Why are the returns on large wealth higher? Explaining the thick tail of wealth inequality in Western market economies

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1. Introduction: some stylized facts regarding top wealth

It is well-established that wealth inequality reaches much higher levels than income inequality. While income inequality in most countries has Gini's (to use one measure) of 0.25 to 0.5, the Gini's for wealth inequality are in the range of 0.55 to 0.9 (figures for c. 2000: OECD Income inequality; Davies at al., 2009: 17-21; for most recent data: World Wealth and Income Database). While the top-1% of income earners in many countries holds between 10 and 20% of total income, the top-1% of wealth owners typically holds between 20 and 35% of total wealth.

High levels of wealth inequality have been the norm throughout history (Scheidel, 2017; Piketty, 2014). After a low during most of the twentieth century, and particularly around the middle of the century, wealth inequality levels in many countries from the 1970s have been rising again (Piketty 2014: 336-350). Rising wealth inequality is particularly evident at the top of the distribution. Using capital income data, which better allow us to capture top wealth than survey data do, Saez & Zucman (2016) arrive at a top-1% share of 42% for the United States in 2012, and they document how this share has steadily risen over the past decades, starting slowly in the late 1970s and accelerating from 1986, from a level of 25%. Worldwide the share of the top-1% has risen from 32% around 2000 to 46% around 2010 (Milanovic, 2016: 39-45; Piketty, 2014: 432-436).

Corrected for non-response and under-reporting the share held by the top-1% would even be several percentage points higher than official figures (Vermeulen, 2016). This is mainly because under-reporting is largest for financial assets, especially since the liberalization of capital accounts and financial markets in the 1980s (Alstadsaeter, Johannesen & Zucman, 2017; see also

section 6). These assets are predominantly owned by large wealth owners (see section 4), whereas the housing and bank accounts which form the main components of smaller wealth are almost fully registered. For Sweden, it is estimated that adding offshore wealth to the official data for the year 2005 would increase the share of the top-1% from c. 20% to 25%, while adding the wealth of Swedish billionaires that is not included in the official figures would further raise this share to c. 30%, and adding the wealth of Swedes who live abroad would raise it to as high as c. 40% (Waldenström, 2017).

Even more striking than the share of the top-1% is the very top of the fat tail of the wealth distribution. In several countries, the top 0.01% holds 5 to 10% of total wealth. Still higher shares of the top 0.01% are reported for Switzerland (16%) and Denmark (12%) (figures for c. 2000, Davies et al., 2009: 19 and Table 7). For the United States in 2012, a share of 11% is reported, having increased from 3.5% in the early 1980s (Saez & Zucman, 2016). The threshold of this 0.01% in 2012 was $110 million and the average wealth of this group at that point was around $350 million. For this type of ultra-wealth, the underestimation in official, fiscal data is even stronger than for more modest types of large wealth. In the Netherlands, estimates of the share of the top 0.01% in total private wealth for 2012 vary between 3% according to fiscal data and 12% according to direct estimates, with the latter figure probably being much closer to reality (van Bavel & Frankema, 2017). Worldwide, in 2017, according to the Global Wealth Report by Credit Suisse (2017: 24 and table 3.6), there are 148,200 owners of more than $50 million, labeled ultra-high net worth owners, of whom 5,700 own more than half a billion. Jointly, these ultra-high net worth owners hold more than 10% of the total global wealth of $280 trillion (for figures from similar reports: Goda, 2018).

The number of ultra-wealth owners and their wealth is growing faster than GDP or total wealth. This is a global phenomenon. Between 1987 and 2013 worldwide the number of dollar billionaires (corrected for inflation) and their total real wealth rose by a factor of five, while the increase in real GDP was little more than 100% (Milanovic, 2016: 39-45; Piketty, 2014: 432-436). In the United States, the share of total wealth owned by the 400 richest individuals (the Forbes 400) increased from 1% in the early 1980s to more than 3% in 2012 (Saez & Zucman, 2016: 572-573 and appendix C3). Billionaire wealth also recovered much more quickly from the recent crises than smaller wealth (Goda, 2018: 102-107). All figures show how wealth inequality is rising especially at the top.

Many of the reports mentioned relate to market economies, that is, economies where not only goods, products and services, but also land, labor and capital are exchanged and allocated

predominantly through the market (for this sharp definition: van Bavel, 2016: 11-29). With respect to wealth inequality, how do these compare to other types of economies, where coercion, political hierarchies, state control, kinship ties, patronage and/or informal arrangements play larger roles in the exchange and allocation of inputs? This is not easy to determine. Measuring wealth distribution is not at all straight-forward, as the types of data and methods used differ widely from country to country, so comparisons should be treated with caution. Moreover, some Western countries, including most conspicuously Sweden and the Netherlands, and to a lesser extent Germany, have large pension wealth saved within statutory, collective schemes. Inequality figures would be substantially reduced if one would include this into the calculation of wealth (Bönke et al., 2017; van Bavel & Frankema, 2017) – something that is debatable, however, since this pension wealth in essence consists of rights to future income streams and is not private, transferable and inheritable wealth. Comparisons are also hampered by the absence or inadequacy of information for several parts of the globe. The global picture might change, for instance, if sufficient data on wealth distribution for the Middle East became available (Alveredo, Assouad & Piketty, 2017: 14-16).

Still, the information that is available does not suggest that wealth inequality and very large wealth are less prominent in Western market economies than in other types of economies – perhaps even the contrary. The list of countries with the highest levels of wealth inequality (Gini's of 0.8 or higher) features market economies like the United States, Switzerland and Denmark, alongside Zimbabwe and Namibia (Davies at al., 2009: figures for c. 2000). Also, market economies like Switzerland and the United States figure among the countries with the relatively large wealth shares of the top-1%. When limiting ourselves to private wealth in a strict sense - and excluding this pension wealth - in Northwestern European countries like Germany, the Netherlands and Sweden, too, inequality levels turn out to be very high. Also, the number of billionaires and holders of ultra-high net wealth is very high there (reports cited above) and their absolute wealth is much higher than during the earlier peak of inequality at the beginning of the twentieth century. In the United States, in 2015 the 30 richest individuals controlled ten times more wealth, adjusted for inflation, than their counterparts had in 1918 (Goda, 2018: 107-110). The high levels of wealth inequality in mature market economies are also observed for cases in earlier periods in history (van Bavel, 2016). In these market economies, wealth (that is: land, including agricultural land, real estate and natural resources, and capital, including capital goods, stocks, bonds, securities and other financial assets) is thus accumulated and made profitable through the market, that is: through a competitive system, not through systems of coercion,

patronage or political hierarchies that are often assumed to create and sustain high wealth inequalities.

The high levels of wealth inequality reached in present market economies are what this paper focuses upon, especially since they cannot easily be explained by conventional economics. Although recent years have seen some relevant papers, the causal mechanisms linking dominant factor markets to wealth inequality still remain among the least investigated topics in economic literature (Hodgson, 2015: 357-361), in contrast to the ample attention paid to the link to income inequality, for instance in the financialization literature. Causes for this relative lack of interest may include the focus in economic literature on consumption maximization (and the associated treatment of wealth as no more than a means to smooth consumption over the life cycle), or an assumption that markets are self-correcting and lead to equilibrium, Especially the latter position would make a possible link between markets and wealth inequality seem to be a non-issue, even more so if one assumes that there is an efficient allocation of resources through competitive markets in which all households can perfectly participate. These assumptions have come to be questioned in recent years, however, as a result of empirical observations of substantially rising wealth inequality and increasing thick tails of the distribution.

These observations have raised academic questions about the causes and effects of this concentration of top wealth, but they have also sparked public debates. There are moral objections but also more concrete societal worries about the emergence of oligopolies in vital economic sectors, potential negative effects of wealth concentration on economic growth, social tensions and the possible capture of political processes by large wealth owners. Organizations that voice these concerns include obvious candidates (Oxfam, UNICEF), but they have been joined lately by the OECD, the World Economic Forum and the like. Academic research into the causes of the growth of very large wealth, after a low that has lasted some decades, is also picking up, in part as a response to these societal debates and the associated interest in Piketty's *Capital in the Twenty-First Century*.

This paper aims to make a contribution to the debate by surveying and systematizing the literature on top wealth produced recently in different strands of economics. While various approaches have been probed in recent years, and have yielded relevant results, they mostly remain partial and limited to specific mechanisms or aspects of the issue. By combining these insights - which to my knowledge has not been attempted yet - this paper aims to help in better understanding the thick tail of wealth inequality. In doing so, it does not rely on theoretical exposés or modelling, although it does use the insights gained by these models, but it focuses on

the results of empirical studies, and it limits itself to market contexts, with an emphasis on the Western market economies.

2. Conventional explanations: talent and labor earnings, chance and inheritance

To start with, it has become clear that the high levels of wealth inequality, and especially the top end of the very thick tail, cannot be explained solely by factors related to labor earnings and their distribution. Different earnings processes in standard models of consumption and savings over the life cycle cannot explain the level of wealth concentration at the top of the wealth distribution, even when assuming differences in time preferences (De Nardi, 2016; Benhabib & Bisin, 2017: 25-26). Higher savings rates for actors having high labor earnings, or consumption-saving decisions of actors, cannot offer an explanation either, as they make only a small contribution to this very top of the tail (Benhabib & Bisin, 2016). Moreover, we have to be careful in labeling earnings as deriving from labor, as there is a grey zone between these earning and those derived from the increase in value of assets. While the labor earning of some athletes, DJ's and other celebrities may indeed be so large that they accumulate in large wealth, this is much less clear for CEO's, financial specialists and hedge fund managers, who form the largest share of the new very wealthy. Figures on their labor earnings on closer inspection often include returns on wealth, appearing as wages, bonuses, stock options, grants of stock transfers or earnings from enterprises. In their turn, as a result of the financialization of the economy, these are to a large extent related to returns on wealth made in financial markets. Also, hedge fund managers and other financial managers, who form a large part of the highest income group, may not materially own the assets they manage, but they mostly hold the formal residual control (Morley, 2014: 1253). Their income derives from a conceptual interest in these assets and is largely based on the increase in the value of these assets. The role of wealth returns is thus larger than appears at first sight. Explanations for the thick tail of the wealth distribution must therefore not primarily be found in labor earnings but rather in the characteristics and the returns on this large wealth itself.

A main explanation for wealth inequality reaching high levels, even when one assumes fully open, transparent markets and similar talents and skills of actors, is luck or chance. Inequality can emerge naturally if wealth is subject to random losses or gains (Scheffer et al., 2017). The gains and losses resulting from fluctuating financial stocks, business ownership and other forms of

wealth have a multiplicative character, leading to log-normal distributions (Bouchaud & Mézard, 2000; Benhabib, Bisin & Zhu. 2011). Similarly, analysing the Forbes 400 list over the period 1988 to 2003, Klass et al. (2007) find a Pareto distribution that can be explained by stochastic multiplicative dynamics, of a completely random nature, in efficient financial markets. This does not mean that no new people with ultra-wealth can emerge, but the distribution remains highly unequal.

This process is intensified by recent development in market economies and, particularly, by the growth of financial markets. First, because these generate a high frequency of transactions, thus accelerating the process. Also, the increasing role of leverage, and the rise of leverage ratios, as found in recent decades, amplifies the gains and losses in a nonlinear way, as demonstrated through a simple model by Thurner et al (2012; see also section 5). For this process driven by chance to happen a precondition is the opening up of production factors land and capital (= wealth) for transaction and accumulation, as is the case in present market economies. Actually, this mobility of property rights in land and natural resources and, especially, capital is increased in Western economies over the past decades, as a result of a growing importance of markets in exchange and allocation, deregulation policies and opening up of markets and the massive growth of financial markets, where investments refer to inputs but bring additional dynamics.

Large fortunes can thus grow anew in market economies but it is important to note that they can also be sustained over generations as a result of a particular institution: the right to inherit and the protection of inheritable property rights. This is relevant to note, since the existence of inheritance rights is not natural or obvious, especially not in market economies. Prominent liberal thinkers with pro-market views, including Adam Smith and John Stuart Mill, argued against inheritance (Halliday, 2018: chapter 2). This relates to the position that inherited wealth is not compatible with the basic ideals of the open market economy, most particularly not with the ideals that the market economy distributes income and wealth according to productivity, allocates resources to their most efficient use and offers equal opportunities. Inheritance of wealth instead conforms to the ideals underlying earlier feudal, non-market societies, where the permanency of old lineages and social hierarchies are seen as desirable. However, inheriting has gained legitimacy within market economies again over the past years and, associated with this, the taxation of inheritances has lost support (see below). Market economies even strengthen the effect of inheritance, because of the security and protection they offer to (private) property rights, including those that are inherited.

The effects of the actual transmission and distribution of inheritance on the levels of wealth inequality appear to be limited. Slight effects on the existing levels are observed by way of empirical research for Great Britain, 1995-2005 (Karagianniki, 2015) and the United States, 1989-2013 (Wolff, 2017: 293-309: a slight decrease). Still, as a result of the fact that the institution of inheritance exists, very large wealth can be transmitted to a next generation and after death there is no reversion to the mean. Also, very high inheritance taxes would dampen the incentive of actors to accumulate following from the bequest motive, as theoretically shown for a context with capital income risk (Benhabib, Bisin & Zhu, 2011). This would apply particularly to the very rich (Wolff, 2017: 308-309, speculates about other possible motives, but without empirical underpinning). These factors combined would substantially reduce the thick tail of the wealth distribution. The inheritance taxes, however, have been reduced over the past decades. In the mid-twentieth century, these taxes were indeed meant to substantially diminish inheritable wealth, with top rates of 35-40% on average in Western market economies, or to almost fully tax it away, with top rates of around 80% in the United States and Great Britain (Piketty, 2014: 503-508; Scheidel, 2017: 145-150), a policy endorsed in 1919 by the president of the American Economic Association, Irving Fisher, who even suggested a tax of 100% on wealth older than three generations. This reflected a mood in the leading market economies where inherited wealth was considered economically inefficient and at odds with the open society and economy.

This mood changed rapidly from the 1970s, resulting in a rapid reduction of inheritance tax rates. Canada, Australia and New Zealand have abolished the inheritance tax in the 1970s to 1990s, while other countries greatly reduced their nominal rates (Bertocchi, 2011). In practice, inheritance taxes are even lower than these nominal rates, as a result of exemptions and wealth-protecting arrangements, especially shielding large wealth from taxation (see section 6). As a result, large wealth is thus transferred almost untouched to next generations. The possibility of bequeathing also incentivizes high-earning parents to save more and retain large assets. Voluntary bequests in particular, as De Nardi (2004) shows through an overlapping-generations model, help to explain the thick tail of the wealth distribution. Empirical research also shows how, despite the possibilities of amassing new fortunes, inherited wealth remains a main component in the persistence of large and very large wealth. Even in a country where nominal inheritance tax rates for large wealth are still relatively high, the United States from the 1980s, where the top statutory rate is 40%, this mechanism holds, as shown by Korom, Lutten & Beckert (2015).

Jointly, these explanations (skills, chance and multiplicative dynamics, and transmission through inheritance) can therefore explain some of the thick tail of wealth distribution. There are, however, also forces that reduce or destroy large wealth, including taxation, inheritance partitions, large-scale crises, disasters and war (Piketty, 2014: 368-375 and 498-508; particularly for disaster and war: Scheidel, 2017). That the thickness of the tail is so large, even despite these countervailing forces, points to yet another set of factors. All preceding explanations assume similar returns on wealth for all sizes of wealth, but there are clear indications that these returns are substantially higher for large wealth than for smaller wealth. This is the issue on which the remainder of the paper will focus.

3. Higher returns on large wealth: empirical observations

As observed, the share of very large wealth owners in total wealth has been growing over the last decades (section 1). One possible mechanism is that large wealth has higher profit rates than smaller wealth. Detailed empirical studies reconstructing differences in profit rates between large and small wealth are few, but their numbers have been rising in recent years and almost all of them indeed point to differences in returns, often substantial ones.

In Sweden, over the period 1999-2007, the return on gross wealth for the top-1% of wealth owning households is 4.1% higher than for median households and for the top-0.01% this is no less than 6.2% (Bach et al., 2017). In Norway, for 2013 median returns of 0.7% are found for the 10th wealth percentile compared to 2.6% for the 90th wealth percentile, and this difference of some two percentage points is found during the whole of the period 1994-2013, despite fluctuations in the absolute levels of returns (Fagereng et al. (2016). Various studies, including that by Fagereng et al. (2016), find this effect occurring even apart from differences in the composition of wealth between owners of large and small wealth, as shown by differential returns even within asset classes (see also section 5 below).

The recent voluminous study by Wolff (2017: 116-121) looks at rates of return to wealth in the United States over the period 1983 to 2013. Even when assuming similar rates of return per asset types for the various wealth classes, he still finds large differences in the average annual return on gross wealth: the top-1% outperforms the rest of the top quintile by 0.59 percentage points and the middle three quintiles by 1.52 points. This difference disappears only when looking at net wealth, due to the very high leverage of middle-class households, with the middle

three quintiles having an average debt/net worth ratio of 64% (Wolff, 2017: 90-100). Saez and Zucman, using estate-income returns for the period 1996-2011, find low differences between wealth groups (Saez & Zucman, 2016: 547-551 and table B20). These may form an underestimation, however, as the method may be sensitive to artefacts resulting from fiscal considerations (a possibility discussed but largely dismissed by the authors, but emphatically stated by Fagereng et al, 2016).

Differences between large and small wealth within identical wealth components are also observed for the United States. Saez and Zucman (2016) find fairly similar returns within asset classes, but their method may be subject to the effect of fiscal considerations. Yitzhaki (1987), on the other hand, analyzing United States tax returns in the decades up to 1973, found much higher appreciation rates of stock owned by high-income investors compared to low-income investors. These large differences in capital gains persisted over long time frames and could not be explained by higher risk-taking but point to returns to scale (see section 5).

Piketty (2014: 447-452) uses another way to demonstrate the difference for the real return between large and small wealth, by analyzing the returns on university endowments, after deduction of inflation and management costs. The largest endowments have an annual rate of return of 10.2% between 1980 and 2010, the somewhat less large ones (over $1 billion) of 8.8%, the smaller ones (between $0.1 and $0.5 billion) of 7.1% and the smallest ones (less than $ 0.1 billion) of 6.2%. A similar test for foundations in the United States over the period 1990-2010 (Saez & Zucman 2016: 542-544), showed the smaller foundations ($1-10 million) had a yearly real return of 3.9%, the medium-sized ones ($10-100 million) of 4.5% and the very large ones (> $5 billion) of 6.3%. Just as with private wealth owners, there is a substantial difference between large and smaller wealth, but even more substantial between ultra-wealth and the rest.

The number of studies on profit rates for various wealth categories is still limited, and their methods and perspectives differ, but they all point to differences between returns on large and smaller wealth. They also suggest there are at least two elements in this. First, there are the differences in asset composition between large and small wealth (discussed in the next section). Second, there are the differences in profit rates between large wealth and small wealth even within asset classes (discussed in section 5).

4. Large wealth invests more in high-return wealth components

Small and large wealth on average have a different composition. Smaller wealth consists more of housing, while large wealth consists to a larger extent of financial assets (equities, debt instruments). In the United States, in 2013, the middling wealth groups (the middle three quintiles) had invested two-thirds of their gross wealth in their own home, with bank accounts and pension assets making up most of the remainder, whereas the top-1% had invested on average three-quarters of its wealth in corporate stock, financial securities, mutual funds, personal trusts and unincorporated business equity (Wolff, 2016: 34-38; Wolff, 2017: 86-97). In Sweden, around 2000, median households invested 21% of their wealth in risky assets, and the figure was 62% for the top 0.5-1% and 95% for the top 0.01% (Bach et al., 2017). Moreover, owners of large wealth not only have riskier types but also invest more in riskier assets within these types of assets (Kacperczyk et al., 2017). Investment in hedge funds is most uneven per wealth group: in Sweden it is virtually nil outside the top-1%, while it is almost 6% of wealth for the top-0.1%, and in the United States in 2007 the latter figure was already close to 10% (Bach et al, 2017).

The different composition of wealth affects the returns, as differences in rates of return between non-risky (housing) and risky (financial) wealth over the longer run are substantial. Returns on investments in hedge funds are probably highest. Even though assessments are not unambiguous, most indicate that after deduction of fees they yield higher returns than common movements of financial markets would explain (Stulz, 2007: 183-187). For the period 1995-2009, Ibbotson, Chen & Zhu (2011) find hedge funds adding significant post-fee alpha and beating the stock and bond markets by about 3 percentage points, and a literature survey shows pre-fee alphas of 6 percentage points (Jurek & Stafford, 2015: 2194-2196). The latter authors argue that a large part of this alpha is in fact a premium for bearing downside market risks, and that when tail risk was priced in this alpha would largely disappear. This qualification, however, does not detract from the observation that the wealth component found most conspicuously with very large wealth offers the highest net returns, even higher than other forms of financial wealth.

Also, relatively high gains may be made on large wealth by using first mover advantages, with larger wealth being more effective in occupying a new market segment, and as a result of "winner takes all" mechanisms, found especially in new markets. As technological innovation generates new products and services to be brought to market, this offers temporary oligopolies or even monopolies to first movers. This may be the result of their entrepreneurial skills and/or certain characteristics of these markets (related to advanced technology employed, for instance, as with the network effects generated by digital technology), but is also driven by the availability

or ownership of very large wealth (Allen, 2017: 30 ff.). Being able to employ large wealth, further aided by the presence of hedge funds and financial vehicles that enable a quick mobilization of this very large wealth (see section 5), enables a relatively small number of actors to buy patent rights, build new brand value and buy up competitors or promising start-ups. Also, it offers them the opportunity to take higher risks (Bach et al., 2017), and to bankrupt competitors or drive them out of competition. Conspicuous examples of this process are presently found in the pharmaceutical sector, financial services and in Information Technology. This process continuously generates new people who may become very wealthy, some of them even starting out relatively poor, but it is relevant to note that, for the reasons mentioned, the possession of large wealth offers more chances to success, speeds up the process and increases the likelihood and permanency of oligopolies, and therefore offers higher profits.

Large wealth is thus over-represented among high-gain assets, where returns as a result of quasi-monopolization may even be further pushed up. The differences in asset composition may result from various factors. There may be differences in skills, knowledge and risk tolerance. Also, the propensity of wealth owners to invest the first part of wealth in housing and risk-free assets and only the residue in less tangible, financial assets (a kind of Engel's law of asset composition) may play a large role. As a result, the share of financial wealth would increase with wealth, as we indeed observe. There is also the possibility that risks, information costs and other transaction costs decline with the size of wealth, especially in financial markets and their more profitable segments, thus making this type of investment better accessible and more attractive to large wealth owners. This possibility is further explores in the next section.

5. Large wealth has lower transaction costs

The literature discussed in section 3 found that returns between large and small wealth differ even within asset classes, and that they are positively correlated with wealth. A main cause may be that transaction costs decline with the size of wealth. There is indeed reason to surmise that this is the case and that the thick tail of wealth inequality in market economies is related to market transactions of wealth, and the costs of these transactions, especially as large wealth in market economies can be made profitable through engaging in transactions in input markets or financial investments referring to marketized inputs. Ownership of real estate generates returns, for instance, through transactions on rental markets, ownership of land through transactions on

lease markets, ownership of capital goods through transactions on labor markets, ownership of financial wealth through transactions on financial markets, and so on.

These markets in neo-classical economics are sometimes assumed to be fully open, transparent and competitive, but in reality they are not and this creates transaction costs. In the New Institutionalist Economics, and other strands of economics, it is reasoned that these costs in Western market economies have been reduced because of the growing quality of institutions from the early modern period and gaining pace in the modern period (North, 1990). This process is often assumed to have been further sped up from the 1980s, by deregulation policies and the removal of "market distortions", alongside the reduction of information costs as a result of technological advances. This would suggest that transaction costs play a decreasing role in the sophisticated markets of the present era; an assumption that is questioned and investigated here.

In view of the issue under consideration here, we look particularly at the possibility that transaction costs differ by social group, in this case: between different categories of wealth owners. While North and others working on transaction cost theory show that they differ between periods and between societies, they do not discuss the possibility of differences between social groups. It can, however, be shown that transaction costs actually differ between owners of large and small wealth, and this is done by looking at the main forms of transaction costs: a) information costs; b) costs resulting from insecurity c) transfer and management costs, and d) entry costs.

With *information costs*, large wealth owners are clearly at an advantage. When making their wealth profitable (through lease, rental, wage labor, speculation, trading in shares etc.) they can undertake a larger number of transactions within these markets and thus acquire a more profound knowledge of them. Small wealth owners, on the other hand, only have few or even single transactions, thus increasing relative information costs. The effect increases as markets become larger and more complex. Also, in labor and particularly capital markets, because of their complexity, the effect is larger than in markets for goods and products. Labor and capital markets require a repeated interaction of the actors which will only be completed at some point in the future, in contrast to the sale of a commodity, which may be a one-time transaction (Bowles & Gintis,1988: 202). Information costs and insecurity in factor markets are consequently high, and this favors large wealth owners with more numerous transactions. A different approach, but with a related argument, is offered by Kacperczyk et al. (2015), who show that large investors in capital markets have higher returns because of their greater capacity to process information, enabling them to make better investment decisions and to invest in riskier assets.

This may be attributed to skill and learning (and this links up with the argument made in section 4), but it also relates to bulkiness, reducing information costs.

Costs related to *insecurity* are also lower for large wealth owners. A first observation is that wealth may be offered as a security and thus helps to reduce transaction costs (or is even simply a way of paying for them). Wealth owners can collateralize land and capital goods, but non-wealth owning wage workers cannot collateralize their labor (Hodgson, 2015: 355-362; Bowles & Gintis, 1988: 189-193). The more wealth one owns, the easier it is to offer wealth as collateral, the easier it is to borrow and the cheaper it is to contract and service the debt. There is ample evidence that subprime loans have higher interest rates and fees, and more generally that the poor pay more for loans. More important for the phenomenon under scrutiny here is that owners of large wealth can more easily leverage their assets, and at relatively low costs, and thus realize higher returns (Bach et al., 2017). This amplifies the gains and losses that within a multiplicative process in themselves already combine into high inequality (see also section 2). This is a self-reinforcing process, as aggressive investors with large wealth who are able to employ higher leverage on average make better returns and accumulate more wealth, thus driving investors unable to employ higher leverage out of the market (Thurner et al., 2012). Also, many transactions have a time inconsistency, and since actors do not have perfect knowledge of future states, this creates insecurity and requires them to price this in. Owners of wealth are at an advantage in this.

A related factor is that small owners in order to reap the potential benefits in more risky markets with high information costs are obliged to pool their small wealth within a joint organization and have to trust a manager of this organization, often accompanied by relatively high *management costs*. In 2012, the mutual funds in the United States, managing $13 trillion, charged on average 0.77% annually for expenses, a rate that had declined from 0.99% in 1990 (ICI factbook 2013: figure 5.1), but was still a substantial one. Rather, this figure shows that even despite scale-enlargement, deregulation and technological innovation management costs have only slightly declined. In some cases, management costs of mutual funds are even as high as 2% per year. Owners of large wealth, on the other hand, have access to private banking and wealth management, where management fees are relatively lower. Academic studies are missing, to my knowledge, but a scan of information provided by banks indicates regular fees of 0.3 – 0.4% for ultra-high net worth owners (> $50 million) and often becoming fully negotiable for very large wealth.

Moreover, and even more relevant to the process under scrutiny here, *entry costs* are often high, especially for accessing complex markets, and they are usually fixed at an absolute amount. These costs may deter wealth-poor households from entering potentially high-profit markets. This entry cost is often assumed, or inferred by simulation techniques, but seldom estimated. Scattered information shows that hedge funds, on average offering relatively high returns, limit participation to small numbers of wealthy investors and have high thresholds for investing, which may amount to $1 million or more. Additionally, there are the one-time costs of due diligence, which in the United States in 2007 were estimated at $50,000 on average (Stulz, 2007), sums that are prohibitive for small investors. Crossing this threshold, and entering the segment of the hedge funds, creates much larger opportunities for wealth returns. In contrast to the more regulated mutual funds, hedge funds are allowed to have short positions, to borrow and to make extensive use of complex derivates (Stulz, 2007: 177-179; Morley, 2014). Large wealth thus directly finds itself within a different institutional context, where higher returns can be made.

These elements, in different combinations, can be observed in the policies of banks. The French bank BNP Paribas Fortis divides its clients between retail, priority, private banking and wealth management. For private banking, in 2017, the lower bound is € 250k in capital to be invested, for wealth management this is € 5 million, more or less similar to the bounds applied by other banks. The number of available investment options increases exponentially per segment. Also, the quality of advisors is higher, with private bankers and wealth managers having a university degree in economics, finance or law at minimum and having access to professional education, information centers, and aided by specialized advice from estate planners (for fiscal optimization) and investment specialists (for complex investment options) (Cleeren, 2014).

Differences in the institutionalized incentives of the wealth managers may also play a role. Mutual fund managers in the United States mostly receive a pay related to the amount of assets they manage, while for hedge fund managers the amount is based to a large extent on the profits their assets make, associated with the conceptual interest they have in these assets (Stulz, 2007: 178; Morley, 2014). This may incentivize hedge fund managers to give their largest clients the best options. Also, a quick mobilization of this very large wealth enables them to dominate a market or sector and reap higher profits (see section 4).

These mechanisms create differential transaction costs within a market economy. More specifically: transaction costs are not similar for all actors within that market economy, but depend on the size of their wealth, and this differential effect is stronger with the growth of

labor and capital markets, with growing complexity of markets and with growing size of markets.

6. Large wealth pays lower taxes

Large wealth also benefits from paying relatively low taxes. First, compared to labor income, which in present market economies is heavily taxed compared to wealth and income from wealth. In the Netherlands, when taking all taxes on labor and capital together, net after deductions, every Euro earned from labor is taxed at c. 40%, whereas every Euro earned from capital is effectively taxed at 9% (Jacobs, 2015: 29, figures for [c. 2010?]). Moreover, the tax rates on wealth and income from wealth have been substantially reduced over the past decades. The taxation of wealth revenue was abolished in Austria in 1994, in Denmark and Germany in 1997 and in the Netherlands in 2001, and direct taxes on wealth are reduced (see below).

Second, large wealth pays lower taxes because of the different asset composition (discussed in section 4), since different components of wealth are often taxed differently. Generally, bank accounts and residential property are taxed more heavily than shares, equity and other forms of financial wealth, with the last components predominantly held by large wealth owners. Moreover, taxes on financial wealth, corporate income and capital gains are the ones that have been reduced most substantially over the past decades. A reconstruction of corporate income taxes for sixteen countries (Western European members of the EU plus G7; all being market economies) over the period 1982 to 2001 shows that statutory rates have been reduced in thirteen cases, and in six of them by more than 20 percentage points (Devereux et al, 2002). In this period, the weighted average of the rate fell from 50% to 38%, while average effective tax rates declined from 42% to 32%. This was driven to some extent by the convergence of some continental European Scandinavian market-economies with the Anglo-Saxon ones, where levels had been lower or had been reduced already earlier, as in the United States, where the statutory rate was reduced in several steps from 52% in 1969 to 35% in 1988. As a result, levels had become broadly similar around 2000. However, the process proceeded thereafter. In the European Union, between 2003 and 2017, there was a further decline of the top corporate income tax rate from 28% to 22% on average, while in the same period the effective average tax rate declined from 25% to 21% (European commission, 2017: 33-36). Resulting higher profitability has, also by way of rising stock prices, dividends and buybacks, mainly benefited large wealth owners.

The differential fiscal effect on large and small wealth is also the result of setting a fixed tax rate for all types of wealth. During the latest tax reform in the Netherlands, in 2001, the capital levy was raised from 0.7 to 1.2%, but at the same time taxation of actual income from savings or investments was abolished (Jacobs, 2015). Previously, the larger wealth owners had been paying 60% income tax on income generated from capital or wealth. This implies that in the case of an average annual net return of 4% the fiscal rate has declined from 3.1% (2.4 + 0.7) to 1.2%. Moreover, most small wealth owners receive a lower annual return, especially in light of low interest paid on savings (see also section 3), and thus pay a relatively higher tax, sometimes amounting to half of the annual return, while large wealth owners with sophisticated asset portfolios and much higher returns pay a relatively low tax.

Third, and perhaps even more importantly, large wealth can reduce or even escape taxation by tax sheltering devices. Apart from illegal tax evasion, there are many opportunities to use legal instruments to avoid taxes. These have been used increasingly in the past four decades, and as a result a substantial share of financial wealth is held offshore and/or assigned to shell companies in tax havens. These instruments are mainly available for owners of large wealth, in view of the very high information and transaction costs and the legal and fiscal expertise needed to this end. Tax shelter promoters often serve an inner circle of owners of very large wealth, offering them a first mover advantage (Braithwaite, 2005: 106-110). The costs of these advanced shelters may be up to millions of dollars, forming a high and fairly fixed entry cost, available only for very large wealth.

As a result of these and other barriers for small wealth, some 80% of offshore wealth worldwide is held by the top 0.1% and some 50% by the top 0.01% of wealth owners, as estimated by Alstadsaeter, Johannesen & Zucman (2017), who use bilateral data on bank deposits that have recently been disclosed. Their estimates show that in 2006-2007, the year for which data is most precise, some 8% of total financial wealth worldwide was held offshore, but the shares for large wealth are much higher, at about 30 to 40% of the wealth owned by the top 0.01% from the United Kingdom, France and Spain. For the Scandinavian countries this share is lower, but still, even there the effect is substantial, as shown by the recent reconstruction for Sweden in 2005 undertaken by Waldenström (2017), who shows that adding Swedish offshore wealth to the official data would increase the share of the top-1% from c. 20% to 25%, while the wealth of Swedish billionaires which is not included in the official figures would further raise this share to c. 30%. The vast majority of wealth held abroad – figures vary between 90 and 95% - is not declared on tax returns (Alstadsaeter, Johannesen & Zucman, 2017: 15), and this large wealth can

thus grow virtually untaxed. On a side note, these figures also again confirm that inequality figures derived from fiscal sources (as discussed in section 1) form a gross underestimation of actual figures, especially concerning the top wealth shares.

In part, the differential fiscal treatment of large and small wealth may be the result of an underlying economic rationale: investing in risky and potentially productive assets may be stimulated by lower tax rates. For another part, the reasons may be very practical: it is more difficult to tax highly volatile assets (financial assets) compared to real estate. Apart from these reasons, however, the possibility may not be excluded that the lower tax rates are to some extent also the result of the political leverage of large wealth owners, a possibility further discussed in the concluding section.

7. Further consequences and outlook

The relationship between the market economy and wealth inequality has not been thoroughly investigated until very recently. Many economists would hold that wealth inequality is not a relevant issue and especially not in market economies where open, competitive markets freely operate. On the basis of a survey of the recent literature, however, this paper shows that there is reason to link the dominance of markets, and factor markets in particular, to wealth inequality. First, because chance leading to inequality can only fully operate with the opening up of the production factors land and capital (= wealth) for transaction and accumulation, as happens within market economies, and is speeded up by the high frequency of transactions in market economies, as most notably in financial markets. Second, because large wealth in market economies can easily be invested in assets that are not vital for subsistence or primary needs, and very safely because of the extensive protection of private property rights, and thus be made into the most profitable assets, especially by way of financial markets. Thirdly, because transaction costs in markets are relatively (per unit of wealth) lower for large wealth, especially within complex input markets.

The preceding survey also identifies areas for further research. The issue of transaction costs, in particular, would deserve further rigorous and systematic investigation. Also, progress could be made by modelling mechanisms and effects, which would ideally also contribute to assessing the relative weight of the various factors discussed here. Also, advances could be made by bringing in a time perspective, which would allow us to better assess the effect of technological

innovation, policy measures and other factors, also in order to see whether transaction costs indeed have been declining over the past decades and can be surmised to further decline. In other respects, too, there is a lot of scope for further research. Progress could be brought by empirical research on rates of return in different markets, in order to better assess the role of financial markets, in particular. Further, most of the reconstructions of very large wealth are found in reports by investment banks and journals, but academic research would be valuable in further identifying the thickness of the upper tail and the differences between countries. Another element that would require further research is the role of inheritance and its effects, especially in light of the growing ratio between wealth and national income, and the growing importance of inheritances as an effect of this.

Still, what we do know now is sufficient to suggest that there is not a single situation in which the functioning of markets in itself will not drive up wealth inequality. This is even the case in the hypothetical (and unrealistic) situation where markets are completely frictionless and without transaction costs and used by actors who have about equal sizes of wealth. Even here, chance alone will already drive up wealth inequality in market economies to very high levels, giving rise to a thick tail of the wealth distribution. In all real-world situations, where either a situation of wealth inequality exists, or there are complex markets for land, labor and capital, or markets that have some information costs or other types of transaction costs, the market economy, because of its differential effects on large and small wealth, will further drive up wealth inequality. This happens even without assumed differences in saving, risk-taking, talent, skills or consumption preferences of individual wealth owners. Also, it comes into operation simply by the normal operation of present markets and random fluctuations, with no requirement for external shocks (as the literature of unified growth theory requires for instance). And this is a self-reinforcing process, increasing in strength as wealth inequalities grow.

Moreover, the growth of large wealth will also have some qualitative, structural consequences, located in the realm of the political economy. Large wealth owners have a disproportional influence on politics, even within Western democracies, as is shown by a host of qualitative and descriptive studies but also by a statistical analysis of surveys and policy outcomes over the years 1981-2002. The latter demonstrated how large wealth owners and organized business interests wield substantial influence on the United States government policy, while average citizens may sometimes seem to get their preferred policy outcomes, but actually have little or no independent effect on policy at all (Gilens & Page, 2014). Their leverage in the political domain also increases the likelihood of tax policies favoring large wealth. This may in part be reflected by the

substantial reduction of inheritance taxes (section 2) and the real tax differentials observed for Western market economies (section 6), and it may also preclude other measures that have been proposed to curb concentration, including the break-up of monopolies or amendments of the patent system. Also, the political influence of large wealth may lead to the institutions for market transactions becoming skewed towards large wealth (Milanovic, 2016: 189-190 and 199-204; historical analysis: van Bavel, 2016). A growing skewedness of the institutional organization of market exchange to the interests of owners of large wealth in its turn further increases the differences in transaction costs, and thus the differences in profit rates, which further contributes to growth of large wealth, thus potentially leading to a feedback loop.

Even within the normal functioning of present Western market economies returns increase with the size of wealth, as shown through this survey. This effect is further enhanced with the increasing opportunities for leverage through financial markets and the scale-enlargement through globalization we have witnessed in recent decades. The differential returns for small and large wealth become even more pronounced by way of factors related to the political economy. Theorists may argue that the latter are alien to perfect, open market economies, just as they would say about differences in transaction costs, but empirical studies demonstrate that they do exist in the market economies we find in the present real-world.

Even without these effects on the political economy, however, the links between market economies and wealth inequality are evident. Even though wealth inequality can come about also by other means, including coercion, exploitation and patronage, especially market economies generate top wealth. They provide the capacity or the high enough multipliers, and offer the needed institutions, as private property rights and contract enforcement, for generating those inequalities and they enhance them through the repeated and frequent transactions markets enable, the opportunities they offer to first movers and the differential transactions costs and the differential returns on large and small wealth there. The high levels of wealth inequality and the growing shares of very large wealth observed in market economies are thus not a coincidence or aberration but are inherent in their functioning.

References:

Alstadsaeter, Annette, Niels Johannesen, and Gabriel Zucman. 2017. "Who Owns the Wealth in Tax Havens?: Macro Evidence and Implications for Global Inequality." NBER Working Paper No. 23805.

Alveredo, Facundo, Lydia Assouad, and Thomas Piketty. 2017. "Measuring Inequality in the Middle East 1990-2016: The World's Most Unequal Region?" CEPR Discussion Paper No. DP 12405.

Bach, Laurent, Laurent E. Calvet, and Paolo Sodini. 2017. "Rich Pickings?: Risk, Return, and Skill in the Portfolios of the Wealthy." CEPR Discussion Paper No. 11734.

Bavel, Bas van. 2016. *The Invisible Hand?: How Market Economies Have Emerged and Declined Since AD 500*. Oxford: Oxford University Press.

Bavel, Bas van, and Ewout Frankema. 2017. "Wealth Inequality in The Netherlands, c. 1950-2015: The Paradox of a Northern European Welfare State." *Low Countries Journal of Social and Economic History* 14 (2): 29-62.

Benhabib, Jess, and Alberto Bisin. 2017. "Skewed Wealth Distributions: Theory and Empirics." NBER Working Paper 21924.

Benhabib, Jess, Alberto Bisin, and Shenghao Zhu. 2011. "The Distribution of Wealth and Fiscal Policy in Economies With Finitely Lived Agents." *Econometrica* 79(1): 123-157.

Bertocchi, Graziella. 2011. "The Vanishing Bequest Tax: The Comparative Evolution of Bequest Taxation in Historical Perspective." *Economics & Politics* 23 (1): 107–132.

Bouchaud Jean-Philippe, and Marc Mézard. 2000. Wealth Condensation in a Simple Model of Economy. *Physica A* 282 (3): 536-545.

Bönke, Timm, Markus Grabka, Carsten Schröder, and Edward N. Wolff. 2017. "A Head-to-Head Comparison of Augmented Wealth in Germany and the United States." NBER Working Paper No. 23244.

Bowles, Samuel, and Herbert Gintis. 1988. "Contested Exchange: Political Economy and Modern Economic Theory." *American Economic Review* 78 (2): 145-150.

Braithwaite, John. 2005. *Markets in vice: Markets in Virtue*. Oxford: Oxford University Press.

Cleeren, Ellen. 2014. "De Topdoelgroep van de Private Bankier." *De tijd,* October 8. https://www.tijd.be/dossier/privatebanking2014/De-topdoelgroep-van-de-private-bankier/9553587

Davies, James D., Susanna Sandström, Anthony Shorrocks, and Edward N. Wolff. 2009. "The Level and Distribution of Global Household Wealth." NBER Working Paper No. 15508.

De Nardi, Mariacristina. 2004. "Wealth Inequality and Intergenerational Links", *Review of Economic Studies* 71 (3): 743–768.

De Nardi, M., Giulio Fella, and Gonzalo Paz Pardo. 2016. "The Implications of Richer Earnings Dynamics for Consumption and Wealth." NBER Working Paper No. 21917.

Devereux, Michael P., Rachel Griffith, Alexander Klemm, Marcel Thum, and Marco Ottaviani. 2002 "Corporate Income Tax Reforms and International Tax Competition", *Economic Policy* 17 (35): 450–497.

European commission. 2017 *Taxation Trends in the European Union: Data for the EU Member States, Iceland and Norway: 2017 Edition*. Luxembourg. Publications Office of the European Union.

Fagereng, Andreas, Luigi Guiso, Davide Malacrino, and Luigi Pistaferri. 2016. "Heterogeneity in Returns to Wealth, and the Measurement of Wealth Inequality." *American Economic Review* 106(5): 651-655.

Gabaix, Xavier. 2009. "Power Laws in Economics and Finance." *Annual Review of Economics* 1 (1): 255-294.

Gilens, Martin, and Benjamin I. Page. 2014. "Testing Theories of American Politics: Elites, Interest Groups, and Average Citizens." *Perspectives on Politics* 12 (3): 564-581.

Goda, Thomas. 2018. "The global concentration of wealth." *Cambridge Journal of Economics* 42 (1): 95–115.

Halliday, Daniel. 2018. *Inheritance of Wealth: Justice, Equality, and the Right to Bequeath*. Oxford: Oxford University Press.

Hodgson, Geoffrey M. 2015. *Conceptualizing Capitalism: Institutions, Evolution, Future.* Chicago: University of Chicago Press.

Ibbotson, Roger G., Peng Chen, CFA, and Kevin X. Zhu. 2011. "The ABCs of Hedge Funds: Alphas, Betas, and Costs." *Financial Analysts Journal* 67 (1): 15-25.

Investment Company Institute. 2013. *2013 Investment Company Fact Book: A Review of Trends and Activities in the U.S. Investment Company Industry: 53rd edition.* Washington, DC, Investment Company Institute.

Jacobs, Bas. 2015. "Belastingen op kapitaalinkomen in Nederland", *Tijdschrift voor Openbare Financiën* 47 (1): 24-48.

Jurek, Jakub W., and Erik Stafford. 2015. "The cost of capital for alternative investments." *Journal of Finance* 70 (5): 2185-2226.

Kacperczyk, Marcin, Jaromir Nosal and Luminita Stevens. 2017. "Investor sophistication and capital income inequality", University of Maryland: Department of Economics Working Paper, March 11.

Karagianniki, Eleni. 2015. "The Impact of Inheritance on the Distribution of Wealth: Evidence from Great Britain." *Review of Income and Wealth* 63 (2): 394-408.

Klass, Oren S., Ofer Biham, Moshe Levy, Ofer Malcai, and Sorin Solomon. 2007. "The Forbes 400, the Pareto Power-law and Efficient Markets, *The European Physical Journal B* 55 (2): 143-147.

Korom, Philipp, Mark Lutten, and Jens Beckert. 2015. "The Enduring Importance of Family Wealth: Evidence from the Forbes 400, 1982 to 2013." *Social Science Research* 65 (1): 75-95.

Milanovic, Branko. 2016. *Global Inequality. A New Approach for the Age of Globalization*. Cambridge, MA: The Belknap Press of Harvard University Press.

Morley, John. 2014. "The Separation of Funds and Managers: A Theory of Investment Fund Structure and Regulation." *The Yale Law Journal* 123 (5): 1228-1287.

North, Douglass C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

Piketty, Thomas. 2014. *Capital in the twenty-first century*. Cambridge, MA: The Belknap Press of Harvard University Press.

Saez, Emmanuel, and Gabriel Zucman. 2016. "Wealth inequality in the United States since 1913: Evidence from Capitalized Income Tax Data." *Quarterly Journal of Economics* 131 (2): 519-578.

Scheffer, Marten, Bas van Bavel, Ingrid A. van de Leemput, and Egbert H. van Nes. 2017. "Inequality in nature and society", *Proceedings of the National Academy of Sciences* 114 (50) 13154-13157.

Scheidel, Walter. 2017. *The Great Leveler: Violence and the History of Inequality from the Stone Age to the Twenty-First Century.* Princeton, NJ: Princeton University Press

Shorrocks, Anthony, Jim Davies, and Rodrigo Lluberas. 2017. *Global Wealth Report 2017*. Zurich: Credit Suisse Research Institute.

Stulz, Rene M. 2007. "Hedge Funds: Past, Present, and Future." *Journal of Economic Perspectives* 21 (2): 175-194.

Thurner, Stefan, J. Doyne Farmer, and John Geanakoplos. 2012. "Leverage causes fat tails and clustered volatility", Quantitative Finance 12 (5): 695-707.

Vermeulen, Philip. 2016. "Estimating the top tail of the wealth distribution." *American Economic Review*, 106 (5): 646–650.

Waldenström, Daniel. 2017. "Inequality and the super-rich." *Journal of Income Distribution*.

Wolff, Edward. 2016. "Household Wealth Trends in the United States, 1962 to 2013: What Happened over the Great Recession?" *The Russell Sage Foundation Journal of the Social Sciences* 2 (6): 24-43.

Wolff, Edward N. 2017. *A century of wealth in America*. Cambridge, MA: The Belknap Press of Harvard University Press.

World Wealth and Income Database, accessed 4 February 2018: http://wid.world/.

Yitzhaki, Shlomo. 1987. "The relation between return and income", *Quarterly Journal of Economics* 102 (1): 77-95.

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