

Using Rich Lists to Study the Super-Rich and Top Wealth Inequality: Insights from Switzerland

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Using Rich Lists to Study the Super-Rich and Top Wealth Inequality: Insights from Switzerland

Abstract

We present a new data set we built based on Swiss rich lists going back to 1989. We show, among other things, that 60% of the super-rich are heirs—a fraction twice as large as in the US—and that wealth mobility at the very top has declined significantly. We find that top 0.01% wealth shares are higher than previous estimates based on wealth tax statistics suggest. At the same time, we argue that rich list data lead to overestimating wealth inequality. While rich lists are valuable to study the super-rich, we recommend to use reported wealth figures with caution.

JEL-Codes: C810, D310, D640, J620.

Keywords: super-rich, wealth inequality, inheritances, wealth mobility.

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1 Introduction

The rise in wealth inequality, research on top wealth concentration, and concerns about tax base erosion have increasingly drawn attention to the super-rich. However, the super-rich have remained a largely unexplored group in many countries, and little systematic evidence on their socio-economic characteristics exists. The notable exception are the United States, where Kaplan and Rauh (2013a), Korom et al. (2017), and Scheuer and Slemrod (2020), among others, have used the Forbes 400 list to study the social structure and the origin of wealth of the super-rich.

Rich lists published by business magazines, such as the Forbes 400 List, are becoming an increasingly popular data source to study the super-rich. Besides studying the social fabric of the super-rich and the origin of their wealth, these data in principle also allow to estimate the distribution of wealth at the very top when register data on wealth (or capital incomes) is not available (see, e.g., Bach et al., 2019; Disslbacher et al., 2020; Luo and Chen, 2021). However, it is often not clear how well this data measures wealth of the super-rich, nor whether all individual's belonging to this group are captured in these journalistic outlets.

We contribute to filling this gap in the literature by examining the super-rich and their wealth in Switzerland based on rich list data. We collect, digitize, and supplement Swiss rich lists published in the “BILANZ” business magazine since 1989 to construct a panel data set of the super-rich in Switzerland. This allows us to study, for the first time, the composition of the super-rich living in Switzerland, an international tax haven for the global rich and super-rich. Since Switzerland is one of the few countries that still has an encompassing wealth tax, we can also compare top wealth share estimates based on wealth tax data to top wealth shares from rich list data. In this paper, we present this new data set, and explain its advantages, as well as its limitations and potential downsides for the the analysis of the super-rich and measurement of top wealth.

We make three distinct contributions. First, we build a new and unique panel data set that allows us to investigate the super-rich in Switzerland in detail. We refer to the tiny wealth elite consisting of Switzerland's 300 richest individuals and families listed each

year in the “BILANZ” magazine—i.e., approximately 0.01% of the adult population—as the super-rich. We gathered and digitized data from the Swiss rich list published by the BILANZ magazine for all years from 1989 to 2020, and supplemented this data with manually collected information on individuals and families. We are therefore the first to make this data source available for systematic, quantitative research on the wealth elites residing in Switzerland over the past three decades.

Our second contribution is to present a detailed picture of the super-rich in Switzerland. We study the structure and dynamics of wealth at the very top of the distribution, including the role of inheritances, the industry composition of the wealthy elites, the role of wealthy foreigners, and intra-generational wealth mobility. We show that the super-rich are predominantly male or entire (extended) families. The share of women is less than 10% and there are no signs of an increasing number of women among the super-rich in Switzerland. Average age is beyond 60 and has been increasing since 1989. The number of top managers has increased, but with a share of 8% they still constitute a fairly small group at the very top of the wealth distribution.

Inheritances are still the main factor for making it to the very top of the wealth distribution in Switzerland: in 2020, 60% of those in the BILANZ rich list were heirs or had married into a wealthy family. The share of top wealth owned by heirs fluctuates between 60-80% over the entire period from 1989 to 2020, with no clear trend. Inherited wealth is therefore much more widespread at the top of the wealth distribution in Switzerland than in the US, particularly today: in the US, the share of heirs in the Forbes 400 list has dropped significantly, from 56% in 1982 to 31% in 2018 (Scheuer and Slemrod, 2020). Kaplan and Rauh (2013a) conclude that in the US, access to education at a young age and applying one’s skills in the most profitable industries has become much more decisive than an extensive wealth background for making it to the top of the wealth distribution. In Switzerland, in contrast, we find no support for an increasing importance of meritocratic principles in accessing the top of the wealth distribution. The importance of inheritances is also reflected in the high persistence of the same individuals and dynasties over time in our rich list data. Over the past two decades, wealth mobility among the

super-rich has even declined: 70% of those listed in 2000 were still present five years later. Fifteen years later, 82% of those who were on the list in 2015 were still listed five years later.

Our data also shows the importance of foreigners among the super-rich in Switzerland. Given that wealthy foreigners enjoy a favorable general tax environment and considerable tax privileges in Switzerland, it may not be too surprising that foreigners are significantly overrepresented at the very top of the wealth distribution. Since the turn of the century, about 50% of the individuals in our data are foreign-born (compared to 30% in the total resident population), and these super-rich foreigners are, on average, also richer than their Swiss-born peers. In a companion paper (Baselgia and Martínez, 2023a), we study the role of a preferential tax regime (called expenditure-based taxation, also referred to as lump-sum taxation), which explicitly aims at attracting wealthy foreigners to Switzerland, with respect to the location decision of super-rich foreigners in detail.

Third, we use our new data set to construct the wealth share of the top 0.01% and benchmark it against previous estimates by Föllmi and Martínez (2017), which are based on wealth tax statistics. Our results suggest that Switzerland's super-rich concentrate a higher share of total net wealth among them than previously assumed. We find a top 0.01% wealth share of approximately 16% in recent years, which is about one-third larger than the estimates based on wealth tax data by Föllmi and Martínez (2017). We discuss the different deficiencies in wealth measurement inherent to the two data sources and conclude that while top wealth shares based on tax data likely constitute a lower bound, top shares based on rich list data over-estimate wealth concentration in Switzerland. We conclude that while rich list data is extremely valuable to gain insights into the social fabric of and dynamics among the super-rich, reported wealth values should be understood as indicative. Furthermore, rich lists may omit some individuals. Both factors can affect the shape of the top of the distribution and resulting inequality measures estimated with this kind of data.

Our findings relate to the literature on wealth inequality and the super-rich. A large body of the literature studies top wealth (and income) shares based on tax data (see,

e.g., Dell et al., 2007, and Föllmi and Martínez, 2017, for Switzerland; Kopczuk and Saez, 2004, for the US; Piketty et al., 2006, for France; Roine and Waldenström, 2009, for Sweden; Alvaredo et al., 2018, for the UK; Atkinson, 2008, Atkinson et al., 2010, and Roine and Waldenström, 2015, provide extensive overviews). Unlike surveys, wealth tax returns do not suffer from sampling errors (Vermeulen, 2016), and they are available over many decades and sometimes even centuries. In the absence of administrative tax data in many countries, however, another strand of the literature has started to estimate the distribution of wealth using surveys and rich list data. As surveys typically do not capture the upper part of the wealth distribution well, various authors have supplemented surveys by including individuals from rich lists (e.g., Vermeulen, 2018, for the US, the UK, Germany, France, Italy, Spain, the Netherlands, Belgium, Austria, Finland, and Portugal; Bach et al., 2019, for France, Germany, and Spain; Disslbacher et al., 2020, for 14 European countries; and Luo and Chen, 2021, for China). By providing top wealth share estimates based on both, wealth tax statistics and rich lists, we bridge these two different approaches and show how the different data sources may affect the results. In particular, our results suggest that tax data tends to underestimate wealth inequality, while rich list data may lead to overestimating the level of inequality in a country.

Although the empirical research on wealth inequality has made considerable progress over the past two decades (see, e.g., the review by Zucman, 2019), we still know relatively little about who the people at the absolute top of the wealth distribution are, how they got there, and how long they stay at the top. A minor strand of the literature has examined a variety of factors, particularly how important inheritances are in making it to the absolute top of the wealth distribution. Kaplan and Rauh (2013a) show that Americans in the Forbes 400 are less likely to have inherited their wealth today than they did back in the 1980s. They conclude that this decline in the importance of family wealth is largely due to the major improvements in information technology that allows skilled individuals—superstars—to apply their talents to much larger amounts of capital (see also Kaplan and Rauh, 2013b, and Scheuer and Slemrod, 2020). This finding is generally supported by Korom et al. (2017), who note, however, that family wealth still matters

in the sense that it reduces the likelihood of falling off the Forbes 400 list. With our analysis in Sections 3 and 4 we add Swiss evidence on the nature of the super-rich. Due to its role as global tax haven for the super-rich, the Swiss perspective on the super-rich is particularly insightful.

Recent studies have further started using rich list data to study other phenomena such as tax avoidance (Moretti and Wilson, 2023), political influence (Sałach and Brzeziński, 2022), and corporate ties (Advani et al., 2022). Our companion paper on location choice in response preferential tax treatment (Baselgia and Martínez, 2023a) shows how the Swiss rich list data can be used for policy analysis.

The remainder of this article is organized as follows. Section 2 describes the data. We present our results in three steps. Section 3 provides a descriptive analysis of who the super-rich are. In Section 4, we study the origins of their wealth and wealth mobility at the top. Third, Section 5 explores how rich the super-rich are and presents new estimates of the wealth share of the top 0.01%. We provide some concluding remarks in Section 6.

2 The BILANZ Rich List Data Set, 1989–2020

The BILANZ is a Swiss business magazine that publishes an annual rich list in Switzerland since 1989—similar to the Forbes 400 in the US. We have collected the data from the BILANZ rich list for all years from 1989 to 2020 from hard copies. The list started with 100 entries and until 1994, only Swiss citizens were included. Over time, the number of entries rose continuously, and since 1999, every year the magazine lists the 300 richest individuals and families living in Switzerland.¹

We have collected the following yearly information from the BILANZ magazine: individual respectively family name, net wealth (reported in intervals), industry information, the canton of residence (the subnational Swiss states are called cantons), and a series of dummy variables indicating whether the entry refers to a family (vs. an individual),

¹The BILANZ rich lists also include a small number of Swiss citizens living abroad, as well as a few entries from the Principality of Liechtenstein. We exclude those observations from our panel data set as we are interested in the top wealth dynamics of Swiss residents, which is why our sample is always slightly below 300 (see Table B1 for details).

whether the individual is a CEO or has a similar top managerial role, and whether the individual is female.

We have supplemented the BILANZ data with the following manually collected information: dates on birth and death, the country of birth, a variable that categorizes the origin of wealth (inherited, through marriage, self-made; see Section 4.1 for details), and a dummy variable indicating whether wealth foundation occurred prior to or after WW2. In addition, we capture the reason why someone has entered or exited the sample (death, loss of wealth, leaving Switzerland; see Section 4.2 for details). The manually collected data are taken from the prologues and short profiles in the BILANZ magazine as well as from various online sources (namely newspapers, Wikipedia, and other websites). The panel data set is described in more detail in Appendix A.

2.1 Data Limitations

The limitations of using rich lists for economic research have been discussed extensively in the literature (see, e.g., Davies and Shorrocks, 2000; Atkinson, 2008; Piketty and Zucman, 2015; Bach et al., 2019; and Handreke, 2020). As we introduce a novel data source, we want to transparently discuss several crucial limitations (some of which may be particular of the Swiss rich list data) that should be considered in any empirical analysis and interpretation of this data.²

First, the BILANZ rich list is a journalistic product and therefore does not need to adhere to scientific standards. Some super-rich may be just more newsworthy than others, and this may influence who is eventually included in the list or not. The assumptions underlying the decision to add new entries or remove existing entries are not disclosed by the BILANZ magazine, and thus we sometimes cannot conclusively track all changes. However, we consider the BILANZ magazine's process and estimation methodology—which we describe in more detail in Section 2.2—to be fairly comprehensive and thorough, as it incorporates a variety of private and public sources of information.

²We thank Simon Handreke (2020), an undergraduate student to whom we provided our data for his bachelor thesis, for carefully documenting various weaknesses in the BILANZ data.

A second limitation is that the net wealth estimates in the Swiss rich list are considerably less granular than those in the Forbes 400 rich list. The BILANZ reports net wealth in intervals that span a range of 50 million for the “poorest” entries, and a range of up to one billion Swiss Francs for the richest entries. This results in two drawbacks. First, multiple individuals or families are assigned to the same wealth interval, which does not allow us to provide a unique ranking within an interval. Second, “smaller” changes in net wealth—up to 50 million for the poorest and up to a billion Swiss Francs for the richest—are not captured, limiting wealth mobility analyses. We use the average of the lower and upper bounds of the reported wealth intervals for all analyses presented here.

Third, the Swiss rich list does not use a uniform unit of observation. The ranking entries may be individuals or families.³ Moreover, the observation unit sometimes does not remain constant over time either: individuals become families and later in some cases appear again as individuals. This is not only a drawback of the Swiss rich list, but is also inherent for Germany (Bach et al., 2019) and Austria (Eckerstorfer et al., 2016), for instance. For the US, on the other hand, this problem is far less prevalent, as the Forbes 400 list includes far fewer family entries. The Swiss rich list contains a relatively large number of families in the ranking, and their number has increased significantly in recent years (see Table B1). As expected, family observations are significantly richer than individuals, by an average of approximately 50% over the 2013-2020 period. We take this into account when constructing top wealth shares in Section 5.2.

Despite these data limitations, the BILANZ rich list is a valuable complementary data source to survey and administrative data to study the super-rich and top wealth dynamics. While provided net wealth values themselves are estimates, there remains no doubt that the entries capture the wealth elite in Switzerland. The key advantage of our unique panel data is that we can use market value estimates of total net wealth along with socioeconomic characteristics and ancillary information, providing valuable additional insights into the evolution of the enormous fortunes at the top end of the

³In a few rare cases, individuals who are not related are grouped as collectives, e.g., because they are joint owners of a venture, and their assets cannot be distinctly assigned to single individuals.

wealth distribution over the past 30 years. In contrast to more populous countries like the US, where the Forbes 400 list only covers the top 0.00025% of the population (Kopczuk and Saez, 2004; Saez and Zucman, 2016), the Swiss rich list captures a relatively large fraction of the wealth distribution at the top end—roughly the top 0.01% of the adult population of taxpayers.

2.2 Wealth Estimation Methods

How reliable wealth estimates in journalistic rich lists such as the BILANZ are, is obviously a first-order concern when working with rich list data. In this section, we provide important background information on the process and methodology used by the BILANZ to produce their wealth estimates.⁴

At present, a team of about 35 journalists invests an estimated 1.5 work-years in the production of a single issue of the Swiss rich list. The information used by BILANZ journalists to estimate the various wealth components includes a number of different sources (in addition to the crucial self-reporting by the super-rich themselves, see below): various private and public (corporate) databases; the last publicly available tax register (varying years depending on the canton of residence); land registry records; stock market data (especially disclosed ownership shares); bank analyst valuations; information from the Forbes ranking (in very rare cases only).⁵

The magazine estimates wealth using a systematic approach in which the following assets are valued separately for each ranking entry: (i) shares in listed companies, (ii) shares in privately held companies, (iii) real estate, and (iv) art collections. For those super-rich who mainly hold their wealth in publicly listed companies, the determination of

⁴The Swiss rich list does not contain any methodological information. We obtained this information through conversations with journalists from the BILANZ. We are particularly indebted to the editor-in-chief of the BILANZ rich list, Erik Nolmans, for sharing this information with us. An article published in the Swiss newspaper NZZ on the methodology of the BILANZ wealth estimates further corroborates the described methodology, see NZZ, 2023-11-23.

⁵The BILANZ is aware that relying on the Forbes rankings may lead to reciprocal influence, which is why this only done in rare occasions.

net wealth is relatively straightforward, as any share holdings exceeding 3% of all shares have to be disclosed to the public, and the market value of these shares is consistently observable.⁶

In contrast, valuing privately held companies or art collections is much harder, as these market prices are not readily observable. In Switzerland privately owned companies, regardless of their size, are not obliged to publish any business information such as income statements. To assess the value of privately held companies, the BILANZ therefore commonly conducts an analysis of comparable companies using public and/or estimated sales and earnings metrics. To this end, the journalists also frequently rely on the expertise of bank analysts. Similarly, the assessment of art collections is particularly challenging and usually requires the consultation and appraisal of art experts.

An integral step in the procedure of the BILANZ to produce an accurate estimate of the net wealth of the super-rich is their active participation. Each year in September, in time for the publication in November/December, the BILANZ initiates contact with a majority of individuals identified as super-rich in that year (some individuals on the list, unfortunately, decline to cooperate, but the journalists are in touch with roughly 60% of the individuals and families on the list as reported also in the newspaper NZZ, 2023-11-23). Initially, the super-rich are invited to voluntarily disclose any material changes in their personal and financial affairs. Subsequently, the BILANZ provides its wealth estimate as well as the associated short portrait to the person(s) in question for inspection and review. This allows the super-rich to intervene in case of erroneous information or misestimation of their net worth, and to request a correction prior to the publication of the rich list. Critically, however, adjustments will not be made on the basis of good faith alone, but must be substantiated by specific and verifiable information provided by the super-rich, for instance, by disclosure of tax returns. Consequently, if no credible information is disclosed by the super-rich, the magazine will stick to its estimate. Conversely, individuals who lobby to be included in the rich list (which, according to the

⁶Information on these significant shareholders (> 3%) can be viewed on the SIX Swiss Exchange: <https://www.ser-ag.com/de/resources/notifications-market-participants/significant-shareholders.html#/>.

magazine, has happened multiple times in the past) are required to provide compelling evidence of their purported wealth. Specifically, the BILANZ magazine is very careful not to offer persons who are insufficiently wealthy to be incorporated on the list a broad public platform, to avoid contributing to a potential deception of the public.⁷

According to BILANZ, the iterative exchange between the super-rich and the magazine, characterized by dialogue, scrutiny, and revisions, significantly increases the accuracy of its wealth estimate. Remarkably, a substantial majority of the estimated wealth figures are corroborated by the super-rich themselves. Finally, since its beginnings in 1989, BILANZ has always adhered to its principle of under- rather than overestimating the value of certain wealth components in the face of uncertainty (also to prevent legal issues). Consequently, Swiss rich lists provide a conservative estimate of the net wealth of the super-rich featured.

2.3 Summary Statistics

Appendix Table B1 provides a year-by-year overview of the observations and amounts reported in our BILANZ panel data set. The unbalanced panel consists of 8,057 ranking-year observations covering a total of 899 individuals (or families) which belong to a total of 714 different families. Real average wealth increases over time. After 1999, when the number of individuals is stable and foreigners are included, average real wealth was 1.71 billion (in 2020 Swiss Francs).⁸ Median real wealth was significantly lower at 0.64 billion, reflecting the highly right-skewed wealth distribution among BILANZ's richest. The 300 richest in Switzerland are therefore relatively poor compared to the Forbes 400. In the Forbes 400 sample of Moretti and Wilson (2023), covering the period 1982-2017, average

⁷Especially if someone is not actually wealthy, being included on such a rich list can yield significant benefits, as it may open the doors to the elite circles in society and mislead creditors. Think of a deception story like that of Anna Sorokin (aka Anna Delvey), who became known to a wide audience through Netflix series named after her.

⁸1 CHF is roughly equivalent to 1 US Dollar. Absolute values of net wealth are at constant prices of 2020. To deflate the different nominal wealth series we use the Swiss consumer price index (CPI), available for download from the FSO: <https://www.bfs.admin.ch/bfs/en/home/statistics/prices/consumer-price-index.html>

real wealth was 3.02 billion (in 2017 dollars), and median real wealth was 1.6 billion. As expected, family observations, which have increased over time, tend to be richer on average than individuals, although there is some variation over time (see Table B2 in the Appendix for selected percentiles of the BILANZ wealth distribution).

3 Who Are the Super-Rich?

From previous research, we know relatively little about who the super-rich in Switzerland are. In this section, we provide descriptive statistics from our newly compiled data set.

3.1 Families and Individuals

Between 30% and 50% of all observations are recorded as families, and this percentage has steadily increased in recent years (Figure 1). Among individuals, we observe that the Swiss wealth elite is predominantly male. The share of women among the super-rich individuals fluctuates around 10% over the period from 1989 to 2020. There is no indication that the share of women has risen in recent years, if anything the opposite seems to be the case. The male dominance of top wealth is even more pronounced when we also assign a gender to family observations based on the gender of the primary creator of a family's net wealth: Appendix Figure B1 shows that, according to this classification, about 90% of all super-rich are male or their wealth was originally founded by a male ancestor.

Figure 2 displays the average age of all individual observations in our panel data set. With an average age of more than 60 years, the wealth elite in Switzerland is relatively old, and has been growing older over the past two decades. The observed rise in mean age of the super-rich in Switzerland contrasts with the US, where the Forbes 400 have become younger on average in recent years (Scheuer, 2020). The temporary decline in the average age in the second half of the 1990s can be explained in part by the entry of several new economy entrepreneurs into the ranking.

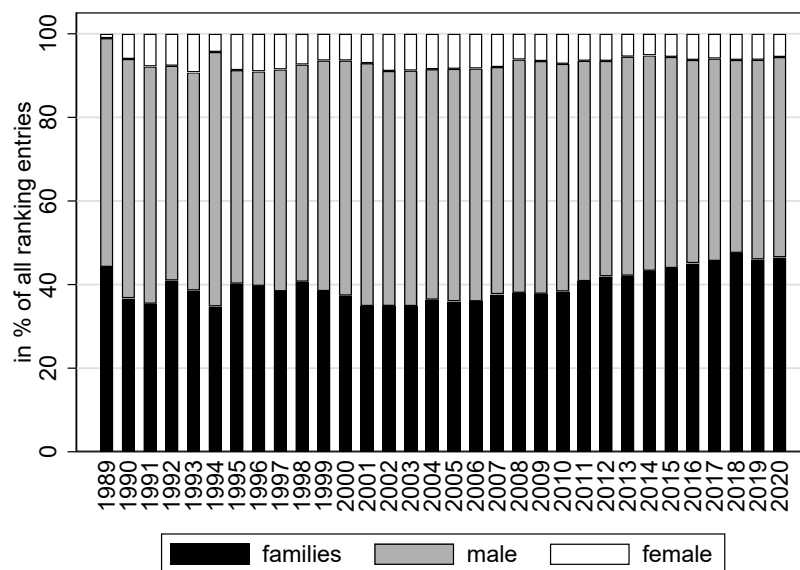


Figure 1: The Super-rich by Family Structure and Gender, 1989–2020

Note: This figure illustrates the rich list ranking entries by family structure and gender per year. The black part of the bars shows the number of family observations as a share of all ranking entries. The gray and white parts of the bars show the percentage of male and female observations, respectively.

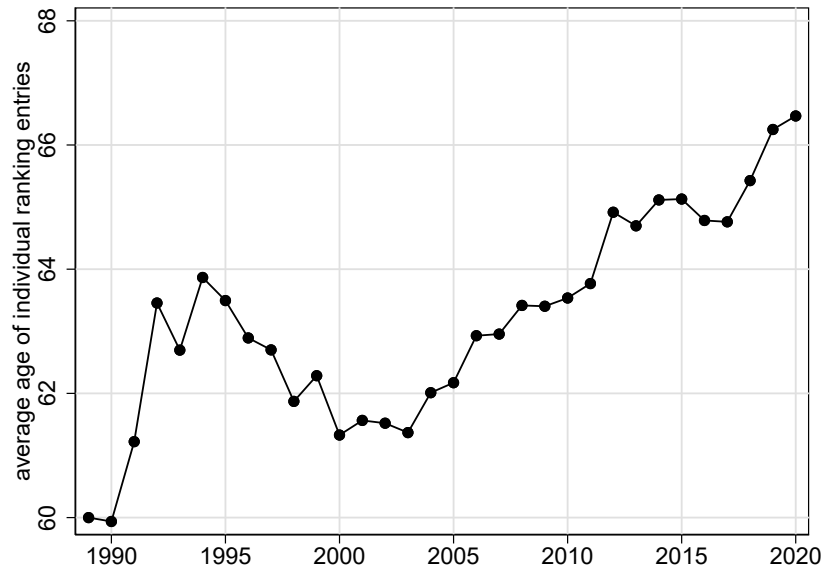


Figure 2: Age Structure of BILANZ Ranking Entries, 1989–2020

Note: This figure shows the average age per BILANZ ranking entry from 1989 to 2020. The average age is computed based on individual observations only. The number of observations in the BILANZ rich list remained stable since 1999 (see Appendix Table B1).

3.2 Foreigners

The super-rich living in Switzerland belong to an international elite. Figure 3 shows the share of non-Swiss-born super-rich as well as their share in BILANZ total top wealth. Since the first inclusion of foreigners in 1993, we observe a steady increase of foreign-born residents among the super-rich to over 50% by 2010. Since then, the share of foreign-born super-rich has declined to about 47%, but is still well above the overall foreign-born share of the resident population of 30%.

Figure 3 further shows that the share of top wealth held by foreign-born super-rich fluctuates around 60%. Hence, the foreign-born super-rich are on average wealthier than those born in Switzerland. This comparison reveals that wealthy foreigners living in Switzerland are heavily over-represented at the top of the wealth distribution.

A closer inspection (see Table 1) reveals that more than half of all foreign-born super-rich moved to Switzerland from neighboring countries, namely Germany (31.2%), France (10.7%), Italy (5.8%), and Austria (3.9%).

As wealthy foreigners moving to Switzerland can benefit from expenditure-based taxation—a special tax privilege offered to wealthy taxpayers without labor income earned in Switzerland—super-rich foreigners need to be given special consideration when analyzing the dynamics and concentration of top wealth. We come back to this point when we discuss the implications of expenditure-based taxation for the study of wealth inequality using tax data in Section 5. We also analyze the role of expenditure-based taxation for the location decisions of super-rich foreigners in a companion paper (Baselgia and Martínez, 2023a).

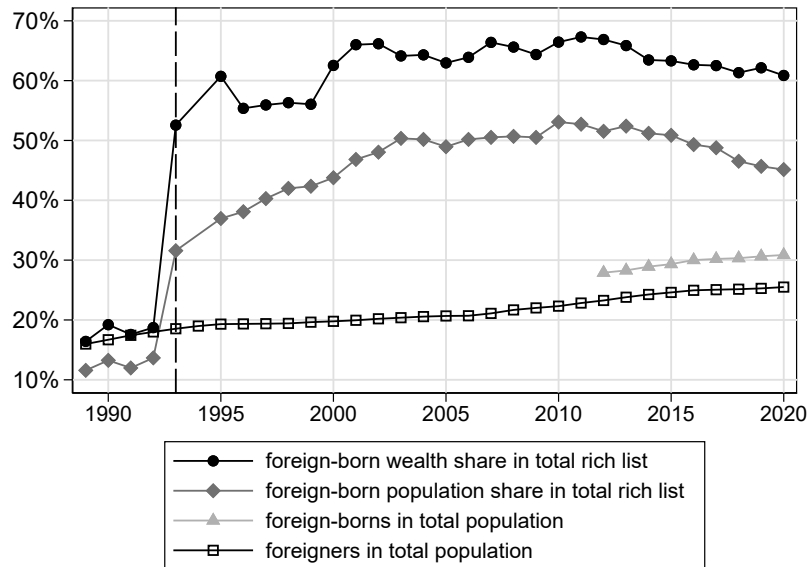


Figure 3: Share of Top Wealth held by Foreign-born Residents, 1989–2020

Note: This figure shows the share of foreign-born residents in relation to the overall number of observations in the Swiss rich list (gray line with diamonds), as well as their share in BILANZ total top wealth (black line with circles), from 1989 to 2020. The jump in 1993 is due to the first-time inclusion of foreigners in the Swiss rich list. Even before 1993, a small number of foreign-born super-rich were Swiss nationals and thus ranked. The black hollow squares depict the percentage of foreigners in the total population. The gray line (with triangles) shows the share of first-generation immigrants in total population, for all people aged 15 and older. The population data are available for download from the FSO: <https://www.bfs.admin.ch/bfs/en/home/statistics/population.html>

Table 1: Top 10 origin countries of the foreign-born super-rich, 1989–2020

Country	number	share (in %)
Germany	129	31.2
France	44	10.7
Italy	24	5.8
United Kingdom	19	4.6
Sweden	17	4.1
Austria	16	3.9
United States	14	3.4
Greece	13	3.1
Saudi Arabia	9	2.2
Netherlands	7	1.7
Other countries	97	23.5
Missing country information	24	5.8
Total	413	100.0

Note: This table shows the 10 most frequent countries of origin from which foreign-born super-rich moved to Switzerland. We collected this information manually, which is why for some super-rich, for whom we know they were born abroad, we were unable to assign a specific country with certainty (5.8% of cases). The category “other countries” comprises a total of 39 countries, which means that on average 2.5 super-rich moved to Switzerland from these countries.

3.3 Top Managers: The Rise of a New Elite?

The top of the wealth distribution has historically been made up of individuals and families who live off the income from their property rather than their labor income (see Piketty, 2014). Since the mid-1990s, however, it has been observed that the salaries of the top 0.01% of income earners in Switzerland have risen significantly faster than average incomes (Föllmi and Martínez, 2017). This has eventually led to the emergence of a new class of super-rich, the top managers.

Figure 4 shows the entry and rise of top managers in the list of the 300 richest in Switzerland. Their share was on the rise, especially between 2003 and 2013, to reach 8% of all observations. Since then, their number among the 300 richest is slightly declining. Notwithstanding the rapid rise in the first decade of the 20th century, the overall importance of managers in the Swiss wealth elite remains modest.

Another sign that old fortunes are still significantly more pertinent at the absolute top of the distribution is reflected by the fact that the share of top wealth held by managers (black line with circles) is significantly lower than their frequency in the ranking. Thus, while some managers have made it to the top of the wealth distribution, they are still relatively poor compared to the traditional super-rich.

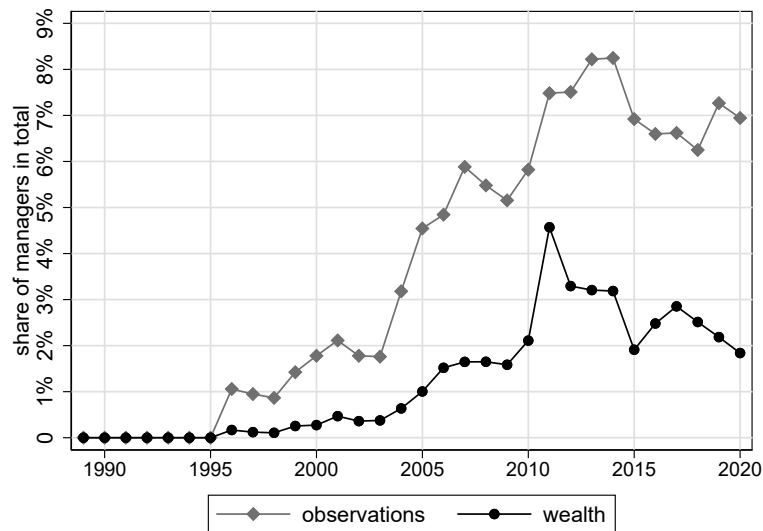


Figure 4: The Rise of Top Managers, 1995–2020

Note: This figure shows the managers' share in the overall rich list data set for the years 1995 to 2020. The upper gray line indicates the relative frequency of managers in total observations. The lower black line represents the share of total BILANZ wealth held by managers. The sharp increase in the managers' share of wealth in 2011 is the result of Glencore's IPO, which turned the four Swiss-resident Glencore managers Ivan Glasenberg, Daniel Mate, Aristotelis Mistakidis, and Tor Peterson into billionaires over night.

3.4 Industry Composition

Figure 5 shows the industries into which the fortunes of the super-rich are invested. The industry classification thereby mirrors the asset composition at the respective *current* point in time.⁹ In the 1990s, four industries in particular stood out, accounting for the following share of total top wealth in 1990: (i) trade, retail 21.4%; (ii) banking, insurance, finance industry 12.7%; (iii) pharmaceuticals, chemistry, biotechnology 12.6%; and (iv) industry, manufacturing 11.0%. Over time, the importance of these industries in regard to their share of total top wealth has declined. Their combined share in top wealth fell from 57.6% in 1990 to 43.7% in 2020. Top wealth in Switzerland has become more diverse. This is also reflected in the category “shareholdings, investments (including real estate)”¹⁰, which rose from 10.1% in 1990 to 16.7% in 2020. Note however that since many individuals and families are increasingly invested in a range of companies across multiple industries, a distinct assignment to a particular industry can be difficult.

Perhaps surprisingly, the fashion and textile industry (+5.7pp.) and the food, drink and tobacco industry (+5.3pp.) have seen the largest growth in their share of top wealth over the past three decades (apart from shareholdings). This increase is due in particular to the rapid growth in net assets of six individuals or families, two of which moved to Switzerland after 2010. The joint net worth of Jorge P. Lemann (Anheuser-Busch InBev), Charlene de Carvalho-Heineken (Heineken), the heirs of Klaus J. Jacobs (various businesses), Gerard Wertheimer (Chanel), the Perfetti family (Perfetti Van Melle; moved to Switzerland in 2011) and Alexandre Van Damme (Anheuser-Busch InBev; moved to Switzerland in 2016) rose from about 18.9 bn in 2009 to 79.0 bn in 2020 (real terms).

While in the US six of the top 10 ranks of the Forbs 400 list are occupied by self-made billionaires from the new economy—Bill Gates (Microsoft), Mark Zuckerberg (Facebook), Larry Ellison (Oracle), Steve Ballmer (Microsoft), Larry Page (Google), and Sergey Brin

⁹For example, after transitioning from founding a business in industry A to retiring and investing in industry B, the net wealth of this super-rich is allocated to industry B by the BILANZ magazine for the years following the transition.

¹⁰The increase is only to a small extent due to the rise in real estate investments. The top wealth share of real estate increased from 1.0% in 2000 to 2.0% in 2019.

(Google)—such individuals are nowhere to be found in Switzerland.¹¹ Although the top wealth share of the new economy in Switzerland grew from 0.5% in 2000 to 2.3% in 2020, it still remains unimportant overall.¹² Superstars from the world of sports and entertainment may be the most prominent on the list, but really only play a marginal role among the super-rich in Switzerland. In general, the industry composition of top wealth in Switzerland is markedly different to that of the US (see Korom et al., 2017; we report their results in Appendix Table B3).

¹¹See: <https://www.forbes.com/forbes-400/>; accessed February 4, 2021.

¹²The new economy (industry 17; see Table A2) is included in the industry “other” in Figure 5.

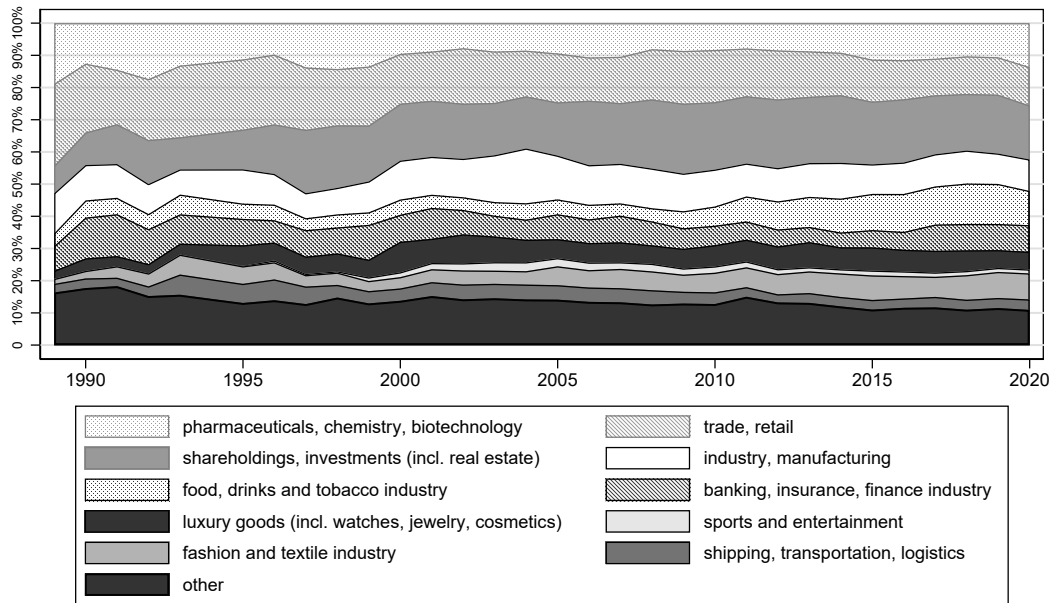


Figure 5: Share of Top Wealth by Industry, 1989–2020

Note: This figure shows the share of total BILANZ wealth by industry between 1989–2020. For a more concise visualization, various industries have been grouped together. For more information on the industries, see the corresponding section in Appendix A and Table A2.

4 How Persistent Is Wealth at the Very Top?

In this section, we shed light on intra- and intergenerational top wealth mobility in Switzerland. We address the following three questions in turn. First, how important are inheritances and what is the share of self-made super-rich? Second, how likely are the super-rich to remain at the top of the wealth distribution? Third, how large is wealth mobility within the top?

4.1 Inherited vs. Self-made Wealth

There are essentially three ways to become rich: (i) through one's own work and savings, (ii) through inheritance, or (iii) by marrying into a large family fortune (Piketty, 2011). These paths to prosperity are guided by fundamentally different economic forces and are arguably critical to society's acceptance of the prevailing level of inequality. When people believe that there is a legitimate, albeit small, chance of becoming (super-)rich through one's own efforts and work, they are more willing to accept higher levels of inequality (see e.g., Alesina et al., 2018).

We therefore categorize the origin of wealth as either (i) self-made, (ii) inherited, or (iii) acquired through marriage. We define the share of inherited wealth as: 1 minus the wealth share of first generation founders. This is the definition used in the previous literature, including, e.g., Kaplan and Rauh (2013a) and Scheuer and Slemrod (2020).

Figure 6 illustrates the importance of these different origins for the observations in our data. Throughout the entire period, only approximately 30-40% of all super-rich can be categorized as self-made. Thus, the vast majority of the super-rich are still heirs today, while marriage plays only a very minor role to enter the club of the super-rich in Switzerland.

Figure 7 shows the share of non-self-made wealth (i.e., the sum of (ii) and (iii)) in total top wealth. The overall share of inherited wealth in total top wealth has fluctuated between 60% and 80% in the period from 1989 to 2020. These fluctuations are due, in particular, to the wealth dynamics of the foreign-born super-rich (gray line with triangles). The sharp surge of close to 10 percentage points in 2013, for instance, is essentially due

to the death of IKEA founder Ingvar Kamprad—Switzerland’s richest self-made man at the time—who passed his fortune on to his sons. For the Swiss-born, we see a high and persistent share of inherited wealth of about 80% throughout the past 30 years. Moreover, a comparison of Figures 6 and 7 reveals that, on average, heirs are significantly richer than self-made super-rich.

Even though the shares and especially the fluctuations in Figure 7 should be interpreted with care, the overall pattern contrasts sharply with the experience in the US: the share of heirs was and is much more prevalent at the top of the wealth distribution in Switzerland than in the US, particularly today. The share of heirs in the Forbes 400 has dropped significantly, from 56% in 1982 to 31% in 2018 (Scheuer and Slemrod, 2020), whereas in Switzerland we only observe a modest decline between 1995 and 2001. From this, we conclude that the super-rich in Switzerland are much less dynamic than in the US. Particularly, as a native Swiss, an inheritance seems to be the primary factor for making it to the very top of the wealth distribution, even more so in the past two decades.

Indeed, many of the super-rich residing in Switzerland have been wealthy for several generations. Appendix Figure B2 shows the share of today’s top wealth founded before World War II. This share will inevitably decline over time, as new industries emerge replacing old ones—and as long as there is a certain degree of social mobility into the absolute top. It is all more striking that this fraction has remained stable since 2010. We take this as tentative evidence that social mobility at the very top of the wealth distribution has slowed down in recent years.

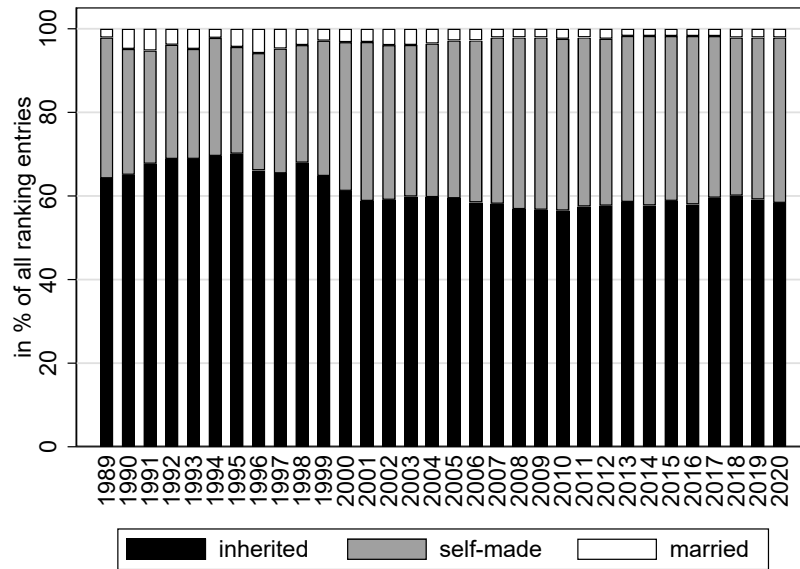


Figure 6: Share of Super-Rich by Category of Wealth Origin, 1989–2020

Note: This figure categorizes the observations of our BILANZ data set by origin of wealth into three categories: wealth acquired through marriage (white), self-made wealth (gray), or inherited wealth (black).

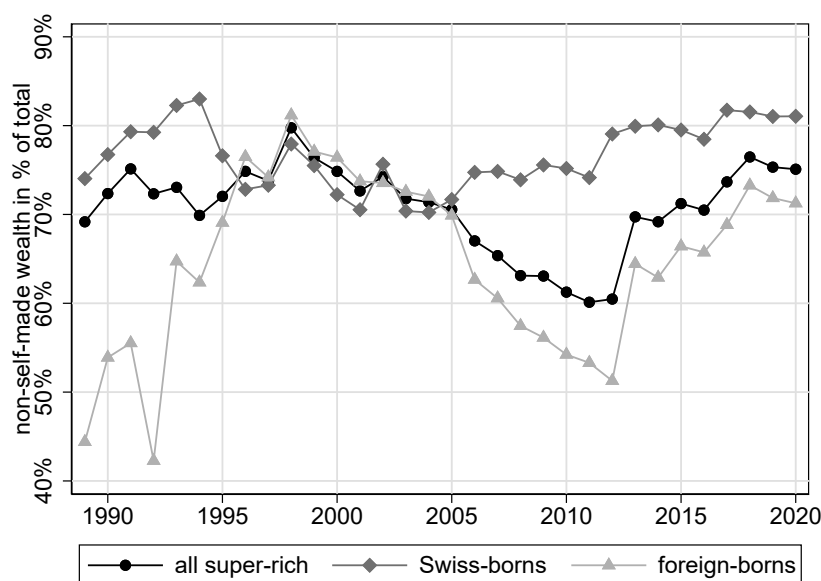


Figure 7: The Inheritance Share in Top Wealth, 1989–2019

Note: This figure displays the share of inherited and non-self-made wealth, respectively, in total BILANZ wealth. The origin of wealth is categorized in our data as: (i) self-made, (ii) inherited, or (iii) acquired through marriage. Following the literature (see, e.g., Kaplan and Rauh, 2013a and Scheuer and Slemrod, 2020), we define the share of inherited wealth as 1 minus the wealth share of first generation founders. The share of inherited wealth is defined as non-self-generated wealth: category (ii) + category (iii) as a fraction of total BILANZ wealth. The black line shows the share of inherited wealth for all observations. The observations marked with diamonds and triangles respectively show the same fraction depending on whether the observations were born in Switzerland or abroad.

4.2 Survival Rates of Dynasties in the Rich List

The previous section has highlighted how important inheritances are in Switzerland to be part of the super-rich. To obtain a more comprehensive understanding of how dynamic the evolution of wealth is at the top, we now turn to the persistence of dynasties at the very top of the wealth distribution. For the analysis in this section, we therefore rely on the family panel of our data, rather than the individual panel (for details on the two panel identifiers, see Appendix A).

Figure 8 shows dynasty survival rates within the list for different start years (2000, 2005, 2010, 2015). A super-rich family may drop out of our data for several reasons: (i) they are no longer wealthy enough, (ii) they left Switzerland, or (iii) their wealth has been dispersed, e.g. due to death or divorce, such that a single family is no longer rich enough to be included in the list at all. Of the super-rich listed in 2010 (gray triangles), 95% were still listed in 2011. Ten years later, in 2020, the survival rate still amounted to 67%. A decade earlier (black dots) the survival rates were considerably lower over the entire ten-year span. The persistence is lower when the same analysis is performed for individuals instead (see Appendix Figure B3). However, the structural pattern hardly changes.

With the data available, we cannot precisely quantify which reasons are responsible for which proportion of drop-out observations. Panel (b) of Appendix Figure B6 shows, however, that of the 92 dynasty observations dropping out between 2010 and 2020, only 20 (22%) had assets of less than 200 million real Swiss Francs in 2010, suggesting that too little wealth was not the primary reason for exiting the BILANZ rich list.

Two key insights can be derived from Figure 8. First, persistence of top wealth is in general very high, and moderately higher in Switzerland than in the US (see Scheuer, 2020 for a comparison). Second, and most importantly, wealth persistence of the super-rich increased between 2000 and 2020, most notably from 2000 to 2005. This finding is not a mere data artifact arising because the BILANZ magazine simply continues to record the same people over and over again. In fact, according to the journalists, a major part of their work consists of finding new super-rich, which is attributed to their interest

in constantly presenting fresh faces so as to keep the magazine entertaining.

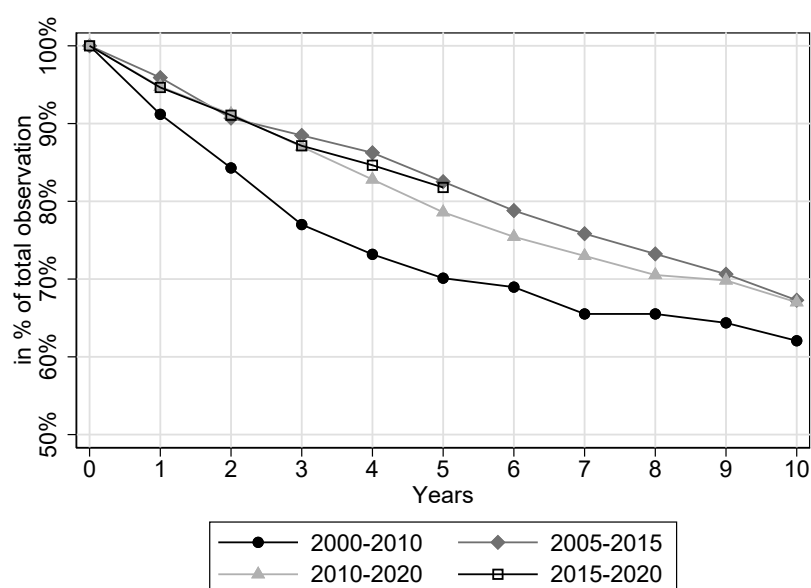


Figure 8: One- to Ten-year Survival Rates at the Top of the Wealth Distribution

Note: This figure shows, for the four different periods indicated, the persistence rates of those included in the Swiss rich list. Looking at the black line, for example, shows that 91% of the observations listed in 2000 were still reported in 2001. After 5 years, in 2005, 71% and after 10 years, in 2010, 61% are still listed. Survival rates are based on a panel of family dynasties, rather than individuals (see Appendix A for details). For the one- to ten-year survival rates based on individual observations, see Appendix Figure B3.

4.3 Intragenerational Wealth Mobility of the Super-Rich

So far, we have shown that many super-rich dynasties remain relatively tenaciously at the very top of the wealth distribution. Clearly, this does not mean, however, that their wealth remains constant. Next, we therefore shed light on how the super-rich move within the top-end of the wealth distribution. Because the wealth brackets of the BILANZ rich list are rather large and very unequal in size, we are not able to rank the super-rich with enough precision to compute mobility matrices or run rank-rank regressions, as is done, for example, in the literature on intra- and intergenerational income mobility (e.g., Auten and Gee, 2009; Chetty et al., 2014).

Instead, we study wealth mobility within the 300 richest in Switzerland by estimating the intra-generational real wealth elasticity β for those observations who are present in our data set over a ten-year period using the following regression specification:

$$\ln(\text{wealth}_{i,t+10}) = \alpha + \beta \ln(\text{wealth}_{i,t}) + \varepsilon_i \quad (1)$$

where $\ln(\text{wealth}_i)$ is real log wealth at time t and $t + 10$, respectively. Figure 9 illustrates the results for the periods 2000–2010 and 2010–2020, respectively. The black dots show real log wealth of an individual in 2010, relative to their wealth in 2000. Similarly, the gray diamonds indicate the change in real log wealth from 2010 to 2020. Observations not present in both years are excluded from the analysis. As we are interested in *intra*-generational mobility here, we focus on individual observations rather than dynasties as in the analysis of the previous subsection.¹³

We find some mobility among individual observations for both ten-year periods, with a larger dispersion in the first decade. Overall, however, the intra-generational wealth

¹³Note, however, that the results in Figure 9 are not contingent on the choice of the unit of observation. Appendix Figure B4 presents the identical analysis using the family identifier (i.e., studying dynasties). Although this significantly reduces the number of dropout observations, it does not change the findings. Arguably, the primary reason for the similarity of the estimates is that once a super-rich individual dies, the BILANZ magazine rather often records all descendants as a single family observation in subsequent years, which implies that wealth does not disperse between the two measurement points.

elasticity is high, indicating low mobility at the very top of the wealth distribution—also in comparison with overall wealth mobility in Switzerland based on wealth tax data (see Moser, 2019, and Martínez, 2020). This elasticity has further increased over time, from 0.80 in the first decade of the new millennium to 1.01 in the 2010–2020 period. Essentially, this suggests that the low positive wealth mobility at the top has, on average, decelerated to zero mobility on average. This is further supported by the increase in the R^2 from 0.69 to 0.79, confirming that initial wealth has become a very strong predictor of future wealth. While this is certainly a simple exercise to estimate wealth mobility, the results support the view that wealth mobility at the very top of the wealth distribution is very low and declined markedly and statistically significantly from the first to the second decade of the 2000s.



Figure 9: Top Wealth Mobility among the Super-Rich, 2000–2020

Note: This figure shows a scatter plot for real log net wealth for the period 2000 to 2010 (black dots) and for 2010 to 2020 (gray diamonds), respectively. We report slope estimates β and the R^2 from OLS regressions in the corresponding colors. Both regression coefficients are statistically significant at the 1% level. The gray shading surrounding the gradients represent the 95% confidence intervals. The analysis here is based on individual rather than family observations (for details on the two panel identifiers see Appendix A). Appendix Figure B4 shows the identical analysis using family observations. We only use observations in the mobility analysis that are present the first *and* last year of the analysis. Dropout rates reported below the plot. Figures B5 and B6 in the Appendix provide the same analysis for further sub-periods.

5 How Rich Are the Super-Rich?

In this section we turn to the total net worth of the super-rich both, in absolute terms and relative to the total population by computing the top 0.01% wealth share (the largest fractile we can cover with the BILANZ data). We show how top wealth share estimates based on our rich list data compare to those from Föllmi and Martínez (2017) that are based on wealth tax statistics.

5.1 Evolution of Total Wealth at the Top

In 1989, the Hoffmann–Oeri–Sacher family, led by Paul Sacher, ranked first on the BILANZ rich list with a fortune of 10.3 billion (in real terms as of 2020). Some thirty years later, in 2020, the rich list in Switzerland is led by the three sons of late IKEA founder Ingvar Kamprad, with a total estimated net worth of 55.5 billion Swiss Francs. However, not only the very richest in Switzerland, but also the broader Swiss wealth elite has become significantly richer over the past three decades. The number of billionaires (in real terms of 2020) residing in Switzerland has risen from 45 in 1993 to 128 in 2020 (see Appendix Figure B7).

Figure 10 shows the evolution of top wealth and aggregate wealth over time. Top wealth and total private wealth have grown at roughly the same rate since the turn of the 21st century. Compared to aggregate private net wealth, growth in top wealth is more volatile over the business cycle, with faster growth in boom periods but, conversely, declining more sharply in downturns. Since 2012, however, we observe a significantly steeper increase in net wealth of the first 10 entries in the rich list, indicating a marked concentration of wealth at the absolute top of the wealth distribution (see also Table B2).

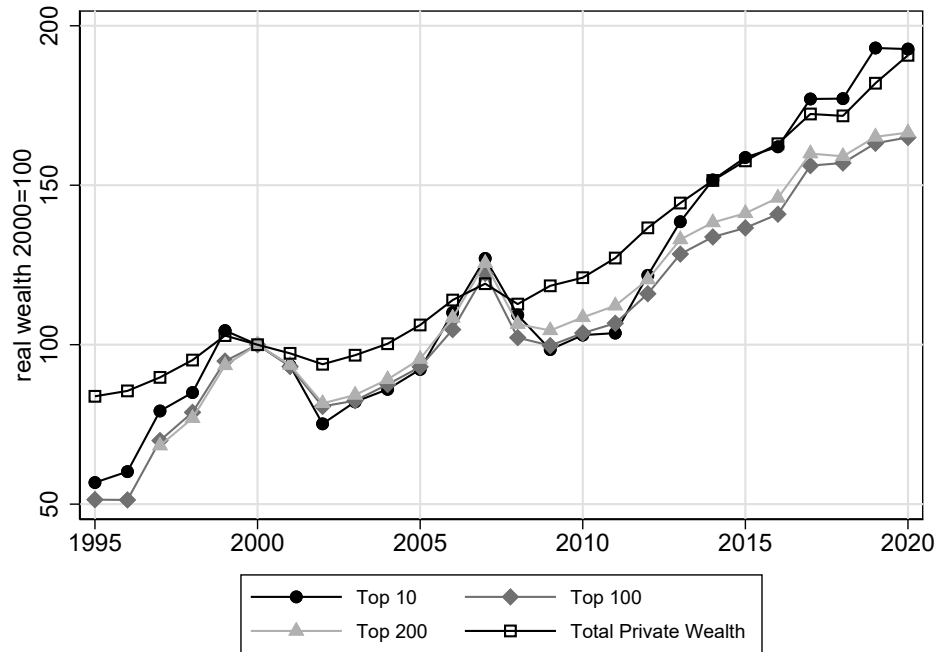


Figure 10: Evolution of Top Wealth and Total Private Wealth, 1995–2020

Note: This figure shows the development of BILANZ wealth clustered by different ranking entries compared to the total private net wealth of the Swiss economy. The Top 10, Top 100, Top 200 represent respectively the first 10, 100 and 200 entries in the BILANZ rich list. For 1995 and 1996, our panel does not include enough observations to show the evolution of the Top 200 (see Table B1). For more details on the total net private wealth series, see Baselgia and Martínez (2023b).

5.2 Top 0.01% Wealth Shares

To estimate top wealth shares based on rich list data that are comparable to estimates in Föllmi and Martínez (2017) based on tax data, we define the unit of observation, the reference population, and the total wealth denominator as follows.

Total Wealth Denominator. To calculate the top 0.01% wealth share, we set net BILANZ wealth in relation to total aggregate private net wealth at market values.¹⁴

Tax Units. From our BILANZ data set, we do not have any information on whether entries listed as individuals are married or not. If BILANZ observations are married, the estimated net assets are indeed more akin to the net assets of a joint household and, more importantly, of only one tax unit—as in Switzerland, married couples have to file taxes jointly. Thus, when calculating the wealth share of the top 0.01% wealth group, our unit of analysis are tax units rather than adults in Switzerland. We do this mainly to increase comparability with the top wealth shares previously estimated based on wealth tax statistics (Dell et al., 2007; Föllmi and Martínez, 2017). In addition, this makes our estimates rather more conservative, as we do not treat every observation as if they referred to a single adult individual. If we used the adults as unit of observation, we would have to include a larger number of entries from the rich list to calculate the share of the richest 0.01% of the total adult population (which is larger than the total of tax units in the country). We calculate the total number of tax units in the country as the adult population minus half of the married adults, using official population statistics.¹⁵

Accounting for families. As family entries represent multiple tax units, we cannot use the raw BILANZ observations to calculate top wealth shares, as we would overestimate top wealth concentration. As we do not know how many tax units make up a family observation, we cannot correct our rich list data with full precision. However, to still

¹⁴For the period 2000–2020, the Swiss National Bank (SNB) provides reliable estimates on aggregate private net wealth at market values as part of the Swiss financial accounts: <https://data.snb.ch/en>. For a more detailed description, see Appendix A in Baselgia and Martínez (2023b).

¹⁵The data is available for download from the Federal Statistics Office (FSO): <https://www.bfs.admin.ch/bfs/en/home/statistics/population.html>

address this issue, we divide all family observations and their corresponding wealth by 5 (which seems to be a reasonable divisor given our knowledge of the BILANZ data). Admittedly, this is a rather arbitrary approach, nevertheless the substantive result is robust to the choice of this divisor (Panel (b) of Figure 11 shows the top wealth shares for divisor values of 3, 5, and 7).

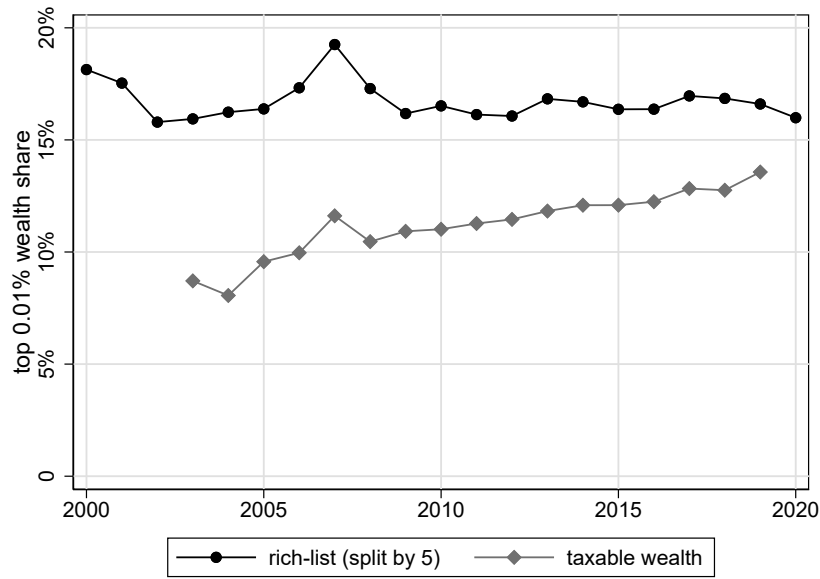
Estimation of Top 0.01%. After splitting all family observations (which significantly increases the number of person-year observations in our rich list data), we re-rank the entries of the rich list according to their wealth. To calculate the wealth share of the top 0.01%, we then use the rich list entries per year that equal to the number of tax units representing the top 0.01%, and divide their summed wealth by total private net wealth of the economy.

Top Wealth Shares in Comparison with Estimates Based on Tax Data

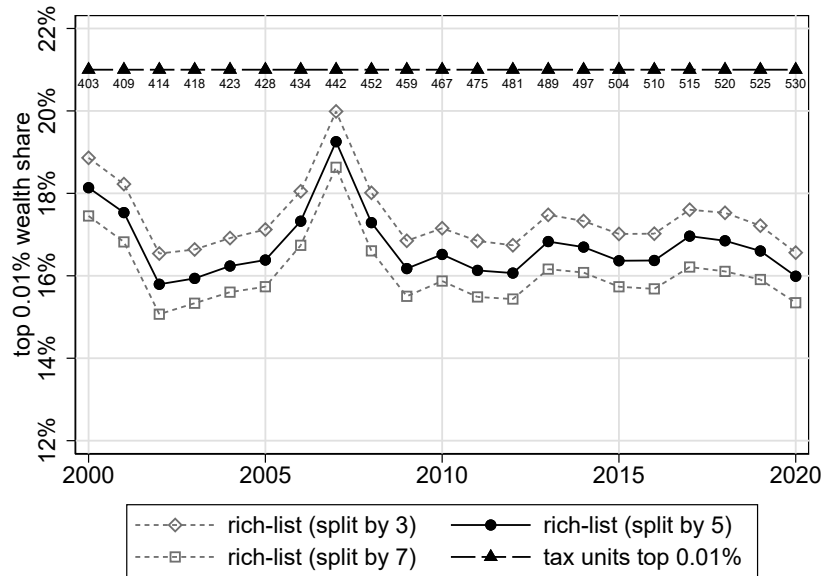
Panel (a) of Figure 11 shows our estimates of the top 0.01% wealth share in comparison to (updated) estimates by Föllmi and Martínez (2017). According to our preferred specification (where we split all family observations and their net wealth by 5), the top 0.01% owned 16% of the economy's total private wealth in 2020. This share has turned out to be remarkably stable, ranging between 16 and 17% over the past decades—except for the strong business cycle effects around the Great Recession. In recent years, these new estimates are about one-third larger than estimates based on wealth tax statistics. Moreover, while our new estimates show a relatively stable pattern over time, estimates based on tax data show an increase in the wealth share in the hands of the top 0.01% of around 50% between 2003 and 2019. As shown theoretically in Atkeson and Irie (2022), the stability of the new top wealth shares in Switzerland (compared to, e.g., the US) might, however, well be explained by the empirical fact that the number of self-made super-rich (see Section 4) and thus the mobility from the bottom to the top in the wealth distribution is lower in Switzerland than in the US. Also in terms of level, these novel top wealth shares appear to be relatively high in international comparison (see Saez and Zucman, 2016 for the US; Alvaredo et al., 2018 for the UK.; Garbinti et al., 2020 for

France; Albers et al., 2022 for Germany).

To put the two different top 0.01% wealth shares into perspective, it is important to note the differences in the underlying data sources. On the one hand, expenditure-based taxpayers and double counting lead to a downward bias in top shares based on Swiss wealth tax statistics. On the other, measurement error in the BILANZ rich list is likely to bias the estimates upwards. We discuss these sources of potential bias in turn.



(a) Comparison with estimates by Föllmi and Martínez (2017)



(b) Sensitivity analysis: choice of “family” divisor

Figure 11: Top 0.01% Wealth Share in Switzerland, 1997–2019

Note: Panel (a) compares the top 0.01% wealth share based on the BILANZ data with previous estimates using the wealth tax statistics (FTA). The approach and data used to compute the top 0.01% wealth share based on the BILANZ data are described in Section 5.2. The wealth share of the top 0.01% based on wealth tax statistics is taken from Föllmi and Martínez (2017) and updated here accordingly. For details on the method and data, we refer to the original paper. Panel (b) provides a sensitivity test with respect to the choice of divisor in the treatment of family observations. The numbers along the top row show the number of tax units representing the top 0.01% in each year.

Measurement errors in rich list data. When it comes to the BILANZ data, two sources of measurement error may lead to an inflation of top wealth. First, certain assets, such as art and other collectibles, are included in the BILANZ' wealth estimates but not in total private wealth, our denominator to compute top shares based on BILANZ wealth data.

Second, although the BILANZ cites some evidence that a fairly large number of foreign super-rich on their list have settled in Switzerland for tax reasons, not all of the wealth reported in the BILANZ may be part of total Swiss net wealth. The BILANZ magazine seeks to capture the global wealth of the super-rich residing in Switzerland and, in part, their families—but not all family members necessarily also reside in Switzerland. Such a domestic approach is particularly problematic for the super-rich as they are members of a truly global elite. More generally, various super-rich in the BILANZ list own multiple properties and residences across the globe. Hence, the determination of primary residence and tax domicile may be ambiguous for at least some of the listed super-rich. Due to the large fortunes of the super-rich, a handful of observations wrongfully attributed to the Swiss tax base may considerably affect the results.

Undervaluation in tax data I: double-counting of tax units. As a result of the federal tax system in Switzerland where wealth is only taxed at the cantonal but not at the federal level, double or multiple counting arises in the wealth tax statistics. This typically occurs when a taxpayer owns real estate in a canton other than their primary residence. The same taxpayer enters the statistic twice: (i) in the canton of primary residence, where all assets are subject to taxation except the out-of canton real estate; (ii) in the canton they own real estate, where only that real estate is subject to taxation.¹⁶ As a result, the statistic dilutes wealth. Since such scenarios are more likely to be the case for taxpayers at the upper end of the wealth distribution, double counting will lead

¹⁶For details, see the explanations in the wealth tax statistics: <https://www.estv.admin.ch/estv/de/home/allgemein/steuerstatistiken/fachinformationen/steuerstatistiken/gesamtschweizerische-vermoegensstatistik-der-natuerlichen-person.html>

to an underestimation of wealth concentration measured with tax statistics.

Undervaluation in tax data II: expenditure-based taxation. Wealthy foreigners without Swiss citizenship who reside in Switzerland but do not earn any labor income in Switzerland can benefit from preferential tax regime: expenditure-based taxation. The tax base for such expenditure-based taxpayers is not their actual income and wealth, but is instead based on their total annual living expenses. The the tax base for such taxpayers is also subject to some minimum thresholds stipulated in cantonal tax laws, but the stipulated tax base is most likely considerably lower than their true (global) tax base (for details, see Baselgia and Martínez, 2023a). In any case, wealthy foreigners who can opt for this tax treatment will generally do so only if their tax base derived from their living expenses is indeed lower than their actual tax base.

As the tax base is assessed by tax authorities on a case-by-case approach, we do not know by how much the true income and wealth tax base is undervalued on average (there is no official information and/or data on this issue). Anecdotal evidence suggests, however, that expenditure-based taxation is likely to result in a significant downward bias in the assessment of a taxpayer's market wealth (again see Baselgia and Martínez, 2023a for details).

In the Canton of Berne, for instance, for expenditure-based taxpayers only real estate owned in the Canton of Berne—regardless of how much other assets they own (elsewhere)—is subject to wealth taxation.¹⁷ In the canton of Zug, on the other hand, the minimum taxable wealth for expenditure-based taxpayers is 10 million Swiss francs (20 × minimum income tax base of CHF 500'000). Considering that the median super-rich in our data set owns 640 million Swiss francs, there is potentially still ample room to reduce the tax burden via this preferential tax treatment. Moreover, it should be noted that, given the minima set in the cantonal tax laws, the share of true wealth that is not taxed due to expenditure-based taxation is likely to increase with true net wealth. Unfortunately, there is no way (with the data available today) to quantify the average

¹⁷See: <http://www.taxinfo.sv.fin.be.ch/taxinfo/display/taxinfo/Besteuerung+nach+dem+Aufwand>

(let alone the gradient of) undervaluation of these taxpayers' tax bases. This systematic undervaluation due to expenditure-based taxation, however, is directly translated into wealth tax statistics, in which such taxpayers do not appear with their true but estimated wealth, which consequently leads to a (potentially severe) downward bias in top wealth shares estimates.

Conclusion of comparison. Given these considerations and the limitations of the BILANZ data discussed in Section 2, we believe that wealth tax statistics remain the more reliable source for measuring wealth concentration at the top end for Switzerland. Furthermore, only wealth tax statistics allow for a long-run analysis of top wealth shares. However, what our estimates from BILANZ rich list data indicate is that top shares from tax data likely understate wealth concentration at the very top.

6 Conclusion

We have compiled a new data set on the super-rich residing in Switzerland based on the BILANZ magazine rich list covering the years 1989–2020, and enhanced it with further biographical information. This data set allows us to describe the super-rich in Switzerland over the past three decades (which coincide with an increase in income and wealth inequality in the country) in ways that were not possible with data traditionally used to study top wealth, in particular wealth tax statistics.

Our results reveal three distinctive features of the wealthy elite in Switzerland. First, we have shown the importance of inheritances at the very top, and how sluggish the wealth dynamics of the super-rich are in Switzerland—particularly when compared to the US, the only other country for which comparable data exist. We estimate that only some 40% of the super-rich in Switzerland are self-made, compared to roughly 70% in the US. While managers are on the rise among the super-rich, they still only make up about 7–8%, and own about 2% of the wealth belonging to the 300 richest individuals and families in Switzerland. Once individuals make it to the very top, they are likely to stay at the top, with 67% still figuring on the list after ten years. Intra-generational real

wealth mobility is also very low and has even *decreased* over the first two decades of the 21st century.

Second, we have documented the importance of foreigners at the very top of the wealth distribution. We find that foreign-born individuals make up approximately 50% of the super-rich, and they own 60% of top wealth. Hence, they are on average somewhat wealthier than their Swiss-born peers. The high share of foreigners at the very top of the distribution is likely the result of a mild tax climate and the preferential tax treatment Switzerland offers to super-rich foreigners, who are eligible for expenditure-based taxation. We explore location decisions of the super-rich in response to preferential tax treatments for foreigners further in a companion paper (Baselgia and Martínez, 2023a), which makes use of the rich list data set presented here.

Third, we estimate that the top 0.01% of the wealth distribution own 16% of Switzerland's total private net wealth in 2020. We put some earlier estimates on the top 0.01% wealth share into perspective, revealing that wealth concentration in Switzerland is likely somewhat higher than previously assumed. We provide a discussion of why existing estimates based on tax statistics tend to underestimate wealth concentration. At the same time, we discuss why top wealth inequality measures based on rich list data (at least in the Swiss case) likely over-estimate wealth inequality. We conclude that while wealth measures from rich lists must be interpreted with caution, rich lists are a valuable data source to understand the social fabric and the dynamics of wealthy elites in a country.

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Online Appendix

Using Rich Lists to Study the Super-Rich and Top Wealth Inequality: Insights from Switzerland

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March 2, 2024

A Data Appendix

In this section, we provide a comprehensive description of all variables and definitions included in our panel data set.

id_pers. This variable is an individual observation identifier. An *id_pers* can represent a single individual or a family (or, in exceptional cases, some other kind of collective).

id_fam. This variable is a family identifier that links different individual observations (*id_pers*) that belong to the same family (collective). This allows family wealth to be tracked in the panel data set over a longer period of time, since in some cases individuals die and their heirs are subsequently listed by the BILANZ magazine. In some cases, the BILANZ has split or aggregated a family's assets among different members without any change in the family structure being apparent.

name. This variable contains first and last name of individuals or the (family-) name in case of a collective including the description of the type of collective. For example: Stephan Schmidheiny (*id_pers*=3); Familie Ringier (*id_pers*=12); Erben Oscar Weber (*id_pers*=30).

year. This variable indicates the corresponding year.

n_magazine. This variable gives the number of ranking entries as shown on the magazine cover of the corresponding annual edition. The number of ranking entries recorded by the BILANZ magazine has varied considerably from 100 to 250 in the first 10 years (see Table B1). Since 1999, the BILANZ ranking includes 300 entries each year. In the early years, the number of ranking entries in the BILANZ magazine does not necessarily correspond exactly to the number given on the cover. Moreover, since our panel data set only covers Swiss residents, the number of observations per year in our panel is always slightly below the number on the cover (see *n_panel*).

n_panel. This variable indicates the number of ranking entries covered in our panel data set per year.

wealth_low & wealth_high. The BILANZ magazine estimates net wealth per ranking entry in intervals. The two variables *wealth_low* and *wealth_high* capture the interval limits. The two variables thus indicate the lower and upper bounds, respectively, of the net wealth estimate per ranking entry in nominal millions of Swiss Francs.

wealth_mean. This variable is simply the arithmetic mean of the variables *wealth_low* and *wealth_high*. *wealth_mean* is our main variable of interest and shows net wealth per observation (in nominal millions of Swiss Francs). We frequently represent *wealth_mean* as a real variable by deflating it by the Swiss CPI.

ranking. This variable indicates the rank of each observation within the rich list per year. Note that as the BILANZ magazine estimates net wealth in intervals, multiple ranking entries have the same net wealth estimate and consequently the same position in the ranking.

family. This dummy variable indicates whether the observation represents a single individual (*family*=0) or whether it is a family or some other collective (*family*=1).

female. This dummy variable indicates whether an individual observation (*family*=0) is male (*female*=0) or female (*female*=1).

female_2. This categorical variable assigns a gender to family observation (*family*=1) based on the gender of the primary creator of the family's net wealth. We assigned three values to the family observations: male (*female_2*=0), female (*female_2*=1), or in occasional instances, joint (*female_2*=7)—where a couple collaboratively serves as the primary creator to the family's net wealth. *female_2*=99 indicates missing values.

manager. This dummy variable indicates whether an observation is a manager (*manager*=1) or not (*manager*=0).

swiss. This dummy variable indicates if the observations (including family observations) are Swiss citizens (*swiss*=1) or not (*swiss*=0). This information was collected from the texts in the BILANZ magazine and supplemented by manual internet search. The quality of this variable is limited, as it was difficult in many cases to assign a nationality. The variable indicating whether someone was born outside Switzerland (*foreignborn*) is certainly more reliable and should preferably be used.

foreignborn. This dummy variable indicates whether the observations (including family observations) were born outside (*foreignborn*=1) or inside (*foreignborn*=0) Switzerland. This information was collected mostly by manual internet search.

fb_country_name & fb_country_short & fb_country_nr. For all foreign-born super-rich (*foreignborn*=1) we have recorded the country of birth (if possible).

fb_country_name is a string variable for the country names and *fb_country_short* for the three-letter (ISO 3166) abbreviations. *fb_country_nr* is the corresponding numerical country code of the FSO.

foreigners_in_ranking. This dummy variable indicates whether foreigners (non-Swiss citizens) are also included in the ranking (*foreigners_in_ranking*=1) or not. Before 1993, only Swiss citizens were covered by the BILANZ magazine. Therefore, this variable is equal to 1 in 1993 and thereafter.

old_wealth_WW2. This dummy variable indicates whether the foundation for wealth was laid before 1945 (*old_wealth_WW2*=1) or not (*old_wealth_WW2*=0). This information was recorded by the BILANZ magazine in the 1993 issue. For observations from other years, we have added this information by manual internet search.

canton. This variable indicates the canton of residence per observation and year. See Table A1 for the canton codes.

industry_1; industry_2; industry_3. For each ranking entry, the BILANZ magazine records information one or more industries in which the observation is active. We recorded this information in the 3 variables *industry_1*, *industry_2* and *industry_3*. We have assigned the information from the BILANZ magazine to one of 26 different industries. See Table A2 for details on the various industries and codes. Note that the industry classification generally reflects the current composition of assets. However, there may sometimes be delays in reclassifying an industry following the restructuring of assets for certain super-rich as this is not always easy to observe. Nevertheless, the industry category reflects the main (business) activity of the respective super-rich in the medium term.

industry_main. For many ranking entries, the the BILANZ magazine assigns multiple industries. With the information from the magazine, it is impossible to disaggregate net wealth per ranking entry to the different industries in which the observation is operating. In order to investigate how aggregate BILANZ net wealth has evolved by different industries over time, we have assigned a characteristic industry to each observation per year in the variable *industry_main*. The classification and coding again follows Table A2.

wealth_origin. The variable *wealth_origin* is a categorical variable that indicates the origin of wealth. Where *wealth_origin*=1 stands for wealth acquired through marriage, *wealth_origin*=2 stands for inherited wealth and *wealth_origin*=3 for self-made wealth. We follow a definition in the literature (see Kaplan and Rauh, 2013a and Scheuer and Slemrod, 2020) and define self-made wealth as wealth of first-generation founders. This information was collected from the texts in the BILANZ magazine and supplemented by manual internet search.

birth_date. This variable indicates the date of birth if the observation is an individual

(*family*=0). For some observations, we were unable to determine the exact date of birth and recorded only the year of birth. This information was collected from the texts in the BILANZ magazine and supplemented by manual internet search.

death_date. This variable indicates the date of death if the observation is a deceased individual. For some observations, we were unable to determine the exact date of death and recorded only the year of death. Individuals that are still living are coded as *alive*. This information was collected from the texts in the BILANZ magazine and supplemented by manual internet search.

entryreason & exitreason. The variables *entryreason* and *exitreason* specify the reason for ranking entry respectively exit as categorical string. The quality of this variable is limited as it was challenging to identify a reason for entering or leaving the rankings for many observations. Accordingly, this variables contain many unexplained values and should be used with caution. See Table A3 for details on the definitions of *entryreason* and Table A4 for *exitreason*, respectively.

Table A1: Swiss Cantons

Canton Number	Canton Name
1	Zürich
2	Bern
3	Luzern
4	Uri
5	Schwyz
6	Obwalden
7	Nidwalden
8	Glarus
9	Zug
10	Fribourg
11	Solothurn
12	Basel-Stadt
13	Basel-Landschaft
14	Schaffhausen
15	Appenzell Ausserrhoden
16	Appenzell Innerrhoden
17	St. Gallen
18	Graubünden
19	Aargau
20	Thurgau
21	Ticino
22	Vaud
23	Valais
24	Neuchâtel
25	Genève
26	Jura

Note: The coding of the cantons follows the standard numbering of the Swiss cantons.

Table A2: Industry Coding and Labeling

Industry Code	Industry Name
1	pharmaceuticals; chemistry; biotechnology; synthetics; fertilizers
2	trade; retail
3	commodities; commodity trading
4	shareholdings; investments
5	art; various collections (incl. car collections); horse breeding
6	industry; manufacturing
7	food, drinks and tobacco industry
8	banking; insurance; finance industry
9	services
10	construction (incl. construction materials)
11	machinery
12	media (incl. publishing)
13	real estate
14	watches; jewelry; luxury goods
15	athletes
16	musicians; writers
17	ICT; telecommunications; internet
18	sports industry
19	high-tech industry; electronics
20	restaurants; hospitality; hotels
21	perfumes; cosmetics; beauty care products
22	fashion and textile industry
23	other consumer goods
24	shipping; transportation; distribution; logistics
25	energy and oil industry
26	other

Note: The table shows the name and coding of the industry variables *industry_1*, *industry_2*, *industry_3* and *industry_main* as specified in our panel data set.

Table A3: Description of Entry Reasons

<i>entryreason</i>	description
Unexplained	The ranking entry of an individual or a family in the specific year cannot be explained.
Entered	The ranking entry of an individual or a family can be explained by an increase in estimated wealth over the threshold triggered by a specific incident within the last year.
Re-entered	The ranking entry of an individual or a family can be explained by an increase in estimated wealth over the threshold triggered by a specific incident within the last year and the individual or family had previously dropped out because of lacking wealth.
Migration	The ranking entry of an individual or a family can be explained by migration into Switzerland within the last year.
Control transfer	The ranking entry of an individual or a family can be explained by a transfer of operative control over wealth which was accounted for in the prior year.
Inheritance	The ranking entry of an individual or a family can be explained by a transfer of ownership of wealth which was accounted for in the prior year.
Family aggregation	The ranking entry of a family can be explained by the aggregation of wealth which was accounted for in the prior year, attributed to multiple individuals or families.
Collective aggregation	The ranking entry of a collective can be explained by the aggregation of wealth which was accounted for in the prior year, attributed to multiple individuals or collectives.
Family aggregation with members previously not in the ranking	The ranking entry of a family can be explained by the aggregation of wealth which was only partly accounted for in the prior year, attributed to one individual or family or multiple individuals or families, and of wealth which was partly not accounted for in the prior year.
Collective aggregation with members previously not in the ranking	The ranking entry of a collective can be explained by the aggregation of wealth which was only partly accounted for in the prior year, attributed to one individual or family or multiple individuals or families, and of wealth which was partly not accounted for in the prior year.
Family split	The ranking entry of an individual or a family can be explained by the splitting of wealth which was attributed to a family in the prior year.
Collective split	The ranking entry of an individual or a family can be explained by the splitting of wealth which was attributed to a collective in the prior year.
Start foreigners	The ranking entry of an individual or a family in 1993 can be explained by the fact that it was the first year including non-Swiss in the data.
Start ranking	An individual or a family entered the ranking in 1989.

Note: The table displays and describes the various categorical strings of the variable *entryreason*.

Table A4: Description of Exit Reasons

<i>exitreason</i>	description
Unexplained	The ranking exit of an individual or a family in the specific year cannot be explained.
Not enough wealth	The ranking exit of an individual or a family can be explained by a decrease in estimated wealth under the threshold triggered by a specific incident within the last year.
Emigration	The ranking exit of an individual or a family can be explained by emigration out of Switzerland within the last year.
Control trasfer before death	The ranking exit of an individual can be explained by a transfer of operative control over wealth which is accounted for in the coming year.
Inheritance before death	The ranking exit of an individual can be explained by a transfer of ownership over wealth which is accounted for in the coming year.
Death	The ranking exit of an individual can be explained by its death within the last year.
Family aggregation	The ranking exit of an individual or family can be explained by the aggregation of wealth which is attributed to a family in the coming year.
Collective aggregation	The ranking exit of an individual or collective can be explained by the aggregation of wealth which is attributed to a collective in the coming year.
Family split	The ranking exit of a family can be explained by the splitting of wealth which is attributed to another individual or family or multiple individuals or families in the coming year.
Collective split	The ranking exit of a collective can be explained by the splitting of wealth which is attributed to another individual or family or multiple individuals or families in the coming year.
End ranking	An individual or a family included in the 2019 ranking.

Note: The table displays and describes the various categorical strings of the variable *exitreason*.

B Additional Tables and Figures

B.1 Additional Tables

Table B1: Summary Statistics of the BILANZ Panel data set, 1989–2020

Year	Sample size					BILANZ real net wealth (in billions of 2020 Swiss Francs)				
	n (magazine)	n (panel data set)				all obs.			family obs.	individuals obs.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	all obs.	all obs.	family obs.	male obs.	female obs.	mean	median	std. dev.	mean	mean
1989	100	95	42	52	1	0.94	0.48	1.42	1.01	0.89
1990	175	166	61	95	10	0.66	0.33	0.82	0.66	0.66
1991	200	192	68	109	15	0.61	0.31	0.78	0.56	0.64
1992	200	183	75	94	14	0.59	0.30	0.81	0.50	0.65
1993	250	228	88	119	21	0.85	0.29	1.31	0.68	0.96
1994	50	46	16	28	2	2.53	2.84	1.48	2.03	2.80
1995	200	184	74	94	16	1.08	0.39	1.69	0.97	1.16
1996	200	189	75	97	17	1.05	0.39	1.76	1.18	0.97
1997	250	211	81	112	18	1.29	0.39	2.40	1.49	1.17
1998	250	231	94	120	17	1.34	0.39	2.61	1.48	1.24
1999	300	281	108	155	18	1.38	0.38	2.88	1.56	1.26
2000	300	281	105	158	18	1.47	0.48	2.42	1.65	1.36
2001	300	284	99	165	20	1.36	0.48	2.25	1.67	1.20
2002	300	281	98	158	25	1.20	0.37	1.93	1.56	1.02
2003	300	284	99	160	25	1.23	0.47	2.01	1.57	1.06
2004	300	283	103	156	24	1.31	0.47	2.12	1.61	1.13
2005	300	286	103	159	24	1.38	0.57	2.27	1.71	1.20
2006	300	289	104	161	24	1.55	0.56	2.69	1.75	1.43
2007	300	289	109	157	23	1.79	0.66	3.23	1.90	1.72
2008	300	292	111	163	18	1.51	0.64	2.84	1.66	1.42
2009	300	291	110	162	19	1.49	0.55	2.71	1.64	1.39
2010	300	292	112	159	21	1.54	0.64	2.86	1.64	1.47
2011	300	294	120	155	19	1.58	0.64	2.75	1.59	1.57
2012	300	293	123	151	19	1.69	0.65	3.15	1.72	1.67
2013	300	292	123	153	16	1.87	0.75	3.55	2.31	1.55
2014	300	291	126	150	15	1.95	0.75	3.84	2.36	1.64
2015	300	289	127	146	16	2.00	0.75	4.03	2.46	1.65
2016	300	288	130	140	18	2.08	0.76	4.08	2.50	1.73
2017	300	287	131	139	17	2.28	0.75	4.45	2.72	1.92
2018	300	288	137	133	18	2.26	0.75	4.48	2.82	1.75
2019	300	289	133	138	18	2.34	0.74	4.82	2.86	1.89
2020	300	288	134	138	16	2.36	0.75	4.91	2.93	1.88

Note: This tables provides some summary statistics of our BILANZ panel data set. Column (1) indicates the number of ranking entries as shown on the magazine cover of the corresponding annual edition. Columns (2)-(5) show the total, family, male, and female number of ranking entries per year recorded in our panel data set. Columns (6)-(8) display the mean, median and standard deviation of real net wealth (in billions of 2020 Swiss Francs) per year. While columns (9) and (10) present the mean net wealth of the family and single individual observations separately. Columns (6)-(10) were deflated using the Swiss CPI.

Table B2: Distribution of BILANZ Net Wealth, 1999–2020

Year	10th	25th	50th	75th	90th	99th
1999	0.16	0.27	0.38	1.37	3.83	10.39
2000	0.16	0.27	0.48	1.35	3.77	12.39
2001	0.16	0.27	0.48	1.33	3.73	12.26
2002	0.16	0.26	0.37	1.32	3.71	10.07
2003	0.16	0.26	0.47	1.32	3.69	11.06
2004	0.16	0.26	0.47	1.31	3.66	13.06
2005	0.15	0.26	0.57	1.29	3.61	9.81
2006	0.15	0.26	0.56	1.79	3.58	14.82
2007	0.15	0.25	0.66	1.78	4.56	15.72
2008	0.15	0.25	0.64	1.73	3.47	12.38
2009	0.15	0.25	0.55	1.74	3.48	10.45
2010	0.15	0.25	0.64	1.73	3.46	12.35
2011	0.15	0.25	0.64	2.46	3.45	12.32
2012	0.15	0.25	0.65	2.48	3.47	16.38
2013	0.17	0.27	0.75	2.24	4.23	20.40
2014	0.17	0.27	0.75	2.24	3.73	25.37
2015	0.18	0.33	0.75	2.26	4.28	25.67
2016	0.18	0.33	0.76	2.27	4.30	23.76
2017	0.18	0.38	0.75	2.26	4.78	24.64
2018	0.17	0.32	0.75	2.24	5.48	21.42
2019	0.17	0.32	0.74	2.23	5.46	23.33
2020	0.18	0.33	0.75	2.25	5.50	25.50
Mean	0.16	0.27	0.64	1.78	3.77	14.54

Note: This Table shows selected percentiles of the wealth distribution in our BILANZ panel for the period 1999–2020. All net wealth figures are expressed in real terms (in billions of 2020 Swiss Francs). Net wealth was deflated using the Swiss CPI.

Table B3: Industry Composition Forbes 400

	1982	1992	2002	2012	Δ 1982–2012
Industrial					
Retail and Restaurant	5.5	11.4	12.8	16.3	10.8
Technology - computer	3.0	5.1	10.2	12	9.0
Technology - medical	0.5	1.8	2.3	2.8	2.3
Consumer goods	13.5	18.4	13.8	11.3	-2.2
Media	14.2	13.9	16	8.8	-5.4
Diversified	19.8	18.7	15.3	11.3	-8.5
Energy	21.8	9.9	6.8	9.8	-12.0
Finance and Investments					
Hedge funds	0.5	1.0	2.5	8.3	7.8
Private equity and LBO	1.8	3.3	4.5	6.8	5.0
Money management	2.0	6.1	6	4.3	2.3
Venture capital	0.3	0.5	1	1.3	1.0
Real estate	17.2	10.1	8.8	7.3	-9.9

Note: This table shows the share of total wealth of the Forbes 400 by industry between 1982 and 2012. This table is taken from Korom et al. (2017).

B.2 Additional Figures

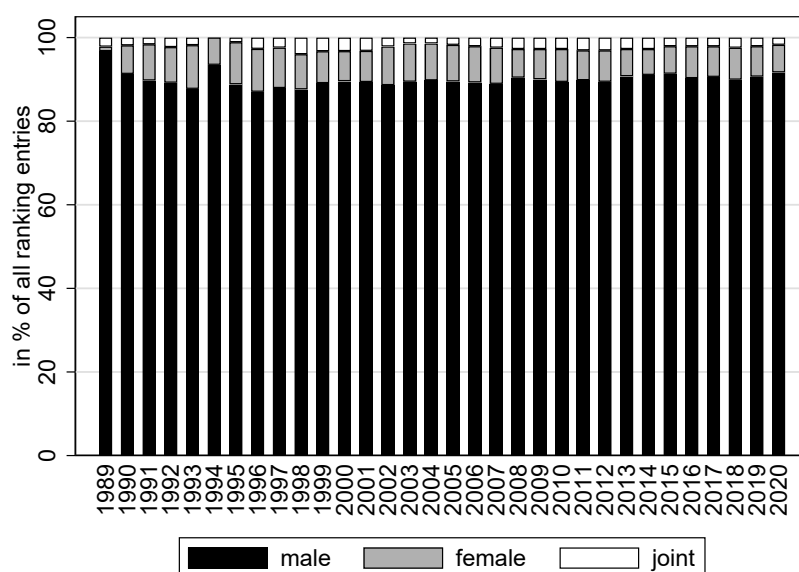


Figure B1: The Super-rich by Gender, 1989–2020

Note: This figure shows the rich list ranking entries by gender per year. Here we have assigned a gender to the family observations shown in Figure 1 based on the gender of the primary originator of the family’s net wealth, which we were able to do in over 98% of all cases. We assigned three categories for family observations: (i) male (black), (ii) female (gray), or in occasional instances, (iii) joint (white)—where a couple collaboratively serves as the primary creator to the family’s net wealth. Note that this figure shows the distribution of gender for individual and family observations jointly.

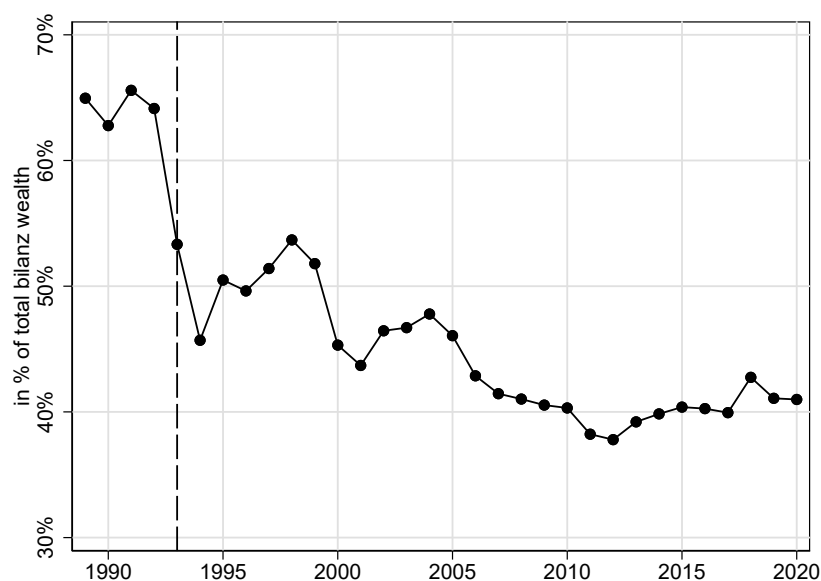


Figure B2: Share of Top Wealth originating before WW II, 1989–2020

Note: This figure shows the share of today's top wealth whose origins predate World War II. The vertical red line indicates the first-time inclusion of foreigners in the Swiss rich list. The first sharp drop in this share from 64% in 1992 to 53% in 1993 is attributable to the first-time inclusion of foreigners in the Swiss rich list. It seems that super-rich foreigners who entered the sample in 1993 were less likely than Swiss nationals to have laid the foundation for their fortunes before the mid-20th century. Since 1995, this share kept declining (with fluctuations over the business cycle) from 50% to some 40% in 2010.

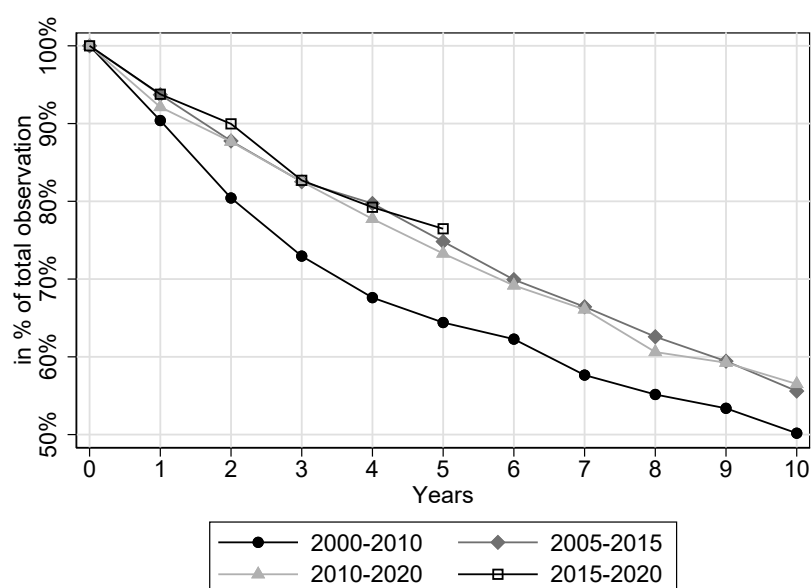


Figure B3: One- to Ten-year Survival Rates at the Top of the Wealth Distribution

Note: The empirical survival rates in this figure show the persistence of those included in the Swiss rich lists over time. The figure shows survival rates four different periods starting in 2000, 2005, 2010, and 2015, respectively. These survival rates are based on individual observations rather than family observations (for details on the two panel identifiers, see Appendix A). For more detailed explanations, see Figure 8.

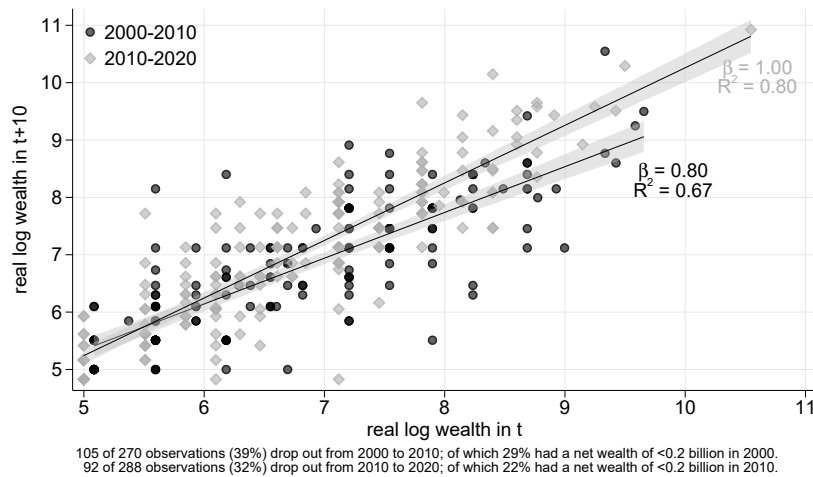
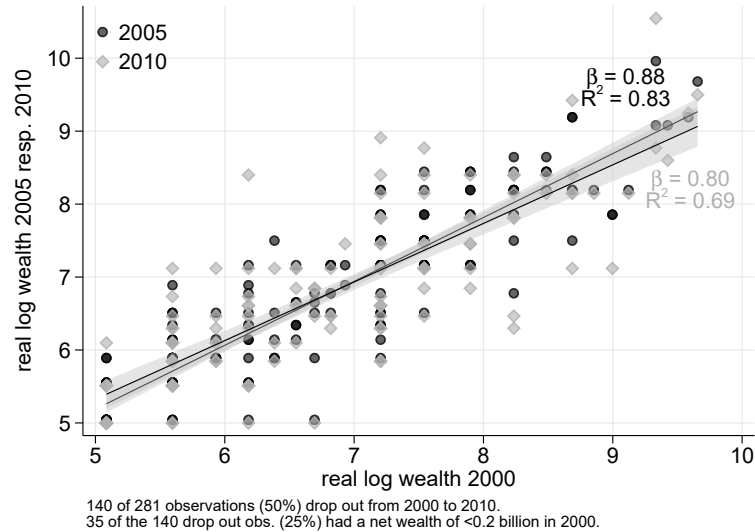


Figure B4: Top Wealth Mobility among the Super-Rich, 2000–2020, Family Observations

Note: This figure repeats the analysis shown in Figure 9, but using families rather than individuals as units of observation (for details on the two panel identifiers see Appendix A). In this analysis, however, an observation does not drop out if, for instance, a super-rich individual dies during the observation period, but his or her decedent is listed in the last year of the analysis instead. Dropout rates are reported below the figures. Panel (a) shows a scatter plot for real log net wealth for the period 2000 to 2010 (black dots) and for 2010 to 2020 (gray diamonds). Panel (b) and Panel (c) provide the same analysis for sub-periods. Slope estimates β and the R^2 from OLS regressions reported in the corresponding colors. All coefficients are statistically significant at the 1% level. The gray shading surrounding the gradients represents the 95% confidence intervals.



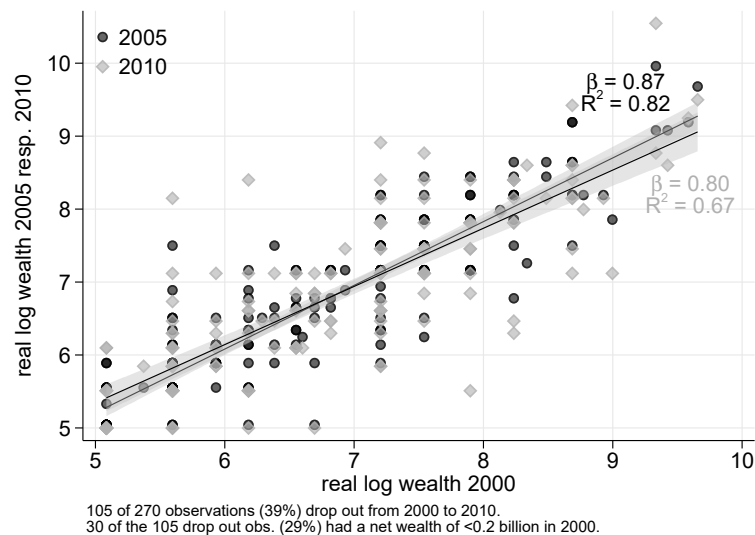
(a) 2005 and 2010 vs. 2000



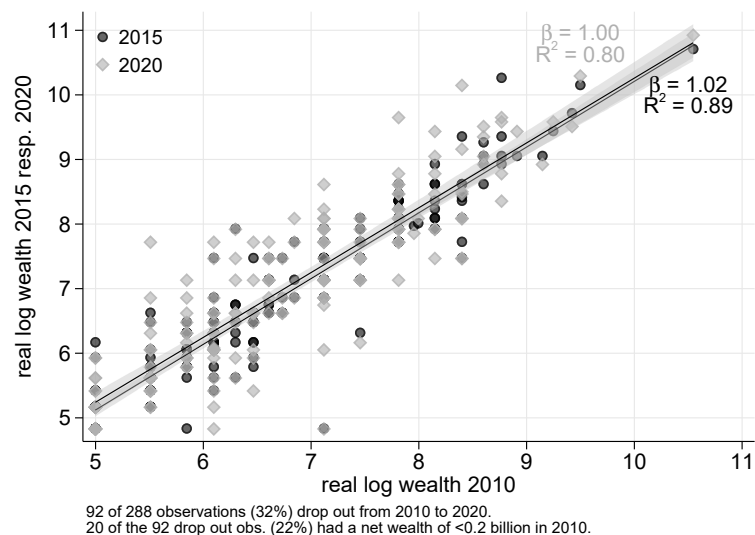
(b) 2015 and 2020 vs. 2010

Figure B5: Top Wealth Mobility of Super-Rich Individuals, 2000–2010–2020

Note: This figure repeats the analysis shown in Figure 9 for different sub-periods. Panel (a) shows a scatter plot for real log net wealth in 2005 (black dots) and 2010 (gray diamonds), respectively, relative to real log net wealth in the year 2000. Panel (b) shows a scatter plot for real log net wealth in 2015 (black dots) and 2020 (gray diamonds), respectively, relative to real log net wealth in the year 2010. Slope estimates β and the R^2 from OLS regressions are reported in the corresponding colors. All coefficients are statistically significant at the 1% level. The gray shading surrounding the gradients represents the 95% confidence intervals. The analysis is based on individual rather than family observations (for details on the two panel identifiers see Appendix A). Figure B6 shows the identical analysis using family observations. We only use observations in the mobility analysis that are present in both, the first and last year of the analysis, and report dropout rates below each figure.



(a) 2005 and 2010 vs. 2000



(b) 2015 and 2020 vs. 2010

Figure B6: Top Wealth Mobility of Super-Rich Dynasties, 2000–2010–2020

Note: This figure repeats the analysis shown in Figure B5, but using families rather than individuals as units of observation (for details on the two panel identifiers see Appendix A). In this analysis, an observation does not drop out if, for instance, a super-rich individual dies during the observation period, but his or her decedent is listed in the last year of the analysis instead. Dropout rates reported below the figures. See notes of Figure B5 for further details.

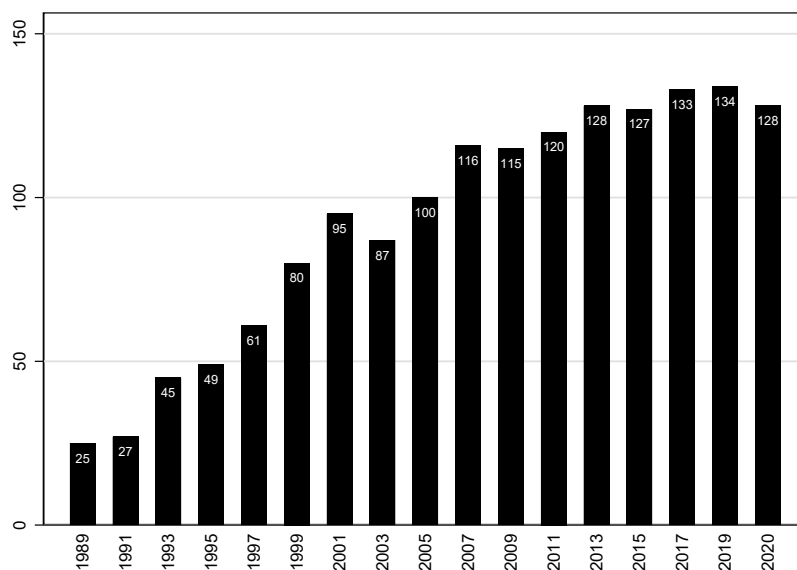


Figure B7: Real Wealth Billionaires in Switzerland, 1989–2020

Note: This figure shows the number of real wealth billionaires (measured in 2020 Swiss Francs) in Switzerland between 1989–2020. Nominal net wealth is deflated by the Swiss CPI. Note that the leap from 1991 to 1993 is due to the first-time inclusion of foreigners in the Swiss rich list.