

# THE RELATIVE IMPORTANCE OF INHERITANCES IN NORWAY

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# THE RELATIVE IMPORTANCE OF INHERITANCES IN NORWAY

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## Preface

Rounding off five years of studying by producing this thesis has been both challenging and enjoyable. I am very thankful to my supervisor Elin Halvorsen at Statistics Norway for guiding me through this project, providing me with register data and kindly answering all sorts of questions, and to Thor Olav Thoresen for stepping in and helping me with the theoretical background at the very end.

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Any error in this thesis is my responsibility.

Marianne Lefsaker Johansson

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# 1 Introduction

Economists have recently pointed out that wealth, and especially inherited wealth, is becoming increasingly important in many industrialized countries. In the UK, the richest 10 percent of households own more than ten times the average for all households and almost five times as much wealth as the bottom half put together (Mirrlees et al 2011: 350). Some of this difference is a result of individuals being at different stages in life, but there is also substantial wealth inequality within each age group. Since those with more wealth to begin with are also more likely to inherit themselves, gift and inheritances may reinforce and strengthen the inequality over time. There is no consensus in literature regarding taxation of wealth transfers, however, and international practice differs widely. While some countries taxes both gifts and inheritances, others only tax transfers at death or do not tax transfers at all. And the political debate is heated. What supporters regard as a necessary tool for redistribution and key to achieving equality of opportunity, is by opponents viewed as an unjustified confiscation of family property by the state. In Norway, the new right-wing government has already abolished the inheritance tax and is announcing a gradual abolishment of the wealth tax as well.

In the late 19th and early 20th centuries, a comprehensive tax base was introduced in all developed countries. The progressive tax schedule applied to the base of both labor and capital income was mainly explained by an ability to pay argument (Piketty and Saez, 2014). Most of the highest income flows were capital, and many countries taxed capital income more heavily than labor income during the interwar period. At the same time as a number of countries instituted tax surcharges for capital income, steeply progressive inheritance taxes were introduced to limit the wealth inequality across generations. From 1980 and onwards however, almost all developed countries experienced a decline in tax progressivity. The substantial reduction in top tax rates for both income and bequests flows in combination with countries excluding a growing fraction of capital income from the tax base turned the progressive income tax into more of a progressive labor income tax. How do we explain this tendency? It could be that the decline in inherited wealth, a relative rise of life-cycle wealth and a compression of wealth inequality called for a different taxation. According to Piketty and Saez this can only be part of the answer, since the low inheritance flows in the 1950s and 1960s represent a temporary decline due to war shocks and inheritance flows now seem to be increasing.

In a very influential paper, Piketty (2011) finds that inherited wealth is of increasing importance in France. He describes a U-shaped pattern in the long-run development of inheritance flows. Inheritance made up 20-25 percent of national income in the beginning of the twentieth century, fell below 10 percent in the interwar period and hit bottom

at 5 percent in the 1950s before they started rising again. Piketty reports the 2008 inheritance flow in France to be close to 15 percent, and predicts an inheritance-income ratio of 15-20 percent in the coming decades. Two driving factors in this development are the relative ratio of wealth of the deceased to wealth of the living, and the wealth-income ratio. In periods with high economic growth, wealth of the past is weakened and inheritances as share of national income decreases. As soon as growth declines, however, the wealth inherited from one's parents and grandparents strengthens its significance and may end up dominating new wealth. Following Piketty, Atkinson (2013) uses British data to see whether the sharp rise in wealth-income ratio in the UK has led to a corresponding increase in the wealth being passed on from one generation to the next. He finds a similar pattern to that in France, though less accentuated - in 2006, the inheritance flow in the UK reached 8,2 percent.

In this thesis I investigate whether inheritances are of increasing importance in Norway as well. With an economic growth that has been less affected by the financial crisis than in most other countries and a relative high population growth, we would expect the inheritance to income ratio to be lower in Norway than in France and much of continental Europe. The fact that Norway, in addition to France, is one of few countries that until recently had a tax on wealth transfers provides us with a valuable data source on the development of inheritances over time. Up until abolishment, the inheritance tax was widely unpopular. An important argument for abolishing the inheritance tax was that it collected very little revenue - in fact, some even nicknamed the inheritance tax a "voluntary tax" or a "tax on sudden death". It was considered inefficient and unfair, since the very wealthy could easily avoid it by tax planning whereas the less wealthy whose main asset was housing were unable to tax plan. As part of my analysis I try to estimate to what extent the very wealthy were able to diminish their wealth before death. I separate the population based on wealth to see whether there are any differences between the wealthiest and the less wealthy when it comes to development of wealth during the last stages of life. Finally, I will use the framework of Piketty (2011) and the estimated degree of tax avoidance to calculate alternative measures of the development of the inheritance-income ratio over time in Norway.

The paper is organized as follows. In section 2, I start with the theoretical background for taxing wealth transfers. Section 3 describes the development of wealth and inheritances in Norway. In section 4, I examine the inheritance tax planning behavior among Norwegians. Section 5 imputes the inheritance flow in Norway from 1998 to 2012, replicating Piketty's exercise. Section 6 concludes.

## 2 Theoretical background

### 2.1 Why do people leave bequests?

There are mainly two explanations for the existence of bequests. One states that bequests are accidental, the other that bequests are planned. Different theories of what motivates intentional bequests exist, and these motives are of great importance for the impact of wealth transfers taxation on efficiency, equity and economic behavior.

The permanent income hypothesis (Friedman, 1957) claims that households' consumption is based on the present discounted value of lifetime income. We look at a consumer with initial assets  $A_0$  and preferences

$$\sum_{t=0}^{\infty} \beta^t u(c_t)$$

where  $0 < \beta < 1$ ,  $c_t$  is consumption and the period utility function  $u(\cdot)$  is increasing, strictly concave and twice differentiable. The consumer's budget constraint is

$$A_{t+1} = (1 + r)(A_t - c_t + y_t)$$

where  $r$  is the one-period interest rate,  $Y_t$  is labor income in period  $t$  and  $A_{\{t+1\}}$  is investment in assets yielding payoff in period  $t + 1$ . Assuming that the no-Ponzi scheme condition holds,

$$\lim_{t \rightarrow \infty} \frac{A_t}{(1+r)^t} = 0$$

the intertemporal budget constraint can be formulated as

$$\sum_{t=0}^{\infty} \frac{C_t}{(1+r)^t} = A_0 + \sum_{t=0}^{\infty} \frac{Y_t}{(1+r)^t}$$

This condition tells us that net present value of consumption must equal net present value of income plus initial assets. In optimum,

$$\frac{u'(C_t)}{\beta u'(C_{t+1})} = 1 + r$$

such that the intertemporal marginal rate of substitution is equal to the relative price of goods in the next period measured in units of present goods. If individuals have preferences for full consumption smoothing,

$$\beta = \frac{1}{1+r}$$

consumption is constant across periods,  $C_t = C_{t+1} = C$ . Individuals will in each period consume a constant fraction of permanent income;

$$C = \left(\frac{r}{1+r}\right)[A_0 + \sum_{t=0}^{\infty} \frac{Y_t}{(1+r)^t}]$$

Like the permanent income hypothesis, the life-cycle hypothesis pioneered by Modigliani and Brumberg (1954) establishes that individuals make consumption decisions based on the total resources available to them over lifetime. Consumption is thus smoothed across periods of various income levels. Holdings of wealth during lifetime are predicted to have an inverted U-pattern. While young, individuals borrow against future income. Once they start working, they repay their debt and save for retirement so that they can finance consumption during the last stage of life by dissaving acquired assets. Since all wealth accumulation happens to finance future consumption, aggregate savings in the economy will in a pure life-cycle model remain zero unless there is population or productivity growth. With a growing population, the total savings of young exceeds total dissaving of old and aggregate savings are positive. Under productivity growth, each successive generation is wealthier than the preceeding and thus has a higher consumption. Since each cohort raise their savings relative to previous cohorts to finance increasing expenses also during retirement, the result is positive savings. Empirically though, the pure life-cycle model assumption of dissaving during the last stages of life does not seem to fit. One explanation for this could be precautionary savings among the elderly. By extending the model to include uncertainty and imperfect capital markets, also bequests can be accounted for. When individuals face uncertainty regarding length of lifetime and credit markets are incomplete, their savings acts like a buffer against living too long or facing large expenses in old age. Bequests are left whenever individuals die with positive savings. Since these bequests are simply a result of uncertainty and credit market imperfections, they are called accidental.

Another explanation for the lack of dissaving among retired individuals, supported by the large number of wealth transfers during life, is that bequests are intentional. Barro (1974) and Becker (1974) describe an altruistic bequest motive, where parents deliberately transfer wealth to their children. Altruistic parents care about the lifetime utility of their children and yield direct utility from each child's welfare. To maximize utility, parents typically leave different amounts to different children in order to equalize their incomes. Usually, children with lower earnings receive higher bequests than children with higher earnings. Alternatively, the parents might transfer more resources to their wealthier

children if their expected payoff is higher (NOU 2000:8 Arveavgift).

Related to altruistic donors are the parents motivated by the “warm glow” they receive from giving. This “warm glow” or “joy of giving” motive was explained by Andreoni (1989) and is similar to altruism in that the testators transfer wealth without expecting anything in return. However, children’s needs are not taken into account. This motive is more selfish than the altruistic and the distribution of wealth is unimportant. Leaving bequests is motivated by the donor’s joy of giving, and the utility of the recipient is of inferior importance. Transferring wealth therefore compares to any other consumption, and the donor’s utility is maximized when marginal utility of giving equals marginal utility of consumption.

A third group of motives are the strategic bequests, described by Bernheim, Shleifer and Summers (1985). Strategic exchange happens when children offer assistance and services in return for payments in form of bequests. Children could offer plain market goods (like household work, driving etc) or more personal services like visits and attention (Gale and Slemrod, 2000). Parents use bequests as payment for affecting the recipients’ behavior. The transfer works similar to a market exchange. Parents could either pay their children from time to time, or delay payment until death to assure lifelong attention. Strategic bequests depend on the wealth and the needs of the donor, and are not necessarily equalized across recipients.

The literature also describes a fourth motive, where substantial wealth is assumed to provide utility beyond the consumption this wealth could finance. In this capitalistic model utility is gained from the status, power or social connections a large amount of wealth might imply. Wealth in itself generates utility through all periods of life, and might even create utility beyond death since very wealthy individuals may choose to continue living in the public arena through trust funds or foundations (Kley, 2012). Even if this kind of motive only applies to a small group of individuals, it is important for policy since these individuals leave behind a large share of total bequests.

## 2.2 Taxation of wealth transfers

When designing taxes, one always wants to achieve efficiency so that distortions are minimized and revenue secured. The efficiency considerations must then be traded off with equity concerns, for many the main reason to levy taxes. Also administrative costs must be taken into account. Inheritance tax design is not as simple as it might sound, however. The tradeoff between efficiency and equity is not clear-cut, but depends on something (according to some) as non-economic as norms and ethics. Even if agreeing on the importance of equity, pursuing equity means different things to different people. In

addition, the underlying bequest motives are of crucial importance for policy implications.

Before I continue, I would like to make two distinctions when it comes to wealth transfers and taxation of those. A wealth transfer can either happen between living individuals (inter-vivos) or at death. Since inter-vivos are more likely to be planned, there might be a case for taxing these differently than transfers at death. The fact that motives are unobservable makes it difficult to separate the two types of transfers. Moreover, motive is not a relevant consideration when considering equity and equality of opportunity issues (Boadway et al 2010: 773). When discussing taxation of bequests in the following sections, I therefore assume that both gifts and inheritances are included in the tax base so that each recipient pays tax on total wealth transfers received during lifetime. My second distinction regards the fact that different countries apply different tax bases. A tax on wealth transfers is either donor based (called estate tax) or recipient based (called inheritance tax). Logically, the donor based tax is based on the estate left by the deceased, while a recipient based system is based on the amount received by the recipient. I will in this thesis concentrate on inheritance taxation, if not otherwise specified.

### **2.2.1 Efficiency**

Efficiency in the commodity market is distorted by the fact that leisure is nontaxable. On pure efficiency grounds, optimal tax theory recommends taxing complements of leisure at a higher rate than other goods to reduce this inefficiency (Corlett and Hague, 1953). An inheritance tax will clearly affect the choice between consuming and bequeathing. But even if distorting the lifetime consumption - inheritance choice, Kaplow (2001) argues that there is no place for an estate tax in an optimal tax structure based on efficiency considerations without evidence about the relative complementarity of lifetime consumption versus inheritance with respect to leisure.

A tax has an efficiency cost if it changes the behavior of individuals or firms compared to their conduct in absence of taxation. From an efficiency perspective, accidental bequests thus seem like highly attractive subjects of taxation since they have no effect on the donor's behavior. The problem is that distinguishing accidental bequests from intentional ones is almost impossible. Before arguing that taxing wealth at death is a good idea since death itself is inevitable, one should remember that estate or inheritance taxation is a tax on wealth transfers rather than a death tax (Gale and Slemrod, 2000). Even though individuals cannot escape death, behavioral response concerning accumulation and distribution of wealth before death are absolutely relevant and must be taken into account. And even if taxing an accidental bequest would be highly efficient due to the

lack of tax planning by the donor, it would create a loss for the recipient who is now worse off than without the tax.

Since optimal taxation depends on how both donor and recipient are affected by the tax, transfer motives are central. Under an altruistic bequest motive, the transfer yields value to both donor and recipient. If allowing for such double-counting, welfarists<sup>1</sup> would argue that altruistic bequests should be taxed more heavily than others. Others might consider the donor's utility gain as a positive externality connected to an altruistically given bequest and thus suggest subsidizing the bequest rather than taxing it. In any case, double-taxing the transfer would probably not be a good idea since then everything else yielding utility to the recipient (and thereby the donor) should also be taxed twice. Assume that your child gets a wage increase and that you are very happy for her. Should the utility increase you get from her higher earnings result in a higher tax burden? The tax system can obviously not take such utility interdependency into account (Boadway et al 2010: 771). It is interesting to note that from a welfarist's perspective, accidental bequests should actually be subject to lower taxation since they only yield utility to the recipient.

Some would argue that strategic bequests should be taxed more heavily than others since they represent a transaction similar to any other market exchange. Such a tax would compare to a VAT on market goods. "Double taxation" is often heard in the inheritance tax debate as an argument against taxation. People seem to forget that this phenomenon already exists in various forms in our economies. VAT is one example of double taxation, since individuals buy goods out of already taxed incomes. Allowing VAT on most other goods and services, one would think that double taxing strategic bequests should be feasible. Just as the elasticity of substitution is important when taxing other goods, the elasticity of parent's demand for their children's services would in this case be important for the inheritance tax rate (Gale and Slemrod, 2000). A low elasticity of demand would allow for a high optimal tax rate on strategic bequests.

This section suggests that the efficiency implications of an inheritance tax would be unclear even if bequest motives were observable. Knowing that motives are difficult to observe and likely to vary across givers and types of transfers (ibid), it is hardly surprising that there is no consensus in literature when it comes to optimal taxation of bequests.

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<sup>1</sup>Under welfarism, the objective of the government is to choose a tax structure that maximizes social welfare when behavioral responses and revenue requirements are taken into account. Often social welfare is represented by summing over individuals' utilities. Under standard assumptions of positive, diminishing marginal utility a transfer from a wealthier person to a less wealthy person yields a utility gain to the poorer individual that outweighs the loss of utility for the wealthier person.

### 2.2.2 Equity

The famous 80-20 debate displays different theories of the role of bequests in total wealth accumulation that are of great importance for the redistributive effects of inheritance taxation. Kotlikoff and Summers (1980) started by claiming that 80 percent of wealth is related to bequests, and that only the remaining 20 is a result of life cycle accumulation. Modigliani (1986) replied, defending his life cycle hypothesis by arguing the exact opposite: that 80 percent of an individual's wealth can be attributed to life cycle accumulation. This huge discrepancy in results is partly due to how the authors take different transfers into account when estimating (Pestieau, 2003). While Modigliani considers only inheritance and major gifts between independent households, Kotlikoff and Summers add all transfers received above 18 years of age. Moreover, Modigliani considers the sum of transfers in real terms, whereas Kotlikoff and Summers include also the accumulated interest on transfers. Davies and Shorrocks (2000) suggest that 20-30 percent of total wealth can be attributed to bequests when bequests are not capitalized, while the share increases to 40-50 percent for capitalized bequests.

Studies for France and Sweden indicate that European countries might have a greater share of inherited wealth relative to the US. Laitner and Ohlsson (2001) find that inherited wealth of households as a fraction of total wealth in Sweden in 1981 was 51 percent, compared to a 19 percent share in the US using similar data and computations. Kessler and Masson (1989) look at France and estimate that a uniform reduction in bequests would lower total savings by 35-40 percent. The conclusion by Pestieau (2003) is that growing and more private economies like the US seem to have a higher share of aggregate wealth associated with lifetime accumulation.

It is common to divide equity considerations into vertical and horizontal perspectives. According to Musgrave (1990), vertical equity is "calling for an appropriate differentiation of unequals". When estimating vertical equity effects of a tax reform one compares the tax treatment of those with higher income or wealth to those with less. Vertical equity improves with tax progressivity. Gale and Slemrod (2000) argue that the case for progressivity in inheritance taxation is strengthened by a large increase in the concentration of before-tax income and wealth. They report that tax liability in the US is extraordinarily concentrated among high-wealth owners, no matter whether taxation is based on the donor or the recipient. In 1997, more than 99 percent of the US estate tax burden fell on the top quintile (*ibid*). When studying the redistributive effects of taxation, however, one must compare the outcome under taxation to that in the absence of taxation. Under pure altruism, intergenerational transfers are expected to have a smoothing effect across generations, thereby reducing vertical inequity (Masson and Pestieau 1997:76). Bequests are also used to smooth wealth across children. Taxing transfers in an altruistic world

could therefore strengthen vertical inequity, by discouraging bequests. However, under altruism one faces an important trade-off between wealth differences across and within families. Even if harming vertical equity, taxation of bequests could be a tool in reducing horizontal inequity if the intragenerational differences are large, and substantial transfers within altruistic families create wealth dynasties.

Horizontal equity demands an equal treatment of equal individuals, and is said to be violated by reforms that alter the pre-reform ranking of individuals by income or utility levels (Kaplow, 1989). If strategic parents favor time or help from one child, or one of the children has less capacity to look after his parents, taxation of transfers would improve horizontal equity by reducing the incentives to treat siblings differently (Masson and Pestieau 1997:78). At the same time, horizontal equity could be argued to decline under an inheritance tax since otherwise equal individuals are discriminated based on their preferences. From the perspective of the decedent, inheritance taxation punishes altruistic families and gain selfish ones and generosity towards the next generation is discouraged. From the perspective of the next generation however, wealth transfers itself harms horizontal equity. One popular criterion for evaluating tax reforms is the equality of opportunity perspective. The interpretation by Roemer (1998) is that individuals should be compensated for disadvantages they are endowed with, but should otherwise be free to exercise their choices according to their own preferences. According to this view, any intergenerational transfer that enhances the opportunities of a recipient should be included in her tax base. Letting children be punished because their parents spend money on themselves rather than save for the next generation does seem to violate fair play (Gale and Slemrod, 2000). But once we allow for regulating differences in opportunities that come in the form of wealth transfers, we discriminate between different transfers from parents to children. What about other investments parents do to better equip their children? Should not human capital differences arising from time with parents, help etc. also be included in the tax base? What about gifts received as a child? Advocates of the tax might reply that inheritance is a civic rather than natural right, and that the government has the duty to regulate it (ibid).

An argument posted by Stiglitz (1978) is that inheritance taxation might have an adverse effect on wealth distribution. If the tax reduces personal savings so that capital accumulation decreases, the return to capital will increase relative to wages such that wealth inequality increases. Unless the capital accumulation is too high and taxing it is desirable (Masson and Pestieau, 1997:80), removing inheritance taxes will improve equity.

Because of the widely different views of what is considered right and wrong, it seems impossible to draw a conclusion regarding equity issues. The fact that policy implications hinge on bequest motives, further complicates the question. The trade-off between wealth

differences across and within families, however, is important. Following the discussion of Masson and Pestieau (1997), in an altruistic world the case for taxation of transfers is strengthened when between-family wealth differences are larger than within families, and the efficiency cost of public redistribution is not much higher than that of private redistribution. This trade-off only applies to altruists. For other types, Masson and Pestieau argue that taxation of transfers is always desirable from a redistributive perspective.

### **2.2.3 Costs of taxation**

The administrative convenience is probably one of the reasons that estate and inheritance taxation date back for centuries (Gale and Slemrod, 2000). The probate process reveals information about assets that are otherwise difficult to obtain, and collection costs are low since information is already registered. Even if administrative costs are relatively small, however, the costs in form of tax planning and tax evasion might be substantial. Actually, the tax has been called voluntary due to the many avoidance opportunities (*ibid*).

There are two types of costs related to taxation of wealth transfers. Administrative costs come from operating, monitoring and enforcing the system, while compliance costs are related to tax avoidance and tax planning. While estimating the actual compliance costs are challenging, the dimensions of avoidance and evasion are important both from an equity and efficiency perspective. Clearly, tax avoidance reduces efficiency by shrinking the net revenue. Also vertical equity might suffer under taxation. One of the main critiques against inheritance taxation when inter-vivos are not included in the tax base is that it harms the middle classes and gains the very wealthy. Whereas the very richest to a great extent can avoid the inheritance tax by transferring significant proportions of their wealth during lifetime, individuals whose main asset is owner-occupied housing are not able to tax plan (Mirrlees et al, 2011). If the very wealthiest might avoid the inheritance tax altogether, the tax becomes regressive.

## **2.3 How do bequests develop over time?**

Piketty (2011) explains the U-shaped development of the inheritance flow in France over the last two centuries using a simple theoretical model of wealth accumulation, growth and inheritance. In the 1800s, growth was low and old (inherited) wealth made up a substantial fraction of national income. Saving a small share of asset returns was sufficient to ensure that inherited wealth grew at least as fast as national income. When old wealth was capitalized faster than national income, the aggregate inheritance-income ratio increased.

A simple  $r > g$  logic implies that the capital shocks during and between the two world wars combined with exceptional growth rates in the post-war period led to a decline in the inheritance flows. With the recovery of asset prices and the low growth in the 1980s and 90s however, the trend was reversed and inheritance flows returned towards previous levels.

It is not obvious that the same pattern is present in other countries than France. Piketty argues that a U-shape should be found in continental European countries that were hit by similar growth and capital shocks. Atkinson's (2013) paper on the long-run development of inheritance flows in the UK supports this theory. UK, who was hit by the same mid-century fall in asset prices but did not experience war destruction to the same extent, experienced a U-shape that is less pronounced. Regardless of what shocks a country is exposed to, the same logic applies. In countries with large economic and/or demographic growth rates, like China or India, inheritance will only make up a small fraction of national income. On the contrary, low-growth countries like Spain or Italy will face increasing inheritance flows.

What about Norway? Compared to other European countries, Norway is often an outsider. The economic growth has been less affected by the financial crisis than in most other countries, and the demographic growth is relatively high. Applying the  $r > g$  logic, the inheritance flow in Norway today is expected to be lower than in France and much of continental Europe.

### 3 The development of wealth and inheritances in Norway

#### 3.1 Official inheritance statistics

Norway is one of few countries that for a long time taxed both inheritances (wealth transfers) and wealth itself. On January 1st 2014, the inheritance tax was abolished. However, the fact that such a tax has been operative provides us with a valuable data source on the development of inheritances over time. And in contrast with other countries that must rely on self-reported data in small sample surveys, these data cover the whole population.

In the official inheritance statistics published by Statistics Norway, we find data on aggregate inheritances and gifts subject to taxation. In Table 1 these sizes are reported for the period 1997-2011, together with the average size of inheritances and inter-vivos gifts per recipient. The size of average registered inheritances and gifts are overall increasing, but there is no apparent trend over time. The table has one major drawback. Since

it shows only the gifts and inheritances subject to taxation, changes in the thresholds of tax exemptions and tax rates are causing jumps in the average transfers (see section 2.2 Overview of Norwegian inheritance tax law and tax rules). When only tax liable transfers are registered, an increase in threshold for tax exempt gifts and inheritances will necessarily lead to an increase in the average reported transfer, and a decrease in the number of tax liable transfers. What at first glance might look as a massive increase in average inheritances and gifts from 1998 to 2011 is therefore mostly driven by changes in thresholds. Thus, the results from year to year are not comparable.

TABLE 1: INHERITANCES AND GIFTS SUBJECT TO TAXATION IN NORWAY 1997 – 2011

Year	Registered inheritances	Registered gifts	Recipients inheritances	Recipients gifts	Average inheritance	Average gift
	mill NOK	mill NOK			mill NOK	mill NOK
1997	9769	5114	21683	9648	0,4505	0,5300
1998	10698	3509	23499	7632	0,4552	0,4597
1999	10438	4412	14683	6319	0,7109	0,6982
2000	11302	5043	16069	7095	0,7033	0,7108
2001	12346	4942	17832	7229	0,6923	0,6836
2002	13194	4892	19297	7202	0,6837	0,6793
2003	12128	5781	15427	7071	0,7861	0,8176
2004	13482	6682	16394	7797	0,8224	0,8571
2005	15116	10660	17856	11807	0,8466	0,9029
2006	14783	7443	17359	8888	0,8516	0,8374
2007	18004	9387	20415	10346	0,8819	0,9074
2008	14065	6630	18977	7422	0,7412	0,8933
2009	18260	8291	12955	6056	1,4095	1,3690
2010	19274	8610	13574	6262	1,4199	1,3750
2011	20601	9585	15252	6967	1,3507	1,3758
$\frac{2011}{1997}$	2,11	1,87	0,70	0,72	3,00	2,60

Sources: Statistics Norway (2013) and Statistics Norway (2000). All values measured in 2012 prices.

Since I could not rely on the inheritance tax statistics to find out if there is a general increase in size of average inheritances and gifts over time, I was lucky to find data covering also tax exempt transfers. In Table 2, both tax liable and tax exempt gifts and inheritances are included. Comparing Table 1 and 2, we see that the overall increase is similar for both types of transfers. Even if the increase in average gifts and inheritances decrease when we include tax-exempt transfers, we still see a doubling from 1997 to 2011. While average gifts are steadily increasing during the period, inheritances are actually decreasing from 2009. Much of the decrease can be explained by an increase in the

number receiving inheritances, and some might be explained as normalization after the large jump in aggregate inheritances from 2008 to 2009.

In 2009, both inheritance tax rates and thresholds for tax liability changed. The jumps in average gifts and inheritances in 2009 correspond to the changes in thresholds that year (see Table 3). Looking at gifts, one might suggest that individuals respond to inheritance tax incentives by maximizing their transfers up to the threshold for tax liability. In fact, the average gift given in 2009-2011 is extremely close to the threshold for tax exemptions (NOK 470 000). In the case of inheritances, the jump in 2009 raises average transfer value from almost exactly the second tax rate threshold in 2008 to a little above the new surtax threshold in 2009. The reduction in tax rates in 2009 is also likely to have increased inheritances and gifts (see Table 3).

TABLE 2: ALL REGISTERED INHERITANCES AND GIFTS IN NORWAY 1997 - 2011

Year	Total inheritances	Total gifts	Recipients inheritances	Recipients gifts	Average inheritance	Average gift
	mill NOK	mill NOK			NOK	NOK
1997	11414	7395	43795	30460	260620	242773
1998	12210	5613	46456	26685	262837	210349
1999	13879	9124	41816	34435	331906	264965
2000	14392	9565	40048	33944	359356	281779
2001	15158	9320	39495	32444	383802	287278
2002	15622	9258	38124	32364	409772	286044
2003	15118	11451	34123	36975	443051	309701
2004	16175	12452	32619	37889	495881	328633
2005	17461	17739	33074	51338	527935	345541
2006	16731	13178	29982	37644	558049	350073
2007	21209	16652	35823	45061	592039	369545
2008	17237	12326	31367	34744	549514	354754
2009	23360	18529	28789	39680	811413	466955
2010	25207	18213	33285	37920	757294	480294
2011	28757	19705	53765	40590	534863	485461
$\frac{2011}{1997}$	2,52	2,66	1,23	1,33	2,05	2,00

Sources: Inheritance register, Statistics Norway. All values measured in 2012 prices.

### 3.2 Overview of Norwegian inheritance law<sup>2</sup> and tax rules

In Norway, there are three groups of inheritors. The first group is lineal descendants (livsarvinger), i.e. children, grandchildren and great grandchildren of the deceased. The

<sup>2</sup>Overview of inheritance law is following The Inheritance Act (1972).

second group is the deceased's parents and their descendants, accordingly the deceased's siblings, siblings' children and grandchildren. The third group is the deceased's grandparents and their children and grandchildren, which means uncles, aunts and cousins of the deceased. If the deceased leaves inheritors in one group, the estate is not distributed to successive groups. Inheritors in the second (third) group will therefore not inherit as long as there are any inheritors in the first (first or second) group. Within each group, the estate is distributed equally to inheritors with the same family relation to the deceased. If the deceased had four children, they each inherit the same amount. If one or more of the children are dead, their children will inherit the portion otherwise received by the parent. If there are no inheritors in the first group but both parents are alive, each parent inherits the same amount. If only one parent is alive, half of the estate goes to that parent and the other half goes to lineal descendants of the other parent.

If the deceased was married, his or her share of the common property and any separate property will be distributed. If the deceased leaves children or grandchildren, the surviving spouse inherits one fourth of the deceased's estate but at least four times the base rate  $G^3$ . If the deceased leaves no lineal descendants but inheritors in the second group, the spouse inherits half of the deceased's estate, and at least six times the base rate. From 01.05.2013, the base rate is NOK 85 245, meaning that  $4G$  is equivalent to NOK 340 980, and  $6G$  is equivalent to 511 470. If the deceased leaves a spouse and all inheritors are in the third group, the surviving spouse inherits everything. The spouse may retain an undivided life estate (uskiftet bo) in marital property that is not distributed until the surviving spouse dies. In this case, the surviving spouse does not inherit from the deceased spouse. If the deceased had children from other relationships, these heirs may claim their share of the inheritance before the surviving spouse dies.

In Norway, the spouse or children cannot be disinherited even if the deceased leaves a written will. Up to a maximum of 1 mill NOK for each child of each parent, the children may claim a minimum inheritance of  $2/3$  of what the parent leaves behind. If the deceased leaves no spouse or inheritors and no written will, the State inherits everything.

The first regulation of inheritance in Denmark-Norway came in 1792. In the beginning, gifts were tax exempt and lineal descendants were not included in the tax base. First in the beginning of the twentieth century were inter-vivos taxed, and transfers to children tax liable. In the interwar period, tax rates increased dramatically and the differences in rates between groups of recipients were large. From 1940 to the present law of 1965 the inheritance tax rates reached their highest levels. From 1965, the rates gradually declined and the differences between groups were reduced. In the period I look at in this thesis, there are only two groups of inheritors and the gap between tax rates is small. In Table

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<sup>3</sup> $G$  is the annual "basic amount" (grunnbeløp) in social security.

3 above, I have listed the inheritance tax rates applying to the two groups of inheritors from 1998 - 2012.

TABLE 3: INHERITANCE TAX RATES AND THRESHOLDS 1998-2012

Year	Group	Exempts	1. level	2.level
1998		0 - 100 000	100 - 400 000	400 000 -
	Children, foster children, parents	0 percent	8 percent	10 percent
	Others	0 percent	20 percent	30 percent
1999		0 - 200 000	200 - 500 000	500 000 -
	Children, foster children, parents	0 percent	8 percent	10 percent
	Others	0 percent	20 percent	30 percent
2003		0 - 250 000	250 - 550 000	550 000 -
	Children, foster children, parents	0 percent	8 percent	10 percent
	Others	0 percent	20 percent	30 percent
2009		0 - 470 000	470 - 800 000	800 000 -
	Children, foster children, parents	0 percent	6 percent	8 percent
	Others	0 percent	10 percent	15 percent

Sources: Skatteetaten (2014a) and NOU 2000:8 (2000).

Before the inheritance tax was abolished from 01.01.2014, most gifts and inheritances were subject to taxation. Exceptions were inheritance to surviving spouses and spousal equivalents<sup>4</sup> and receivers with objective of public utility. The Norwegian inheritance taxation was recipient based, meaning that the total gift and inheritance received by one individual from one donor constituted the tax base. In comparison, under estate taxation it is the total estate left by the deceased that makes up the tax base. Inter-vivos given to lineal descendants of the donor or donor's spouse/spousal equivalent and receivers mentioned in the written will at the time of transfer were subject to taxation. Gifts to lineal descendants or spouse/spousal equivalent of lineal descendants of other recipients and gifts to companies, trusts or foundations in which any of the above-mentioned had interests were also tax liable. Any gift transferred within the last six months of a donor's life was tax liable, independent of recipient. If the recipient or its spouse/spousal equivalent were mentioned in the written will, inter-vivos given within the last five years were tax liable. Interest-free loans, benefits of a loan with below-market interest rate, debt release and sales below market value were all included in the gift conception. Annual amounts up to 0.5 G were tax exempt.

<sup>4</sup>Spousal equivalents are unmarried cohabitants that have or used to have children together, or used to be married. Also unmarried cohabitants living in partnership for at least two years continuously count as spousal equivalents.

In Table 3 we see that there were two thresholds applying to both groups between 1998 and 2012, one separating tax exempt from tax liable tax transfers (level 1) and one separating transfers subject to lower taxation from those more heavily taxed (level 2). From 1998 to 2008, the first tax level was 8 percent for children, foster children and parents whereas it was 20 percent for others. Above the second threshold children, foster children and parents paid 10 percent tax, while others paid 30 percent. In 2009, the tax rates were lowered to 6 and 8 percent for children, foster children and parents, and to 10 and 15 percent for others. The thresholds for tax liability changed in 1998, 1999, 2003 and 2009. Both the changes in tax rates and thresholds affect the official inheritance tax statistics and make it difficult to interpret. The reduction in tax rates in 2009 clearly had an impact on incentives to transfers, and explains some of the increase in both average and aggregate inheritances this year. But the changes in thresholds are what really complicate the statistics. In 1998, the first NOK 100 000 of an inheritance were tax exempt. In 2009, the exempted amount had increased to NOK 470 000. The threshold for the inheritance “surtax” doubled within the same period, from NOK 400 000 to NOK 800 000. Let us take inheritances in 1999 as an example. This year, NOK 200 000 was tax exempt. We know that the number of individuals receiving (taxable) inheritances in 1999 was 14683. Each of these individuals received NOK 200 000 without having to pay taxes, which means that inheritances around NOK 3 000 000 000 were not registered in the inheritance tax statistics. Then we have all individuals receiving NOK 200 000 or less. From the population statistics (Statistics Norway 2014a) we know that 45 170 individuals died in 1999. If we assume that the deceased left inheritances to on average 4 recipients each, around 166 000<sup>5</sup> were left with inheritances less than or equal to NOK 200 000. If the average bequest received by those was NOK 100 000, another NOK 16 600 000 000 escaped the inheritance tax register. The fact that tax exempted inheritances are not registered would not be a problem if the thresholds remained the same. In that case, total inheritances would be higher than reported in the inheritance statistics each year but the change in aggregate inheritance flow would be unaffected. Since the first threshold increased by 370 percent during the period 1998-2012, it is obvious that the inheritance statistics from year to year are not comparable. Since inheritances up to NOK 470 000 were tax exempt in 2009-2013, the non-registered bequests in this period are likely to make up a much larger share of total inheritances than in 1998 when the threshold for tax exemptions was NOK 100 000.

We saw in Table 1 that taxable aggregate inheritances doubled from 1999 to 2011. Including tax exempt inheritances, the increase is 150 percent. The actual increase is

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<sup>5</sup>14683/4=3670,75 individuals leaving inheritances  $\geq$  NOK 200 000. This means that the recipients of the 45170-3671=41499 deceased were left with less than NOK 200 000. In total 41499\*4=165996 recipients.

therefore higher than what it seems like in the official inheritance statistics, but disguised by the changes in tax exempted amounts. At the same time, the reduction in tax rates in 2009 is likely to have increased both types of transfers and partly explain some of the increase from 2009.

### 3.3 Wealth statistics

An increase in inheritances would be concurrent with an increase in overall wealth. The National Accounts (Statistics Norway, 2014e) provide aggregate financial wealth statistics for households' and non-profit organizations serving households. Gross financial wealth, the composition of financial assets and debt from 1998 to 2012 are listed in Table 4. The different assets adding up to total financial wealth are currency and deposits, securities other than shares, outstanding claims, shares and equity, and other accounts. Debt is listed in the right column.

The relative change in households' holdings of financial wealth over the period is listed in the last row. In real terms, financial wealth increased by 121 percent from 1998 to 2012. Except from the financial crisis in 2008, the trend is positive. While holdings of all assets increased, the composition changed. Securities and outstanding claims increased until 2005, and decreased afterwards. Currency and deposits, the assets contributing the most to total wealth, were steadily increasing. Outstanding claims more than ten-doubled during the period, despite the downward trend from 2005 to 2011. It is also worth noting that debt is increasing faster than gross financial wealth.

Real wealth is not usually reported as part of the official National accounts statistics, but Statistics Norway's macro model KVARTS use estimated time series for real wealth, mainly housing wealth. Since housing wealth is a significant part of households' total wealth and affects the level of activity through a wealth effect on household consumption, it is important to understand its development. Table 5 shows total household net wealth including this estimated measure of real wealth. Housing wealth is increasing by 162 percent, and grows faster than financial wealth. A similar growth in net wealth is prevented by the even faster-growing debt, and overall net wealth rises by 129 percent from 1998 - 2012. Going back to Table 2 we find that aggregate inheritances are more rapidly increasing than net wealth over the period, resulting in a growing inheritance-wealth ratio.

TABLE 4: GROSS FINANCIAL WEALTH BY ASSETS 1998 - 2012

Year	Gross financial wealth		Currency Deposits		Securities		Assets		Shares Equity		Other accounts		Debt Total liabilities	
	mill NOK	mill NOK	mill NOK	mill NOK	mill NOK	mill NOK	mill NOK	mill NOK	mill NOK	mill NOK	mill NOK	mill NOK	mill NOK	Mill NOK
1998	863863	477053	11485	7959	225612	141754	976277							
1999	963674	510708	14594	7617	283570	147186	1028122							
2000	1036458	534696	22775	10049	306108	162830	1112319							
2001	1061050	562266	26089	14326	291377	166992	1200381							
2002	1115165	613288	27359	21586	267848	185083	1298748							
2003	1208546	631606	33114	39945	297256	206623	1393605							
2004	1351445	661246	37192	72378	343425	237204	1548931							
2005	1535302	690656	41973	113510	425492	263672	1723466							
2006	1663467	738034	41858	106096	462302	315177	1905165							
2007	1781196	802860	34129	104059	478932	361217	2115985							
2008	1682160	841927	24045	97209	355660	363319	2173217							
2009	1789779	847589	21095	91266	426377	403452	2243961							
2010	1815017	870305	20380	85982	457403	380947	2343191							
2011	1833450	927873	16468	83478	412257	393373	2486971							
2012	1913414	984425	17170	85975	419638	406206	2649538							
2012 1998	2,21	2,06	1,50	10,80	1,86	2,87	2,71							

Source: Statistics Norway (2014d). All values measured in 2012 prices.

TABLE 5: HOUSEHOLD WEALTH 1998-2012

	Gross financial wealth	Real wealth	Total debt	Net wealth
Year	mill NOK	NOK mill	mill NOK	mill NOK
1998	863863	1454849	976277	1846689
1999	963674	1708355	1028122	2166568
2000	1036458	1837711	1112319	2381275
2001	1061050	1945893	1200381	2401652
2002	1115165	1997069	1298748	2417718
2003	1208546	2051317	1393605	2530303
2004	1351445	2287855	1548931	2823692
2005	1535302	2477689	1723466	3112258
2006	1663467	2870385	1905165	3475908
2007	1781196	3115013	2115985	3746772
2008	1682160	2832819	2173217	3285712
2009	1789779	3133781	2243961	3629241
2010	1815017	3290450	2343191	3790362
2011	1833450	3549192	2486971	3964128
2012	1913414	3806736	2649538	4246055
$\frac{2012}{1998}$	2,21	2,62	2,71	2,30

Source: Statistics Norway (2014d) and KVARTS, Statistics Norway. All values measured in 2012 prices.

### 3.4 Wealth statistics – micro data

Wealth statistics based on tax records give a more detailed picture of the distribution of wealth on different subgroups of the population and thus also on the potential estates. Statistics Norway’s property account (Statistics Norway, 2014a) shows households’ estimated gross and net wealth based on values of financial capital taken from individual tax records and the estimated housing values that are used for tax purposes.

Before 2010, Norwegian housing wealth was estimated using the assessed value from tax returns rather than market value. Previous research reported assessed valuation to constitute around 20 percent of the real housing value (Thomassen and Melby, 2009). The geographical differences in gaps between assessed and estimated values were substantial. In Oslo, housing wealth was assessed as 13 percent of estimated real value. Dwellings in Hedmark and Oppland, however, were assessed to around 26 – 28 percent of real value. In Table 6, households’ aggregate estimated gross wealth and net wealth by asset type from 2010 to 2012 are reported. Over these three years, increasing market value of primary and especially secondary dwellings results in rising housing wealth.

In order to get an idea about the size of potential estates one may combine age-

TABLE 6: HOUSEHOLDS' ESTIMATED WEALTH 2010 - 2012

Asset type	2010		2011		2012	
	NOK mill	NOK mill	NOK mill	NOK mill	NOK mill	NOK mill
<i>Estimated real capital</i>	4326166	4664838	5119020			
Estimated market value primary dwelling	3576712	3860977	4229032			
Estimated market value secondary dwelling	382155	430510	506258			
<i>Taxable gross financial capital</i>	1692065	1726477	1806939			
Bank deposits	742368	794672	853896			
Share of unit trusts, bond and money market funds	108648	87019	93133			
Foreign taxable wealth	43336	35625	35397			
Shares and other securities	627515	643177	658124			
<i>Estimated gross wealth</i>	6018230	6391316	6925959			
<i>Debt</i>	2197186	2330211	2485133			
<i>Estimated net wealth</i>	3821045	4061105	4440826			

Note: Figures for 2012 have been corrected. Source: Statistics Norway (2014a). All values measured in 2012 prices.

TABLE 7: AVERAGE NET WEALTH, POPULATION AND DEATH SHARES BY AGE GROUPS

Age	Net wealth			Population				Deaths			
	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2012
	average NOK mill	average NOK mill	average NOK mill	share of population	share of population	share of population	share of population	share of population	share of population	share of deaths	share of deaths
< 25	0,19	0,19	0,25	0,33	0,33	0,33	0,014	0,014	0,012	0,014	0,012
25-34	0,40	0,43	0,50	0,14	0,14	0,14	0,011	0,011	0,009	0,011	0,009
35-44	1,22	1,26	1,36	0,15	0,15	0,15	0,019	0,020	0,018	0,019	0,018
45-54	2,10	2,18	2,29	0,14	0,14	0,14	0,044	0,044	0,041	0,044	0,041
55-66	2,78	2,89	3,07	0,12	0,12	0,12	0,102	0,100	0,101	0,102	0,101
67-79	2,79	2,95	3,17	0,07	0,07	0,07	0,186	0,183	0,182	0,186	0,182
80 +	2,21	2,36	2,57	0,05	0,05	0,05	0,628	0,636	0,636	0,628	0,636

Sources: Statistics Norway (2014a,b and c). All values measured in 2012 prices.

specific wealth and age-specific mortality rates. In the first column in Table 7 I have listed households' average net wealth for different age groups, found in the wealth statistics. Net wealth is increasing from year to year for all age groups, and increasing with age except from the highest age group. Individuals between 67 and 79 years of age are in other words holding the highest average net wealth. The two next columns in Table 7 report the share of total population and share of deaths occurring in each age group.

The annual ratio of wealth of the deceased to wealth of the living is an important factor when estimating the inheritance-income ratio using Piketty's (2011) method. Average net wealth of the deceased is found by summing over average net wealth multiplied by the share of deaths in each age group. Likewise, I multiplied average net wealth by the share of population in each age group and summed over to compute the average wealth of the living. The resulting ratio of wealth of the deceased to wealth of the living is found in Table 8. For the three years in which I have data the wealth of the deceased is around 90 percent higher than wealth of the living. As the ratio does not seem to follow any trend, I will in the calculations of the inheritance flow in section 5.3 use the mean ratio listed in the right column.

TABLE 8: THE RATIO OF WEALTH OF THE DECEASED TO WEALTH OF THE LIVING

	Wealth ratio			
	2010	2011	2012	mean
Wealth of the deceased/ wealth of the living	1,88	1,90	1,89	1,89

Sources: Statistics Norway (2014a,b and c)

## 4 Examining inheritance tax planning behavior

According to the estimated ratio of wealth of the deceased to wealth of the living we would expect inheritances to be quite substantial. However, according to Table 2, the average inheritance is still rather modest and does not seem to increase steadily over time. One explanation may be that the bequeathed estates lack a substantial amount of actual wealth transfers if the wealthy are successful at avoiding inheritance tax by tax planning.

In this section I combine information from the inheritance tax registry in 2010 with the previous wealth histories of the deceased individuals in 2010. The wealth information is taken from the registry of tax records.

## 4.1 Avoidance opportunities

Before the abolishment of the inheritance tax in 2014, there were different ways to transfer wealth outside of the gift and inheritance taxation system. One avoidance possibility was converting assets into non-listed stocks<sup>6</sup>. While the basis for taxation of listed stocks and equity was market value at the time of transfer, taxation of non-listed stocks were based on assessed valuation January 1 the current year. Receivers of non-listed stocks were also offered a tax discount. Until 01.01.2009, one could choose between letting 30 percent or 100 percent of the assessed value of non-listed stocks make up the tax base. From 2009, the discount decreased and at least 60 percent of assessed valuation up to NOK 10 mill went into the tax base. Non-listed stocks with valuation exceeding NOK 10 mill got no discount. Transferring non-listed stocks as inter-vivos or inheritances therefore substantially reduced the tax liabilities, both due to assessed valuation and the tax discount, in particular before 2009. In addition, transferring non-listed stocks in a year with appreciation would create further gains.

By transferring wealth during life, one could also avoid inheritance taxation. As mentioned previously, annual inter-vivos gifts from one donor to one recipient up to 0.5 G were tax exempt. A married couple with three children and eight grandchildren could therefore in 2013 each transfer NOK 42 622.5<sup>7</sup> to each of their children and grandchildren (or anyone else for that matter) without being subject to taxation. This way, the couple could legally “get rid of” NOK 937 695 in one year.

Even if it does not represent reducing the estate, spreading wealth on as many individuals as possible was a third way of reducing the tax base. By juggling wealth transfers between recipients, donors could make each recipient avoid the next tax threshold. Assume that an individual dies in 2010 with values of NOK 40 mill in non-listed stocks. By splitting this wealth evenly into four inheritances of NOK 10 mill, each of the recipients got the 40 percent tax discount. Another individual leaves bank deposits and a house with a total value of NOK 2 mill. If she has two children who each inherits NOK 1 mill, they both pay nothing on the first NOK 470 000, 6 percent tax on the next NOK 330 000 and 8 percent tax on the last NOK 100 000. The total tax paid on their mother’s estate is then NOK 55 600. If the estate is spread on three recipients, however, they each inherit less than NOK 800 000 and will pay no tax on the first NOK 470 000, and 6 percent on the next NOK 196 667. Total tax paid on the estate is now NOK 35 400. Had she left equal bequests to four recipients, they would each inherit NOK 500 000. Since only NOK 30 000 per inheritance is tax liable, the total inheritance tax paid would be NOK 7 200.

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<sup>6</sup>Following Skatteetaten (2013).

<sup>7</sup>From 01.05.2013, the base rate G is NOK 85 245 (Skatteetaten 2014b).

## 4.2 Data

My main data source is a combination of the inheritance tax register in 2010 and tax records for the decedent over the period 2004-2010. Since the inheritance tax is levied on the recipient, the tax register is organized into one case for each inheritance, instead of by estate. According to the law of undivided estate, inheritances are given from both parents at the time of death of the last surviving parent. For instance, if the last surviving parent of a married couple had two children there will be 4 inheritances, one from each parent to each child. Furthermore, the register contains information about the kinship of the recipient, the asset composition of the inheritance and the sum of inter-vivos gifts received earlier. Here, this information is aggregated up to assess the size, composition and number of recipients of the whole estate. The asset composition is grouped into:

- Bank deposits
- Funds (stock market and money market funds)
- Outstanding claims (insurance and other claims)
- Stocks (registered in VPS)
- Unlisted stocks (not registered in VPS)
- Vehicles (cars, boats, motorcycles etc)
- Housing<sup>8</sup>
- Summer homes
- Other real estate (farms, lots, business estate)
- Other assets (other assets and tangible business assets)
- Debt

These asset categories are compared to equivalent asset categories in the decedent's tax records in the years 2004-2010. In cases where the donor leaves an undivided estate, the asset history represents the combined assets of both spouses.

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<sup>8</sup>In the tax records housing wealth is represented by a tax value (ligningsverdi) that is approximately 0,2-0,25 of the market value. Here the tax value is thus multiplied with 4. In the inheritance records this is usually represented by a modest market value.

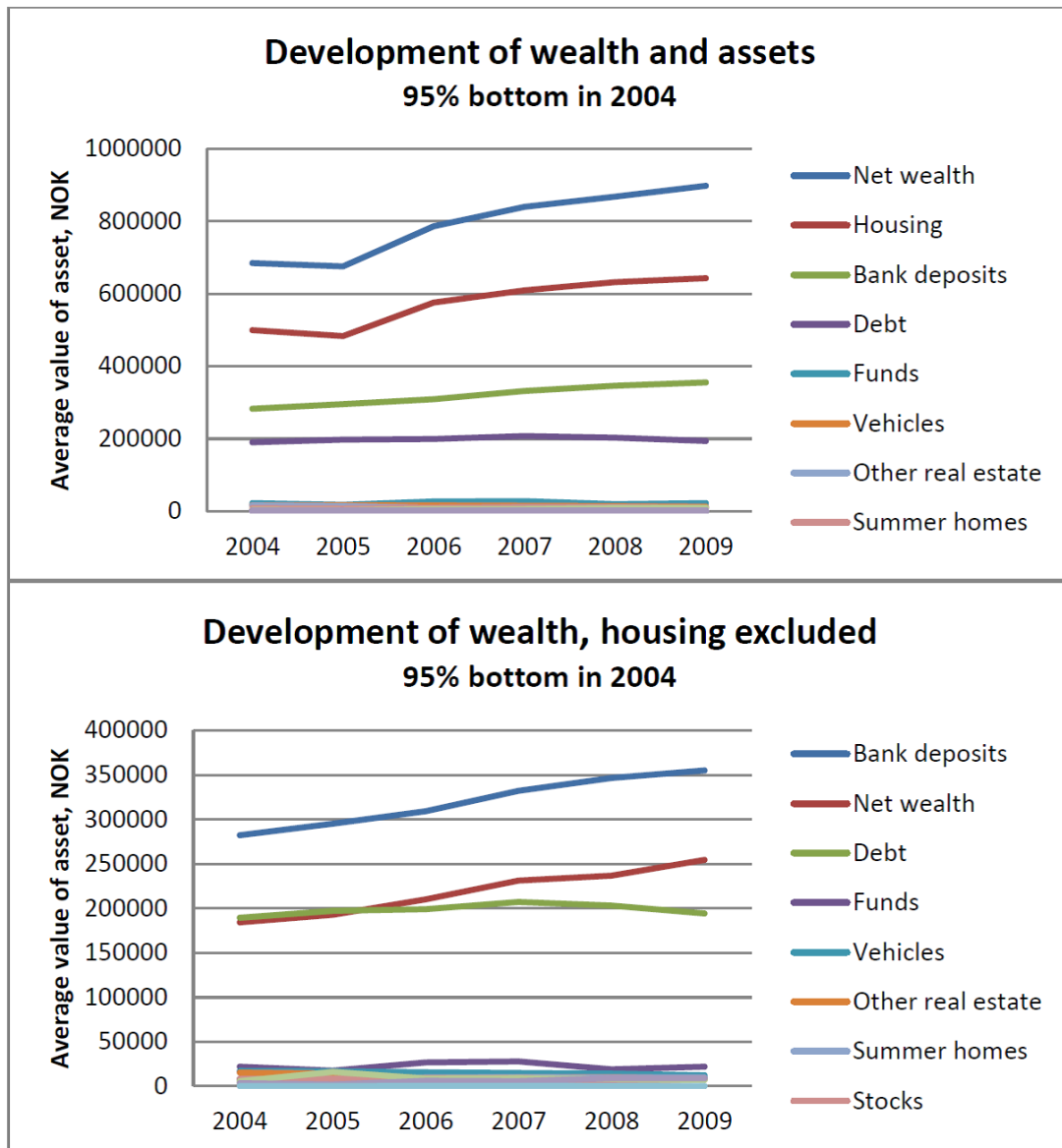
I am interested in finding out if and how individuals avoid the inheritance tax. Since it seems likely that wealthier individuals have greater incentives to tax plan than the rest of the population, I separate the top 5 percent wealthiest in 2004 from the rest. The groups obviously differ in amounts of wealth holdings, but I want to compare them to see whether there are any differences in the development of asset holdings during the last period of life that might indicate tax avoidance among the wealthiest.

All tax planning aim to reduce the amount subject to taxation. One major avoidance opportunity I will look into here is converting assets into non-listed stocks. Even though this does not reduce the actual estate, I will also see whether richer individuals spread their wealth on more recipients than the less wealthy and thus reduce their recipients' tax base.

#### **4.2.1 Tax avoidance by converting assets**

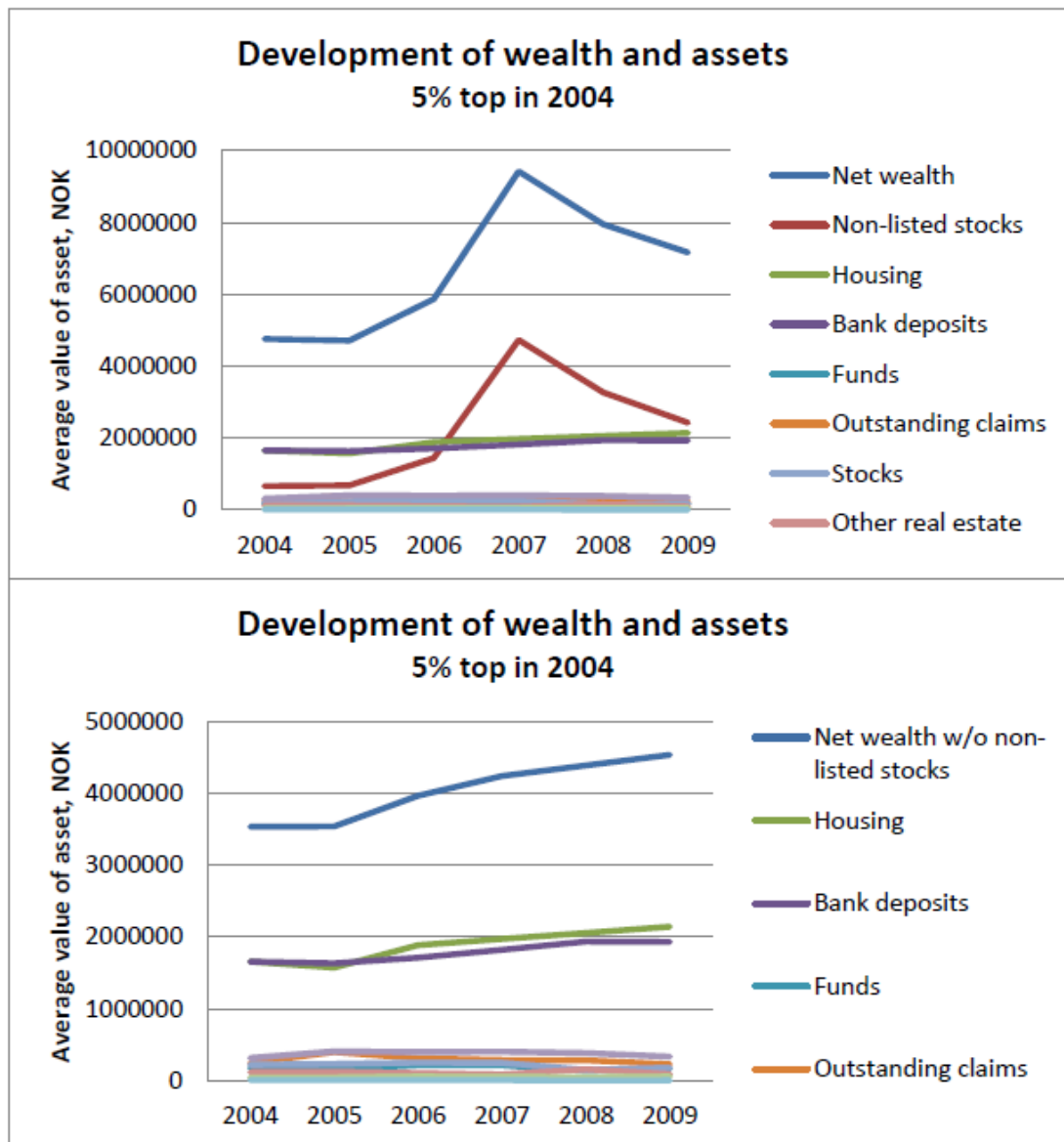
I start by looking at how average net wealth and composition of wealth assets develop in the two groups over time. First I look at the population not included in the top 5 percent wealthiest in 2004. In Figure 1, we see that individuals are accumulating wealth until they die. This is in contradiction to the life-cycle model, which states that individuals spend the last period of their lives dissaving (Modigliani and Brumberg, 1954). Since the increase in net wealth in the first panel is mainly driven by an increase in housing wealth, I have excluded housing from the second panel to more clearly see the development of other assets. Without housing wealth there is still a real term increase in net wealth, now driven by the increase in bank deposits and a reduction in debt. For the top 5 percent wealthiest we see a different pattern. Net wealth is sharply increasing until 2007 and starts decreasing in 2008. And there is only one of the wealth components driving this trend. While housing wealth and bank deposits are both steadily increasing, non-listed stocks have a high growth in 2005 and an explosive growth in 2006 resulting in a net wealth peak in 2007. Then, non-listed stocks and net wealth starts declining. Apart from non-listed stocks the wealth accumulation is steadily increasing until death also among the wealthiest.

As mentioned above, converting assets into non-listed stocks was a way to reduce taxable transfers since taxation was based on assessed valuation, and receivers were offered a tax discount. Before 2009, receivers of non-listed stocks could choose between letting 30 percent and 100 percent of the non-listed stocks assessed value make up the tax base. From 2009, only non-listed stocks up to NOK 10 mill were offered a discount and the discount was reduced from 70 percent to 40 percent. The incentives to invest in non-listed



Source: Inheritance tax register 2010 and tax records 2004-2010. All values measured in 2012 prices.

FIGURE 1: AVERAGE NET WEALTH AND WEALTH ASSETS FOR THE BOTTOM 95 PERCENT OF THE WEALTH DISTRIBUTION IN 2004



Source: Inheritance tax register 2010 and tax records 2004-2010. All values measured in 2012 prices.

FIGURE 2: AVERAGE NET WEALTH AND WEALTH ASSETS FOR THE TOP 5 PERCENT OF THE WEALTH DISTRIBUTION IN 2004

stocks were therefore reduced from 2009. The reform was announced October 7. 2008, implying that tax avoiders could transfer non-listed stocks at the end of 2008 to reduce tax liabilities. The reduction in non-listed stocks and net wealth the last years before the wealthiest individuals passed away might indicate tax avoidance through transferring favorably taxed assets. Any decline in wealth in 2008 is also likely to be related to the financial crisis, however. It is difficult to say how much of the increase in value of non-listed stocks before 2008 amongst the wealthy that is due to a conversion into non-listed stocks for tax planning purposes and how much is merely a result of an economic boom. Likewise, the declining net wealth in 2008 and 2009 could be a result of recession rather than distribution of wealth.

TABLE 9: RATIO OF SIZE OF ASSET EACH YEAR TO SIZE OF ASSET IN ESTATE, BOTTOM 95 PERCENT IN 2004

Year	Housing	Bank deposits	Stocks <sup>9</sup>	Funds	Outstanding claims	Vehicles	Other real estate	Total net wealth
2004	1,49	2,03	6,98	5,22	0,18	2,46	0,72	1,50
2005	1,5	2,21	4,63	4,31	0,52	2,52	0,69	1,48
2006	1,87	2,42	12,34	6,94	0,29	2,45	0,44	1,72
2007	2,07	2,72	12,04	7,5	0,32	2,46	0,52	1,84
2008	2,24	2,97	17,96	5,38	0,31	2,41	0,55	1,90
2009	2,38	3,18	19,51	6,43	0,27	2,22	0,5	1,97

Source: Inheritance tax register 2010 and tax records 2004-2010. All values measured in 2012 prices.

To further compare changes in wealth composition in the two groups over time, I look at the size of the most important assets relative to the same assets size in the estate. In Table 9, the ratios for the less wealthy group are reported. As we saw in Figure 1, housing and bank deposits are increasing relative to their share in the estates. Funds, outstanding claims, vehicles and other real estate do not seem to follow any trend. Since both non-listed and listed stocks are registered as stocks in the estate records, I combine them and report both as stocks in Table 9 and 10. And it is in stocks that the most interesting development seems to happen. While being a relatively unimportant share in the less wealthy group's wealth composition, the increase in stocks is formidable compared to other assets. This increase is interesting from an avoidance perspective. If the wealthiest' downward trend in non-listed stocks in 2008 and 2009 was simply a result of economic recession, we would expect also the stocks of the less wealthy to decrease in 2008<sup>10</sup>. What

<sup>10</sup>Ideally one should have performed an analysis on the development in wealth holdings in the years

happens is the exact opposite - the stocks of the less wealthy increase during the financial crisis.

TABLE 10: RATIO OF SIZE OF ASSET EACH YEAR TO SIZE OF ASSET IN ESTATE, TOP 5 PERCENT IN 2004

Year	Housing	Bank deposits	Stocks <sup>11</sup>	Funds	Outstanding claims	Vehicles	Other real estate	Total net wealth
2004	0,91	1,09	10,64	3,76	0,81	1,78	0,64	0,77
2005	0,9	1,12	11,3	3,53	1,36	1,85	0,68	0,77
2006	1,12	1,23	24,91	4,98	1,12	1,88	0,6	0,95
2007	1,23	1,37	85,19	5,23	1,07	1,96	0,51	1,53
2008	1,34	1,52	61,59	3,48	1,12	1,94	0,99	1,29
2009	1,46	1,58	47,78	4,36	0,94	1,72	0,61	1,16

Source: Inheritance tax register 2010 and tax records 2004-2010. All values measured in 2012 prices.

Note: both listed and non-listed stocks included.

In Table 10 the development in wealth composition for the wealthiest is reported. The increase in housing and bank deposits and variation in funds, outstanding claims, vehicles and other real estate is comparable to that of the less wealthy. Again, what we are interested in is mainly the development of stocks. As seen in Figure 2, the growth in stocks is massive from 2004 to 2007. In 2008 and 2009 the trend is reversed, and stocks are decreasing. The fact that the two groups face opposite trends around the financial crisis is interesting and might indicate that the fall in non-listed stocks for the wealthiest from 2008 is a result of tax planning. However, preferences for stocks might be heterogeneous across groups and the more wealthy individuals might hold stocks more exposed to recession such that the decline is simply due to a fall in asset prices.

The right column in Table 9 and 10 show total net wealth relative to estate. The less wealthy experience an increasing ratio: net wealth constituted 150 percent of estate in 1998, 184 percent in 2006 and almost 200 percent in 2012. The wealthiest, on the other hand, start off with a net wealth that is lower than the size of the estate, peak with a ratio of 150 in 2007 and declines towards one from 2008. As before, the differing trends among the groups may indicate tax avoidance among the wealthiest. The total ratio of net wealth to estate, however, is higher among the less wealthy which could be a result of substantial tax planning also among this group. Alternatively, the high ratio could also be due to higher relative costs related to death and the probate process among the less wealthy. As a cautious measure of tax avoidance, I calculated the sample mean of the net wealth - estate ratio in my data set. Including both groups, the mean ratio is 1,463.

prior to death for the deceased in many periods to avoid the particular development in one specific period. This proved to be outside the scope and time frame of this thesis.

In calculations of the inheritance flow in chapter 5, I will use this ratio to adjust for tax avoidance.

#### 4.2.2 Reducing the inheritance tax base by spreading wealth

While spreading wealth reduces the tax liability for the recipient, it differs from conversion of assets by not reducing the size of the estate. It thus represents an adjustment rather than an avoidance act. By making sure that all recipients receive transfers that are lower than the tax liable threshold, an individual could avoid inheritance tax on his estate altogether. Since I only have data on the average number of recipients on each estate and do not know the size of each inheritance, I look at the average number of inheritances from each estate for both groups of individuals.

TABLE 11: AVERAGE NUMBER OF INHERITANCE RECIPIENTS

Group	Average inheritors
Bottom 95 percent in 2004	3,646
Top 5 percent in 2004	5,109

Source: Inheritance tax register 2010 and tax records 2004-2010.

In Table 11 we see that the wealthiest leave bequests to more recipients than the rest of the population. On average, 5,11 inheritances are received from wealthy individuals/households' estates while the rest of the population spread their estate on 3,65 individuals. These numbers of inheritances are both quite low, however. If the last surviving parent in an undivided estate has two children, the estate is divided into four inheritances, one from each parent to each child. The higher number of average inheritances left by the wealthiest could thus be a result of a higher share of individuals living in undivided estates or higher fertility amongst the wealthiest, rather than actual tax planning.

## 5 Imputing aggregate inheritance as a share of income

### 5.1 Introduction

According to Piketty and Zucman (2013), wealth-income ratios of the nine largest economies in the world have been rising gradually over the last four decades, from 200-300 percent in 1970 to 400-600 percent in 2010. They attribute this increase to the declining economic

growth in Europe, and explain the trend as follows: Changes in capital policy during the 1900s led to first a decline and then an increase in relative asset prices. Up until World War I capital markets were freely flowing, but asset prices decreased through the 1970s after anti-capital policies were put into place. As the regulations were liberated from the 1980s, the asset prices recovered. At the same time as the increase in asset prices, there has been a slowdown of productivity and population growth. Going back to the  $r > g$  logic from section 2,  $r$  has increased and  $g$  declined resulting in growing wealth-income ratios. The high wealth-income ratio strengthens the role of wealth and inherited wealth in the overall structure of inequality, and is important for future policy-making.

## 5.2 Method

I have attempted to replicate Piketty's (2011) exercise of estimating intergenerational transfers as share of national income in Norway in the period 1998-2012 using data from Statistics Norway. The basic accounting equation estimating the inheritance flow is the following:

$$\frac{B_t}{Y_t} = \mu_t * m_t * \frac{W_t}{Y_t}$$

There are three factors determining the aggregate size of inheritance as share of national income.  $B_t$  denotes intergenerational transfers and  $Y_t$  households' income.  $\mu_t$  measures the ratio between average wealth of the deceased and average wealth of the living, and  $\frac{W_t}{Y_t}$  the households' wealth - income ratio.  $m_t$  is the mortality rate. Thus, inheritance flow as share of national income is larger the richer the deceased are compared to the surviving individuals, the higher mortality rate and the higher the private wealth relative to national income.

The mortality rate is found by simply dividing the number of deaths by the total population each year. The aggregate private net wealth is the sum of households' financial wealth and housing wealth as listed in Table 5. The ratio of wealth of the deceased to wealth of the living,  $\mu_t$ , can be estimated in various ways. First, I replicated Piketty's method using estate tax data combined with age-wealth profiles and mortality rates to estimate the ratio (see 3.4 Wealth statistics - micro data). Because of the different treatment of housing values in the tax records, I only got estimates from 2010, 2011 and 2012 (the years in which the data are most reliable). The estimates did not seem to follow any trend, so I used the mean value of the estimates.

I also estimated the wealth ratio directly using tax records for some years prior to 2010. The ratio of wealth of the deceased to wealth of the living could be compared in cases where the tax records included a variable for being deceased (dødsbo). This variable was present in my data set for the years 1999, 2002 and 2004-2004. However, since a sizeable part of individuals' wealth is likely to be spent on expenses or transferred the year they die, I created a lagged variable that measured wealth of deceased individuals the year before they die. This way,  $\mu_t$  is the ratio of average wealth of individuals passing away next year to average wealth of individuals surviving next year. As in the case with the Piketty estimation,  $\mu_t$  did not seem to follow any trend so I used the sample mean for the period. One reason that the ratio is lower using this estimation than the Piketty estimation is that housing values are more poorly measured prior to 2010. Since housing is a major component in the net wealth of the deceased, net wealth of the dead is likely to be substantially underestimated.

### 5.3 Results

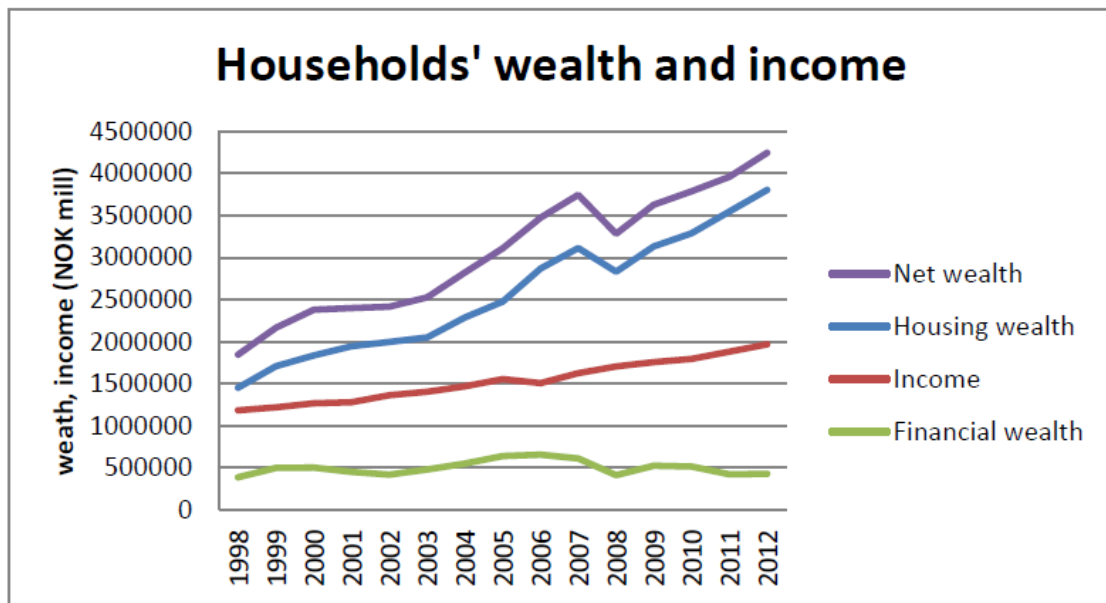
In table 12 below, I have listed the factors determining the inheritance flow. Both estimations of the ratio of wealth of the deceased to wealth of the living (denoted wealth ratio) are reported. The mortality rate is decreasing over the period. Looking at households' wealth - income ratio, we see that the overall trend is slightly increasing. To find out what is driving the trend we need to look at the development in households' net wealth and income. Figure 3 plots the changes in net wealth, financial wealth, housing wealth and income from 1998 to 2012. Both wealth and income are increasing, but the rise in wealth is more rapid than in income. It is important to note that the fact that households' income is actually increasing over this period distinguishes Norway from many other European countries. Even if net wealth is increasing, mainly driven by an increase in housing wealth, the wealth-income ratio in Norway is modest and far from the ratios described by Piketty and Zucman (2013).

The third factor determining the inheritance flow is the ratio of wealth of the deceased to wealth of the living, denoted wealth ratio. The two estimated ratios are quite different. While the wealth register data reports that the deceased on average have lower wealth than the living, the Piketty estimation yields a wealth ratio of 1,9. While the gap is partly due to the fact that the Piketty ratio includes a better measure of housing wealth, the gap might also indicate tax avoidance. If individuals transfer or reclassify wealth in order to reduce estates (and thus inheritance tax liabilities), tax register data will not give a correct picture of wealth distribution across age groups. In fact, the decrease in net wealth from the second highest to highest age group shown in Table 7 could be a result of tax planning.

TABLE 12: FACTORS DETERMINING THE INHERITANCE FLOW

Year	Mortality	Income	Wealth	Wealth/ income	Wealth ratio	Wealth ratio
		mill NOK	mill NOK		Register data	Piketty
1998	0,01	1185445	1842653	1,554	.	.
1999	0,01	1220346	2208700	1,81	0,911	.
2000	0,01	1269196	2341730	1,845	0,876	.
2001	0,01	1282111	2398883	1,871	0,9	.
2002	0,01	1363319	2417661	1,773	0,955	.
2003	0,009	1406025	2532052	1,801	.	.
2004	0,009	1469057	2838378	1,932	0,963	.
2005	0,009	1555919	3118486	2,004	0,944	.
2006	0,009	1507923	3527633	2,339	.	.
2007	0,009	1628193	3727145	2,289	.	.
2008	0,009	1707674	3245693	1,901	.	.
2009	0,009	1758667	3658464	2,08	.	.
2010	0,009	1795055	3807010	2,121	.	1,89
2011	0,008	1883097	3972085	2,109	.	1,90
2012	0,008	1968483	4236190	2,152	.	1,89
$\frac{2012}{1998}$	0,843	1,661	2,299	1,384		

Sources: Statistics Norway (2014a,b,c,d and e) and register data, Statistics Norway. All values measured in 2012 prices.



Sources: Housing wealth as estimated in Table 5. Statistics Norway (2014d and e). All values measured in 2012 prices.

FIGURE 3: HOUSEHOLDS' WEALTH AND INCOME 1998 - 2012

In Table 13 the estimated inheritance flows are reported. Column (1) and (2) show the Piketty estimations. Inheritance flow (1) is using the wealth ratio from the wealth register data, while flow (2) is using the wealth ratio estimated by Piketty's method. Inheritance flow (3) and (4) are computed by dividing the registered inheritances (3) and the total inheritances (4) by households' income. Inheritance flow (5) is based on the same register data as (4), but adjusted for tax avoidance by scaling flow (4) by 1,463, which is the measure of tax avoidance found in section 4.2.

Because of the higher estimated wealth ratio, column 2 yields an inheritance flow between 3 and 4 percent, double as high as column 1. The register data including all inheritances adjusted for tax avoidance comes next, with estimates ranging from 1,5 to 2,2 percent. The register data including also tax exempt transfers estimates an inheritance flow between 1 and 1,5 percent, whereas the official tax register data reports that inheritances amount to 1 percent of households' net income. We see that the Piketty flow is around three times as high as the flow calculated using the inheritance tax register. The gap between the Piketty replicated estimation and the official inheritance flows can be used as an upper bound of tax avoidance, whereas the adjusted flow (5) yields a lower bound of avoidance.

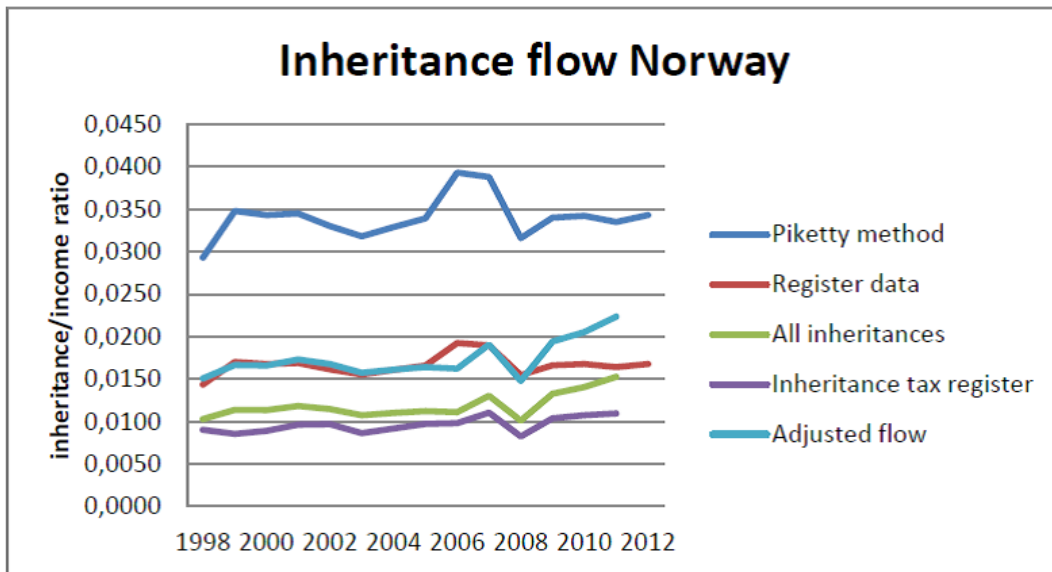
Common to all estimated inheritance flows plotted in Figure 4 is that they are relatively stable. The overall increase from 1998 to 2012 is 17 percent using the Piketty estimation. The slightly decreasing mortality rates offset by an increasing wealth-income ratio and

a stable wealth ratio result in a flat inheritance flow, at least if we disregard the peak in 2006-2007. Since the ratios of wealth of the deceased to wealth of the living were estimated using limited data, there could be an increasing trend in the real wealth ratio that I have not been able to catch in my data set. In that case, the increase in inheritance flows should have been higher. In fact, seeing as the growth in the all inheritances register flows are higher than in the Piketty estimated ones, this is not impossible. The increase of 48 percent in flow (4) and (5) might indicate that the inheritance flows are increasing. At the same time, since most of the increase takes place from 2009 one must consider the possibility that the increase might be driven by the changes in tax rates and thresholds for tax liabilities that year. The increase in inheritance flows could therefore be driven by changes in tax reform raising incentives to transfer wealth, rather than representing a general trend. Since the increase coincide with the financial crisis, however, I cannot reject the possibility that some of the increase in inheritance flows might be a result of economic recession.

TABLE 13: INHERITANCE FLOWS 1998 - 2012

Year	Inheritance flow (1)	Inheritance flow (2)	Inheritance flow(3)	Inheritance flow (4)	Adjusted <sup>12</sup> flow (5)
	Register data	Piketty method	In.tax register	all inheritances	all inheritances
1998	0,0144	0,0293	0,009	0,0103	0,0151
1999	0,017	0,0348	0,0086	0,0114	0,0167
2000	0,0168	0,0343	0,0089	0,0113	0,0165
2001	0,0169	0,0345	0,0096	0,0118	0,0173
2002	0,0161	0,0330	0,0097	0,0115	0,0168
2003	0,0155	0,0318	0,0086	0,0108	0,0158
2004	0,0161	0,0329	0,0092	0,011	0,0161
2005	0,0166	0,0339	0,0097	0,0112	0,0164
2006	0,0192	0,0393	0,0098	0,0111	0,0162
2007	0,019	0,0388	0,0111	0,013	0,0190
2008	0,0155	0,0316	0,0082	0,0101	0,0148
2009	0,0166	0,0340	0,0104	0,0133	0,0195
2010	0,0168	0,0342	0,0107	0,014	0,0205
2011	0,0164	0,0335	0,0109	0,0153	0,0224
2012	0,0168	0,0343			
$\frac{2012}{1998}$	1,1677	1,1677	1,2123	1,4826	1,4826

Sources: (1) and (2): All data taken from Table 13. (3): Statistics Norway (2000, 2013 and 2014e). (4): Register data, Statistics Norway and Statistics Norway (2014e). (5): Inheritance flow (4) scaled up by 1,463. All values measured in 2012 prices.



Sources: Data from Table 14. All values measured in 2012 prices.

FIGURE 4: INHERITANCE FLOWS NORWAY 1998 - 2012

In section 2.3 I argued that a country like Norway, with a higher growth than most other European countries, is expected to have a lower inheritance flow. And my above results seems to confirm this theory. Whereas Piketty estimated the 2008 inheritance flow in France to be around 15 percent, my replication for Norway yields 3,5 percent. And while Piketty finds an increasing trend in inheritance flows, my results look stable. Obviously, I only look at a short-run perspective and cannot say anything about the long-run development of inheritances in Norway. It will be interesting to see what happens to inheritance flows now that the inheritance tax is abolished. Over the last 14 years, however, I cannot seem to find that inheritances are of increasing importance in Norway.

## 6 Conclusion

Norway seems to be a European outsider, also when it comes to the importance of inheritances. Whereas France and the UK have experienced sharply increasing inheritance flows over the past decades and are facing ratios of inheritances to national income between 8 and 15 percent, I find that the inheritance flow in Norway from 1998-2012 is stable at a much lower level. Using the official inheritance tax register, the flow is around 1 percent. The official inheritance register is not reliable, however. Since only tax liable transfers are registered, a large amount of inheritances are excluded from the tax records. In addition, the thresholds for exemptions and tax rates have been altered over the period so that the

inheritance data from year to year are not comparable. Using register data including also tax exempt transfers, the inheritance flow increases slightly. Still, as long as tax avoidance is not taken into account the inheritance-income ratio is underestimated.

Before the inheritance tax was abolished January 1 this year, there were multiple avoidance opportunities in Norway. By investing in favorably taxed assets, individuals reduced their estates and thus tax liabilities. Looking at the development of wealth and wealth assets for individuals during the last years of their lives, I found that net wealth during this period was higher than the estates they left behind. Taking the sample mean of the net wealth – estate ratio, I got an estimate of tax avoidance among individuals dying in 2010. Adjusting the inheritance flow by this estimated tax avoidance resulted in an inheritance flow between 1,5 and 2 percent. As an upper bound of tax avoidance I also replicated Piketty's way of estimating the inheritance-income ratio. Combining a slightly decreasing mortality rate, an increasing wealth-income ratio and a stable wealth of the deceased to wealth of the living ratio resulted in a Norwegian inheritance flow around 3,5 percent.

Compared to Piketty and Atkinson, I have looked at the development of inheritances over a relatively short period. Even if I cannot find any increase in the inheritance flow over the period 1998-2012, this does not mean that the long-run development is stable. Applying the  $r < g$  logic, an important reason for Norway's rather unique position in the European context is that the country has maintained income growth during a period where most other countries have suffered from a recession. If this growth comes to a halt or declines, I do not exclude the possibility of increasing inheritance flow also here.

Increasing inheritance flows will have consequences for wealth inequality and public policy. With an increase in bequeathed wealth the differences between those who inherit and those who do not inherit will be augmented. The incentive to spread wealth on as many as possible disappeared with the abolishment of the inheritance tax, and it is natural to assume that the abolishment will contribute to an increasing concentration of wealth. An increase in wealth inequality might call for a revaluation of the way we tax wealth and wealth transfers, and is likely to raise arguments for a reintroduction of the inheritance tax for equity reasons. At the same time, it seems to be a lot easier to remove a tax than to reintroduce it. The tax avoidance that has been taking place also clearly reduced the efficiency of the inheritance tax. Any reassessments of the inheritance tax should take this into account, and provide a design that leads to less wasteful tax avoidance behavior.

It will be interesting to observe the effects of the abolishment on the development and composition of wealth during lifetime, and the distribution of wealth both during life and at death. I am certain that this will be an important topic in the years to come.

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