,000-500,000, 500-1,200,000 and above 1,200,000. We control for a dummy on whether the individual has completed higher education and a dummy on whether the higher education field was in business or science. Controls are wages, education and age of father and mother, parental wealth and marital status in 1993, whether the individual earns mainly capital income, age, whether the individual is born in an urban area and year dummies. Mobility outcomes are measured in percentiles from father's wage income in 1993 to children's wage income in 2010-2017. Standard errors are robust, clustered at the family level, and for the adjusted IV account for the estimation of the adjustment.*

Table A.11: *Labor Earnings Dispersion*

Strategy	OLS (no controls)	OLS	IV
Effect of	Net parental wealth		
Wage income dispersion	0.0000213***	$1.85 * 10^{-6}$***	0.0000135***
	($7.77 * 10^{-7}$)	($1.19 * 10^{-7}$)	($9.35 * 10^{-7}$)
Total income dispersion	$2.19 * 10^{-6}$***	0.000136***	0.0000770***
	($5.01 * 10^{-7}$)	($7.13 * 10^{-7}$)	($4.46 * 10^{-6}$)
N	481,319	481,319	481,319

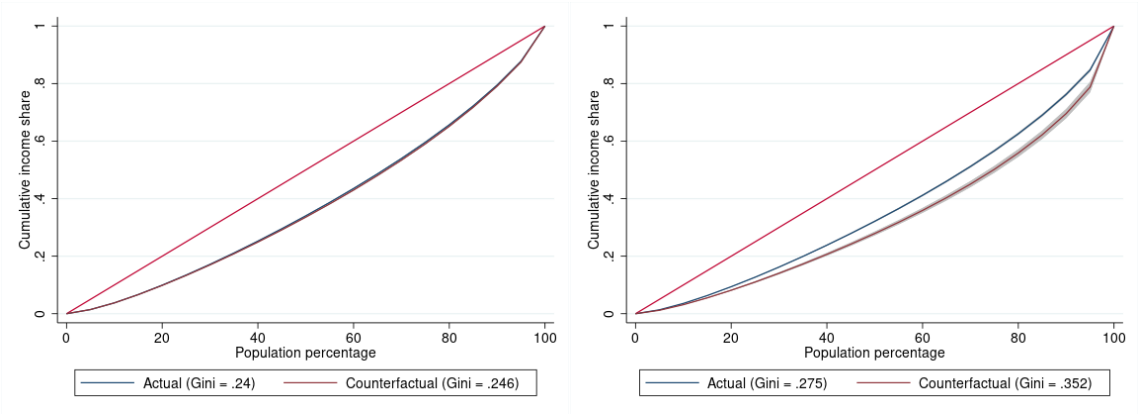
Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *All monetary amounts are measured in NOK 1000. The effect of parental wealth on dispersion is calculated by constructing 100 groups of parental wealth and calculating dispersion within each of these groups, before running an OLS regressions of parental wealth in 1993 on the income dispersion measure. The parental wealth groups are constructed beginning with a bin of 100,000 and increasing it by a factor of* $bin^{1.1}$*, to measure dispersion also at the top. Standard errors are robust and clustered at the family level.*

Figure A.1: *Counterfactual Income Distribution in the Absence of a Wealth Tax*



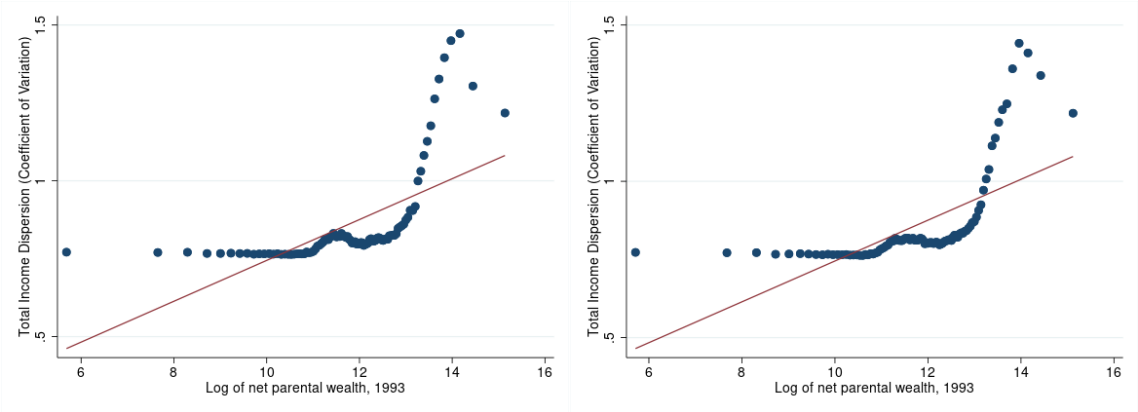
(a) *Wage Income Inequality* **(b)** *Total Income Inequality*

Figure A.2: *Income Inequality (Considering Heterogeneous Effects of Parental Wealth on Income)*



(a) *Wage Income* **(b)** *Total Income*

Figure A.3: *Total Income Dispersion and Parental Wealth Levels*



(a) *Total Income Dispersion* **(b)** *Total Income Dispersion, Controlling for Education*

Note: For each bin of the logarithm of net parental wealth in 1993, the figure shows the estimated relationship between net parental wealth and capital income dispersion, controlling for parents and individual's characteristics including education. The measure of total income dispersion is the coefficient of variation defined as the ratio of standard deviation to the mean (averaged within each bin of wealth).