In It Together? Inequality and the Joint Distribution of Income and Wealth in Switzerland *

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February 19, 2020

Preliminary and in progress.

Abstract

Using tax data from several Swiss cantons, I present a set of empirical facts regarding the distribution of wealth and income in Switzerland. First, I shed light on the composition of wealth and income along the distribution, including the very top. I find substantial heterogeneity in the composition for different population groups. Second, I document the joint distribution of income and wealth, where I find a strong correlation between the two, especially at the very top. Third, wealth mobility over a ten year period is substantially lower than income mobility. Persistence in wealth rank is especially strong in the tails: the bottom 20% seem to be stuck in a wealth trap, while those in the top 1% hardly ever leave the top 10% at all unless they die. Fourth, inter-vivos gifts and inheritances substantially increase intragenerational wealth mobility. At the same time, rich individuals are more likely to receive an inheritance and average amounts bequested rise with the wealth rank of the heir. This finding suggests a strong correlation between the wealth rank of those leaving and those receiving an inheritance.

JEL-Classification: D31, D33
Keywords: wealth inequality; income inequality; joint distribution; wealth-income ratio

*I thank Larissa Luchsinger and especially Oliver Hübelin for helpful research assistance. We all greatly appreciate financial support through SNSF Grant 176458 "The Influence of Taxation on Wealth and Income Inequality".

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1 Introduction

Resent research on inequality has shifted its focus from income to wealth. With rising top income inequality, it should come as no surprise that wealth, which is already distributed more unequal than income, has become more concentrated too, especially at the top. Little is known, however, about the joint distribution of income and wealth at the individual level nor how strong persistence is over time. Are those at the top of the income distribution also among the wealthiest, or are these different groups? And what are the chances someone moves up and down the wealth and income distributions? I shed light on these questions using individual tax data from Switzerland. Since Swiss cantons levy annual taxes on both, income and wealth, including all types of assets, this data is ideal to answer these questions. While cantonal tax data have been used for research before, this is the first time the individual data for several cantons is combined and harmonized. This is further the first time Swiss tax data is broken down from tax units into individuals. This has several advantages and allows for better comparison with studies on income and wealth inequality from other countries. In addition, the data from the canton of Bern allows me to chart the patterns of inheritances and inter-vivos gifts over the age, wealth, and income distributions by gender and marital status.

I start by documenting the composition of income and wealth along the income and wealth distributions, respectively. To my knowledge, this is the first study for Switzerland which shows how top incomes and high fortunes are composed. Similar to what has been found for the US, top earners derive their income mainly from labor. Even for those belonging to the top 1%, labor income makes up more than half of their income. Wealth portfolios consist to a large extent in financial assets throughout the distribution. In contrast to many other countries, real estate plays a minor role, as only 38% of all individuals own any real estate. Especially for richer individuals in the top quintile real estate is also held as investment asset.

The joint distribution of income and wealth is characterized by a strong tail dependence, especially at the top. The very rich therefore also derive the largest incomes. The narrative of billionaires who only earn little income does therefore not fit the Swiss data. The wealth distribution further reveals a strong age gradient. On average, wealth is highest around retirement, and the average age of the top 1% is 65 years. Through the strong age-wealth gradient, age also affects the joint distribution: at almost all income levels, retirees are in substantially higher wealth percentiles. Correcting for age, the underlying correlation between income and wealth ranks is 0.4. When climbing 10 income percentiles, individuals can therefore only expect to move up 4 wealth percentiles. These findings can have important implications for life cycle models as well as for optimal tax theory. If joint inequality of income and wealth is even larger than income or wealth inequality taken alone, optimal redistributive taxation may, for example, be more progressive. My descriptive findings also have implications for macroeconomic policies: if low income earners also have low wealth, it

is harder for them to cope with shocks.

Mobility patterns for income and wealth from the canton of Bern over the period 2003-2012 support the view that climbing up the wealth distribution is harder relative to income. Ten year rank-rank slopes from OLS regressions are 0.87 and 0.71, respectively. Again due to the strong age-wealth gradient, wealth shows stronger upward mobility than income over time. Individuals can expect to climb up the wealth distribution even after reaching legal retirement age. At the bottom, however, there is a wealth trap: of those in the bottom 20% in 2003, 42.8% are still in the same group in 2013. 68.6% have remained below the median and only 2.3% have moved up to the top 10%. This mirrors the high persistence at the very top of the wealth distribution: less than 1% of those belonging to the top 1% leave the top 10% even after five or ten years (while about 20% leave the canton or die). Understanding these patterns in the distribution and mobility of income and wealth is of great importance when designing policies, be it tax or pension reforms. The finding that those belonging to the bottom 20% of the wealth distribution are very likely to remain wealth-poor even a decade later, for example, implies that pension reforms that stress private savings and wealth accumulation, likely increase inequality and may not be feasible for everyone.

Using data from the canton of Bern I am able to show that an important driver of wealth mobility are inheritances and inter-vivos gifts. The fact that people are most likely to receive inheritances in their late 50s and early 60s helps explain the finding that wealth accumulation continues even after retirement. Both, likelihood and the average amount of inheritances and gifts rise with age and, very strongly, with individual's position in the wealth distribution. While I cannot link child and parent generations, the findings suggests a strong correlation between the wealth rank of those giving and those receiving gifts and inheritances.

The remainder of the paper is organized as follows. Section 2 embeds the paper in the previous literature. Section 3 describes the data sources. In Section 4 I present the results. First I report findings on the composition of income and wealth. Next, I study the joint distribution of income and wealth. Subsections 4.3 and 4.4 present results on intragenerational mobility and inheritances, respectively. Section 5 concludes.

2 Previous Research

While empirical research on income but also wealth inequality has made large progress especially over the past two decades, research on the joint distribution of income and wealth remains scattered—mainly due to the lack of high quality individual data covering both, the individual income and wealth distributions. Aiming at better measurement of "economic position" or "economic well-being", Wolfson (1979) made adjustments to the Canadian income distribution by i) accounting for family size, ii) including imputed rent, and iii) including the annuity equivalent of net worth. More recent contributions include Jäntti *et al.* (2008), Sierminska *et al.* (2007), Chauvel et al. (2018), Kuhn *et al.* (2018), or Aaberge et al. (2018).

Most papers, including the one at hand, rely on non-parametric measures of the joint distribution. Two notable exceptions include the work by Hauner and Liu (2015) and Jäntti *et al.* (2015), who present a new, parametric approach based on copula functions. The difficulty in this approach lies in accommodating the extensive mass at income and especially wealth zero, as the copula is not uniquely defined across mass points.

Some recent papers go even further and include consumption inequality as a third dimension (e.g. Fisher et al (2018), Ruiz (2011), or Lindner and Schuerz (2019)). While such a multi-dimensional approach is appropriate to measure well-being in an encompassing manner, the goal of the present paper is to gain a deeper understanding of the complex relationship between income and wealth.

All these previous papers base their analysis on surveys. Besides not covering the upper tail of the distributions very well, survey data excludes people living in institutions. This is especially problematic when studying the distribution of wealth, which is more concentrated among the elderly, who in turn are more likely to live in an institution. The very recent paper by Gallusser and Krapf (2019) is the only other paper that I am aware of which studies the joint distribution of income and wealth based on administrative tax records. Being based on cantonal tax data, it is also the most similar study to mine. Nevertheless, our papers differ in several aspects. First, I combine data from several cantons to cover more than 50% of the population in Switzerland, while Gallusser and Krapf (2019) use data from the canton of Lucerne only—where unfortunately high incomes and wealth are capped at the top. Second, their focus lies on new inequality measures combining annuitized wealth and annual labor income flows, while I present evidence on the association between income and wealth along several dimensions. Similar to their findings, I find a very strong tail dependence, especially at the top and I further show that the strong tail dependence is driven by the top 1% within the top 1%.

So far, little evidence on intra-generational wealth mobility exists. In the Swiss context,Moser (2019) is the only example where wealth mobility has been explored, based on wealth tax data from the canton of Zurich. Using data from the canton of Bern allows me to extend the mobility analysis and also compare mobility in both, income and wealth. A main difference is that my analysis is based on individuals rather than tax units (where married individuals are one unit of analysis). For the US, Benhabib *et al.* (2019), study the wealth distribution and social mobility in a quantitative analysis. According to their findings, stochastic earnings, differential saving rates, and heterogeneous returns to capital all have a fundamental yet distinct role in generating sufficient social mobility in the wealth accumulation process.

The detailed data from the canton of Bern further allow me to study inheritances and inter-vivos gifts. These are an important driver of both, intra- and intergenerational mobility. Humer *et al.* (2016) compare the contribution of earned income and inheritances—two major wealth accumulation factors—to the net wealth position of households in the Eurozone.

They find a substantially stronger effect for inheritances compared to income. Related to my analyisis of the distribution of inheritances and gifts is the contribution by Jann and Fluder (2015). They studied the incidence of inheritances in the canton of Bern in the run-up to a national inheritance tax referendum held in June 2015. Their focus lies on the question of which tax units will inherit which amounts. My analysis is again different as I look at individuals rather than tax units and because I focus on inheritances and gifts by wealth percentiles. An important improvement is that I will be able to distinguish inheritances going to widows and widowers from their deceased spouse from those going to other individuals. While I cannot study the direct intergenerational transmission of wealth, it allows to distinguish inheritances that went to individuals other than spouses. The latter in most cases already were co-owners of the assets in question. The role of inheritances has also attracted attention at the macro level Piketty (2011) and Brülhart *et al.* (2018) study the long-run evolution of aggregate inheritance flows in Franc and Switzerland, respectively. They find that inheritances become again more important, after their share in aggregate wealth had dropped in the post-war period.

3 Data

3.1 Cantonal Tax Data

Switzerland is a federal country with 26 states, called cantons. The federal government levies an annual personal and corporate income tax. On top of this tax, each canton levies income as well as wealth (or capital) taxes on an annual basis for both, individuals and corporations. As a rather unique feature, Swiss tax data therefore contains detailed information on income and wealth for the whole population, including the upper tail of the distribution. Due to their large tax autonomy and to reduce administrative burdens, cantons collect the direct federal taxes on behalf of the federal government such that taxpayers only file one tax return each year. All personal taxes are residence based.

This institutional setting has important implications for the availability of tax data. Cantons enjoy large tax autonomy and are the owners of the data collected. They only forward a limited set of income variables to the Federal Tax Administration, including taxable and net income after itemized deductions. Income is therefore aggregated and the information on the different income sources (e.g., employment, self-employment, capital income, pensions, etc.) is lost. Most importantly, as the federal government does not levy a wealth tax, it has no individual level information on wealth in its tax data. Cantons only share aggregate wealth statistics with the Federal Tax Administration. Hence while tax data available from the Federal Tax Administration, which covers the full population living in Switzerland, has been used in previous research on income and wealth inequality in Switzerland (including work on top income and wealth shares by Dell *et al.*, 2007; Föllmi and Martínez, 2017), it

does not allow to uncover the composition nor the joint distribution of income and wealth.

For the project at hand, I therefore obtained anonymized individual cantonal tax data, which includes very detailed information on income and wealth from different sources for all taxpayers in a canton. There are a set of important limitations. First, so far I have not obtained data from all but only from eight large cantons.[1] I am currently able to use data from the cantons of Aargau (AG), Bern (BE), Basel-Stadt (BS), St Gallen (SG), Obwalden (OW) and Zurich (ZH). In the meantime, I also obtained data for Jura (JU) and Luzern (LU), which is however not yet cleaned and harmonized. Figure 1 shows the regional data-coverage. The data covers 52.8% of the Swiss population in 2010. I am able the cover most of the German speaking part, yet I miss the Italian and French speaking parts in the south and west of the country. All data contain the full population, with the exception of Zurich. There I obtained a 50% sample of all the taxpayers belonging to the bottom 95% of the gross income or net wealth distribution, and a 100% sample of those belonging to the top 5% of the income and/or wealth distribution. I use sampling weights to take this into account.

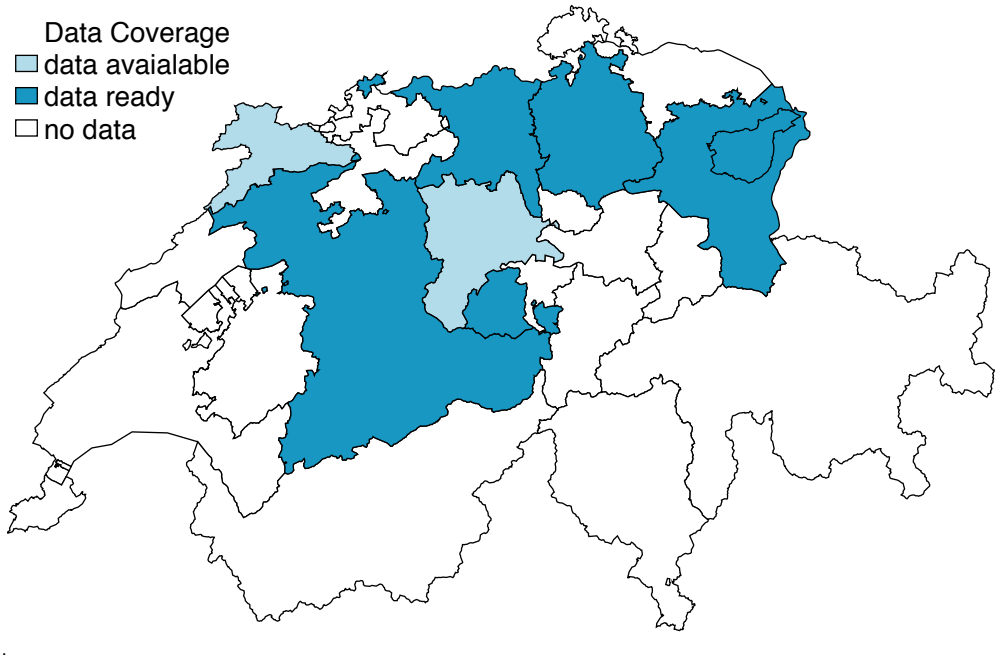

Figure 1: Cantons covered in the data

Note: The map shows the cantons for which data are available for this project. The two light blue areas are the German speaking canton Lucerne in central Switzerland and the (mostly) French speaking canton Jura in the Northwest, respectively. For these two cantons, data cleaning is still underway. Together, the data currently cover 47.2% of the total population or approximately 66% of the population living in the German-speaking part of Switzerland. Coverage of all the available cantons will be 52.8% of the total population in Switzerland as of 2010.

Second, each of the cantonal data sets covers different time periods, including the years

[1]To obtain the cantonal tax data, requests have to be made at each canton on a project-by-project basis. The application process as well as costs for data access vary widely across cantons and ultimately, not all cantons are willing to provide tax data for research purposes. To facilitate the data application process and reduce costs, some of the data in this paper was approved as part of an earlier SNFS-project Inequality in Income and Wealth in Switzerland from 1970 to 2010" and kindly made available for this research paper. See http://inequalities.ch/ for details on that earlier project.

2000–2016. For most cantons, the year 2010 is in the data. For all cross-sectional analyses, I hence merge cantonal data from 2010. Only the canton of Zurich, where data is only available in intervals of three years, I have to use data from 2011. Unless stated otherwise, the analysis in Sections 4.1 and 4.2 is based on this merged data, which I refer to as pooled tax data.

Third, in Switzerland people are taxed according to civil state and married couples have to file jointly. Therefore, a tax file might represent one or two adults. To adjust this imbalanced representation of units I individualize the data, so every observation represents a single person. While some income components can be attributed exactly to each spouse, this is not possible for every canton and every income component. Wealth components are always reported for the tax unit as a whole and cannot be attributed to one of the spouses. For married couples I therefore split all income and wealth components equally between spouses. Such equal division of resources is appropriate to depict the distribution—assuming that married couples share income and wealth even if they do not contribute to the same extent.

Fourth, some of the variables on income, wealth, and deductions differ in their level of detail across cantons. Despite large cantonal autonomy in taxation, the tax base is the same across cantons as it is outlined in the Federal Tax Harmonization Act, dating back to 1990. However, the individual tax data differs across cantons, due to differences in how tax returns are structured and what is record the main taxpayer file. In each canton, I have access to the data which is recorded in the main tax file, but not what is reported in additional or supplementary tax forms. To ensure comparability, I therefore harmonize the data across cantons. The next section describes the variables I use in detail.

3.2 Income Measures

I use gross income net of all mandatory contributions. I differentiate between income from labor, capital, and transfers. Below I list all components used in the analysis in detail.

Income from employment and self-employment. Tax filers separately declare gross income (net of social security, unemployment, military, and maternity insurance, and occupational pension contributions) from employment and self-employment, i.e., profits from sole proprietorships. As the latter are considered as a mixed income, I allocate 70% of these profits to income from self-employment and 30% to capital income, as commonly done in the literature (see for example Martínez-Toledano, 2019).

Capital income. This category encompasses income from financial assets, namely interests and dividends, annuities from private insurances and life insurances, income from undistributed inheritances, and 30% of income from self-employment.

Real-estate income. For real estate which is rented out, I use real-estate income net of maintenance costs, which are tax deductible. For home owners, real estate income further includes imputed rents. These are part of the income definition in Switzerland and are hence in the data. In the data from ZH, OW, SG, and AG imputed rents are listed separately, hence allowing to distinguish between imputed rents and net rental real estate income.

Transfer income. This component contains benefits from unemployment, accident, disability, and military insurances, as well as child, family, maternity, and sickness allowances. It further includes private transfers from other households, especially alimonies from ex partners for the spouse and minor children. Means-tested benefits are excluded, as they are not taxable and hence are not declared. I therefore underestimate true income for low income households.[2]

Pensions. All incomes stemming from pensions are summarized in this category. Wherever possible I distinguish further between public (1st pillar) and occupational (2nd pillar) pensions.[3]. This distinction is possible in ZH, OW, SG, BE, and BS.

Other income. This includes all other forms of incomes and which do not belong to any other category. In particular, this category contains lump-sum settlements for recurrent benefits.

Gross Income. Gross income is the sum of all the income components listed above. I use the term gross as it is income before taxes and before any tax-related deductions.

3.3 Wealth Measures

As far as possible, I base my analysis on total net wealth. The data allow to distinguish between financial wealth, business assets, movable assets, real estate, and debt. Since wealth on retirement accounts from the mandatory occupational pension system (2nd pillar) and the voluntary tax exempt saving scheme (pillar 3a) are not subject to taxation until they are either cashed in or transformed into a pension at retirement, I have to exclude these assets from the analysis. I put special attention to real estate when preparing the data. Below I describe all the wealth components available in the data. Note that I can usually not distinguish the different components within each of the components.

Financial wealth. This includes securities, credit balances, cash on bank deposits, gold and other precious metals.

Business wealth. This includes business assets of sole proprietorships with commercial accounting, customer and other credit balances not included in the list of securities, inventories and warehouses, livestock, fixed assets without real estate (vehicles, machinery/furniture, equipment etc.).

Real estate wealth. Real estate is deliberately undervalued in Swiss tax data to avoid an excessive tax load on home owners.In addition, assessments happen only every decade or so and the assessment methods vary by canton for residential properties (real estate used for agriculture or forestry are valued in the same way everywhere). Because individuals might own real estate in different cantons, tax authorities use so called re-partition values

[2]Since means-tested benefits depend on a variety of factors, including the household composition, living and health conditions and are determined on a case-by-case basis, I cannot impute these benefits with the data at hand.

[3]The first pillar of the Swiss pensions system is the equivalent of social security in other countries, including the U.S. Occupational pensions share some similarities with the U.S. 401Ks, with the main difference that they are mandatory, strongly regulated, and age-dependent contribution rates are set by the government.

("Repartitionswert") to rescale real estate valued by another canton. I use these values to adjust for cantonal different valuation practices. To account for developments in real estate prices over time, I adjust real estate prices since the last valuation year using regional housing price indices collected by the real estate firm Wuest + Partner and published online by the Swiss National Bank.This adjustment is only possible in cantons, where I know in which years real estate was assessed. This is the case in BE, ZH, OW, BS, and AG. In SG, real estate valuations are done on a rolling basis by the mandatory cantonal buildings insurance. I therefore believe that the development of real estate prices is at least partly captured. In AG and SG I further have access to real estate information that enables to distinguish between owner occupied houses like main residences and vacation homes from other real estate like properties for rent or land.

Other movable assets. This component includes private life and pension insurances, motor vehicles, shares in undistributed inheritances, shares in non-listed companies and other assets, e.g., jewelry and art, that do not fall into any other category. The assets are valued according to their insurance value, if that is possible. Non-listed companies are valued at book value. Valuation of cars takes into account depreciation at rates stipulated by the tax authority.

Gross wealth. Gross wealth is the sum of all the components listed above.

Debt. In principle all types of debt are tax deductible. Debt therefore includes mortgages, but also personal loans, consumer credits, and other verifiable outstanding debt, including tax debts. Unfortunately, it is not possible to distinguish the different types of debt in the data: in all the cantons, only the sum of all debt is recorded in the main tax file. It is therefore not possible to define the different asset categories net of debt.

Net wealth. Total net wealth is built by subtracting total debt from gross wealth. Since debt can be deducted at market value, but real estate tends to be undervalued (even though I try to account for this as good as possible), I may underestimate net wealth especially for real estate holders.

3.4 Summary Statistics

I carry out most of the analysis by percentile or age groups. I classify individuals to percentile groups based on the total gross income and the total net wealth distributions, respectively. Even when looking at subgroups, e.g, men and women, or retirees and workers, they are grouped into percentiles based on the total distribution and not based on the distribution within their subgroup. Table 1 shows the income and wealth group thresholds, well medians and averages for each group. The reported income and wealth shares correspond well with the results in Föllmi and Martínez (2017) for Switzerland. The sample is therefore representative of Switzerland as a whole. Appendix tables A1 and A2 further show population averages by income and wealth percentile groups, including the share of retirees. These individuals beyond the legal retirement age, who make up 25% of the total sample, are over-represented

in the top 40% of the wealth distribution. In the income distribution, in contrast, they are relatively over-represented below the median and then again at the very top.

4 Results

4.1 Composition of Wealth and Income Along the Distribution

For all wealth groups, financial assets are the most important wealth component, making up 50– 90% of total gross wealth as shown in Figure 2. Real estate plays a much more important role in the portfolio of Swiss taxpayers compared to other countries. Martínez-Toledano (2019) shows that in Spain—a country with a home-ownership rate of approximately 82% compared to 37% in Switzerland[4]—real estate amounts ot 90% of total wealth for individuals around the median (P40-P60). Note that the data are very well in line with official statistics, as only 38 percent of taxpayers in the pooled data own any real estate. Swiss households rely much more on other, mainly financial assets.

Exploiting the fact that in two cantons I can further decompose real estate into owner occupied and other real estate, Panel b) of Figure 2 shows that the not privately used real estate is significant for the top 20% wealthiest individuals, especially among the P95-P99.9. Real estate is a viable option for relatively safe investments for the wealthy. The share of real estate investments has likely increased since 2010, due to the low and even negative interest rates prevailing in Switzerland since December 2014.

Movable assets, which include cars, art, and collectibles, are of some importance in the bottom half of the distribution, but make up a very small share in the top 20%. Interestingly, unincorporated business assets play an almost negligible role for all wealth groups in Switzerland. This is again very different to the findings for Spain, where such assets make up almost 20% of individual's wealth portfolio. Also in the U.S., unincorporated business assets tend to be somewhat more important than in Switzerland (see Saez and Zucman, 2016). One reason for this finding is that there are incentives for liability and tax reasons to incorporate as businesses become larger.

As I cannot attribute debt to the different asset categories, I plot debt as share of total gross wealth. For the P0-20 group, debt shares become very large due to very small denominators. I truncate individual debt shares at 300% to keep the graphs readable. Because some of the individuals at the bottom of the distribution have very large debt but virtually no assets, the asset shares do not sum up to 100%. Apart from the bottom, debt shares are largest at P60-70. I find that debt is highly correlated with home-ownership, implying that household debt it is strongly driven by mortgages.

[4]Switzerland has the lowest home-ownership rate across all Europe, while Spain has the highest in Western Europe. Source: FSO https://www.bwo.admin.ch/dam/bwo/de/dokumente/01_Wohnungsmarkt/16_Zahlen_und_Fakten/163_Wohneigentumsquote/wohneigentumsquotenschweiz-eu2008.pdf.download.pdf/wohneigentumsquotenschweiz-eu2008.pdf .

The wealth composition does not change dramatically when looking at subgroups by employment status, marital status, or gender as shown in Figure 3. Differences can be attributed to life course events. Compared to the working population, retirees only hold few other movable assets and no unincorporated business assets—a direct result of retirement. For married individuals, the shares of real estate and debt are higher than for singles, especially below the median. Indeed, owning a house is more widespread among married than among single individuals.[5] Finally, gender differences in wealth portfolios are neglectable. Looking at singles only, men hold a slightly larger but still small share of unincorporated business assets than women and they have slightly more debt. Both findings can be reconciled with women being more risk adverse than men.

The composition of income varies considerably across the income distribution as shown in Figure 4. At the lower end of the distribution, pensions—especially social security pensions from the 1st pillar (see Figure 4b)—play an important role. Since social security pensions are capped, their relative importance declines as one moves up the income distribution. Transfers from different insurance schemes, e.g., the unemployment insurance, or family allowances, only play a minor role. Since means-tested benefits are not part of the income definition for tax purposes, transfer incomes are underestimated for poor households.

For the middle and upper parts of the distribution in the range of P40–P99, income from employment makes up more than 50% of all income. When adding income from self-employment, even the bottom 90% within the top 1% earn more than 50% of their income through work. The income share from self-employment is largest within the top 10%, where it makes up around 10% of gross income. Within the top 10% of the gross income distribution, however, the share of income from work declines, and the shares of income from capital and from real estate (excl. imputed rents) increase. For those belonging to the top 0.01%, finally, other forms of income, which are neglectable for all other income groups, increase to 50% of income at the expense of capital and real estate incomes. These incomes include bonuses and other compensations for recurring services and, in some cantons, liquidation gains or losses in the event of definitive cessation of self-employment. Hence these incomes are one-time gains which make richest one percent within the top 1% considerably different than the rest of the rich.

Again I split the sample into different subgroups (Figure 5). Unsurprisingly, the labor income share is much larger for the working age population. Yet again, the share of income form work declines from the top 10% and beyond, making space for capital, real estate, and other incomes. At the bottom end of the distribution, transfers including unemployment

[5]There are two channels that may contribute to this difference. First, married couples are simply more likely to meet the financial conditions to obtain a mortgage in terms of income security and down payment. This hypothesis is supported by the fact that married individuals have larger debt in relation to their real estate wealth than singles. Second, there is a life course effect: getting married, starting a family, settling down, and buying a house are linked. This also involves potentially different preferences to start a family and buy a home between married and single individuals. At the same time it seems plausible that wealthier individuals also have an advantage on the marriage market as well as being more likely to be able to afford a home.

benefits and family allowances contribute to the income mix. Some people below the median also draw pensions. These include pensions from early retirement as well as disability pensions.

For retirees, pensions replace labor income by and large. Moving up the income distribution, however, income from capital and real estate as well as income from self-employment and employment becomes more important. In Switzerland it is not those who have low incomes who have the highest likelihood to keep working beyond retirement, but those who were successful in the labor market and can derive large incomes. For retirees in the top 5% of the total gross income distribution, pensions make up merely 30% of their income. For the top 0.5%, the pension share drops below 15%. Besides labor income, this small group of very wealthy retirees can draw large incomes from capital but also from real estate. Especially for the rich real estate income stems mainly from renting out their properties and not from imputed rent (as shown in Figure 4b). For those belonging to the top 10%, 20% or more of their income stems from real estate. For the top 0.5% the share rises up to 40%. Since the share of real estate wealth does not differ that much between retirees and the working-age population, this suggests that the elderly derive larger incomes from their real estate than younger generations and that the correlation between the income and wealth distribution likely varies by age group.

Differences between single and married couples are small, but there are some noteworthy differences by gender. Women are more likely to draw pensions, which is likely due to their longer life expectancy. Women on average also have lower shares of labor income, which can be explained by the prevalence of part-time work for women in Switzerland and because salaries for women still tend to be lower than for men.[6] Moving up the income distribution, women draw very large shares of their income from capital, real estate, and—at the very top—other income sources. Their labor income diminishes to reach almost zero percent. For single men, the picture is quite different: not only do they rely less on pensions, but they also earn a larger fraction of their income than women through labor—throughout the distribution and especially at the top. So the average high-income single man belonging to the top 1% works to earn half of his income, while the female counterpart mostly relies on capital, real estate, and other incomes.

Across all subgroups income from self-employment is relatively most important within the top 10%. For single women, however, the share of income from self-employment is much lower than for single men or married individuals.

4.2 Joint Distribution of Income and Wealth

Next, I turn to the joint distribution of income and wealth. Figure 6 shows how the top 1% and 0.01% of the wealth distribution are distributed over the income distribution and

[6] In 2010, the hours-adjusted wage gap was 15.6%, of which 62% could be explained by observables like education, industry, or job characteristics. Source: FSO https://www.bfs.admin.ch/bfs/de/home/statistiken/arbeit-erwerb/loehne-erwerbseinkommen-arbeitskosten/lohnniveau-schweiz/lohnunterschied.html.

vice versa. Gender differences are small, which is partly mechanical, due to the fact that I have to split wealth equally between married couples. In contrast, those belonging top the P99-P99.99 group (i.e., the bottom 99% in the top 1%) and the top 0.01% are substantially different: those belonging to the P99-P99.99 of the wealth distribution can be found over the whole income distribution, even though their share is highest among the top 10% of income earners, especially in the P95-P99 group. The top 0.01% of the wealthiest, in contrast, can only be found among the top 5% of income earners, and are mainly part of the top 0.1% of earners. The picture is similar when flipping the axes: the top 0.01% of income earners, are almost exclusively found in the top 1% of wealth holders. This shows that at the very top of the two distributions the correlation between income and wealth is extremely strong. The strong tail dependence is further shown in Figure 7. This joint distribution matrix plots the share of individuals from each income group in each wealth group. With more mass blow the main diagonal, the plot suggests that it is relatively unlikely to be in a higher wealth group relative to ones income group.

The panels in Figure 8 show how age affects the joint distribution of income and wealth through the strong age-wealth gradient. Panel 8a shows the association between age and income and wealth, respectively. The age-income gradient is much lower and exhibits a U-shape: low-income individuals around the 20iest percentile tend to be oldest, averaging 57-60 years. Age heterogeneity in this group is large though, as also very young people are likely to be found in this group. Above the second decile, average age decreases to 47 years and remains virtually unchanged in the region of P50-P75. This negative relationship between age and income in the bottom half of the distribution reflects the income drop around and after retirement for the vast majority of the population. This stands in contrast to the strong positive correlation between age and wealth. With each wealth percentile, average age rises by 0.3 years. The average age of the top 1% is 65 years. On average, wealth is therefore highest around retirement (with a statutory retirement age of 65 for men and 64 for women).

Turning to the joint distribution of income and wealth, Panel 8b shows the average wealth percentile for each given income percentile, without correcting for age. The gradient is strongest at the bottom and the top of the distribution: climbing up one income percentile is associated with an average increase of 1.6 wealth percentiles for the bottom 20%, and an increase of 2 wealth percentiles for the top 6%. In contrast, for the lower middle class, those in the range of P21-P60, climbing up the income ladder does hardly push them up the wealth distribution. They essentially remain at the median.

This raw association, however, masks substantial heterogeneity by age groups. Panel 8c shows the same association separately for individuals beyond the statutory retirement age and the working age population. At almost all income levels, retirees are in substantially higher wealth percentiles. The intercept for retirees is 23 points higher than for non-retired individuals. This can be explained by i) the strong age-wealth gradient, and ii) the effect from occupational pensions when lump sum payouts are chosen over annualized pensions.

Unfortunately, I lack information on who chose a lump sum. Controlling for age in the binned scatter plot (Panel 8d), finally, leads to a linear relationship between the two distributions which meet at the median. The correlation is 0.39, which one can think of as underlying baseline gradient between income and wealth rank.

4.3 Wealth and Income Mobility in the Canton of Bern

Since individuals cannot be tracked over time in the cantonal tax data if they move from one canton to another, and because data for different cantons covers different time spans, I base the following mobility analysis on the canton of Bern. This data, which covers the years 2002-2012, in addition has the advantage that age is recorded for both spouses in the case of married individuals. I can therefore take into account age effects in the mobility analysis at the individual level, without losing one of the spouses in married couples. Individuals below age 18 are excluded. The unit of analysis are individuals, where income and wealth of married couples is split equally. To avoid overestimation of the mobility rate, I exclude those individuals from the mobility analysis who are not present in both, the first and final years of the analysis. This may be the case when individuals die, when they move out of the canton of Bern—and for women also when they marry, divorce, or become widows. These women are still present in the data, but I cannot identify them over time, since married couples file jointly and hence appear under the same tax ID. Usually, the husband's tax ID remains unchanged while the one of the woman changes. The case is similar for same sex couples, yet there it seems to be random which partner gives up their tax ID.[7] I study relative mobility, based on percentile ranks. Individuals are always ranked according to the total income and wealth distribution, respectively, before excluding individuals who are not present in the data in both years, and before studying specific subgroups.

Figure 9 shows the average percentile rank in 2012 given an individual's rank in 2003. Over this ten year span, I observe some mobility and regression to the mean. Income mobility is larger than wealth mobility, wealth is sticky and changes only slowly. The corresponding rank-rank slopes are 0.71 and 0.87, respectively. The full mobility matrices are shown in Figure 10. With more mass above the main diagonal, wealth shows stronger upward mobility than income over time. Note that in this analysis it is possible to have more upward than downward mobility because individuals who are not present in both years are excluded from the analysis, while individuals are ranked according to the original percentiles for the full population in each year. At the bottom, however, there is a wealth trap: of those in the bottom 20% in 2003, 42.8% are still in the same group in 2013. 68.6% have remained below the median and only 2.3% have moved up to the top 10%.

Again, age plays an important but distinct role for income and wealth mobility, as shown in Figure 11. Panel 11a shows the average income mobility pattern by age in the reference year 2003. Until the age of 52, individuals can expect to rise up in the income distribution

[7] I am currently trying to overcome this issue, by adding a unique person identifier to the data.

compared to where they were ten years earlier, albeit at a declining rate. After that, incomes start declining on average and people are more likely to move downward than upward in the income distribution over the next ten years (while still having a high probability to stay where they are). While one would expect a decline in average incomes when transitioning to retirement, relative income growth reverses already about a decade before reaching the statutory retirement age. Once people are retired, mobility drops and people are likely to stay where they are, especially those below the median and those in the top 10%. For the upper middle class (P50-P90), I observe a slight downward risk after retirement, as they are more likely to drop one decile than to stay in their own decile.[8] The dynamics of wealth mobility are quite different, as shown in Panel 11b. Until the age of 62, people can on average expect to keep on climbing up the wealth distribution over the following ten years, it is, until they are 72 years old. This finding is in line with research by Kuhn and Grabka (2018) based on survey data which shows that Swiss households accumulate wealth beyond their retirement age.

Table 2 shows the mobility estimates from OLS regressions of the wealth and income rank, respectively, in 2012 on the rank in 2003 by age group in 2003. For each age group, wealth mobility is lower than income mobility. And for both, wealth as well as income, mobility declines with age. It therefore becomes harder for individuals to change their rank in the distribution the older the get. This conclusion is supported by an increasing R^2: for older individuals, their rank ten years earlier explains a much larger fraction of the variation in ranks than for younger individuals.

In the same vein, Table 3 shows the rank mobility regressions for the sample as a whole (Column 1), for different socioeconomic subgroups (Columns 2–5), and for individuals who either received inheritances or inter-vivos gifts (Columns 6–7) or who made such gifts (Column 8). All regressions control for age by including age fixed effects. Top Panel A shows the wealth mobility results. Gender differences are small, with men having slightly higher mobility rates than women while at the same time being on average almost 2 percentile points higher up in the wealth distribution. Even though I split wealth equally within married couples, married individuals are on average almost 10 percentiles higher up in the wealth distribution than those who are single. At the same time, married couples have higher mobility rates, as wealth is shared (by construction) within married couples. Married individuals can, for example, climb the wealth distribution when they inherit themselves or when their spouse gets an inheritance. Inheritances and inter-vivos gifts substantially increase wealth mobility. For those who received an inheritance or a gift sometime between 2004 and 2012, the rank mobility was significantly larger compared to the baseline: for these who got an inter-vivos gift, each additional percentile in 2003 on average is associated with only half of an additional percentile in 2012—compared to 72% for the total population. In line with these findings also

[8] These results are based on mobility matrices by age group. Due to space constraints, they are not shown here but are available upon request.

the R^2 drops for this sub-sample, which intuitively makes sense: for those who received an inheritance between 2004 and 2012, their rank in 2003 has less explanatory power for their rank in 2012.

Results for income are reported in bottom Panel B of Table 3. For income the difference between men and women is stronger, with women facing lower rank mobility than men and lower rank on average. Married individuals, who have higher wealth mobility than singles, experience lower income mobility than singles. This is likely due to the high prevalence of part-time work of married women and mothers in Switzerland—the highest in the OECD after the Netherlands.[9] Receiving an inheritance or an inter-vivos gift has a much smaller effect on income mobility compared to the baseline than on wealth mobility. Only among those who make such a gift income mobility is lower. Most likely, this is due to the fact that these individuals are older (see next section on inter-vivos gifts)

In their work on intergenerational mobility, Chetty *et al.* (2014,0) show that across the United States there are large differences in the mobility rates, even within cities. I study geographic variation in intragenerational mobility rates within the canton of Bern by running the previous analysis by municipality size (Table A3). Municipality size corresponds well with the distinction of urban and rural areas. In the canton of Bern, there is a large number of very small rural municipalities, and a few regular-sized cities by Swiss standards, including the country's capital Bern. And while cities may be perceived as more dynamic areas where I would expect higher mobility, running the rank regressions by municipality size shows that people who started off in small municipalities exhibit both, higher income and higher wealth mobility than those who were living in the capital city of Bern (the only city with more than 100,000 inhabitants in the canton of Bern). Note that all these mobility estimates are based on individuals who are geographically relatively immobile and are living in the canton of Bern in both years, 2003 and 2012.

Overall, I have reason to believe that I underestimate individual's true income mobility, as I do not observe individuals who moved to another region in Switzerland for a better job. For wealth mobility, the case is less clear. I might overestimate especially upward wealth mobility, if those doing economically well and who already have something to build upon, remain in the same region and are therefore part of the analysis.

Besides overall mobility rates, the persistence of the top 1% at the top of the distribution is of particular interest. Figure 12 shows the destiny of top earners after 1 and 5 years. The strong persistence of top wealth holders is striking. Less than 1% of those belonging to the top 1% leave the top 10% even after five or ten years. The reason I still observe some mobility over the wealth distribution is that the top 1% of the wealthiest have a higher risk to leave the sample, either because they die, or because they move to another canton.[10] Given that

[9] In 2017, 59% of women but only 18% of men who are in the labor force work part time in Switzerland. Among women with small children, 80% of those who work, work part-time. Source: Federal Statistics Office FSO https://www.bfs.admin.ch/bfsstatic/dam/assets/7106820/master

[10] The canton of Bern has relatively high taxes in the Swiss context, so it is possible that wealthy individuals are

attrition for top 1% earners is only half as large or even less, and due to the strong age-wealth gradient, it is likely that many of those who leave the top 1% die. Figure A2 shows the persistence rates of the top earners when those who leave the sample for whatever reason are excluded. Controlling in this way for attrition shows: roughly 80% of those belonging to the top 1% of the wealth distribution are still there after 5 years, and 60% of top earners are again in the top 1% after 5 years.

4.4 Inter-Vivos Gifts and Inheritances in the Canton of Bern

In the tax data of the canton of Bern, information about inheritances and inter-vivos gifts is recorded in the main tax file, giving me access to this data. Inheritances are recorded by default, even if the heir does not need to pay an inheritance tax, e.g., children who inherit from their parents. Gifts are reported by the taxpayers, and may therefore be underreported. Nevertheless, there is a set of reasons why many, especially large, gifts are still reported. First, the tax return has a question whether gifts were received or made, suggesting to the taxpayer that gifts should be reported. If their answer is positive, the taxpayers files the corresponding details in a separate form.[11] Second, in the case of larger amounts, both parties, those receiving and those making a gift, have an interest to declare gifts, as the tax authorities inquire large changes in reported wealth which do not correspond well with the income level of the taxpayer. Third, if the transmission is legally certified by a notary, tax authorities are notified. This is done, for example, if the gift is an inheritance advance. Fourth, real estate transmissions are always reported to the tax authorities. I therefore have reason to believe that especially larger amounts gifted are well recorded in the data. Furthermore, summary statistics show that also small amounts were reported: 25% of gifts received are smaller than 10,000 CHF, and 25% of the gifts made are smaller than 15,000 CHF. Overall, reported gifts made are slightly higher than gifts received. Unfortunately, I do not know between which taxpayers in the data gifts were made. Also note that not all gifts may come from (go to) a taxpayer in the canton of Bern.

Figure 13 shows binned scatter plots of the distribution of inheritances and gifts over age and wealth percentiles. Data are pooled over the years 2002-2012 to reduce noise. Over this period, the likelihood of receiving an inheritance and/or a gift peaks at age 58, mainly due to the peak in the probability to inherit at age 60. This pattern reflects the increase in life expectancy, which implies that children inherit their parent's wealth later than earlier generations.[12] Indeed, the probability to receive an inheritance peaked at age 58 in 2002. By 2012, this peak age had risen to 65 and also the peak probability to inherit itself was up from 5% to almost 6%. The fact that people are most likely to receive inheritances in their late 50s and early 60s helps explain the previous finding that wealth accumulation continues

more likely to move to a low-tax canton, e.g., in central Switzerland.

[11] These include the amounts and the family ties. Both factors determine the level of the progressive gift and inheritance tax. However, in the main tax file, which I have access to, only the amounts are recorded.

[12] In 2008, life expectancy at age 65 was 83.7 years for men and 87 years for women, compared to 81.5 and 85.6, respectively, ten years earlier.

even after retirement. I find no changes in the likelihood of receiving a gift over time. Also gender differences are small for gifts, although women do have a slightly higher probability of receiving a gift than men in the age range of 26-37 years. Similarly, women have a higher chance of receiving an inheritance than men until they are 60, where beyond the age of 60 men are more likely than women to inherit.[13] Over the wealth distribution however, women have a smaller likelihood to inherit or receive a gift than man at almost every percentile beyond P30.

Figure 13b shows the probability to inherit or receive a gift by wealth percentile. For the top 80% of the population, the probability to receive either an inheritance or an inter-vivos gift increases with their rank in the wealth distribution (measured in the year prior to receiving the inheritance or gift). This implies that those who are already doing well are more likely to benefit from wealth transmissions, especially inheritances. The probability to receive a gift levels off at 3% from P60 onward, while the prevalence of inheritances keeps rising until P95. I find no changes in this pattern over time. Note that the analysis by wealth percentile excludes inheritances of widows from their late husbands: as I measure the wealth percentile in the year before individuals receive an inheritance and because new widows receive a new tax id, their wealth rank before receiving an inheritance is missing. The increase in the likelihood to receive an inheritance as one climbs the wealth distributions is therefore unlikely to be driven by the strong age-wealth gradient and the effect of widowhood. In fact, when I run the same analysis taking into account potential age effects including age fixed effects, the association between inheritances and individual's wealth rank becomes even stronger (see Figure A3). Also excluding all those whose wealth percentile is missing in the previous year from the analysis by age hardly changes these results. These findings further reveal an important asymmetry: the relationship between inheritances and wealth reverses and becomes negative at the bottom of the distribution, where individuals have negative or zero wealth.[14] One possible explanation is that relatives are more willing to give when people are in difficult financial situations.

Panels 13c and 13d of Figure 13 show that a similar pattern arises between the average amount of inheritances and inter-vivos gifts on one hand and age or net wealth percentile, respectively, on the other.[15] The average amount of inheritances rises with age and, very strongly, with individual's position in the wealth distribution. Also the average amount of inter-vivos gifts rises with the recipient's wealth rank, reaching an average of more than 400,000 CHF for the top 2% of the wealth distribution. While I do not have the possibility to directly measure the intergenerational transmission of wealth, these results suggest that the correlation is strong especially for the very wealthy. A look at those making gifts nicely

[13] It is not clear whether this is a life-cycle or a cohort effect. It may be that older parent generations favored men as heirs and that this has started to change.

[14] Note that due to the large number of people with negative or zero wealth, the percentiles between P10-P20 are not well defined and almost 20% of the population belong to the bottom 10% of the wealth distribution, hence the gap in the graph.

[15] The averages are computed for those who receive an inheritance and/or an inter-vivos gift in a given year.

mirrors these findings. In analogy to Figure 13, Figure A4 shows the probability of making a gift by age (Figure A4a) and net wealth percentile (Figure A4b) along with the corresponding average amounts (Figures A4c and A4d). Taken together, these results support the view that older and richer individuals make larger gifts, which—on average—in turn tend to go to richer individuals.

While the average amount of inheritances rises with age, gifts are highest for those aged 30–50 years. This is also the age group with the highest incidence of inter-vivos gifts. These gifts likely play an important role for the acquisition of real estate. It is common that the parent generation supports their offspring in buying a home, especially in face of the steep rise in housing prices. Since the turn of the millennium, the prices of condominiums and single-family homes have almost doubled. A recent study by the Zurich Cantonal Bank (ZKB, 2019) indicates that taking into account the capital and income requirements, only 10% of tenant households in Switzerland could afford to own their own home due to the high prices. More precisely, only every second tenant household that meets the income requirements, also has the necessary assets to buy their own home. These findings underline the importance of gifts for home ownership, an asset type which is concentrated among 30% of the population in Switzerland compared to many other countries.

The predominance of gifts at younger ages and that of inheritances at higher age is supported by the respective medians among those who receive an inheritance and/or a gift as reported in Figure A5. After age 50 the median for gifts drops to zero and the median amount inherited becomes positive and starts rising.

5 Conclusion

In this paper, I presented detailed evidence on the composition of wealth and income in Switzerland, the joint distribution of income and wealth, as well as evidence on the mobility patterns. The results can be summarized as follows.

The composition of wealth and income in Switzerland bears some some striking features. First, for all wealth groups in Switzerland financial assets are the most important wealth component, making up 50–90% of total gross wealth. Real estate plays a much less important role in individual's portfolios in Switzerland (where the home-ownership rate is below 40%) than in other countries. Second, gender differences in wealth portfolios of single men and women are neglectable. Third, similar to what has been found for the US and different to findings for Nordic countries, labor income from employment and self-employment makes up the lions share of individuals income—even at the top. Labor income remains important even after retirement, yet again it is more important for those retirees further up the income distribution. Finally, income composition varies considerably by gender for single men and women, especially those in the top 1%. While high-income single men draw half of their

income from labor, the female counterpart mostly relies on capital, real estate, and other incomes.

The joint distribution of income and wealth reveals a strong tail dependence, especially at the top. Wealth being more concentrated than income, it is relatively unlikely to be in a higher wealth group relative to ones income group. The wealth distribution further reveals a strong age gradient: with each wealth percentile, average age rises by 0.3 years. The average age of the top 1% is 65 years. On average, wealth is therefore highest around retirement. Through the strong age-wealth gradient, age also affects the joint distribution. At almost all income levels, retirees are in substantially higher wealth percentiles. Correcting for age, the underlying correlation between income and wealth ranks is 0.4. On average, individuals must therefore climb 5 income percentiles to move up 2 percentiles in the wealth distribution.

Income mobility is larger than wealth mobility, wealth is sticky and changes only slowly. The corresponding ten year rank-rank slopes are 0.71 and 0.87, respectively. Again due to the strong age-wealth gradient, wealth shows stronger upward mobility than income over time. Individuals can expect to climb up the wealth distribution even after reaching their legal retirement age. At the bottom, however, there is a wealth trap: of those in the bottom 20% in 2003, 42.8% are still in the same group in 2013. 68.6% have remained below the median and only 2.3% have moved up to the top 10%. This mirrors the situation at the very top of the wealth distribution. Less than 1% of those belonging to the top 1% leave the op 10% even after five or ten years.

Inheritances and inter-vivos gifts substantially increase wealth mobility. The fact that people are most likely to receive inheritances in their late 50s and early 60s helps explain the finding that wealth accumulation continues even after retirement. Both, likelihood and the average amount of inheritances and gifts rise with age and, very strongly, with individual's position in the wealth distribution. While I cannot link child and parent generations, the findings suggests a strong correlation between the wealth rank of those giving and those receiving gifts and inheritances.

As this is ongoing research, I plan to add further analyses. These include the joint distribution of labor income and wealth, individual wealth-income ratios over the distribution, as well as evidence on saving rates and returns to wealth. Furthermore, I want to compare the distribution and top wealth and income shares when the analysis is based on tax units vs. individuals. Since earlier research on top income and wealth shares in Switzerland is based on tax units (as the underlying data are usually tabulated tax statistics), this allows to understand how the unit of measurement impacts the results. This is particularly important when making comparisons across countries but potentially also affects comparisons over time, as household structures may change considerably over time.

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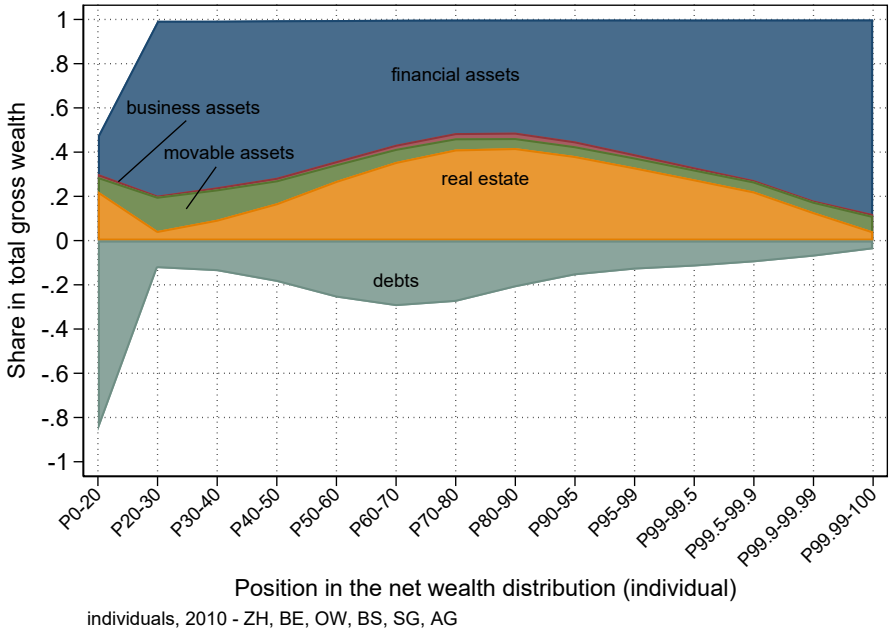
Tables and Figures

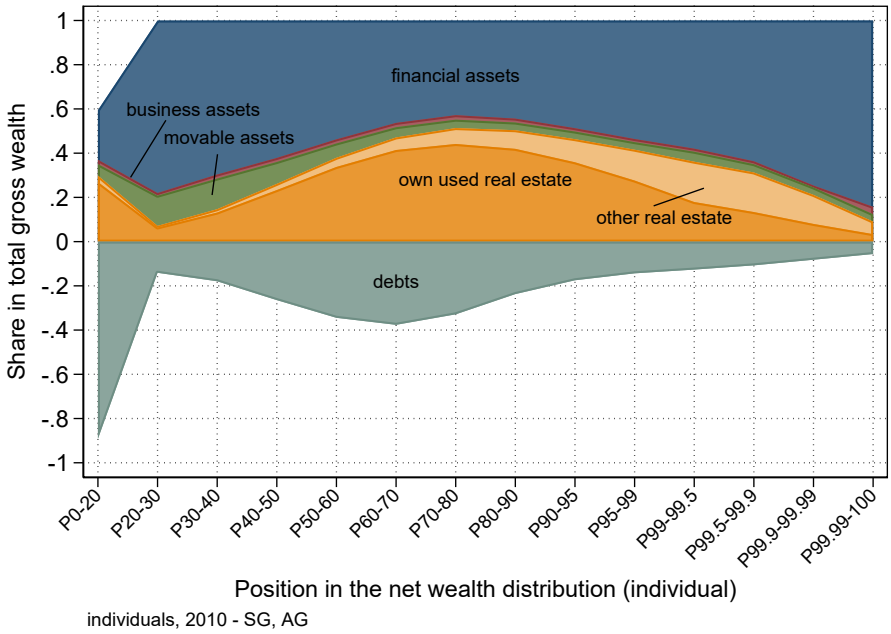
Table 1: Income and wealth percentiles, 2010

	Gross income (in 1000 CHF)				Net wealth (in 1000 CHF)			
Percentile group	Threshold	Mean	Median	Share %	Threshold	Mean	Median	Share %
P0-P20		13	15	4.4		-34	0	-2.7
P20-P30	27	31	31	5.1	0	3	3	0.1
P30-P40	35	39	39	6.4	7	13	12	0.5
P40-P50	42	46	46	7.6	20	31	31	1.2
P50-P60	49	53	53	8.7	44	62	62	2.5
P60-P70	56	60	60	10.0	84	112	111	4.4
P70-P80	64	70	69	11.6	146	194	192	7.7
P80-P90	76	85	85	14.2	253	350	341	13.8
P90-P95	98	111	110	9.2	487	624	611	12.3
P95-P99	127	165	155	11.0	821	1310	1181	20.7
P99-P99.5	254	295	291	2.5	2512	3163	3087	6.2
P99.5-P99.9	351	485	449	3.2	4155	6746	5987	10.7
P99.9-P99.99	812	1381	1136	2.1	13260	25379	20620	9.0
P99.99-P100	3915	24913	6283	4.1	76669	341467	120499	13.5

Note: The table contains the thresholds, mean and median wealth and income as well as income and wealth shares within each percentile group of the gross income and net wealth distributions, respectively. Statistics are based on individual data, where wealth and income are split equally among married adults. Pooled tax data including the cantons BE, OW, AG, SG, BS in the year 2010 and ZH (2011), respectively. See Figure A1 for a graphical representation of the percentile thresholds.



(a) Basic wealth composition



(b) Decomposition of real estate

Figure 2: Wealth distribution and its components in Swiss Cantons, 2010

Note: This figure shows shares of wealth components in total gross wealth by the position in the net wealth distribution. To enhance visibility in the upper part of the wealth distribution, percentile steps for the top 10% are displayed in smaller increments and the lowest 20% are summarized together. Since debts cannot be linked directly to a single wealth component, debt is displayed as negative share in total gross wealth. A significant number of individuals in the lower part of the wealth distribution have no or hardly any assets, but they have debts, resulting in extremely large debt shares. Individual's debt shares are therefore truncated at 300%. Results are based on individual data, where wealth is split equally among married adults. Figure (a) uses pooled tax data including the cantons BE, OW, AG, SG, BS in the year 2010, and ZH in 2011, respectively. Figure (b) contains detailed information on real estate that was only available for SG and AG (2010).

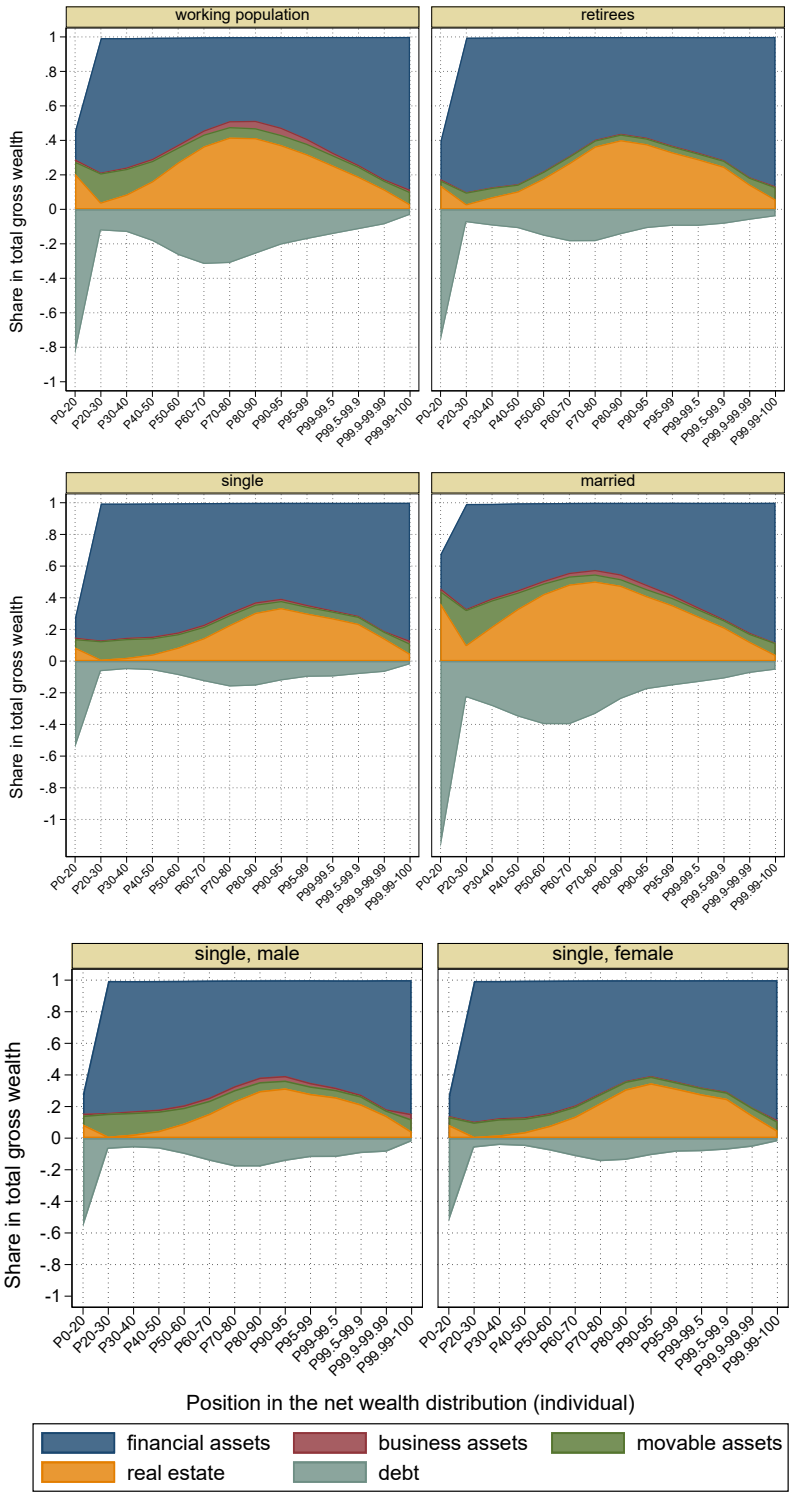
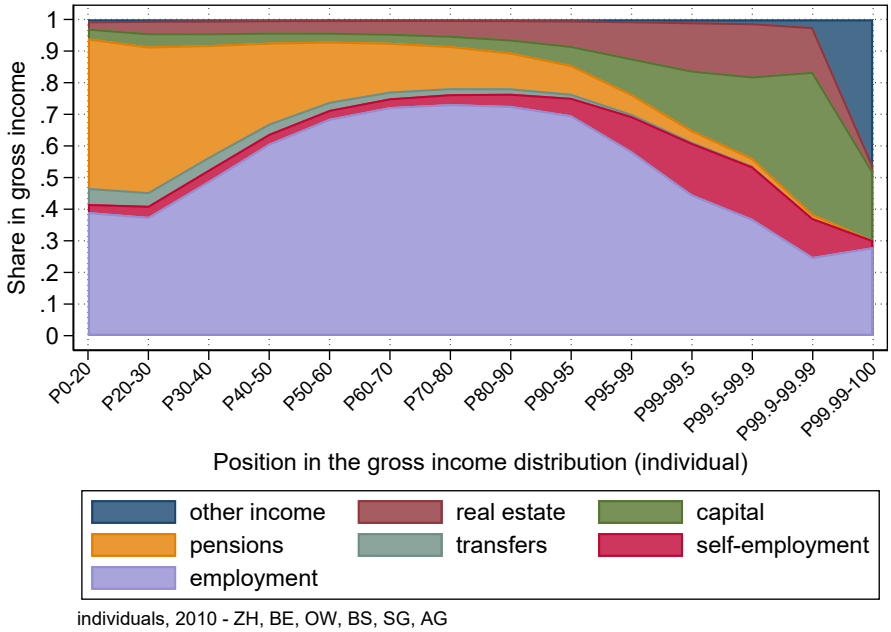
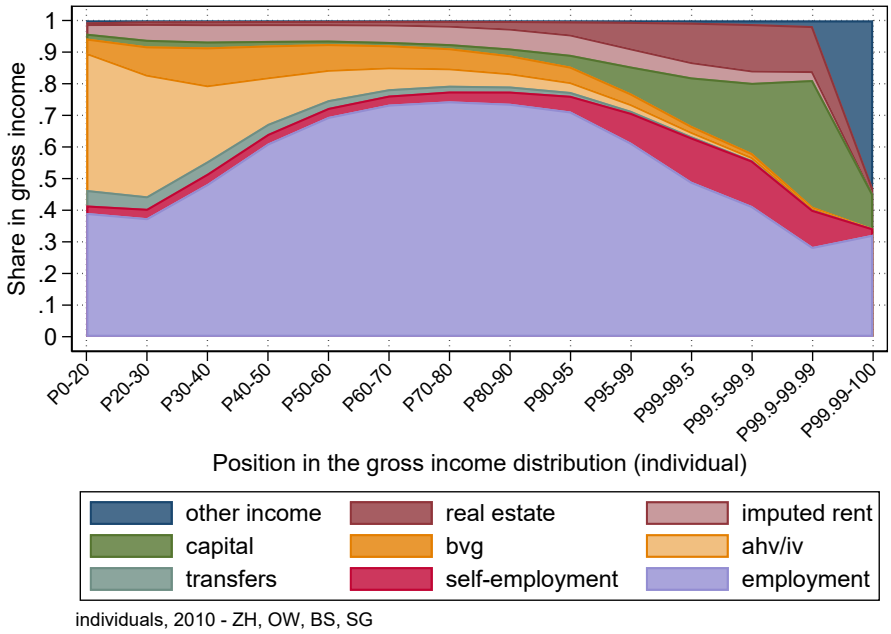


Figure 3: Wealth distribution and its components in Swiss Cantons, 2010

Note: This figure shows shares of wealth components in total gross wealth by the position in the net wealth distribution for different population groups. The working-age population and retirees are defined by legal retirement age (65 m, 64 w). Retirees do therefore not need to be retired. Civil status and gender are reported in the individual tax data. To enhance visibility in the upper part of the wealth distribution, percentile steps for the top 10% are displayed in smaller increments and the lowest 20% are summarized together. Since debts cannot be linked directly to a single wealth component, debt is displayed as negative share in total gross wealth. A significant number of individuals in the lower part of the wealth distribution have no or hardly any assets, but they have debts, resulting in extremely large debt shares. Individual's debt shares are therefore truncated at 300%. Results are based on individual data, where wealth is split equally among married adults. All panels use pooled tax data including the cantons BE, OW, AG, SG, BS in the year 2010, and ZH in 2011, respectively.



(a) Income composition



(b) Detailed income composition

Figure 4: Income distribution and its components in Swiss Cantons, 2010

Note: This figure shows shares of income components in gross income by the position in the gross income distribution. To enhance visibility in the upper part of the income distribution, percentile steps for the top 10% are displayed in smaller increments and the lowest 20% are summarized together. Results are based on individual data, where wealth is split equally among married adults. Figure (a) uses pooled tax data including the cantons BE, OW, AG, SG, BS in the year 2010, and ZH in 2011, respectively. Figure (b) contains detailed information on income from pensions and real estate income. This information is not available for AG and BE.

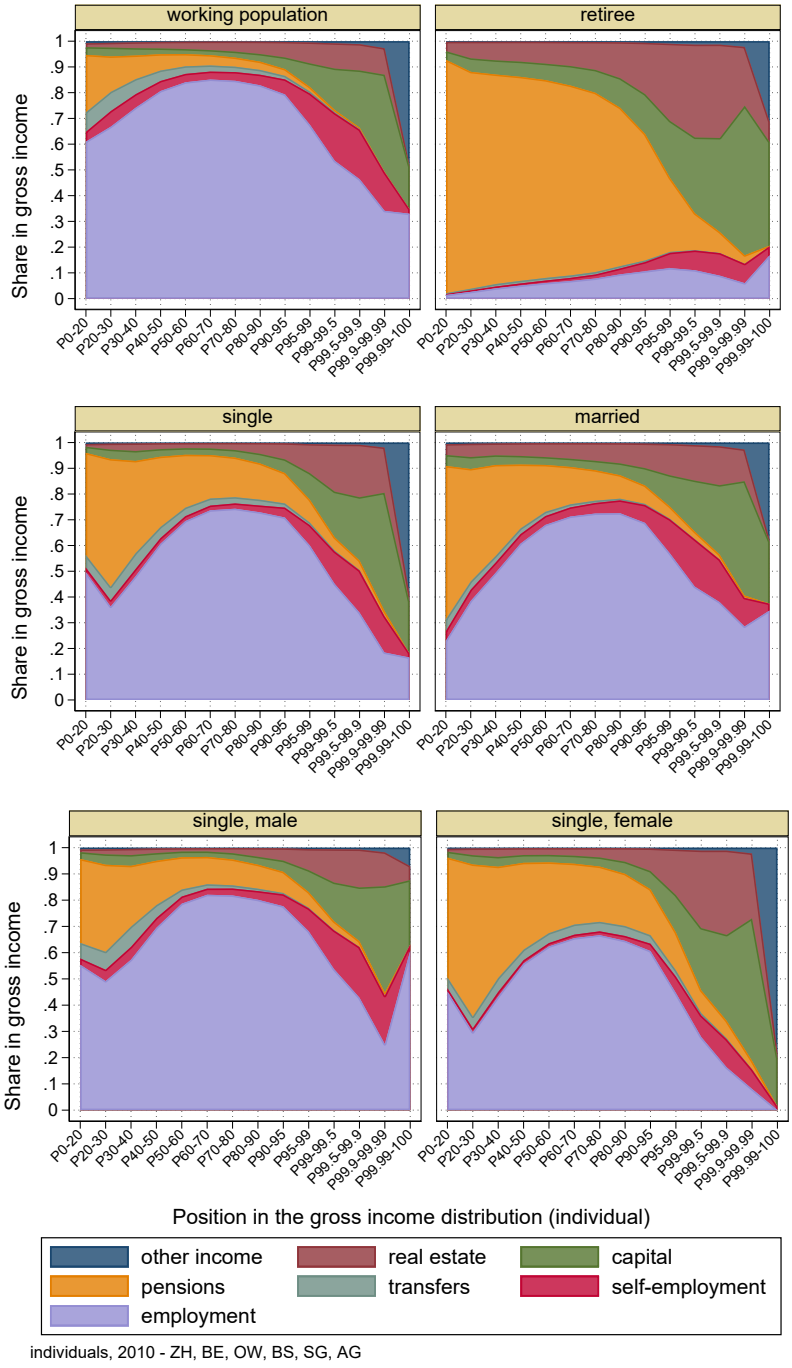
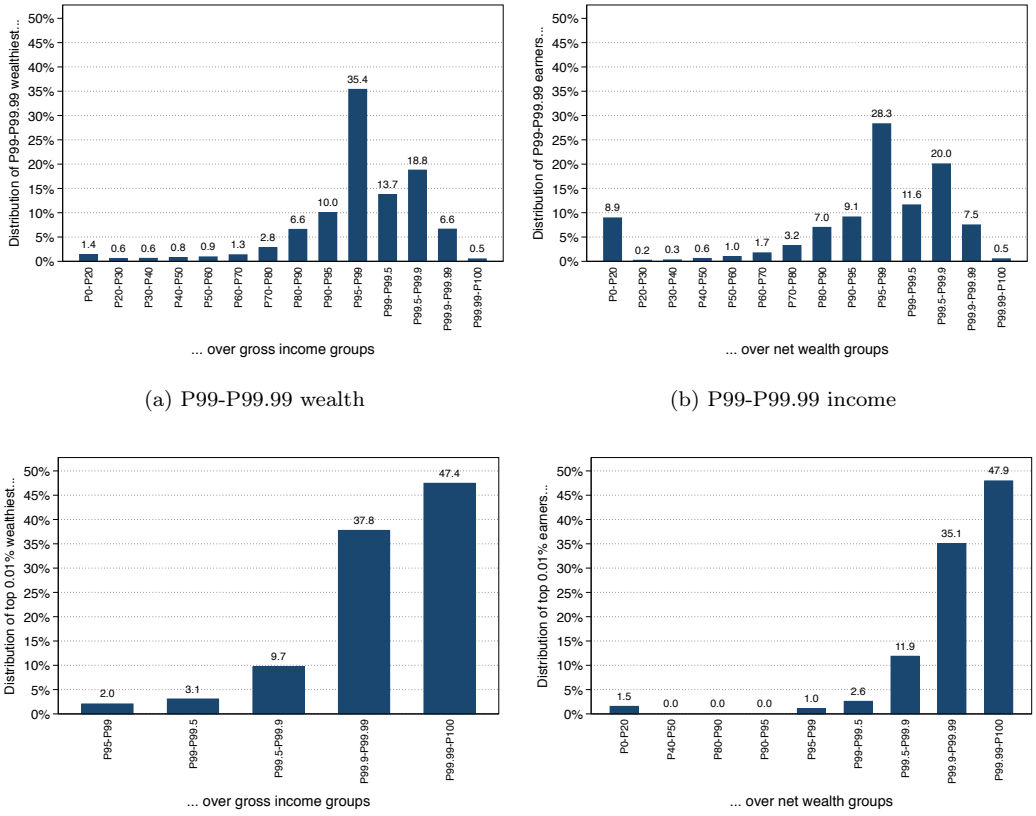


Figure 5: Income components by subgroups in Swiss Cantons, 2010

Note: This figure shows shares of income components in total gross income by the position in the gross income distribution for different population groups. The working-age population and retirees are defined by legal retirement age (65 m, 64 w). Retirees do therefore not need to be retired. Civil status and gender are reported in the individual tax data. To enhance visibility in the upper part of the wealth distribution, percentile steps for the top 10% are displayed in smaller increments and the lowest 20% are summarized together. Results are based on individual data, where wealth is split equally among married adults. All panels use pooled tax data including the cantons BE, OW, AG, SG, BS in the year 2010, and ZH in 2011, respectively.



(a) P99-P99.99 wealth

(b) P99-P99.99 income

(c) Top 0.01% wealth

(d) Top 0.01% income

Figure 6: Joint distribution of individuals in top 1% and top 0.01% wealth and income groups

Note: This figure shows the distribution of the top 1% and top 0.01%, respectively, of the gross income (net wealth) distribution over the net wealth (gross income) distribution by gender. Panel a) shows where those belonging to the P99-P99.99 of the wealth distribution are located in the income distribution (results are very similar for the P99-P99.9 fractile and the top 1%). Panel b) shows where those belonging to the P99-P99.99 of the income distribution stand in the wealth distribution (results are very similar for the P99-P99.9 fractile and the top 1%). Panels c) and d) show the same relationships for the top 0.01%. Individual's position in the income (wealth) distribution is determined for the full population, not separately by gender. Analysis based on individual data, where wealth and income are split equally among married adults. Pooled tax data including the cantons BE, OW, AG, SG, BS in the year 2010 and ZH (2011), respectively.

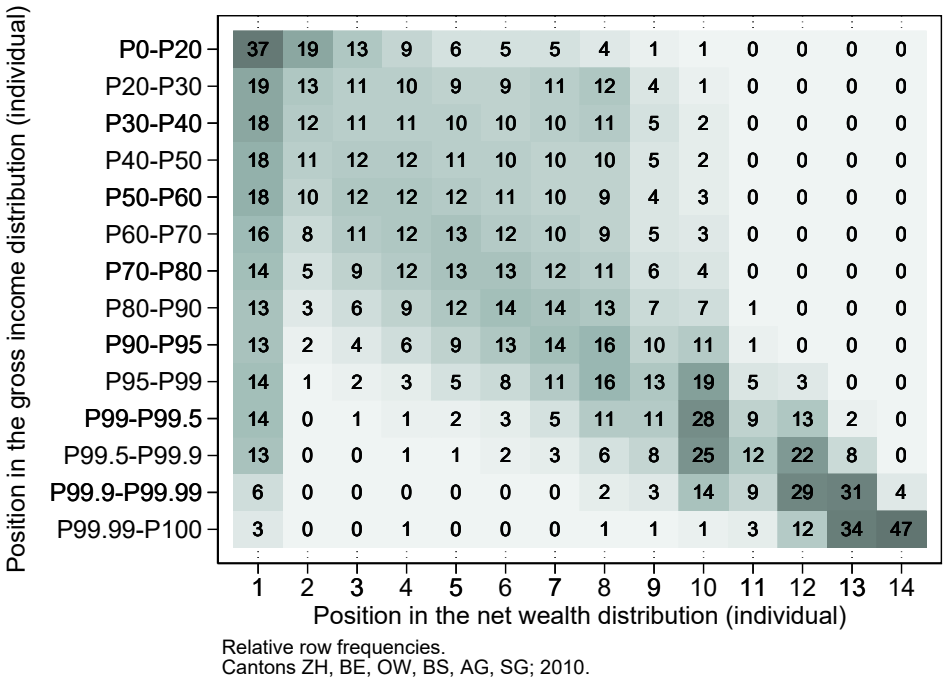
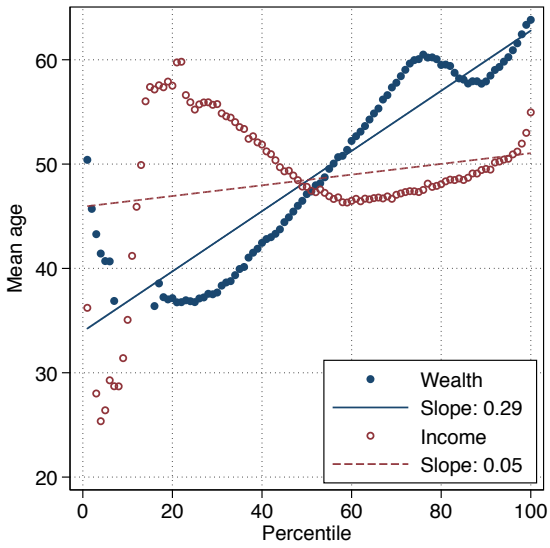
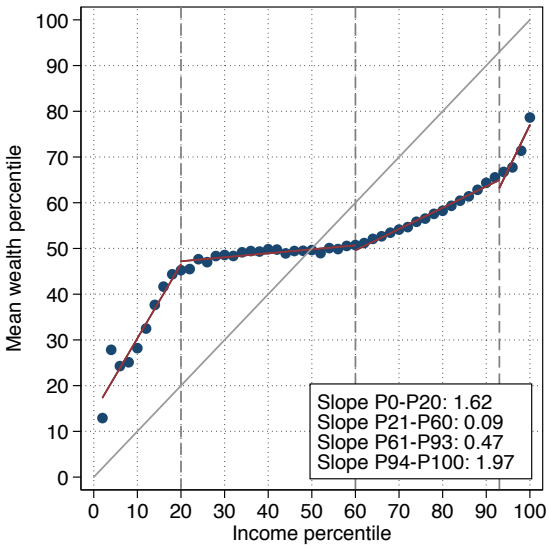


Figure 7: Joint distribution matrix by income and wealth group

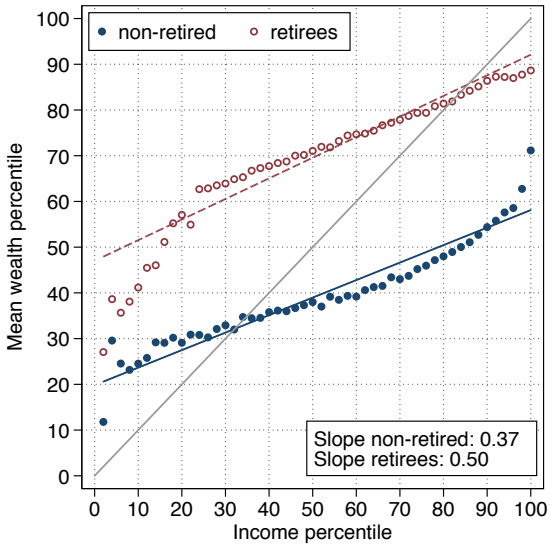
Note: This figure shows the joint distribution of individuals across the gross income and net wealth distributions. For each income group, the matrix shows the share of individuals from that group in each wealth group (relative row frequencies). The shares in each row sum up to 100%. Analysis based on individual data, where wealth and income are split equally among married adults. Pooled tax data including the cantons BE, OW, AG, SG, BS in the year 2010 and ZH (2011), respectively.



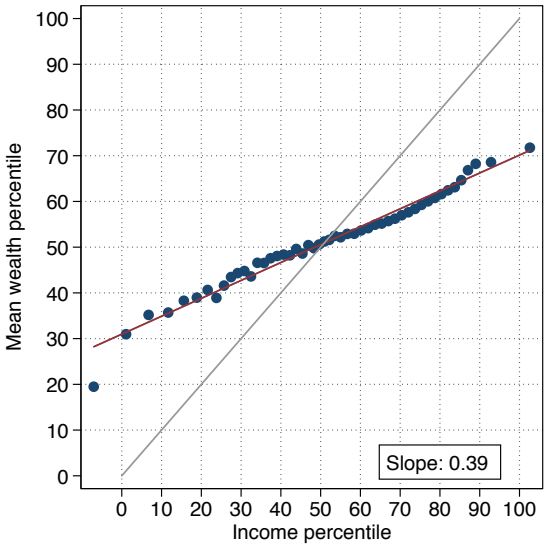
(a) Average age



(b) Baseline



(c) Retirees vs. non-retirees



(d) Baseline, absorbing age effects

Figure 8: Percentile rank correlations of the income and wealth distributions

Note: This figure shows binned scatter plots for average age by wealth percentile (Panel a), and the average wealth percentile for each income percentile (Panels b-d), where the gray line corresponds to the 45 degree line). Panels b) and c) are constructed by binning income rank into 2-percentile point bins (so that there are 50 equal-width bins) and plotting the mean wealth rank in each bin versus the mean income rank in each bin. I report slope estimates from OLS regressions on the binned data. OLS estimates are similar and in many cases identical when the regression is run on the underlying individual data instead. All regression coefficients are statistically significant at the 1% level. Panel a) shows the average age in each wealth and income percentile, respectively. Panel b) shows the baseline relation between income and wealth. Panel c) shows the relation between income and wealth separately for retirees and non-retired individuals. Individual's position in the income (wealth) distribution is determined for the full population, not separately for retirees and non-retirees. Panel d) shows the relation between income and wealth after controlling for age using age fixed effects. Analysis based on individual data, where wealth and income are split equally among married adults. Pooled tax data including the cantons BE, OW, AG, SG, BS in the year 2010 and ZH (2011), respectively.

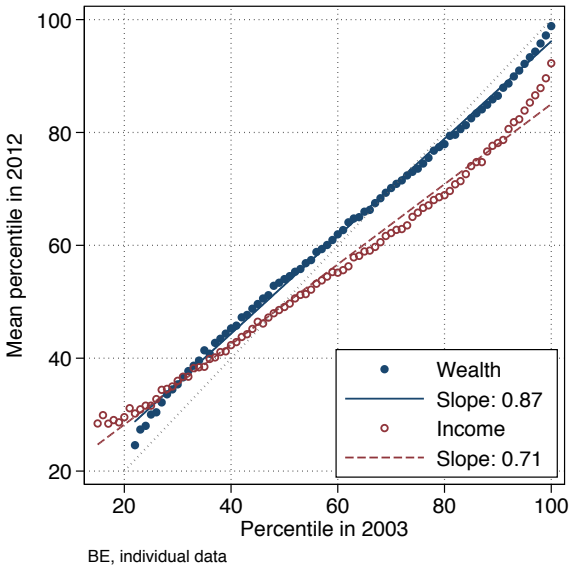
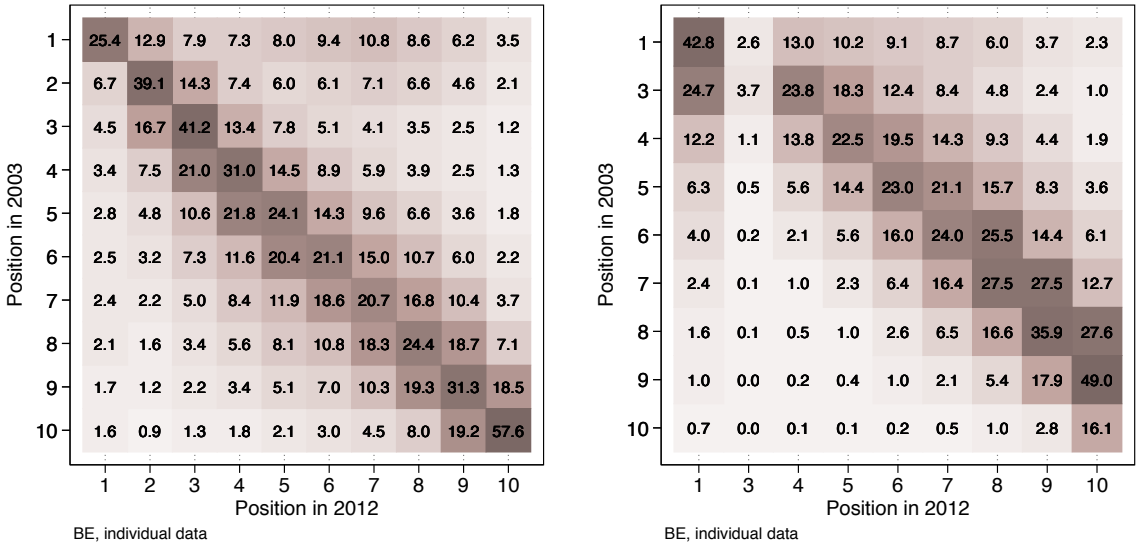


Figure 9: Average income and wealth mobility in the Canton of Bern, 2002–2012

Note: This figure shows a binned scatter plot for the average net wealth (gross income) percentile in 2012 for each net wealth (gross income) percentile in 2002 along with the corresponding OLS regression lines. The gray dotted line depicts the 45 degree line. I report slope estimates from OLS regressions on the binned data. All regression coefficients are statistically significant at the 1% level. Analysis based on individual data from the canton of Bern. Wealth and income are split equally among married adults.

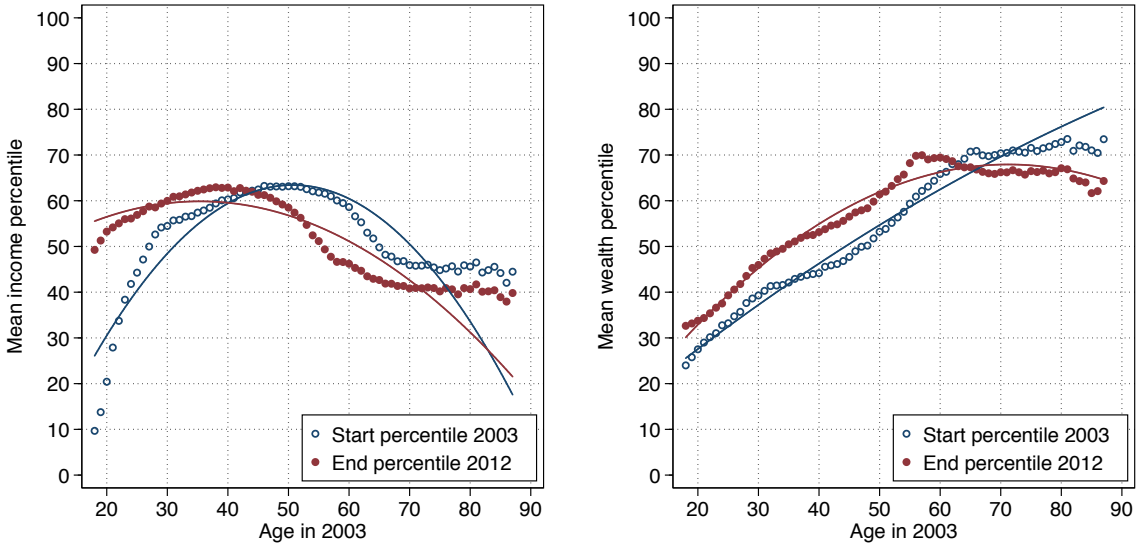


(a) Income mobility matrix

(b) Wealth mobility matrix

Figure 10: Overall income and wealth mobility in the Canton of Bern, 2002–2012

Note: This figure shows net wealth and gross income decile transition matrices between 2003 and 2012. For each income (wealth) decile in 2003, the matrix shows the share of individuals from that group in each decile in 2013 (relative row frequencies). The shares in each row therefore sum up to 100%. Individuals are grouped into deciles of the total distribution, but only individuals who are present in both years are part of the mobility analysis. Analysis based on individual data from the canton of Bern. Wealth and income are split equally among married adults.



(a) Income mobility by age

(b) Wealth mobility by age

Figure 11: Income and wealth mobility by age in the Canton of Bern, 2002–2012

Note: This figure shows binned scatter plots for the average gross income (net wealth) percentiles in 2003 and 2012 by age in 2003. Individuals are grouped into percentiles of the total distribution, but only individuals who are present in both years are part of the mobility analysis. Analysis based on individual data from the canton of Bern. Wealth and income are split equally among married adults.

Table 2: Income and wealth mobility estimates by age group, 2003–2012

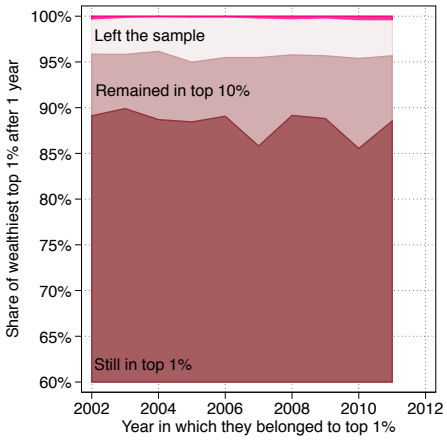
	Wealth mobility			Income mobility		
	Rank 2003	R^2	N	Rank 2003	R^2	N
Age: 18-25	0.738	0.309	58776	0.322	0.062	58776
	(.0049)			(.0059)		
Age: 26-30	0.757	0.397	37492	0.495	0.23	37492
	(.0049)			(.0053)		
Age: 31-35	0.709	0.415	50734	0.618	0.369	50734
	(.0039)			(.0041)		
Age: 36-40	0.705	0.461	60415	0.675	0.439	60415
	(.0033)			(.0036)		
Age: 41-45	0.704	0.5	60184	0.728	0.505	60184
	(.0031)			(.0035)		
Age: 46-50	0.7	0.525	56621	0.744	0.525	56621
	(.0032)			(.0035)		
Age: 51-55	0.679	0.546	54513	0.687	0.474	54513
	(.0033)			(.0035)		
Age: 56-60	0.662	0.547	51258	0.602	0.441	51258
	(.0037)			(.0033)		
Age: 61-65	0.756	0.622	38086	0.617	0.501	38086
	(.0044)			(.0037)		
Age: 66-70	0.859	0.723	30279	0.752	0.699	30279
	(.0044)			(.0038)		
Age: 71-75	0.87	0.731	22812	0.809	0.773	22812
	(.0049)			(.004)		
Age: 76-110	0.862	0.696	21413	0.817	0.787	21413
	(.0051)			(.0041)		

Note: This table shows OLS results from regressing individual's net wealth (gross income) percentile rank in 2012 on their percentile rank in 2003 for different age groups. Age is measured in 2003. Only individuals who are present in both years are part of the analysis. Analysis based on individual data from the canton of Bern. Wealth and income are split equally among married adults. All regressions include a constant (not reported). Robust standard errors in parentheses.

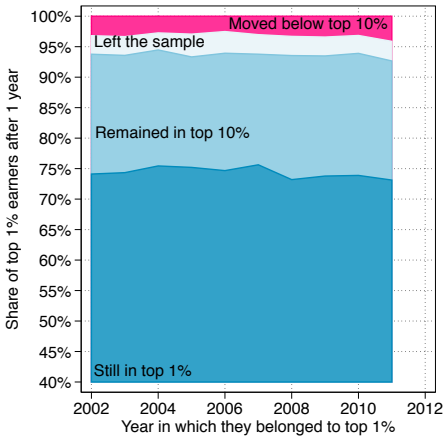
Table 3: Income and wealth rank mobility estimates, 2003-2012

Sample:	(1) total	(2) female	(3) male	(4) married	(5) single	(6) inheritance	(7) gift	(8) gift given
		Panel A: Wealth mobility 2003-2012						
Rank 2003	0.723	0.735	0.711	0.688	0.747	0.544	0.510	0.604
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.006)
Constant	19.511	18.458	20.490	24.242	14.773	38.045	39.988	32.115
	(0.073)	(0.104)	(0.102)	(0.106)	(0.095)	(0.208)	(0.228)	(0.543)
R^2	0.575	0.592	0.559	0.564	0.542	0.450	0.384	0.472
		Panel B: Income mobility 2003-2012						
Rank 2003	0.653	0.680	0.629	0.688	0.618	0.670	0.594	0.698
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.003)	(0.003)	(0.004)
Constant	19.146	16.560	21.607	15.386	23.315	16.195	27.375	11.148
	(0.072)	(0.096)	(0.107)	(0.092)	(0.111)	(0.170)	(0.224)	(0.253)
R^2	0.466	0.503	0.433	0.556	0.383	0.507	0.376	0.540
N	542,583	268,677	273,906	308,804	233,779	103,112	75,141	39,032

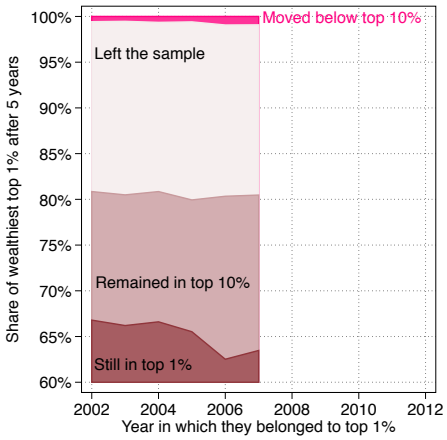
Note: This table shows OLS results from regressing individual's net wealth percentile rank in 2012 on their percentile rank in 2003 (top panel A), and from regressing individual's gross income percentile rank in 2012 on their percentile rank in 2003 (bottom panel B). Only individuals who are present in both years are part of the analysis. Column 1 shows results for the full sample. Columns 2 and 3 show results for women and men, respectively. Columns 4 and 5 show results for those who in 2003 were married or single, respectively. Columns 6 and 7 show results for individuals who received an inheritance or a an inter-vivos gift between 2004 and 2012. Column 8 shows results for individuals who made an inter-vivos gift between 2004 and 2012. Analysis based on individual data from the canton of Bern. Wealth and income are split equally among married adults. All regressions include a constant and age fixed effects (not reported). Robust standard errors in parentheses.



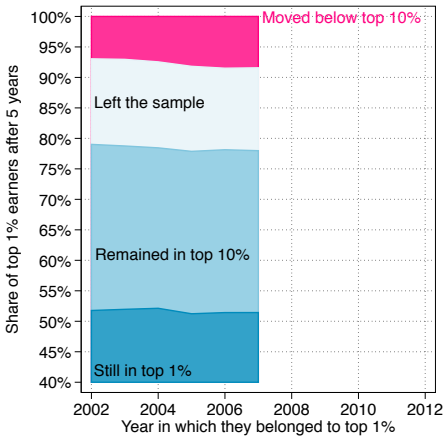
(a) Top 1% wealthiest, after 1 year



(b) Top 1% earners, after 1 year



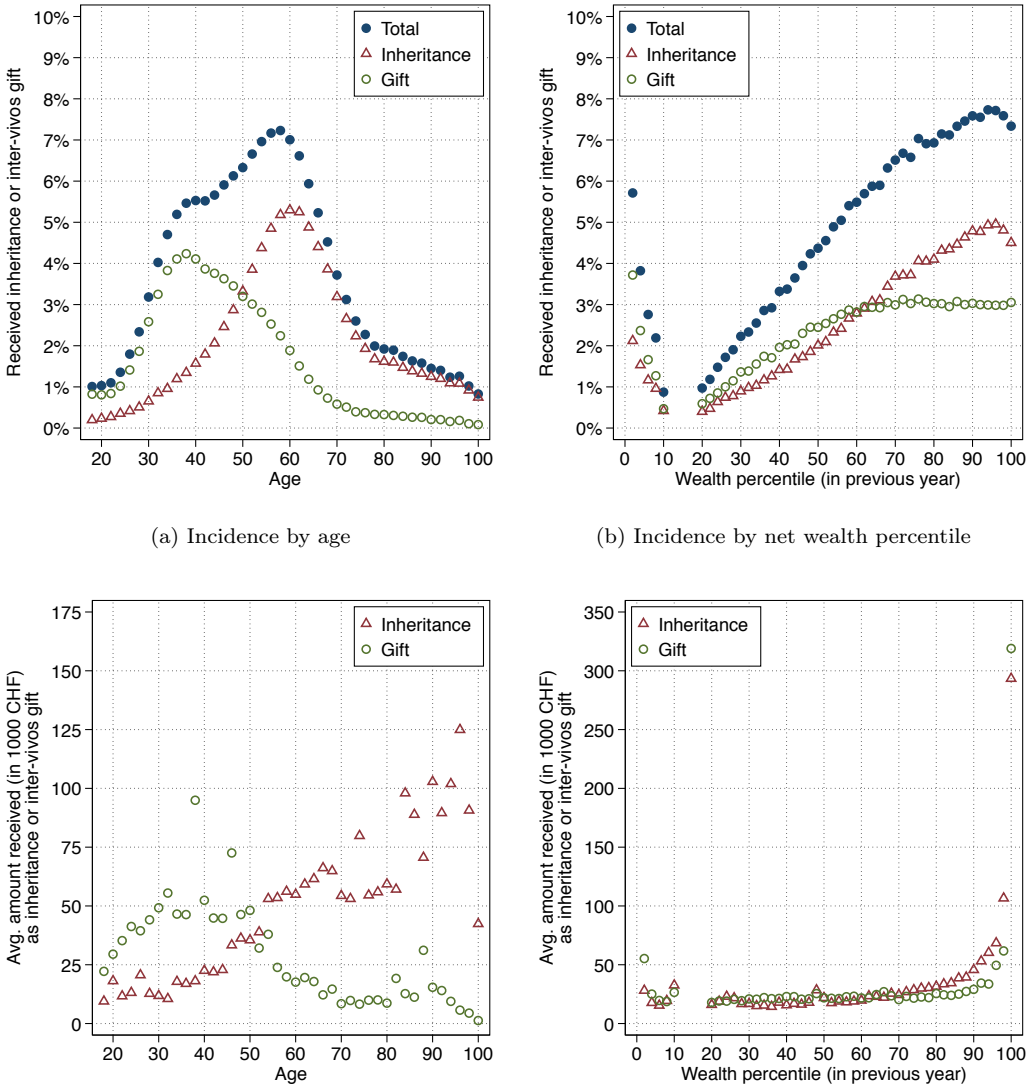
(c) Top 1% wealthiest, after 5 years



(d) Top 1% earners, after 5 years

Figure 12: Top income and wealth persistence, Canton of Bern, 2002–2012

Note: This figure shows the persistence of the top 1% of the net wealth (gross income) distributions at the top over time. Individuals are grouped into percentiles of the total distribution. Analysis based on individual data from the canton of Bern. Wealth and income are split equally among married adults.



(a) Incidence by age

(b) Incidence by net wealth percentile

(c) Avg. value by age

(d) Avg. value by wealth percentile

Figure 13: Inheritances and inter-vivos gifts, Canton of Bern, 2002–2012

Note: These binned scatter plots display the relationship between inheritances and inter-vivos gifts on one hand, and age and net wealth percentiles on the other. For clearer visualization, the figures are constructed by binning age into 2-year point bins (so that there are 41 equal-width bins) and by binning percentiles into 2-percentile point bins (so that there are 50 equal-width bins). The gap between P10 and P20 stems from the excess mass at zero. The bottom 10 wealth percentiles contain 20% of the poorest population. Percentiles refer to the percentile in the year prior to receiving a gift or inheritance. Due to how tax IDs are constructed in Switzerland, wife's IDs change after the death of their spouse. Graphs by pre-inheritance wealth percentiles therefore mechanically exclude inheritances of widows from their late husbands. Panel a) shows the incidence of inheritances, gifts, or any combination of the two by recipient's age. Panel b) shows the incidence of inheritances, gifts, or any combination of the two by net wealth percentile of the recipient. Panel c) shows average amounts received by age. Panel d) shows average amounts received by net wealth percentile. Individual income tax data of the Canton of Bern, years 2002–2012 pooled. Unit of analysis is the individual. For married individuals, net wealth, gifts, and inheritances are equally split between spouses. Sample restriction: 18< age <100. Averages in Panels c) and d) include all individuals who received an inheritance and/or a gift. Panel c) excludes one outlier of a single large inheritance of a person above the age of 95 years.

Appendix A Additional Tables and Figures

A.1 Additional Tables

Table A1: Population averages by gross income percentile group

Gross income percentile		Net wealth	Married	Singles female	Singles male	Children	Retiree[1]	Self-employed[2]	Employed[3]
		(1K CHF)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
P0-P20		57	31.4	35.6	32.5	26.7	24.2	3.9	47.7
		(0.543)	(0.068)	(0.071)	(0.069)	(0.065)	(0.065)	(0.040)	(0.103)
	N	462,995	462,995	460,634	460,634	462,995	436,113	235,024	235,024
P20-P30		126	56.9	28.2	14.5	36.1	47.6	5.1	41.7
		(0.557)	(0.102)	(0.093)	(0.073)	(0.099)	(0.109)	(0.059)	(0.133)
	N	234,385	234,385	232,759	232,759	234,385	208,903	138,210	138,210
P30-P40		137	63.9	23.3	12.2	42.3	38.8	5.1	52.7
		(0.655)	(0.099)	(0.088)	(0.068)	(0.102)	(0.108)	(0.060)	(0.135)
	N	234,317	234,317	232,774	232,774	234,317	205,142	137,640	137,640
P40-P50		136	60.8	24.6	13.9	45.1	28.9	4.5	65.6
		(0.644)	(0.101)	(0.089)	(0.072)	(0.103)	(0.100)	(0.056)	(0.127)
	N	234,203	234,203	232,916	232,916	234,203	204,955	138,908	138,908
P50-P60		137	57.3	23.3	18.4	46.3	21.9	4.0	74.4
		(0.644)	(0.102)	(0.087)	(0.080)	(0.103)	(0.091)	(0.052)	(0.116)
	N	234,892	234,892	233,834	233,834	234,892	206,187	142,246	142,246
P60-P70		153	55.5	22.1	21.3	47.9	18.4	3.9	78.9
		(0.752)	(0.102)	(0.085)	(0.084)	(0.102)	(0.085)	(0.051)	(0.107)
	N	237,789	237,789	236,658	236,658	237,789	207,879	146,549	146,549
P70-P80		187	53.6	22.3	22.6	50.4	16.8	4.1	81.0
		(0.884)	(0.101)	(0.084)	(0.085)	(0.101)	(0.081)	(0.050)	(0.099)
	N	244,650	244,650	243,526	243,526	244,650	213,036	156,069	156,069
P80-P90		262	52.7	21.1	24.2	54.5	15.8	4.6	82.5
		(1.171)	(0.099)	(0.081)	(0.085)	(0.099)	(0.078)	(0.051)	(0.093)
	N	254,455	254,455	253,119	253,119	254,455	219,770	168,121	168,121
P90-P95		374	54.1	17.6	26.2	61.0	15.9	6.0	82.0
		(2.318)	(0.134)	(0.103)	(0.119)	(0.131)	(0.108)	(0.076)	(0.123)
	N	138,103	138,103	136,971	136,971	138,103	115,559	97,356	97,356
P95-P99		684	58.5	13.4	25.9	69.1	18.1	9.1	77.4
		(7.20)	(0.142)	(0.099)	(0.127)	(0.133)	(0.124)	(0.095)	(0.139)
	N	119,852	119,852	118,403	118,403	119,852	96,049	90,790	90,790
P99-P99.5		1,524	58.8	11.7	26.5	74.3	21.6	13.9	70.1
		(43.30)	(0.407)	(0.268)	(0.368)	(0.362)	(0.380)	(0.323)	(0.428)
	N	14,599	14,599	14,415	14,415	14,599	11,768	11,440	11,440
P99.5-P99.9		3,383	60.4	11.9	25.1	74.3	28.1	14.4	65.7
		(129)	(0.470)	(0.313)	(0.419)	(0.419)	(0.481)	(0.378)	(0.511)
	N	10,851	10,851	10,695	10,695	10,851	8,725	8,641	8,641
P99.9-P99.99		14,554	62.0	12.9	23.3	71.4	37.8	13.3	63.2
		(592)	(1.066)	(0.743)	(0.938)	(0.992)	(1.183)	(0.836)	(1.188)
	N	2,076	2,076	2,036	2,036	2,076	1,683	1,648	1,648
P99.99-P100		263,649	67.0	14.9	17.9	72.3	47.0	8.0	53.1
		(55881)	(3.26)	(2.52)	(2.71)	(3.10)	(3.89)	(2.14)	(3.93)
	N	209	209	201	201	209	166	162	162
Total		239	52.2	24.9	21.9	44.8	25.2	4.9	66.9
		(5.152)	(0.032)	(0.028)	(0.027)	(0.032)	(0.030)	(0.018)	(0.039)
	N	2,423,376	2,423,376	2,408,941	2,408,941	2,423,376	2,135,935	1,472,804	1,472,804

Note: The table shows averages by income percentile group. Standard errors in parentheses. For details see notes in table A2.

Table A2: Population averages by net wealth percentile group

Net wealth percentile		Gross income	Married	Singles female	Singles male	Children	Retiree[1]	Self-employed[2]	Employed[3]
		(1K CHF)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
P0-P20		49	45.7	23.8	29.1	50.4	8.8	4.4	73.6
		(0.097)	(0.070)	(0.060)	(0.064)	(0.070)	(0.043)	(0.038)	(0.080)
	N	506,728	506,728	502,046	502,046	506,728	437,124	301,283	301,283
P20-P30		37	35.6	33.4	29.7	40.6	10.3	2.4	76.0
		(0.050)	(0.098)	(0.097)	(0.094)	(0.101)	(0.065)	(0.041)	(0.115)
	N	236,264	236,264	234,913	234,913	236,264	214,760	137,889	137,889
P30-P40		45	37.0	33.1	28.7	41.2	12.8	3.0	79.1
		(0.056)	(0.099)	(0.097)	(0.093)	(0.101)	(0.072)	(0.045)	(0.107)
	N	238,535	238,535	237,457	237,457	238,535	217,128	143,649	143,649
P40-P50		52	45.3	29.6	24.0	44.2	18.1	3.5	76.2
		(0.067)	(0.101)	(0.093)	(0.087)	(0.101)	(0.083)	(0.048)	(0.111)
	N	240,597	240,597	239,501	239,501	240,597	215,339	146,982	146,982
P50-P60		59	56.2	23.5	19.3	46.8	22.3	4.3	73.6
		(0.068)	(0.101)	(0.087)	(0.081)	(0.102)	(0.091)	(0.053)	(0.115)
	N	239,568	239,568	238,449	238,449	239,568	210,738	147,256	147,256
P60-P70		63	64.2	19.4	15.5	47.2	28.0	5.2	68.4
		(0.076)	(0.098)	(0.081)	(0.074)	(0.102)	(0.099)	(0.059)	(0.123)
	N	237,967	237,967	236,854	236,854	237,967	207,367	143,852	143,852
P70-P80		66	67.7	17.9	13.6	43.4	36.7	6.1	60.2
		(0.089)	(0.096)	(0.079)	(0.071)	(0.102)	(0.106)	(0.064)	(0.131)
	N	236,245	236,245	235,139	235,139	236,245	205,593	140,766	140,766
P80-P90		71	66.3	19.6	13.5	38.5	47.8	7.1	50.7
		(0.115)	(0.097)	(0.082)	(0.070)	(0.100)	(0.110)	(0.067)	(0.132)
	N	237,106	237,106	236,010	236,010	237,106	206,266	144,615	144,615
P90-P95		81	62.4	22.3	14.9	40.0	57.2	7.8	42.2
		(0.221)	(0.138)	(0.119)	(0.102)	(0.140)	(0.151)	(0.096)	(0.176)
	N	122,715	122,715	121,906	121,906	122,715	107,685	79,116	79,116
P95-P99		111	55.1	27.1	17.2	47.6	62.2	8.3	38.8
		(0.754)	(0.154)	(0.139)	(0.117)	(0.155)	(0.159)	(0.104)	(0.183)
	N	103,741	103,741	102,936	102,936	103,741	92,628	71,049	71,049
P99-P99.5		189	51.7	29.8	17.7	52.7	63.6	8.9	39.7
		(2.28)	(0.444)	(0.408)	(0.341)	(0.444)	(0.452)	(0.302)	(0.520)
	N	12,660	12,660	12,563	12,563	12,660	11,346	8,842	8,842
P99.5-P99.9		328	53.7	27.3	17.8	52.5	59.0	8.2	46.0
		(4.41)	(0.521)	(0.466)	(0.401)	(0.521)	(0.545)	(0.351)	(0.637)
	N	9,173	9,173	9,116	9,116	9,173	8,158	6,123	6,123
P99.9-P99.99		1,123	60.1	22.3	16.4	55.4	55.8	8.7	50.2
		(75.04)	(1.13)	(0.97)	(0.86)	(1.15)	(1.23)	(0.79)	(1.40)
	N	1,878	1,878	1,854	1,854	1,878	1,634	1,270	1,270
P99.99-P100		20,071	57.3	25.9	14.7	51.8	56.2	6.3	46.4
		(5667)	(3.52)	(3.13)	(2.53)	(3.55)	(3.83)	(2.30)	(4.73)
	N	199	199	197	197	199	169	112	112
Total		62	52.2	24.9	21.9	44.8	25.2	4.9	66.9
		(0.485)	(0.032)	(0.028)	(0.027)	(0.032)	(0.030)	(0.018)	(0.039)
	N	2,423,376	2,423,376	2,408,941	2,408,941	2,423,376	2,135,935	1,472,804	1,472,804

Note: The table shows averages by wealth percentile group. Standard errors in parentheses. The number of observations differs because some variables are missing for some observations. [1]: Individuals with children they care for (may be up to 25 years old). [2]: Individuals beyond the legal retirement age. Some of these individuals still work. [3]: Someone is self-employed, if the majority of their income comes from reported self-employment. [4]: Someone is employed, if the majority of their income comes from reported employment. The indicators for retirement, self-employment and employment are not mutually exclusive.

Table A3: Income and wealth mobility estimates by municipality size, 2003–2012

	Wealth mobility			Income mobility		
	Rank 2003	R^2	N	Rank 2003	R^2	N
Inhabitants						
>100,000	0.779	0.588	67402	0.686	0.47	67402
	(.0031)			(.0032)		
20,000-49,999	0.761	0.583	72299	0.681	0.477	72299
	(.003)			(.0032)		
10,000-19,999	0.739	0.588	73996	0.671	0.464	73996
	(.0031)			(.0033)		
5,000-9,999	0.722	0.587	74767	0.653	0.459	74767
	(.0031)			(.0033)		
2,000-4,999	0.687	0.562	143359	0.629	0.455	143359
	(.0023)			(.0024)		
1,000-1,999	0.666	0.547	55857	0.609	0.476	55857
	(.0036)			(.0037)		
< 1,000	0.644	0.526	54903	0.613	0.477	54903
	(.0038)			(.0038)		

Note: This table shows OLS results from regressing individual's net wealth (gross income) percentile rank in 2012 on their percentile rank in 2003. Therefore, only individuals who are present in both years are part of the analysis. Analysis based on individual data from the canton of Bern. Wealth and income are split equally among married adults. I split the sample according to the municipality size of the residence municipality in 2003. Municipalities are classified by size following the official size classification of Swiss municipalities by the SFSO. The only city with more than 100,000 inhabitants in the canton of Bern is Bern. No city in the canton has 50,000–99,999 inhabitants. The cities of Köniz, Thun, and Biel/Bienne each have 20,000–49,999 inhabitants. In total the canton of Bern had 395 municipalities at the time of analysis, many of them small.

A.2 Additional Figures

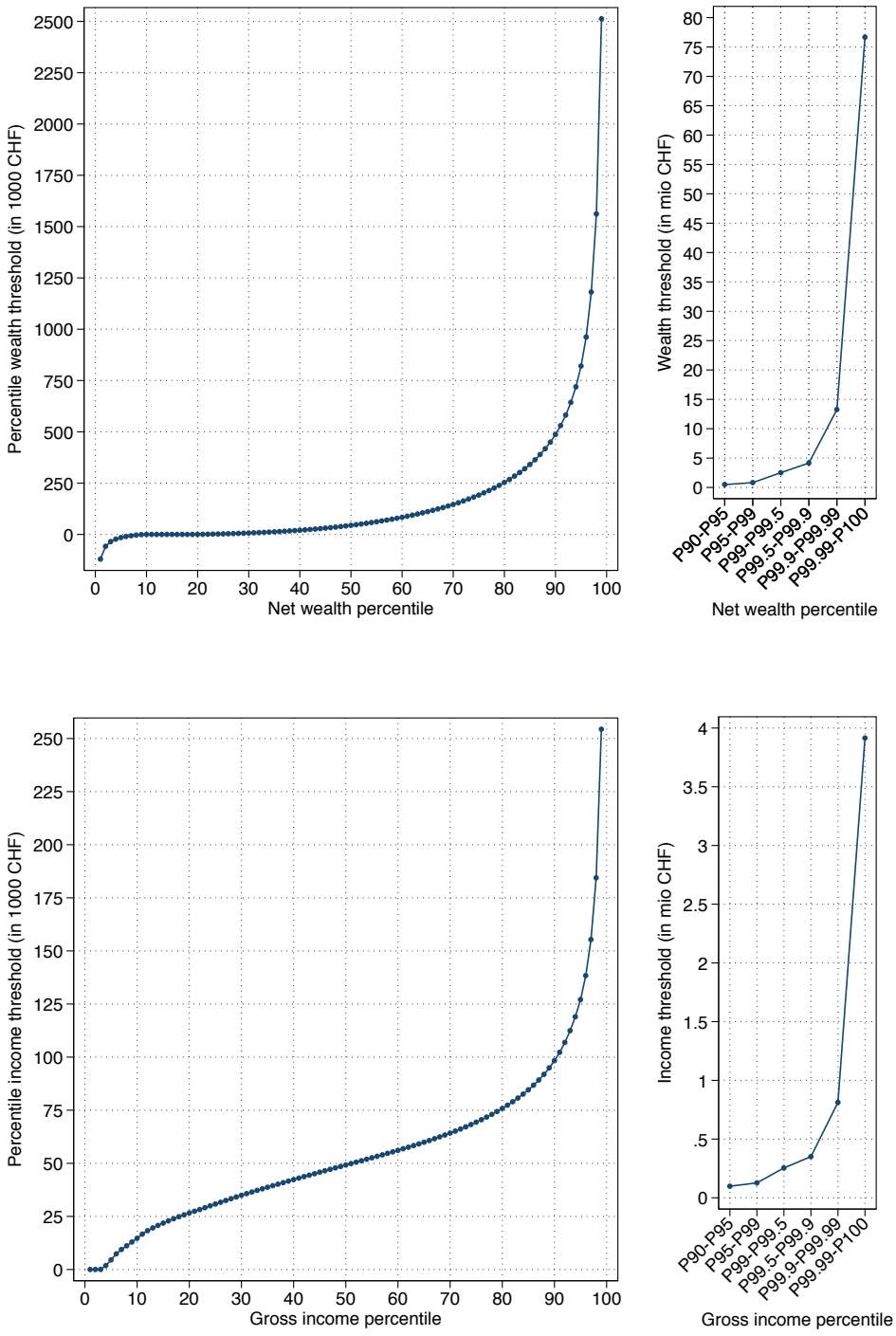
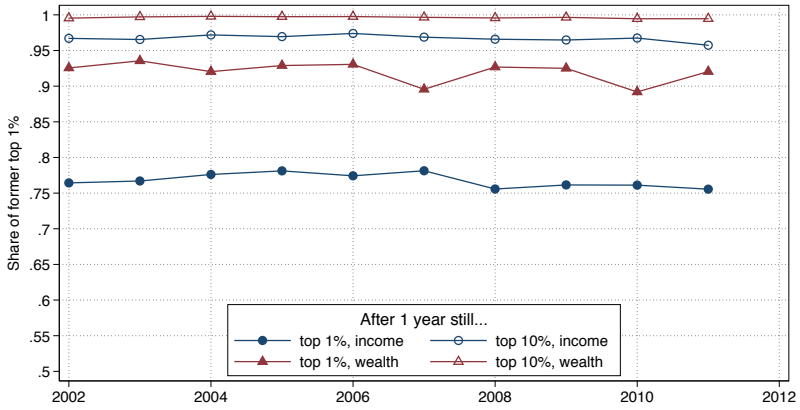
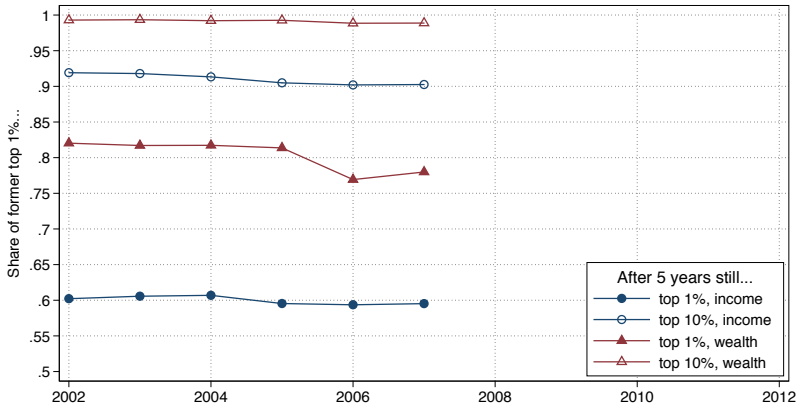


Figure A1: Wealth and income percentile thresholds

Note: This figure shows the percentile thresholds to belong to a specific percentile of the wealth and income distribution, respectively. Analysis based on individual data, where wealth and income are split equally among married adults. Pooled tax data including the cantons BE, OW, AG, SG, BS in the year 2010 and ZH (2011), respectively. See notes in Table 1 for further details.



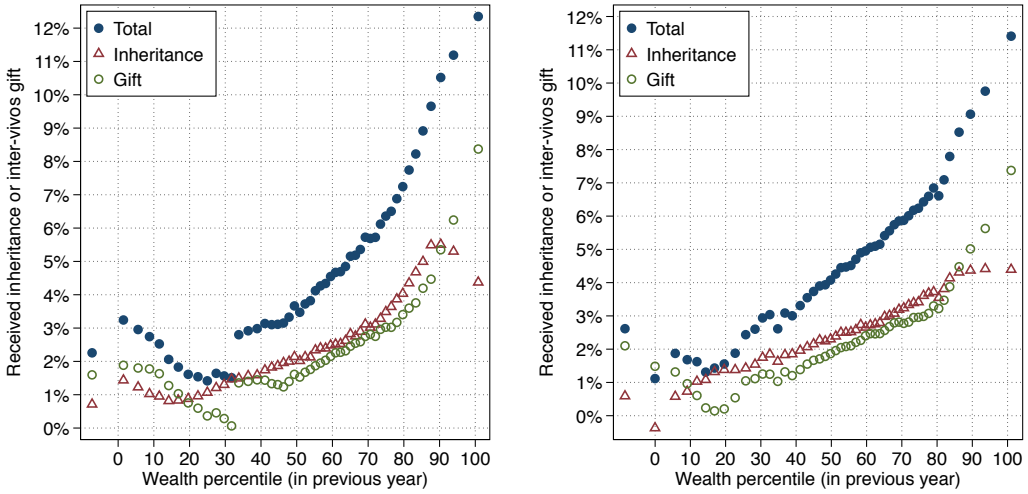
(a) Persistence at the top after 1 year



(b) Persistence at the top after 5 years

Figure A2: Top income and wealth persistence, Canton of Bern, 2002–2012

Note: This figure shows the persistence of the top 1% of the net wealth (gross income) distributions at the top over time. Individuals are grouped into percentiles of the total distribution, but only individuals who are present in both years are part of the mobility analysis. Analysis based on individual data from the canton of Bern. Wealth and income are split equally among married adults.

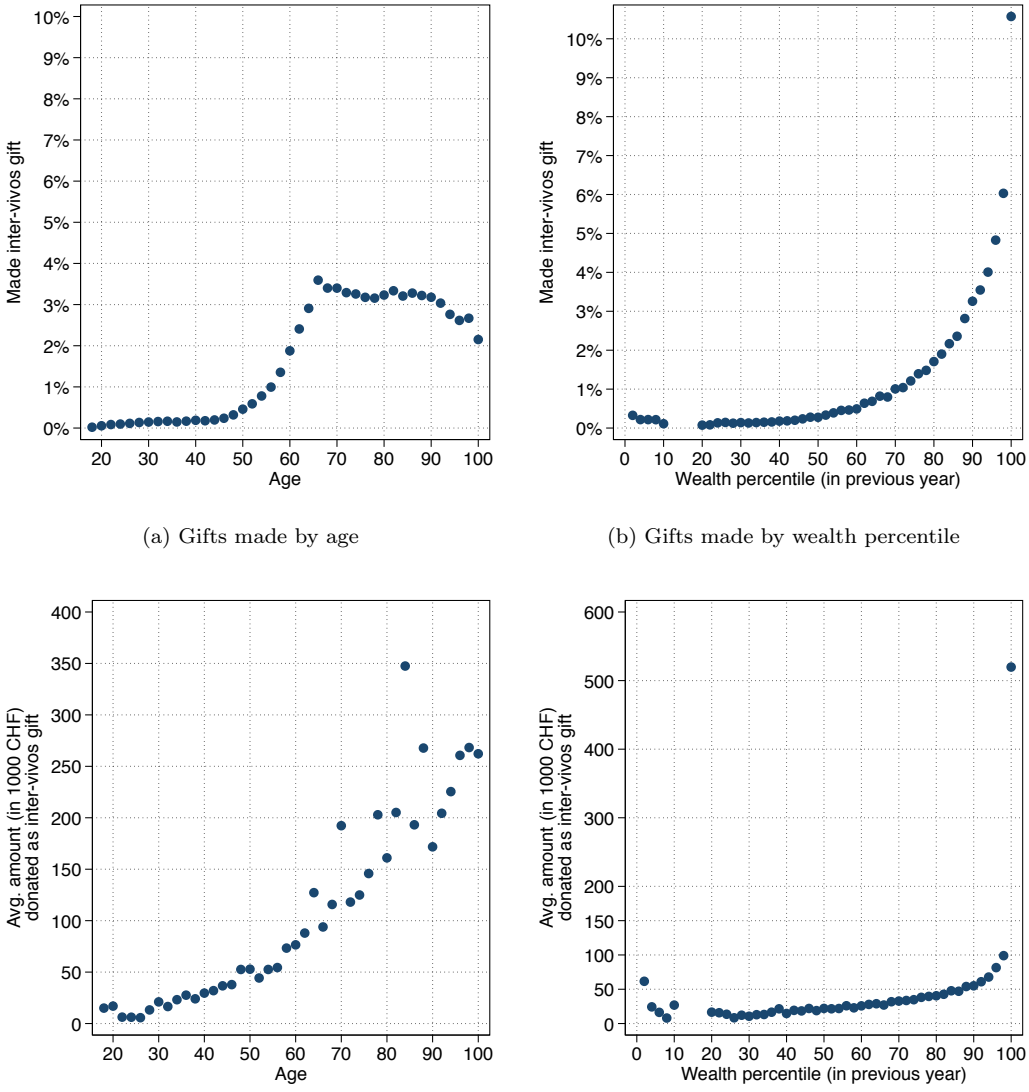


(a) Age control

(b) Age fixed effects

Figure A3: Gifts and inheritances by wealth percentile, controlling for age effects

Note: These binned scatter plots display the incidence of inheritances and inter-vivos gifts on by net wealth percentiles controlling for age. For clearer visualization, the figures are constructed by binning wealth percentiles into 2-percentile point bins (so that there are 50 equal-width bins). Percentiles refer to the percentile in the year prior to receiving a gift or inheritance. Panel a) shows the incidence of inheritances, gifts, or any combination of the two by percentile including a control for the recipients age in the underlying OLS regression (using the binscatter command in Stata, see Stepner, 2013). Panel b) controls for age using age fixed effects. Individual income tax data of the Canton of Bern, years 2002–2012 pooled. Unit of analysis is the individual. For married individuals, net wealth, gifts, and inheritances are equally split between spouses. Sample restriction: 18< age <100.



(a) Gifts made by age

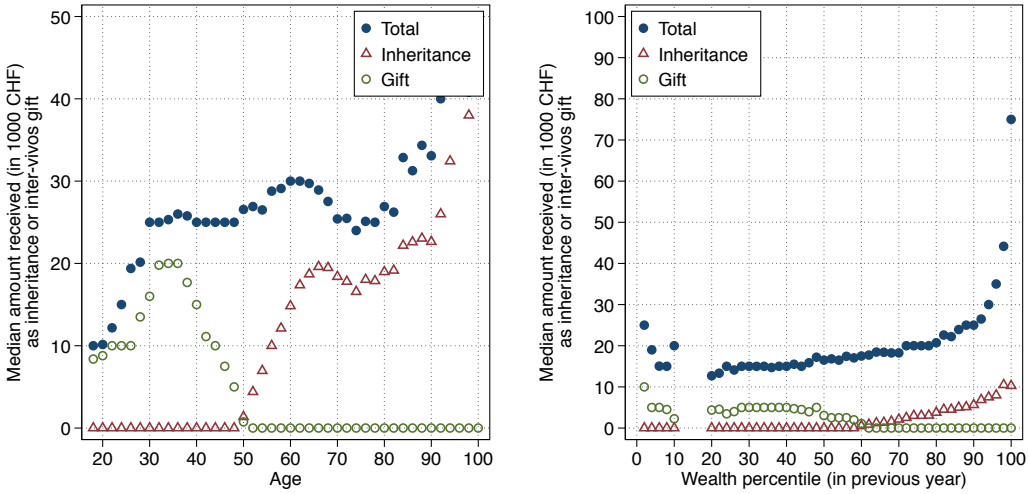
(b) Gifts made by wealth percentile

(c) Avg. value by age

(d) Avg. value by wealth percentile

Figure A4: Inter-vivos gifts made, Canton of Bern, 2002–2012 pooled data

Note: These binned scatter plots display the relationship between inter-vivos gifts made on one hand, and age and net wealth percentiles of the donor, respectively. For clearer visualization, the figures are constructed by binning age into 2-year point bins (so that there are 41 equal-width bins) and by binning percentiles into 2-percentile point bins (so that there are 50 equal-width bins). Percentiles refer to the percentile in the year prior to making an inter-vivos gift. The gap between P10 and P20 stems from the excess mass at zero: the bottom 10 wealth percentiles contain 20% of the poorest population. Panel a) shows the incidence of gifts by donor's age, Panel b) shows the incidence by net wealth percentile of the donor. Panels c) and d) show the corresponding average amounts donated. Individual income tax data of the Canton of Bern, years 2002–2012 pooled. Unit of analysis is the individual. For married individuals, net wealth and gifts made are equally split between spouses. Sample restriction: 18< age <100.



(a) Median value by age

(b) Median value by wealth percentile

Figure A5: Median inheritances and inter-vivos gifts, Canton of Bern, 2002–2012

Note: For those individuals who received either an inheritance and/or an inter-vivos gift, these binned scatter plots each display the median of the inheritance, of the gift, and of the total amount received, respectively. Panel a) shows the median by recipient's age. For clearer visualization, the figure is constructed by binning age into 2-year point bins (so that there are 41 equal-width bins) and plotting the median amount received in each bin versus the mean age in each bin. Panel b) shows the median by net wealth percentile of the recipient. The figure is constructed by binning percentiles into 2-percentile point bins (so that there are 50 equal-width bins) and plotting the median amount received in each bin versus the mean percentile in each bin. Percentiles refer to the percentile in the year prior to receiving a gift or inheritance. Individual income tax data of the Canton of Bern, years 2002–2012 pooled. Unit of analysis is the individual. For married individuals, net wealth, gifts, and inheritances are equally split between spouses. Sample restriction: 18< age <100; all individuals who received an inheritance and/or gift.