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Economic Inequality in Sweden

An overview of facts and future challenges

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1 Introduction

The origins of this report go back to a conference on *Economic Inequality* organized by The Swedish Fiscal Policy Council in October 2022. The program for this conference was ambitious. First, it aimed at describing and discussing the development of economic inequality both on a global level and in Sweden. This meant discussing both different theories that account for the patterns we see in data and challenges in the measurement of inequality. Second, we wanted to discuss various consequences of economic inequality, such as how it relates to economic growth, the impact it has on outcomes such as health and well-being, as well as on intergenerational mobility. This was followed by a third section dealing with policy and what interventions may, or may not, be desirable to deal directly with inequality or indirectly with the consequences of inequality. As we – the lead authors of the present report – had participated in planning the conference and also moderated the panels following the sessions we thought the conference contained a wealth of information and gave a lot of valuable insights and so, we hoped that it would lend itself to be summarized in a report.[1] However, the discussions following the conference also showed that covering so many different aspects of the topic had its drawbacks. Put simply, questions such as "what has happened to inequality?", "what do we know about the drivers of the developments?" are too vague unless one specifies what exactly is meant by "inequality". This is, of course, well-known to researchers in the field (as well as to many outside it too) but nevertheless the conference served as a reminder that sometimes it is necessary to take a step back and clarify some basic points in the debate to make progress.

We have therefore opted for a narrower focus in the present report, namely that of *the development of economic inequality in Sweden since the 1990s*. Given the number of studies already addressing the topic, one might think that there is little to add.[2] This is accurate to an extent. There are indeed many studies and reports that provide details on inequality developments in Sweden. There is also general agreement on many aspects of what the data tell us. However, along certain dimensions there appears to still be some disagreement and along other dimensions we simply do not have the data to answer outstanding questions in a satisfactory manner.[3] The main aim of this report is to explain what we know and what we don't know, as well as what could be done to improve the situation. More precisely, we want to clarify 1) what has happened (according to the data and measures typically used), 2) why there are still some different perspectives on how to interpret what we see in the data, and 3) what would be needed to straighten out the remaining question marks. To do all this we need to start with some definitions with respect to what we actually mean by economic inequality and how it relates to income (Chapter 2). We then discuss various challenges in measuring income and wealth and how the availability of data limits our knowledge

[1] The conference was held in Stockholm on October 20, 2022 and moderated by Annette Alstadsæter and Jesper Roine who have also been the main authors of this report. The conference was recorded and is available at the Fiscal Policy Councils webpage: https://www.fpr.se/aktuellt/nyheter/2022-10-21-finanspolitiska-radets-konferens-om-ekonomisk-ojamlikhet.html
Link to the recording: https://www.youtube.com/watch?v=uC4BA_Kaajk

[2] Key reports that summarize the current state of knowledge include the 2018 issue of Nordic Economic Policy Review *Increasing Income Inequality in the Nordics* (eds. Calmfors and Roine), SOU 2019:65 (Långtidsutredningen 2019) and its supplementary reports, SOU 2020:46 (The final report of "Jämlikhetskommissionen", *En gemensam angelägenhet*). In addition, the Swedish Government publishes yearly reports – *Fördelningspolitisk redogörelse* – in connection to presenting the spring budget proposal. The Swedish Fiscal Policy Council has also paid special attention to the issue of inequality in its yearly reports *Svensk Finanspolitik* (dealing with some aspect of inequality in every yearly report since 2013). The book *Därför är ojämlikheten viktig* (Roine, 2023) especially section 3.3 gives an overview of the Swedish inequality debate.

[3] Examples of recent contribution that exemplify the ongoing discussion are Anders Björklund's paper "Can we rely on income distribution statistics? Some issues in the Swedish data", (Björklund, 2020), and his paper with Daniel Waldenström "Facts and Myths in the popular debate about inequality in Sweden", (Björklund and Waldenström, 2021).

about inequality (Chapter 3). After this we move on to summarizing what we know about the overall inequality development in Sweden since the 1990s as it appears when studying the available data (Chapter 4). We then also point out which dimensions remain contested as well as unknown due to lack of available data and how this impacts the public debate (Chapter 5). In this section we also highlight why there are reasons to think that missing data is of increasing importance to the overall picture.

Our overall conclusion is that inequality in terms of disposable incomes has increased since the 1990s. The dispersion over the whole period happens across the full distribution; all income groups have experienced real income gains, but the gains are larger the higher up in the distribution (and much higher in the very top of the distribution). However, looking at the more recent period, after the financial crises, income growth is very evenly distributed across most of the population. Only the very top groups continue to do much better than the rest of the population. Decomposing the change across different income components suggest that most of the increased inequality comes from the capital income component. The fact that underlying data is based on tax records creates some uncertainty about how big this increase has been in real terms, but, more importantly, the lack of data on net wealth and corporate shareholders makes it difficult to correctly assess the overall development of economic inequality. This is important both conceptually and quantitatively since both the value of assets and debt have increased over time. Knowing the distribution of these values is important for many policy issues, from welfare assessments to economic stability. Another important aspect from a policy point of view is to recognize that the increased inequality does not come from wage inequality. On the contrary, the distribution of labour earnings has become more equal over the past decades.

2 What do we mean by economic inequality?

No overview on economic inequality can escape the need for some kind of definition of what is meant by the term, nor how we think of its measurement. Clarity is crucial, given that 'economic inequality' carries multiple meanings and is often entangled with preconceptions about the implied normative views of factual statements[4], particularly in political debates.

Our focus in this report is on different aspects of *describing the distribution of economic resources in the population.*[5] While this report centres on the changes in Sweden's economic resources distribution since the 1990s, it is necessary to first address some general considerations. Any question concerning the distribution of economic resources needs to answer at least three questions. First, what is meant by *economic resources*. Are we concerned with income, or wealth, or actual consumption? Should we focus on market outcomes (before taxes) or disposable income (after taxes and transfers)? Should we include publicly provided goods and services and if so, how should we count these? Second, we need to specify how we intend to *describe the distribution*. Do we opt for a summary measure of overall inequality (such as the Gini coefficient) or some measure that captures some specific part of the distribution (such as a *percentile or decile ratio*, or the *income share* of some subset of the distribution)? These choices are important since changes in a distribution can take many forms and a narrow focus on just one or a few measures can miss the important changes. For example, focusing on a summary measure can hide to what extent the changes are evenly spread across the distribution or take place in the bottom, middle, or the top, etc. Third, the *population* across which we study the distribution needs to be clearly specified. There are many distributional questions of interest that concern different subsets of the entire population. Some questions necessitate considering the total population, including children, whereas others might focus exclusively on adults or perhaps only on those of working age.

Along all these dimensions there are plenty of facts that can all be correct, but at the same time give diverse pictures of the state of things. Depending on which measure is used, inequality can go up, or down, or hardly move, over the same period; all depending on whether we by "economic resources" mean wages, or total income, or disposable income. Similarly, inequality can move in different directions depending on whether we consider inequality between adults, working-age people or everyone in the population. This should not be mistaken to mean that "anything goes", it is typically not the case that different measures are wildly contradictory in their trends. However, it implies that the chosen measures are critical both for the narrative we construct and for understanding the drivers behind observed developments. As we show below (especially in section 4) many of the seemingly contradictory views – and in some cases incorrect statements – about Swedish inequality in recent decades are due to unclarities or misunderstandings about what "inequality" refers to.

Another important aspect has to do with time. By definition, *changes* in the distribution of economic resources happen over time and deciding on over what time span we make comparisons matter.

[4] As noted by Sen (1973) there is a "danger of falling pray to a kind of nihilism" based on noting, quite legitimately, that differences do not imply injustice. But from the understanding that the normative conclusions may be unclear it does not follow that distributional concerns should be ignored. Atkinson (2009) points out that much of economic analysis often makes the mistake to assume that there is agreement on what the social welfare function looks like.

[5] We will not say much about various theories about why inequality comes about, nor about what is known about consequences of inequality. These questions are of course important for all discussions about appropriate policy to change the distribution. Our view is that being able to describe the distribution correctly is an even more fundamental aspect of such discussions.

There are two parts to this point. First, statements about how inequality has changed over time obviously depend on the chosen period. Noting that inequality has gone up (or down) may be true (or false) depending on if it is in reference to the past year, or five years or fifty years. Second, since individuals' economic resources fluctuate over time, determining the timeframe for resource assessment is vital when describing their distribution. The most common approach – which we will also take in this report – is to consider economic resources (most often measured by disposable incomes) summed over a year (the main source of distributional information being the yearly tax returns) and then compare changes in the distribution over consecutive years. When statements are made about how inequality has changed over time, what is typically referred to is comparisons of such repeated cross-sections of distributions.[6]

2.1 Economic resources and the connection to economic theory

Why do we care about inequality of economic resources? Without going into detail, it is appropriate to start by connecting the question of distribution of economic resources to some basic ideas in economic theory. One of the most fundamental problems in economics has to do with individual choice aiming at utility maximization; in particular, economists study individuals trying to maximize their utility from *consumption*. In the simplest economic model consumption is paid for with money, money that one earns either by working or from returns on savings. In micro economic theory the focus is on individual decisions about work and savings that result in consumption, which in turn results in welfare. What we care about is the resulting welfare but consumption, we assume, is a means of achieving this. In theories of economic development and growth these individual decisions result in the total output of a country based on aggregate labour supply and savings.[7]

Why this abstract connection to economic theory? There are two reasons: first, because it reminds us that there is a connection between the total output of an economy (typically measured as GDP), which, in turn, is based on individual decisions about labour supply and savings that in turn result in "economic resources". Second, it reminds us that caring about this output in the first place is based on the idea that it gives resources to improve individual welfare. Consequently, we care about the inequality of income both because it tells us something about how the economy works, but also, ultimately, because we care about the distribution of welfare connected to the income that the process generates.

As we will illustrate, some of the most fundamental aspects about the measures we use when defining "individual income" have to do with the connection between that income and how it translates into welfare. To be concrete; there is a big difference between total output per person in the economy (GDP per capita) and the average disposable income per capita, due to the existence of firms, households and government. To be even more explicit, in the case of Sweden

[6] This means that what is being compared is the inequality of the distribution, not the fate of individual people in that distribution. Put differently it is entirely possible for a distribution to be unchanged even if individual people have shifted position in the distribution, just as it is possible for the inequality of a distribution to change even if the rank order of individuals remains the same.

[7] In this stylized model of economic activity, the distribution is the outcome of individual decisions. As such it can be thought of as "value free" in the sense that it reflects individual choices and preferences for things such as labour/leisure trade-offs and how much one values consumption etc. On the other hand, even simple models often contain elements such as ability or other traits, or even luck, that are not choice variables. Also, the relative payoffs of choices can be amplified by technology in ways which are exogenous to the individual decision maker. In short, the fact that individual choice is the driver of distributional outcomes does not automatically mean that all outcomes are desirable or "fair".

the sum of gross (pre-tax) household income was about 3 377 billion SEK in 2021 (and the sum of disposable income was 2 549 billion SEK) while GDP that year was about 5 487 billion SEK.[8] This means that the sum of "economic value" created is very different from the sum of what ends up being gross household income (and even more different from the sum of disposable income). When thinking about the *distribution* it is therefore important to be clear on what the relevant total is.[9]

2.2 The definition of individual income and its relation to economic resources

Relating to the basic model of the economy and individual actions in it we can note the connection between production (output) and the basic forms that income can take. On the one hand individuals work, earning labour income. On the other hand, they save and invest, earning capital income.[10] In this formulation we can recognize the basic building blocks of individual income as we typically measure it based on tax returns, that is income made up by labour income, business income and capital income. But we can also note that there is a substantial difference between the individual incomes that we capture when looking at individual tax returns, as compared to all the "new" economic resources produced in the economy.[11]

Another fundamental aspect of income distribution is the basic definition of "income" itself. The classical definition is related precisely to the above-mentioned *use* of income for consumption, in turn based on the idea that consumption (in a broad sense) is the basis of utility. Simons (1935) has the following definition:

> *"Personal income may be defined as "the algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the store of property rights between the beginning and end of the period in question."*

Another very similar definition is due to Haig (1921):

> *"the money value of the net accretion to one's economic power between two points of time".*

There are some subtleties in these definitions which are important in relation to the way we typically use the word "income" in everyday language. First, it is clear that changes in the *value of assets* matter. It does not matter if an asset has been sold or not, what matters is *the consumption possibility* that exists based on the (real) change in value of the asset. This means that income can be written as:

> *Income = Consumption + Real net change in value of assets*

[8] Figures taken from Statistics Sweden's web-site (https://www.scb.se/hitta-statistik/statistik-efter-amne/hushallens-ekonomi/inkomster-och-inkomstfordelning/inkomster-och-skatter/#_TabelleriStatistikdatabasen), table 2 in "Inkomststruktur disponibel inkomst").

[9] There are also important differences in how incomes are counted in National Accounts as compared to tax statistics, especially when it comes to capital incomes. In Chapter 1, Table 1.1, p 10, in SOU 2019:62 ("Kapitalinkomster och inkomstfördelningen", Bilaga 3 LU 2019) Daniel Waldenström gives a good overview of the most important differences between capital income as defined in the National Accounts and capital income according to tax returns.

[10] This is precisely the structure of the Solow growth model where total output (Y) depends on labour supply (L) and the capital stock (K) which is based on aggregate savings in the economy. Individual income in such a world is y = wL + rk, that is the wage times the hours worked plus the returns on investment. This – as noted in the first lines of Adam Smith's *Wealth of Nations* – is the basis for what an individual can consume.

[11] An attempt to explicitly distribute *all* income, as measured in the national accounts, is precisely the objective in the approach suggested in the "Distributional National Accounts" project (e.g., Alvaredo et al., 2016; Garbinti, Goupille-Lebret and Piketty, 2018; Piketty, Saez och Zucman, 2018). Apart from the data challenges involved in this undertaking (which are large) it is important to note the conceptual divide in treating all private sector assets including those owned by firms as ultimately owned by individuals.

Put differently, you can either consume based on earning money in the current period, or you can consume by using savings, or you can consume by taking a loan. The first method is what we usually focus on when looking at (taxed) income in a given period, but clearly the other two are equally important for assessing consumption possibilities.

A broader interpretation is also possible. Haig speaks of change in "economic power" and Simons of "the market value of rights exercised in consumption". An interpretation of this is that using, for example, subsidized health care or schooling should also count as part of income. In a country like Sweden, when consuming, for example, health care services, the direct payment for these is different than "the market value of rights exercised in consumption". This kind of reasoning is what is behind attempts to calculate the distribution of so called "extended income" where the impacts of in-kind transfers are included in the analysis of the distribution of income.[12] Similarly the consumption value of house ownership could also count as "income".[13] Both points illustrate aspects of income that are typically not included in standard analyses of the distribution of income. Aspects that we will return to.

In practice, this means that to be able *to correctly measure an individual's income over a period we need, at least, both the flow of "new" income and the real net change in the value of the individual's assets.*[14] This is *not* how income typically is measured, nor is it in the Swedish case possible to do so since we lack data on individual assets.[15] This, to be frank, means that we do not have the necessary data to estimate the true distribution of income.

Already at this point it is worth stressing that the extension of income to include changes in the value of assets does not automatically imply anything when it comes to the *taxation* of income. There are arguments to be made in favour of, for example, taxing wealth as a way of taxing unrealized capital gains (as is already done when taxing Swedish financial assets held in investment savings accounts, *investeringssparkonto, ISK,* where the tax is based on the total value of assets in the account and not on the capital gains made), but there are also arguments against taxing wealth, for example on the basis that before gains are actually realized there is uncertainty about the size of the gains, and even about whether gains will ever materialize. Another potential issue is that if gains are tied up in asset holding (most obviously in the case of owner-occupied housing) individuals may have a cash-flow constraint in paying the tax. In short, it is important to separate the question of the distribution of income (properly defined) from various policy debates, in particular debates about taxation.

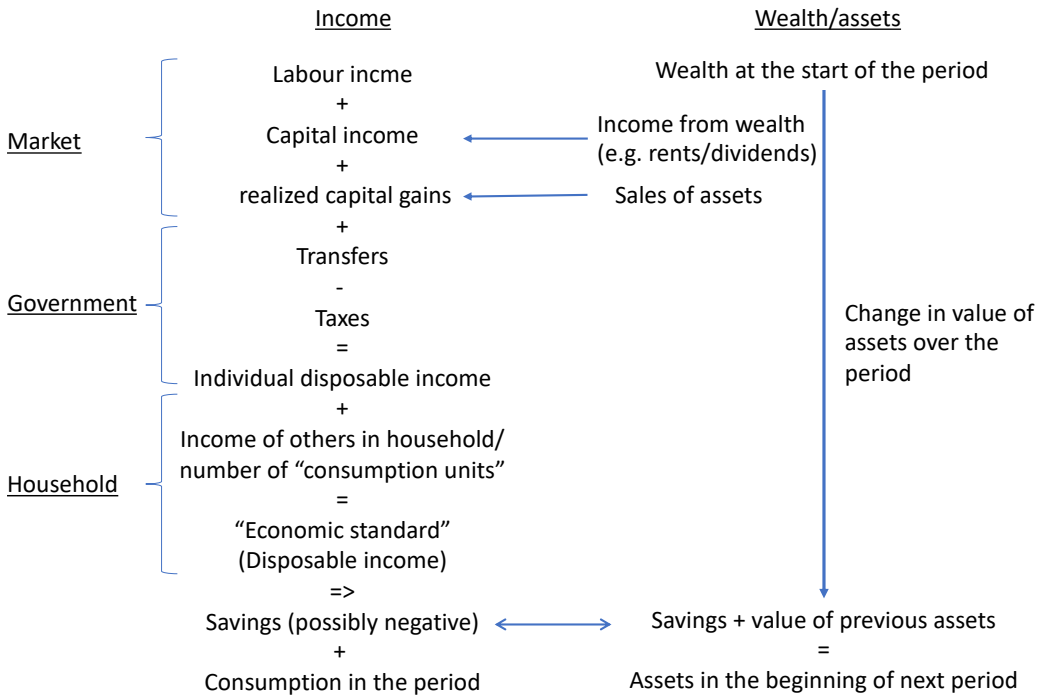
[12] E.g. Aaberge, Langøren (2006), and Aaberge, Bhuller, Langøren and Mogstad (2010).

[13] As pointed out already by Atkinson (1975) and also by the so-called Canberra-group (2011). For a recent contribution to this discussion in the Swedish context see Björklund (2023) and references therein.

[14] The "at least" is in reference to that one can discuss whether to include in-kind transfers that certainly substitute for private consumption, as well as how to think about incomes accruing in firms, especially closely held ones, but this is further from what is in the individuals direct control. One cannot access the value of in-kind transfers for other types of consumption, nor is it directly possible to access money in a firm for private consumption (even if you own the firm). Income gains in the form of increased values of privately held assets are, on the other hand immediately controllable by the individual/household, and as such they constitute "increased consumption *possibilities*".

[15] It's not quite true that the data doesn't exist. Most of it does exist in the form of separate registers held by different actors. But it does not exist in a form where one can get an overall picture of individual household's balance sheet.

Figure 2.1 Income flows from market (factor) to household level disposable income (equivalized disposable income) and the relationship to household assets.



Source: Authors' illustration.

Figure 2.1 schematically illustrates the relation between *the flow* of income (the part that is typically focused on and measured) and the relationship to *the stock* of wealth. Clearly the latter is, in part, a source of income but, equally important, it is also a store of potential consumption. According to *any definition of income as consumption possibilities, both are important for being able to correctly assess the distribution of income*.

"Income", both in the way most people use it in everyday language – meaning roughly what you "earn" – as well as income as it is typically measured in studies of income inequality is, hence, different from well-established broader definitions. This has potentially important implications for how we judge both what has happened to inequality but also what, if anything, to do about it. In the coming sections we will look closer at inequality developments when taking this kind of comprehensive view of income. But let us first contrast this to how inequality is typically measured and calculated.

2.3 Standard measures of inequality – disposable income as the "gold standard"

Even if the preferred measure of income in distribution studies may vary depending on the underlying question it is fair to say that *disposable income* holds a special position as the "preferred" or "most relevant" measure. For some questions, such as the returns to education, or questions relating to the labour market, other measures (such as hourly wages or labour income) may be more relevant, but when the focus is on "consumption possibilities", or "welfare", disposable income is, for good reasons, usually viewed as the "best" income concept.

Disposable income always refers to income from all sources and after taxes and transfers. There is, however, room for interpretation when it comes to what the *unit of income* as well as what the *unit of analysis* should be. One alternative is that we view every individual in isolation, that is the individual is both the income-earning unit and the unit of analysis. In this case individual income from all sources (including taxable transfers) are added together, taxes deducted and non-taxable transfers added, resulting in the *individual's disposable income*. The distribution of this would indicate what the distribution looks like if we think of individuals as both the income earning and consuming actor in the economy. However, the more common choice is that the unit of income is the household, while the unit of analysis should be the individual. The meaning of this is that the household is viewed as the income earning entity, and individuals in it are assumed to share these incomes equally. The underlying assumption is that all individuals in a household can take part in the *consumption possibilities* that come from the money earned by household members. In this approach the fact that important consumption items (such as the cost of living) have economies of scale is also included. In practice this is done by summing the individual disposable incomes of all household members and then dividing this sum between the number of household members according to a so called "equivalence scale". The scale adjusts the total income of the household to its size in a way that aims at coming as close as possible to the consumption needs of the household.[16]

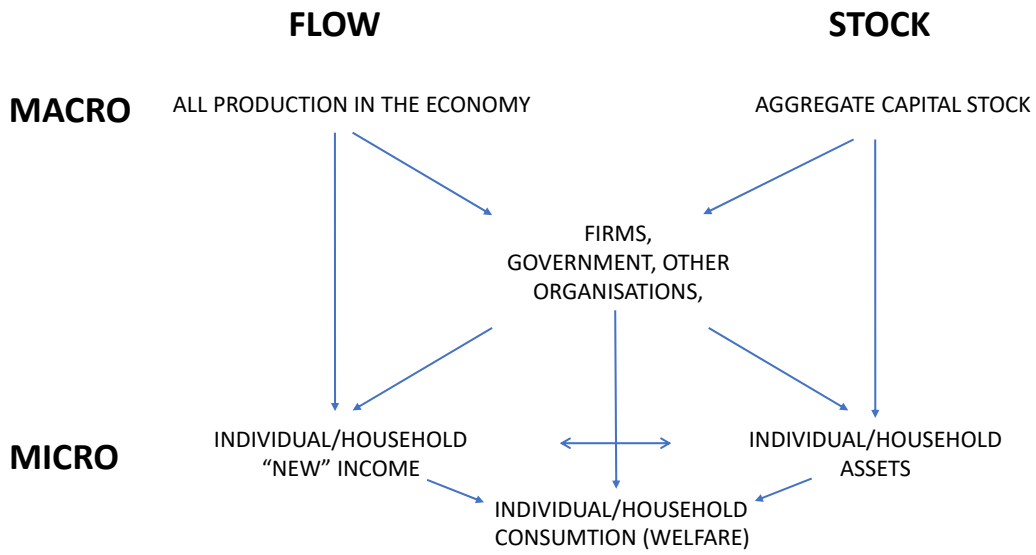
When thinking about changes over time in this measure, we can note that it is of course affected by differences in individual incomes, but also by household composition. If nothing happens to individual disposable incomes but at the same time more individuals live in single individual households then the economic standard falls. Similarly, if there is a shift in household composition toward high income earners increasingly forming couples the inequality goes up even if nothing happens to the distribution of individual incomes. Again, as we will show in section 4, some of the disagreements about what has happened to "inequality" in Sweden over the past decades have to do with differences along these dimensions.

2.4 Summarizing the connections

The different points made above can be brought together in one illustration that connects, in one dimension, the macro economy and the individual household, and, in another dimension, the continuous flow of new incomes and the stock of assets. Using this we can illustrate how the economic resources, both the new and saved, can be viewed at different levels and how aspects that are typically not included in economic analysis of inequality could alter the discussion in various ways.

[16] There are different equivalence scales but all follow the same logic. The needs of a household are assumed to grow with the number of household members, but not in a proportional way. Due to economies of scale and differences in age between household members, the same amount of money is assumed to give different consumption possibilities. The Swedish scale assigns the value 1 to a single member household and 1,52 to a household with two adults, and an additional 0,52 for a first child. This means that when comparing a household with two adults a one child, to a single adult household, their economic standard (disposable income) is the same if the former has a total income which is 2,04 times that of the single individual.

Figure 2.2 Different views of income in the Macro-Micro, Flow-Stock space.



Source: Authors' illustration.

The structure of the figure has a resemblance to Figure 2.1 in the sense that the left-hand side captures the flow of new income, while the right-hand side illustrates the stock of capital in the economy. In the vertical dimension the top of the figure captures how only parts of GDP end up showing as income for households in, for example, the tax returns that often form the basis for our income data. But most importantly the figure schematically illustrates the often overlooked relationships that individuals (and households) have to firms and other organizations as well as to the state (be it local, regional, or central). To be explicit; in relation to the business sector firms hold assets and make profits that do not show up directly for the individual owners, yet individuals are, of course, ultimately owners of these firms. In this way there is a connection between what happens in firms and the income of the owners but how to characterize it is debatable. For example, depending on the type of firm the boundaries between the individual owner and the firm may be more or less clean cut. The same goes for the observability of the value of the firm. For a stock market listed firm the value is directly reflected in the price of the stock, but this is not necessarily the case for a closely held firm. A small individual owner may have little influence over the decisions taken in the firm but is of course always at liberty to sell the stock. Conversely, an owner of a small non-listed firm may have relatively direct access to accumulated profits in the firm but selling shares and assessing the value of the firm may be difficult.[17] In a parallel manner individuals have various claims on the government that impact individual welfare but do not show up in household income or assets and therefore typically not in standard income inequality measures. Individuals may, for example, have future pension rights that act as a substitute for individual savings. Schooling may be paid for by government and hence is important for the welfare of children in ways not captured by their family income, and the same may, to different degrees, be true for social benefits and health care. Yet these claims should not be directly equated

[17] The so-called DINA (Distributional National Accounts) project aims at distributing all of GDP (as measured in National Accounts) in the population by attributing firm and government incomes to the underlying population that has the ultimate beneficiaries of these incomes. See e.g. Alvaredo et al. (2016), Garbinti et al. (2018) and Piketty et al (2018).

with personal income as they are tied to specific uses.[18] Additionally, as previously mentioned, one might also consider incorporating the direct consumption value of assets such as housing. Such considerations give another direct link from (privately held) assets to the potential income of an individual.

We will, in the coming sections, discuss these various connections and ways in which they impact our assessment of income inequality and also the data needed to approximate or judge changes over time and across countries. The main message from the above excursion into economic theory can be summarized in two general points. First, *income,* as defined in economic theory, has to do with consumption *possibilities* and is therefore jointly determined both by the flow of income, as well as the value of assets, that individuals (or households) have at their disposal. Consequently, income in a given time period is the sum of new income in that period plus the net change in wealth. Second, this access to income depends on both direct personal income but also to more or less direct access to firm assets as well as access to government support. These two points do not, in themselves, guide us in terms of how best to measure inequality in practice but they are necessary starting points for any discussion about the issue.[19]

[18] This aspect of how public service benefits impact standard measures of inequality has been extensively studied in particular by Aaberge et al (2006, 2010, 2013, 2018).

[19] There is currently an on-going academic debate about the development of inequality, especially top income inequality, in the USA. In recent work Gerald Auten and David Splinter (forthcoming in Journal of Political Economy) question previous results by, e.g., Piketty and Saez (2003) and Piketty, Saez and Zucman (2018), arguing that top income share has not risen nearly as much as estimated by Piketty, Saez and Zucman. The main source of disagreement originates from how unobserved incomes are allocated but also changes in tax treatment of different incomes, family patterns and treatment of retained earnings matter This debate illustrates the importance of both understanding potential differences in what is included in "income" as well as having access to good data, as we discuss for Sweden in Section 3 below.

3 Data challenges that impact our perception of inequality

The primary challenge in measuring inequality lies in accessing reliable data that comprehensively covers the population and offers comparability over time. While most researchers would agree with the above characterization of income in a theoretical sense, measuring income inequality in practice is always constrained by the data availability. In this section we discuss some of the main challenges, focusing on the case of Sweden. We will do so by very briefly explaining what type of data we mostly rely on when describing the income distribution but also by illustrating how areas where data is lacking can impact the observed inequality. In some dimensions we will rely on what is known from other contexts to illustrate how inequality measurement can be affected.

Most work on income inequality relies on either survey data, administrative data, or a combination of the two. Globally, survey data tends to dominate. The aim is to have a representative sample of individuals and households report on their income and wealth. This ensures coverage of many individuals that, especially in poorer countries do not show in tax records as they do not pay direct taxes on their incomes (or have significant incomes which are not taxed). It also allows for collecting detailed data on relevant household characteristics that are important for evaluating disposable income and living standards. The problem is that this is self-reported and thus prone to misunderstanding and misreporting, as well as selection bias in who participate in the survey. Also, in survey data there is usually low coverage among the more affluent individuals and households. Tax records, however, often provide excellent population coverage, as seen in countries like Sweden, where virtually the entire adult population files a tax return. Additionally, they are consistently collected over time, resulting in time series data with a relatively high observation frequency. Here, the main challenges stem from the fact that the collected data is intended for taxation purposes, which may result in discrepancies between actual real income values and tax values. Another challenge is that legislation may change so that different types of incomes are taxed differently, or not at all, over time. This poses challenges that one needs to be aware of in the interpretation and comparison of distributional results based on such data.

What we commonly denote as administrative data are records and information on individuals and firms collected by various government agencies as part of carrying out their tasks. This may include information on the import and export of goods, unemployment registration or pensions, educational attendance, health records, and income and wealth data for tax purposes. These data are collected, audited, and controlled by the authorities and mostly cover the full population over many years. The coverage and availability of such data vary across countries. The Scandinavian countries have large public sectors, high degree of digitization and third-party reporting, and are commonly regarded as having the best administrative data in the world. In particular, the third-party reporting of labor earnings by employers and the reporting by banks of interest and dividend income contribute to high coverage and reliability of these income data in Sweden.

The Swedish administrative micro data, which researchers can access through Statistics Sweden (SCB), cover all firms and all individuals from 1991 and onward, with rich information on income composition and level for all individuals as well as income and cost structures for firms. Longer time series for individual incomes date back to 1968 but due to the tax reform in 1990-91 there are some important issues with comparability before 1991.

A drawback in the Swedish data is that there is no information on shareholders that can link Swedish corporations to their owners, as one can in, for example Norway. This limits the possibility to study the above-mentioned connection between individuals and firms. The only ownership information that does exist, is the self-reported ownership share of active owners in closely held corporations under the so-called 3:12 tax rules.[20]

Despite the detailed insights offered by Swedish data on individual incomes, several challenges persist. Below we discuss a number of these in turn relating to the above discussion about *income* defined as the *change in consumption possibilities in a period*. One dimension of the problem has to do with income being measured at the *time of realization*. For instance, income gains stemming from increases in the value of individual assets appear only in the data at the time of realization. This creates issues that may lead to both overestimation or underestimation of "true income inequality". As long as gains are not realized there are hidden incomes that go unnoticed. On the other hand, when incomes that have accrued over longer periods of time are eventually realized, this exaggerates the income level in the current period. How much depends on differences between nominal and real gains but also on who (in terms of their position in the distribution) makes the gains. Another related issue has to do with profits in firms, especially in owner-managed firms, where the owner can make firm-level realization decisions in response to individual level taxes or tax changes. This alters the channel and timing of distribution of income from the firm to the individual, which in turn affects the measured inequality in society without altering the underlying inequality. Additional challenges are that not all income and wealth are visible in tax data, due to lack of available data or misreporting by agents. Again, the distributional effect of this depends on the distribution of available and/or misreported incomes. Tax rate and rule changes can also alter behaviour and lead to changes in reported income and wealth in the data and disproportionally so across the population and the income and wealth distribution. All this needs to be taken into account when interpreting the data and findings over time.

We will present some of the main challenges to studying the full underlying income distribution in Sweden below.

3.1 The lack of individual level data on net wealth holdings in Sweden

A major shortcoming in the availability of Swedish micro data is the lack of wealth data for individuals. This substantially limits the possibility to measure the level and development of inequality over time, as well as any chance of computing a viable inequality measure based on true disposable income (as discussed in Section 2 above).

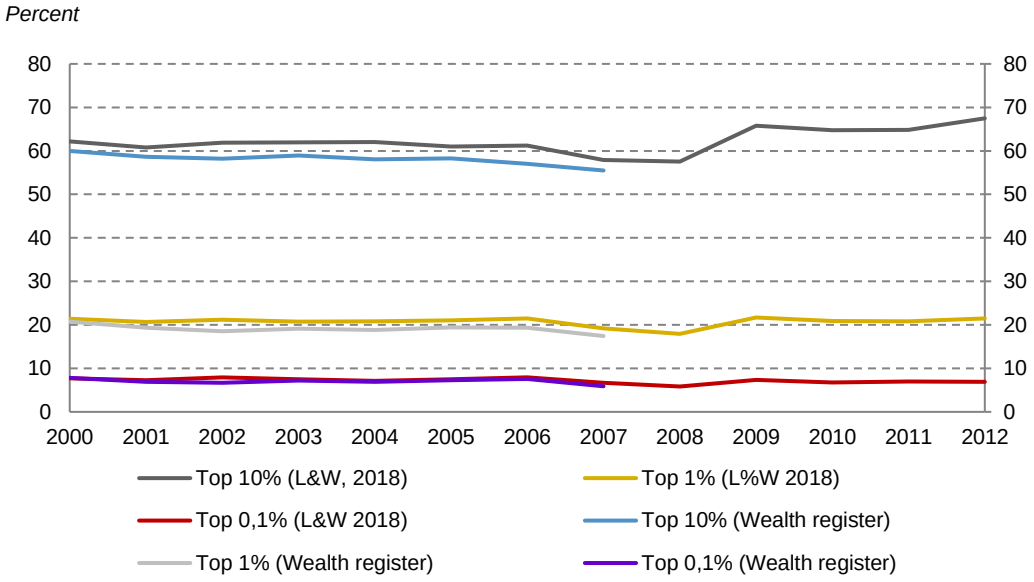
Sweden used to have detailed wealth data for individuals, as these were collected by the Swedish Tax Authority (Skatteverket) from banks and other institutions to assess the wealth tax that was in place before January 1, 2007. Especially in the period 2000-2007 the coverage was very good in the so-called *Wealth register* (Förmögenhetsregistret). The wealth information still exists at the

[20] Several studies have looked at 3:12 rules and their implications for taxation of income and income shifting; see e.g. Alstadsæter, Martin and Vejsiu (2014) and more recently the overview by Selin (2021). The latter documents that the prevalence of submitting a K10 form increases with income, where K10-submission rates are above 30% among the top income individuals, and below 4% in the bottom half of the pre-tax income distribution.

respective host institutions but is after the removal of the wealth tax no longer collected and compiled in a way that would allow government agencies to analyze the distribution of net wealth on the household level. A recent government appointed committee (offentlig utredning) has proposed that Sweden reintroduce the collection of centralized data of assets and debts at the individual level. This has long been pointed out as important by many government institutions, such as the Swedish Riksbank and Finansinspektionen (Sweden's financial supervisory authority), not just for assessing inequality developments but also to analyse trends in actual household debt levels to ensure financial stability. Such data is crucial for studying questions relating to, for example, expected consumption responses to interest rate changes and other important macro-modelling questions.[21]

Figure 3.1 shows the top wealth shares according to data in the wealth register for the period 2000-2007 as well as estimates based on capital income returns and housing register data for the period until 2012 done in Lundberg and Waldenström (2012). A top 1 share of about 20 percent and a top 10 share of about 60 percent (that is the top 10 minus top 1 owning about 40 percent of all wealth) is a slight increase since the 1970s as shown in Roine and Waldenström (2009) who study the development over the whole of the 20th century. In comparison to other countries this is relatively similar (though much lower than the US where the top 1 wealth share is above 30 percent) (see Roine and Waldenström (2015) for an overview of what is known about long run wealth concentration).

Figure 3.1 Top wealth shares in Sweden based on Wealth register data 2000-2007 and on approximations 2000-2012



Source: Statistics Sweden and Lundberg and Waldenström (2012).

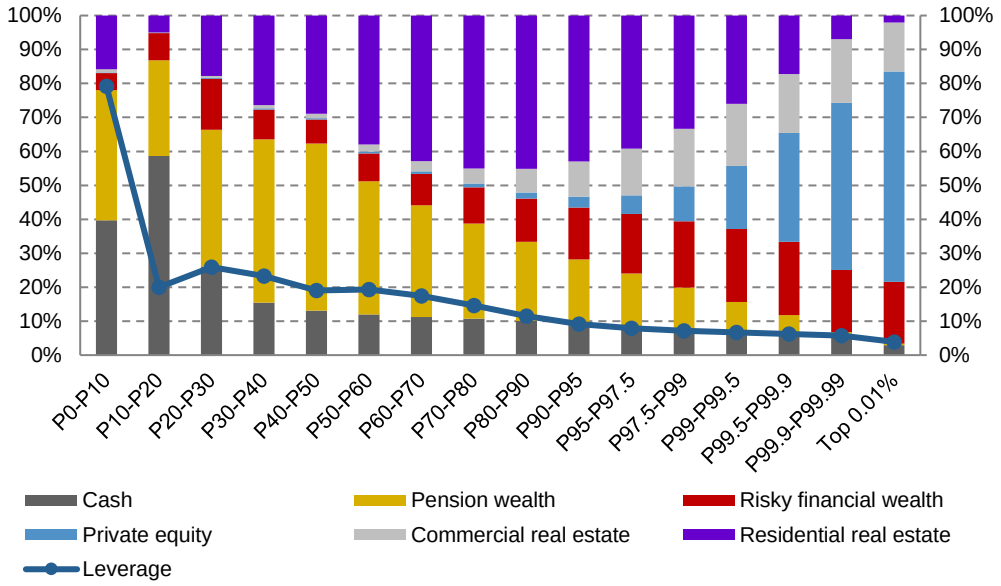
The wealth data also allows for studying how the wealth composition changes over the distribution. Put simply, household wealth consists of very different types of assets depending on the level of wealth. Figure 3.2 is taken from recent research by Bach et al (2020) and shows the average wealth composition over the period 2000-2007. They indicate that for the lower half of

[21] The Government appointed committee has presented its work in SOU 2022:51, *En ny statistik över hushållens tillgångar och skulder.*

the distribution cash and pension wealth make up most of their total asset holdings. As one moves up the distribution housing (residential real estate) gradually becomes more and more important. As one approaches the very top risky financial assets (mainly stocks) become more important and in the very top the share of private equity dominates. Bach et al. (2020) also note that, at least over this period, wealth ranks seem very stable. About two-thirds of households in the top 1 in 2000 remain in the top 1 group eight years later and almost everyone in the remaining third is still in the top 5.[22] Ongoing unpublished work by Doll et al. (2023) find very similar asset compositions for more recent periods.[23]

Overall, our current understanding of Swedish wealth distribution is that 1) wealth is very unequally distributed, but 2) concentration has not increased over the past decades (but we don't really know since data is far from perfect), and 3) the composition of wealth is such that pension wealth and housing is relatively more important in lower parts of the distribution while financial assets are very concentrated to the top of the distribution.

Figure 3.2 Wealth composition across the distribution in Sweden.



Note: The figure shows the wealth composition across Swedish households based on the so-called wealth registry over the years 2000-2007.
Source: This figure is a revised version of Figure 2 in Bach et al. (2020). Thanks to Paolo Sodini for providing data to replicate the graph.

Another way to approximate the potential role of wealth and its different components is to compare to other countries where data still exists. Norway still has a wealth tax and collects comprehensive administrative wealth data for all individuals to assess the wealth tax due. In addition, the Shareholder register (collected for the assessment of the Shareholder income tax) gives a full overview of all owners in all corporations at the end of each year, enabling an exact attribution of shares in all Norwegian corporations to all Norwegian resident shareholders. The

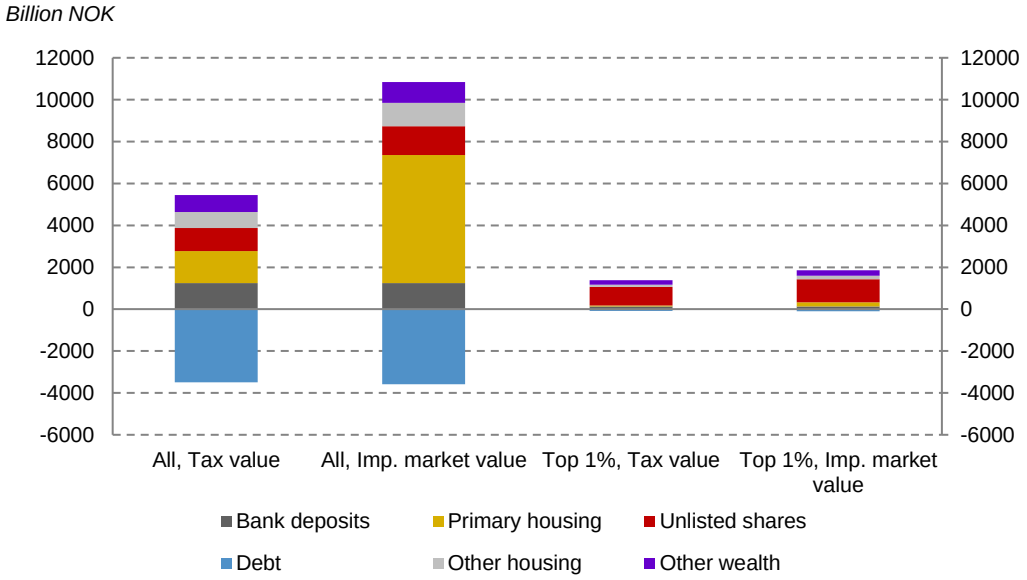
[22] Bach et al (2020), p. 2714, and the online Appendix.
[23] Bastiani and Waldenström (2023) show a graph (Figure 1 in their paper) referring to unpublished work by Doll et al. (2023) with a composition for 2015 that is very similar to what is found for 2000-2007 in terms of wealth composition. For the top decile group below the top 1 real estate and pension wealth make up more than half of wealth, while with in the top 1 group listed equity and especially non-listed equity dominates.

composition of wealth in Norway gives an indication of the expected wealth composition and distribution in Sweden, as the countries are comparable in many ways.

As shown in Figure 3.3, building on Figure 2 in Bjørneby (2022), shares contribute most of the wealth composition of the affluent Norwegians, while housing constitute the major asset when looking at the total population. This is very similar to the wealth composition found in Swedish data. The top 1% richest households own 80% of the value of all privately owned unlisted shares in Norway.

It is worth noting that due to the structure of the wealth tax in Norway, with varying valuation discounts across assets classes (with higher tax rebate for residential housing), the observable wealth values in the administrative data are tax values, after valuation discounts (displayed as tax values in Figure 3.3). These are in general lower than the market values. Bjørneby (2022) tries to account for this and Figure 3.3 also shows market values. For more details on tax values vs. market values, see Bjørneby et al. (2022) and Alstadsæter et al. (2022).

Figure 3.3 Wealth composition of Norwegian households in 2018



Note: The figure shows the wealth composition of all households and for the top 1% households (when all households are ranked by their taxable net wealth in 2018). Other housing consists of secondary housing and leisure homes. Other wealth consists of shares in listed corporations, funds, and share savings accounts. As various asset classes have different discounts when assessing the reported tax value of the assets, the wealth is reported both at tax value and as imputed market value. Values in 2022 NOK.
Source: This figure is a revised version of Figure 2 in Bjørneby (2022), with complements from the author.

When thinking about the relationship between the wealth distribution and the income distribution there are several things to consider. A first concern is that individuals may, and typically do, have different ranks in the two distributions. This means that we cannot draw immediate conclusions about the joint income and wealth distribution unless we have individual-level wealth data (which is lacking in Sweden after 2007). But given what we know about the distribution of capital incomes – incomes which, by definition, come from ownership of assets – we can say a few things. A first observation is that capital incomes are largely concentrated to the top of the income distribution. We will come back to some important implications of this in the section (below) on the development in Sweden. But overall, it is safe to say that most individuals who are high up in the wealth distribution are also high up in the income distribution. A special study of capital incomes

(*Kapitalinkomster 2019,* Statistics Sweden) shows that more than 90 percent of all capital income go to the top decile in the capital income distribution. When instead ranking the population according to labour income (förvärvsinkomster) this number falls to 40 percent. But compared to the distribution of all incomes this is still more concentrated and the share is falling across the distribution, that is, lower labour income is also related to earning a smaller share of capital income. Taken together, wealth mirrors the overall income distribution, but with a more extreme distribution, especially of financial assets in the top of the distribution.

3.2 The challenge with lumpy realization of capital income

In relation to the lacking wealth data, realized capital gains can serve as an imprecise proxy for income from individual wealth. Wealth can be seen as having "consumption possibilities" in the value of this wealth. But to exercise these consumption possibilities one must first sell the asset.[24] If the wealth holding over time has generated an increase in consumption possibilities, that is the definition of an income, this shows as a "realized capital gain" at the time of selling the asset. In this sense we at least capture the realized part of the capital gains stemming from the increased value of wealth holdings.

Assessing the role of realized capital gains on income inequality is more challenging than the flow of capital incomes in the form of interest income. There are several reasons for this. To understand the issues, it is helpful to recall the definition of income as "consumption possibilities without changing one's net wealth position" given in section 2 above. Based on this definition there is no doubt that if an individual buys an asset and then sells it making a profit this increases the consumption possibilities by that amount.

But there are at least two important points to note here. First, if the asset has increased in value but it is not sold, the individual has also made a capital gain, it's just not (yet) a realized capital gain. In terms of income statistics, the realized capital income shows but not the unrealized one. Second, if the change in asset value happens over a longer period of time there is an attribution error both in terms of timing and (potentially) in terms of the real (as opposed to nominal) gain. The simplest illustration of this is an individual selling a house where the person has lived over a longer period of time. Clearly, the house has increased in value gradually, but it shows up in the tax return only at the time of the sale. This makes it look like the person makes a very large gain in that particular year. In addition, the gain is measured in nominal terms. Even in periods with relatively low inflation (as has been the case for most of the time since 1995) this has a substantial impact on the real value of the capital gain. Both errors exaggerate the resulting income inequality in the year when they show up in the statistics. The actual capital gain should be attributed to all of the years over which it was made, not just the one year when the gain was realized, and the value should be the real capital gain, not the nominal value that appears in the tax statistics.

The fact that many realized capital gains are accumulated over time and therefore show up in a "lumpy" fashion also impacts the ordering of individuals and the identity of the top income earners. Put simply, a person that sells an asset that has gained value over an extended period may place the person in the top of the distribution only because of this one-time sale. If everyone in

[24] This is not entirely true since housing, for example, generates a consumption value just from holding the asset.

the population would take turns in appearing in the top based on one-time realized capital gains, the yearly cross-sectional estimates of income inequality would suggest that the top group makes large gains, when in fact, the top group consists of different people from year to year. Roine and Waldenström (2011) analysed this issue and found that inequality measured as yearly cross-sections including realized capital gains indeed contain many individuals who appear in the top only once. In this sense this measure exaggerates the increase in inequality. Boschini et al. (2020) confirm this result for a longer time period and also show interesting patterns in how this impacts men and women differently. Overall, re-ranking individuals (based either on including or excluding realized capital gains) as well as averaging incomes over several years consistently show that the yearly series including realized capital gains are an overestimate of inequality but also that capital gains most probably add to increased inequality even if they could be treated in an ideal fashion.

3.3 Realization measure of business income as a source of distorted inequality

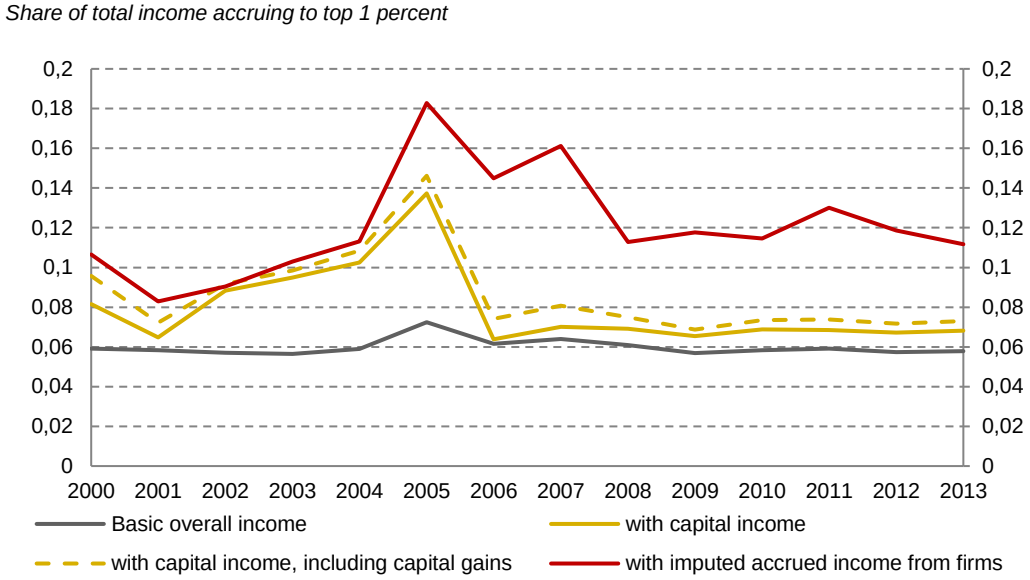
The above discussions about individual wealth and income based on holding wealth illustrate one challenge with a comprehensive income concept, namely the distinction between the flow of "new income" in every period (in the form of wages or capital incomes) and that of "potential" income in the form of increases in the value of individual wealth. Another and related issue is that between the separation of individual and firm. As mentioned above this is also an area where lack of data does not allow us to trace the full relationship between individual owners and firms in Sweden. We will therefore illustrate some basic points based on what we know from the Norwegian case where such data do exist.

It is a common pitfall to think about corporations as having dispersed ownership and separation between ownership and management. That is often the case for the large corporations listed on the stock exchange. But the majority of corporations are small, and at least in the Norwegian case where the availability of data allows for detailed insights into the structure of all corporations, many corporations have only one owner, who is often also the manager of the firm. Thus, there often is no separation of management and ownership and the owner may adjust the pay-out policy of the firm to maximize his or her own long-term after-tax income. There is also an extensive use of holding companies for shares in firms with dispersed ownership, who then leave the ultimate personal owner with the same flexibility in payout to adapt to tax rules and changes that occur on personal level. Even if the income is retained in the firm sector and not realized or visible in administrative data at individual level, the income has still been generated in a period prior to when it is "realized". In this sense it is similar to the value increase of an asset held by an individual, with the difference that the individual is not in direct control of the money, but is so indirectly through controlling the firm. This, in turn, will impact how we are able to measure individual income, compared to the concepts discussed in Section 2.

A realization-based measure of income from businesses can lead to major under-estimation of the income concentration at the top. This is illustrated by Alstadsæter et al. (2016), who describe how the introduction of a dividend tax in Norway around 2005 induced lock-in of earnings in the business sector and reduced realization of business income at the individual level. When correcting for this, the total income share at the very top of the distribution more than doubles.

Until the end of 2005, dividends in Norway were in practice tax free. A reform around 2005 introduced the so called "Shareholder Income tax", which levies capital income taxes on individuals' received dividends and realized capital gains that exceed an imputed tax-free amount. This tax only applies to individuals as shareholders; capital gains and dividends are tax free for corporations. As one would expect, this led to a massive increase in the use of holding companies and immediate decline in dividend distributions to individuals.

Figure 3.4 Income shares of the top 1% in Norway over time, using different approaches to measuring income.



Note: The figure plots the share of total income of all Norwegian individuals that goes to group of the top 1% individuals with the highest income. The grey line shows basic overall income, mainly wage income. The yellow lines add realized capital income, with the solid yellow line including dividends, and the dashed yellow line including dividends and capital gains. The red line shows overall income with added imputed accrued income from firms, basically adding that years retained earnings in firms to the solid yellow line.
Source: Reprint of Figure 1 in Alstadsæter et al. (2016).

The impact this has for our measures of inequality can be seen in Figure 3.4. The yellow dashed line shows the estimated income share of the top 1% of the income distributions when utilizing the realized income measure as observed in administrative data collected from the tax statements.[25] The income share, and thus inequality as measured by the income concentration at the top, increased steadily from 2001 and onward. After the introduction of shareholder income tax January 2006, dividend income almost stopped for this group, which would show up as a decline in inequality using ordinary measures of realized income. However, as we see when comparing with the "other income" measure, basically wages and interest income, this has been relatively stable over time, and the decline in the top earners' total income share solely caused by the stop in dividends.

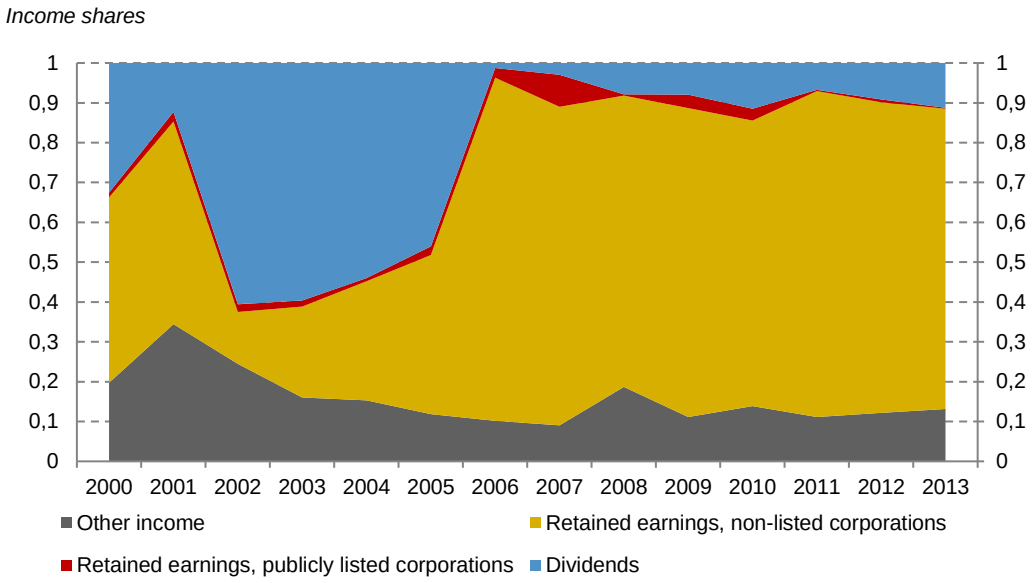
When attributing the income generated at firm level, not yet distributed to the owners, as showed with the solid red line, the income share of the high-income individuals doubles. The difference is that before the introduction of the dividend tax, firm level earnings were distributed to the owners

[25] The reduced dividend distributions in 2001 reflects an announced, temporary dividend tax that year.

and visible on the tax statement, while earnings are kept in the firm sector after the tax reform and no longer included in realization-based income measures from administrative tax data.

Most of this retained income in the corporate sector originates from privately traded, closely held corporations with concentrated ownership. In other words, from companies where the owner has a dominant shareholding and can thus also decide the pay-out policy of the firm. This is illustrated in figure 3.5, which shows the income composition over time for the top 0.01 % in the income distribution. The only things that are visible in the statistics are other income (in practice wages and interest income) and realized dividends, which only make up a tenth of the total income of this group after the tax reform. This reflects the wealth composition from figure 3.1 above, where non-listed share ownership is concentrated among the wealthy, and this makes up the bulk of their assets.

Figure 3.5 Income composition of the top 0.01% highest income individuals in Norway



Note: The figure shows the income composition over time among the top 0.01% individuals with higher income in Norway. Grey displays other income, mainly wage income. Yellow displays retained earnings within non-listed corporations, and red displays retained earnings within publicly traded corporations. Blue displays dividends received by individuals. Note that there also was a temporary dividend tax in 2001, explaining the drop in dividend payouts that year.
Source: Alstadsæter et al. (2016).

3.4 Stability of observable tax bases over time

Another challenge with assessing income inequality over time is the potential for legally induced changes of tax bases in general. The above examples showed how changes in how income was taxed lead to migration between legal entities, which do not reflect true underlying economic activity (at least not in full). Similar things can happen across all forms of income. In some cases this leads to incomes being reported but taxed differently, with implications for final disposable incomes. In other cases the incomes can disappear from the statistics completely.

Some of the most well-known instances of such differences are between income taxation in so called pass-through companies and non-pass-through companies.[26] For pass-through entities, such

[26] From an income tax point of view in the Swedish case "Handelsbolag" are pass-through companies where the business income in the firm is directly visible on the tax form of the owner(s). As we will show in Section 4 these incomes have decreased in importance in Sweden over time.

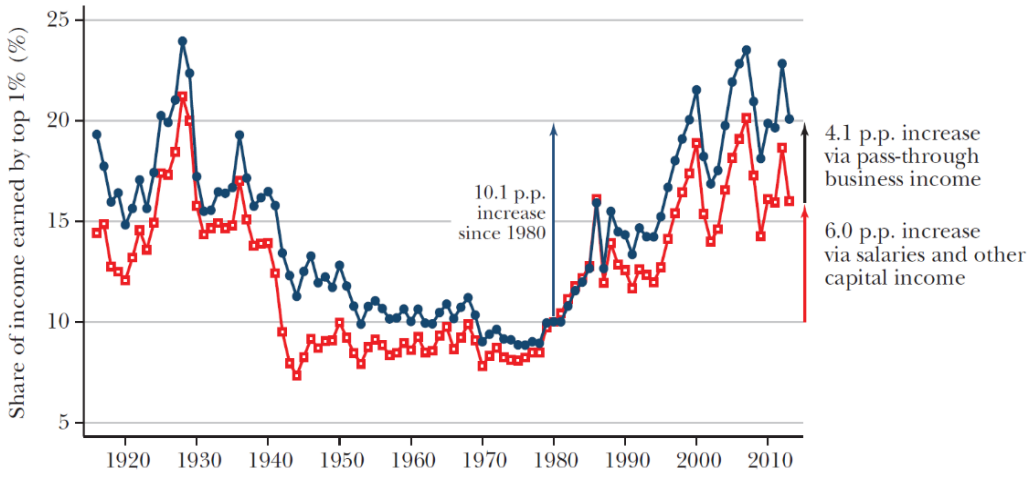
as self-employed firms, business income is visible on the tax statement of the owner at the same moment it is earned, as they are taxable on owner level and not on firm level. However, for non-pass-through entities, such as corporations, these are separate legal tax subjects and the income is only visible on the tax statement of the owner when it is realized, either through selling of the shares and realization of capital gain or losses, or when firm level income is distributed to owners as dividends. These are realized in a lumpy manner and may cause individuals to jump up and down in the income distribution.

To illustrate the challenges this creates for our realization-based income measures, let us consider the US 1986 tax reform, which introduced a new type of organizational form, namely the so-called S-corporation. This organizational form has the advantage of having limited liability, as an ordinary corporation, but it is taxed in a pass-through manner, that is, no corporate income tax applies but the income is taxed directly at owner level. At the time when S-corporations were introduced tax rules were such that this was highly beneficial to the owner.

As one would expect, this led to large-scale conversions of corporations from to pass-through form, so-called S-corporations (see e.g. Gordon and Slemrod, 2000), which had a major impact on the visibility of income in the statistics. Previously, corporate level income was only visible on the owners' tax statements when realized, either as wages, dividends, or capital gains. But with the new S-corporate form, all income generated at firm level is immediately visible in the owners' tax statements, in the same manner as an accrual measure of business income that we discussed above.

The US 1986 tax reform is followed by a substantial, and consistent increase in measured income inequality at individual level. Kopczuk and Zwick (2020) argue that this is partly driven by the increase in pass-through income following the increase in S-corporations, instead of underlying changes in inequality, as is seen in Figure 3.6 below. Measured by realized income, there has been an increased inequality and a substantial concentration of income at the top in the US between 1980 and 2014, with the top 1% higher earners more than doubling their income share from the initial 10 percent. When considering the shift in organizational structure following the 1986 reform and the resulting increased visibility on individual level of firm level income, the increase in inequality is more modest. Kopczuk and Zwick attribute 4 percentage points of the measured income share increase to observability, and not necessarily underlying inequality.

Figure 3.6 The role of changing legal business structures in measurement of realized income inequality



Note: The figure shows the share of total realized income attributable to the top 1 % highest earners over time, by using two different measures. The blue line attributes realized income as observed on the tax return. The red line fixes the share of pass-through income to 1980-levels, to illustrate the increase in income visible on the tax return through the shift in organizational form originated in the 1986 reform that opened for the pass-through taxation of corporate income to individual level.
Source: This is a re-print of Figure 3 in Kopczuk and Zwick (2020).

In the Swedish context we cannot link firms and individuals in the same systematic fashion. We can however note that self-employment income has decreased over time as rules have made other organizational forms more advantageous from an individual tax point of view.

As mentioned above this kind of legally induced changes are by no means limited to the relationship between firms and individuals. Over time different types of incomes change their status in relation to the tax legislation. In the Swedish case capital incomes are of special interest in this respect since their treatment have undergone several such changes over time. Björklund (2020) contains a detailed analysis of how various savings instruments have been treated and changed in importance over time in Sweden. An instrument of particular interest in this regard is the introduction of the so-called investment savings account (*investeringssparkonto, ISK)*. This is a savings instrument that allows for gathering various types of savings and investments in one account which is then taxed according to the value of the sum of assets in the account (like a wealth tax) and not depending on the income generated. This has the effect that very successful investments (high returns generating positive income) will not show (and will pay comparatively less taxes) while on the other hand unsuccessful investment (potentially negative incomes) will also not be visible in income statistics (and will pay higher taxes than in a system based on taxing the actual income). Even though this could have important effects on our capital income statistics, especially if a lot of private savings take this form, analysis so far suggests that the impact on inequality is small (Björklund, 2020, and Swedish Fiscal Policy Council, 2018).

3.5 In-kind consumption, non-taxed income and tax avoidance and evasion

The above examples illustrate how discrepancies between income as consumption possibilities can arise either as individual wealth increases, or in the relationship between individual and a closely held owner-managed firm, or when tax legislation treats such relationships or other income flows differently over time, mainly affecting the upper parts of the income distribution. But there are

other incomes as well as in-kind consumption aspects that are more spread across the distribution, and some that clearly equalize incomes more than what we observe in the tax statistics. Important examples of this include public services, insurance, and future pensions through a tax financed welfare state, non-observable payouts from the firm or employer, or hidden income and wealth through tax evasion.

Countries differ in the extent public services and income insurance that is provided by the state. Public transfers, both received and potential future transfers through the public social security system can complicate comparison in income inequality across countries when only considering realized income at individual level.

The Scandinavian countries have among the largest public sectors and among the most comprehensive public social security nets in the world. Not having to pay (most of) publicly provided health care, benefitting from basically free higher education, and being insured towards future job loss or disablement through the social security system constitute a substantial annual non-observable income for the individuals. The relative value of this will differ across and within income distributions and can make a substantial difference especially at the bottom of the income distribution.

Aaberge et al. (2021) demonstrate the relative importance of these usually unobserved income components on Norwegian data, including public transfers, the value of public services from the municipality, imputed value from owner-occupied housing, as well as the unrealized firm level business income we discussed above. Public transfers and municipal services constitute the majority of disposable income for the lower part of the income distribution, as an average over the period 2006–2013, as well as the varying importance of owner-occupied housing across the distribution.[27] When zooming in on the income distribution when taking into account these additional factors, services from the municipality constitute 60 percent of total income of the 20% of the population with the lowest income, while this is negligible for the top 0.01%. Housing income is relatively more important for the middle and upper-middle class.

Tax avoidance and evasion also impact our measures of inequality. As soon as information is collected for the purpose of taxation there is an economic incentive to minimize the reported income. To the extent that tax minimization is different across the income distribution this will affect the true underlying distribution. Almost by definition it is not possible to observe the extent of these activities, but we do know some basic facts. Hiding income is very difficult for most employed individuals. Sweden, like other Nordic countries, have extensive third-party reporting, digitized information systems and also a high degree of trust in authorities (and in the tax authority in particular!). Employers are also largely responsible for the tax payments on behalf of their employees. Similarly, banks and financial institutions have reporting requirements that make it difficult to underreport most capital incomes.

Business owners and self-employed have a slightly different situation, with possibility for tax arbitrage and tax evasion through their firm. Utilizing the Norwegian shareholder and corporate level data, Alstadsæter et al (2014) document consumption within closely held firms in response

[27] For more details on this, see Figure 6.1 in Aaberge et al. (2021).

to increased dividend taxes which made dividends and individual level consumption more expensive. In particular firms that previously displayed tax sensitivity in their dividend payout increased investments in items related to consumption within the firm, such as cars, planes, and boats. In an innovative collaboration on a large-scale randomized audit experiment with the Danish Tax Administration, Kleven et al (2011) documentthat tax evasion is almost non-existent when it comes to incomes with third party reporting while under reporting is much more prevalent for self-reported incomes. This is however limited by the lack of ability to observe income and wealth abroad, as we discuss more in the next section.

The Swedish tax authorities have also tried to estimate the extent of under-reporting. They conclude that the tax gap is above 20% for self-employed (enskild näringsverksamhet) and and around 2% for individuals.[28] In absolute numbers the lost revenue is however still larger for individuals (about 15 billion SEK) as the total amount of self-employment income is small (estimated under-reporting amounts to about 7.2 billion SEK, for the same period, average 2014-2018).

3.6 Added challenges from globalization – international evasion and avoidance

A final dimension worth noting is the possibility of international tax avoidance and evasion. This is typically different than domestic underreporting and is often difficult to disentangle from legitimate transactions. The main issue is that the authority of the tax administration and other enforcement agencies stops at the border. By engaging in cross-border activities, taxpayers may effectively blur the flow of information and reduce or stop authorities' insights into actual ownership of assets or true income of the taxpayers. In addition, utilizing tax havens and/or foreign shell companies or trusts further enables taxpayers to under-report their true income and wealth with low risk of being caught by the tax administration.

If such behavior is un-evenly distributed across the income and wealth distribution, this will then distort inequality as measured by domestic administrative data. Research shows that this is the case, the wealthier are more likely to hide assets in tax havens, both financial wealth and real estate.

Shares are predominantly owned by the wealthy who then benefit more from multinational corporations' tax avoidance, as reduced tax payments on group level leaves more funds to distribute to owners in the form of higher dividends and capital gains. The losses from such tax avoidance are then born by the rest of the population, as reduced multinationals' profit shifting reduces tax revenue in high tax countries, reducing funds available for social security and public services.

The problem in estimating the extent of hidden assets, and its distribution across the population, is the same as enables such behavior, namely the lack of transparency and information. Alstadsæter et al. (2019) combine information from leaks, tax amnesties, and administrative data from Sweden, Norway, and Denmark (utilizing Swedish wealth data before the abolishment of the wealth tax that also stopped the collection of individual level wealth data in Sweden). It is not illegal to have

[28] See Table 2 in Skatteverket (2021).

bank accounts abroad, but this is to be reported to the tax administration at home, which only was done in around one tenth of the cases. For instance, 1% of the top 0.01 % richest Scandinavian households had an unreported bank account at HSBC Switzerland in 2007. They hid more than 40% of their wealth. This was just a snapshot into one bank in one tax haven at one point in time. When utilizing info from all various sources, half of the total foreign wealth owned by Scandinavian taxpayers belongs to the top 0.01 percent wealthiest households (with at least 50 million USD in net wealth). This trend of household wealth held abroad being concentrated among the rich is global, as shown in Argentina, US, the Netherlands, Columbia, and Switzerland.[29] Estimated foreign financial wealth owned by Swedes at the end of 2007 was close to 30 billion USD, corresponding to 6% of Swedish GDP. Accounting for this hidden wealth increases the wealth share of the 0.01 percent richest Swedes in 2007 by a quarter, from 4.2 percent to 5.2 percent.[30]

Over the past years, more than 100 countries have entered an OECD agreement to automatically exchange bank information bi-laterally, which makes it more challenging to hide assets in foreign banks directly and more sophisticated structures are necessary to hide true ownership of financial assets. This internationally agreed reporting standard is known as Common Reporting Standard, or CSR for short. In their recent "Global Tax Evasion Report", the EU Tax observatory estimate that the majority of offshore financial assets are covered by the CRS, reducing the non-reported share of foreign owned financial assets from around 90% pre-CRS to around 30% post CRS.[31] The total level of financial assets held abroad has not declined over this period, even though the assumed evasion has. At the onset of 2022, Swedish households owned an estimated 62 billion USD of financial assets abroad, corresponding to 10.4% of GDP.

However, CSR does not include real assets, such as real estate, yachts, and other valuables. There is increasing evidence that offshore wealth is shifting from financial wealth to real estate post-CRS, as surveyed by for instance Økland (2023). New results from the from the EU Tax Observatory (2023) estimate that Swedish owners hold real estate in the six selected cities/areas Oslo, Côte d'Azur, London, Dubai, Paris, and Singapore for around 4 billion USD.[32] It is not illegal to own properties abroad, but in most countries the income from properties, and in some countries with wealth tax, also the value of the properties, are taxable and to be reported. Alstadsæter et al. (2022b) show that the majority of Norwegian owners of Dubai properties did not report them to the Norwegian Tax Administration. They also document over-representation of Dubai property ownership at the top of the wealth distribution.

[29] See Guyton et al. (2021) and Johannesen et al. (2023) for the US, Londoño-Vélez and Ávila-Mahecha (2021) for Columbia, Leenders et al. (2023) for the Netherlands, Londoño- Vélez and Tortarolo (2022) for Argentina, and Baselgia (2023) for Switzerland.

[30] The skewed distribution of offshore wealth implies high rates of tax evasion at the top. Estimating the household level income- and wealth tax gap for 2006, Alstadsæter et al (2019) find that the 0.01 percent richest Scandinavian households evade about 25 percent of their taxes through offshore assets. By contrast, tax evasion detected in stratified random tax audits is less than 5 percent throughout population.

[31] See https://www.taxobservatory.eu/publication/global-tax-evasion-report-2024/ .

[32] See https://atlas-offshore.world/country/SWE for graphics and more data.

4 What we know about inequality in Sweden since the 1990s

As already mentioned in the introduction, there is no shortage of research and reports on the development of inequality in Sweden over the past decades.[33] Numerous reports from international organizations study the Swedish inequality developments in a comparative perspective (EUROSTAT, OECD, IMF, etc.). Collectively, these reports conclude that income inequality has been increasing in Sweden since the 1980s, and also that this increase has been larger than in most comparable countries. Here, we summarize the main results and discuss potential problems with the available statistics. All the below results are based on the official income statistics which in turn come from tax records and are as such subject to the potential shortcomings discussed in section 3. This means that the data collected can be influenced by administrative changes and behavioural responses to tax changes over time. This is likely to be of particular importance when it comes to capital income flows, and it also means that unrealized capital gains are not included.[34]

4.1 The overall development in international comparison

Most of these studies focus on overall inequality measures (such as the Gini-coefficient) for disposable income at the individual level with income measured at the household level, that is the disposable income inequality generally considered to be closest to an approximation of individual welfare (see box 4.1 below). Figure 4.1. below shows the development of the Swedish Gini-coefficient after 1991 as reported by Statistics Sweden (SCB).[35] The figure displays the development in three different ways: 1) including capital income and realized capital gains, 2) including capital income but excluding capital gains, and 3) excluding all forms of capital income. The commonly reported number from Statistics Sweden is alternative one, that is including all forms of capital incomes. As a reference the OECD time series for inequality in Sweden is also displayed (clearly showing that they report numbers without realized capital gains).[36]

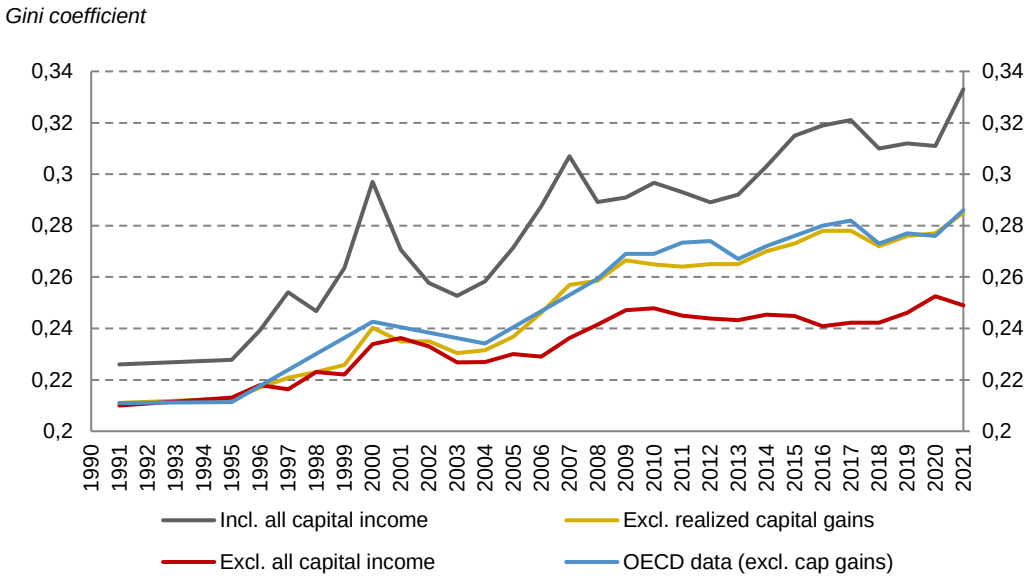
[33] As mentioned in f.n. 2 key reports that summarize the current state of knowledge include Calmfors and Roine (eds.), 2018; SOU 2019:65 (Långtidsutredningen 2019) and its supplementary reports; SOU 2020:46 (The final report of "Jämlikhetskommissionen", *En gemensam angelägenhet*); the yearly supplements to the spring budget proposal (*Fördelningspolitisk redogörelse*); the Swedish Fiscal Policy Council's yearly reports *Svensk Finanspolitik* (dealing with some aspect of inequality in virtually every yearly report since 2013). The Swedish development in comparison to other OECD-countries has been studied in e.g. Pareliusen et al (2018).

[34] Another important dimension of changes to "economic inequality" is mobility and in particular intergenerational mobility. This has been addressed in a previous report published by the Fiscal Policy Council by Jäntti and Roine (2021). They show that intergenerational mobility is comparatively high in Sweden and that there is, so far, little measurable change in this. See also Brandén and Nybom (2019), SOU 2019:55.

[35] Recall that the Gini-coefficient is a measure of overall inequality in a distribution where 0 corresponds to a situation where all incomes are equally shared, while a Gini of 1 is a situation where all incomes are concentrated to one person. Global income Gini-coefficients are approximately in the range of 0,2-0,65.

[36] There are breaks in the series due to differences in data sources but nothing that affects the overall picture. See e.g. Björklund, Jäntti and Robling, SOU 2019:62, which also contains more details about differences across sources and using different equivalence scales etc.

Figure 4.1 The Swedish disposable income Gini-coefficient 1990-2021, including and excluding realized capital gains



Note: The Gini coefficient for Swedish disposable, equivalized income, including and excluding realized capital gains based on alternative data sources (HEK, Hushållens ekonomi, based on a representative sample of the population was the main source until 2013, IoS, Inkomster och Skatter is the main source after 2013, with data back to 2011, and covers the entire population). OECD data is shown as a reference series.
Source: Statistics Sweden and OECD online database.

The picture illustrates the well-known fact that income inequality (measured in this way) has increased since the 1990s. It also illustrates the role of capital gains in this development. The inequality increase is much lower over the full period without capital incomes and there is hardly any upward trend after 2009 if one excludes all capital incomes. In addition, it is clear from the figure that the treatment of realized capital gains matter for the overall development. We will return to the question about how to treat realized capital gains below.

Box 4.1 Different income concepts and measures

There are many different measures of income and what to focus on depends on the questions asked. If one studies the labour market, wages and wage dispersion may be most important, if one is concerned with income differences between men and women it seems appropriate to study their total individual incomes. Most discussions about economic inequality are ultimately concerned with individual's economic welfare, that is how income translates into living standards. When studying individuals an appropriate measure for this is individual disposable income but when studying the overall population (including children and others with no own income) equivalized disposable incomes are more appropriate. The following definitions are most important for the illustrations in this report.

Individual disposable income (*Individuella disponibla inkomster*): An individual's sum of all incomes from work, capital, business income (*näringsverksamhet*), as well as taxable and non-taxable transfers, minus taxes and negative transfers (such as re-payment of study-loans and child-support (*underhållsbidrag*).

Equivalized disposable income/Economic standard: To make individual disposable incomes reflect actual economic living standards it is common to adjust for household circumstances. This is done by summing all individual disposable incomes of household members and dividing the total by a consumption weighted number of individuals in the household. The consumption weights are meant to capture the scale economies from being able to share expenses in the household. For example, two individuals, both with an individual disposable income of 200 000 SEK, would increase their household adjusted disposable income to 200 000 + 200 000 / 1,51 ≈ 265 000 SEK if they were to move in together (1,51 being the consumption weight for a household with 2 adults). If they were to have a child (with no income) their adjusted disposable income would decrease to 400 000 /2,03 ≈ 197 000 SEK since a child counts as an additional 0,52 "consumption units", etc. Consumption weights vary slightly between countries and international agencies, but these differences are typically not a source of differences in trends.

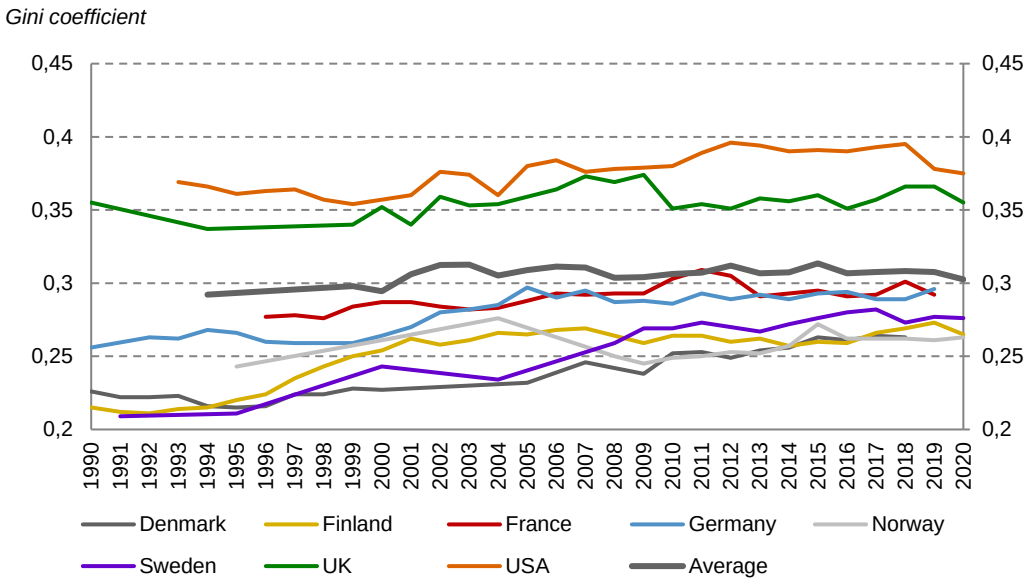
Capital income: Interest, dividends, rental income, etc., sometimes also including *realized capital gains, (realiserade kapitalvinster),* i.e. gains made from selling assets at a profit. Disposable income series are often reported both including and excluding realized capital gains. Especially in the case of Sweden this makes an important difference as inequality is significantly higher when including realized capital gains (see, e.g., figure 4.1.)

Inequality measures: When it comes to different ways of illustrating the distribution of incomes there are several measures that try to capture the inequality in the distribution with a single number. The by far most common of these is the Gini-coefficient, a number between 0 and 1, with zero being a situation where all incomes are the same and 1 being a situation where all incomes are held by one person. Another way of illustrating inequality is by ordering population from lowest to highest income earner and then forming groups (*decile* groups, if one divides the population into ten equal-sized groups, or *percentile* groups, if there are 100 groups). Ratios between such groups (or points in the distribution) how much more (or less) one group has compared to another. For example, a ratio P90/P10 = 3 means that an income at the 90th percentile in the distribution is three times that of an income at the 10th percentile.

Figure 4.2 shows this development in an international context. The comparison clarifies a sometimes contested point with regards to whether the inequality increase has been "more extreme" in Sweden compared to other countries. As the figure clearly shows the development is indeed more extreme than in other OECD countries in the sense that the percentage *change* has been larger in Sweden since the 1990s (the purple line). But as the starting point was a comparatively low Gini coefficient, the resulting *level* is close to the OECD average. In that sense Sweden is far from being an "extremely unequal" country. Taken together the development can thus be characterized as a more pronounced increase but to a level which is still among the more equal OECD countries (and still far from being as unequal as the UK or the USA). This characterization could be given for all the Nordic countries but with the biggest change taking place in Sweden (see, e.g. Pareliussen et al, 2018). An additional remark can be made with reference to figure 4.2: if one were to insert the Swedish Gini-series according to Statistics Sweden *including the realized capital gains* this would put the Swedish Gini above the OECD average. Such a

comparison is, however, misleading since OECD does not include realized capital gains in their series.[37]

Figure 4.2 The disposable income Gini-coefficient 1990-2020, selected OECD countries



Note: The Gini coefficient for disposable, equivalized income, OECD definition (excluding realized capital gains) for selected OECD countries.
Source: OECD Online Database.

4.2 The development in different parts of the distribution

The income inequality development according to an overall measure such as the Gini coefficient of course hides what happens in different parts of the distribution. Figure 4.3 gives an illustration of the relative income development across different *decile* groups of the distribution and also separates the top 1 *percentile* group. The emerging pattern underscores two well-documented facts regarding income and income inequality developments. The first important point, often emphasized by those who think the development should be seen in a positive light, is that *real incomes have grown steadily for all income groups* in the distribution.[38] If one compares income growth in the bottom of the Swedish distribution to average income growth in many other OECD countries the development in the bottom of the Swedish distribution has been stronger in absolute terms (Pareliussen et al., 2018, see also Hassler, 2018, emphasizing this aspect).

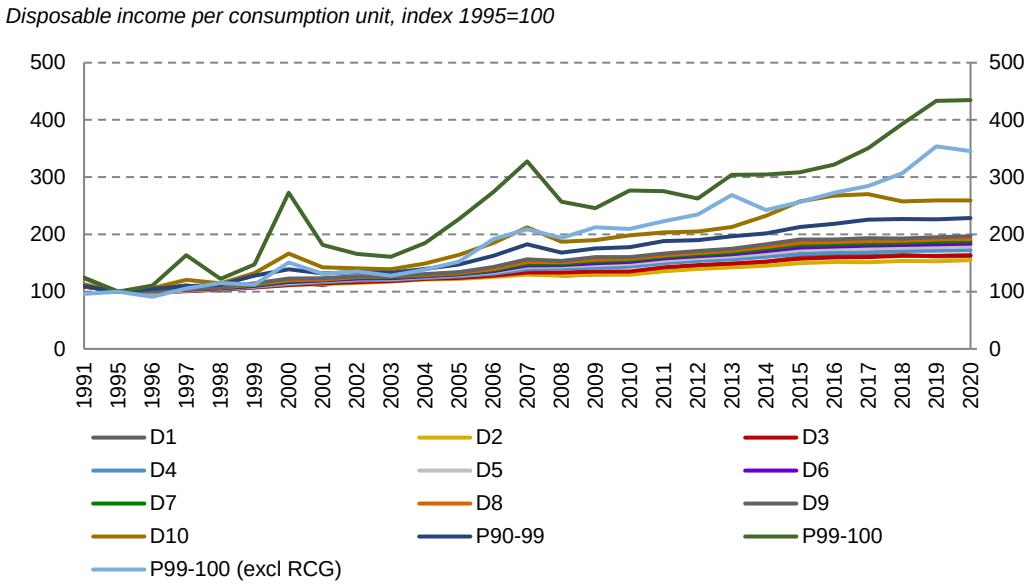
The second important point, typically emphasized by those who see the overall development as more problematic, is that income growth has been stronger the higher up in the distribution we look. Thus, income inequality has increased across all parts of the distribution. But another point is also clear, growth has been much stronger in the top decile compared to other groups. Roughly 90 percent of the population (the bottom 9 decile groups) have experienced income growth equal to or below the average. Only the top group has had a much stronger development. Again, just as

[37] It should be emphasized that how to best treat realized capital gains is far from clear (something we will discuss more below). What is clear, however, is that when comparing countries one should not mix different definitions of income and what is included.
[38] The long streak of positive income growth is most likely broken in the years 2022 and 2023 when real income growth will be negative on average.

for the development according to the Gini coefficient, this is accentuated when including realized capital gains.

This decile group illustration, however, hides yet another important detail in the development within the top decile group, namely the difference between the top 1 group and the rest. As can be seen in Figure 4.3 the development for the "top 1" (P99-100) and the "top 10 less the top 1" (P90-99) are very different. This illustrates that some caution should be taken when discussing the whole top decile group as different from the rest when, in fact, it is only the very top that is markedly different.

Figure 4.3 Relative income growth across deciles in Sweden, 1991-2020



Note: Lines show the real income growth in disposable equivalized income, including realized capital gains, indexed by the year 1995=100 for all decile groups. The top decile group is also shown with separate lines for P90-P99, P99-100 (the top 1 percent). The top 1 group (P99-100) is also shown both with and without realized capital gains (excl. RCG).
Source: Own calculations based on data from Statistics Sweden, "Equivalised disposable income by deciles and capital gains. Mean values in SEK thousands, 2020 prices". Data source is household survey (HEK) before 2011 and population wide tax register data (IoS) after 2011.

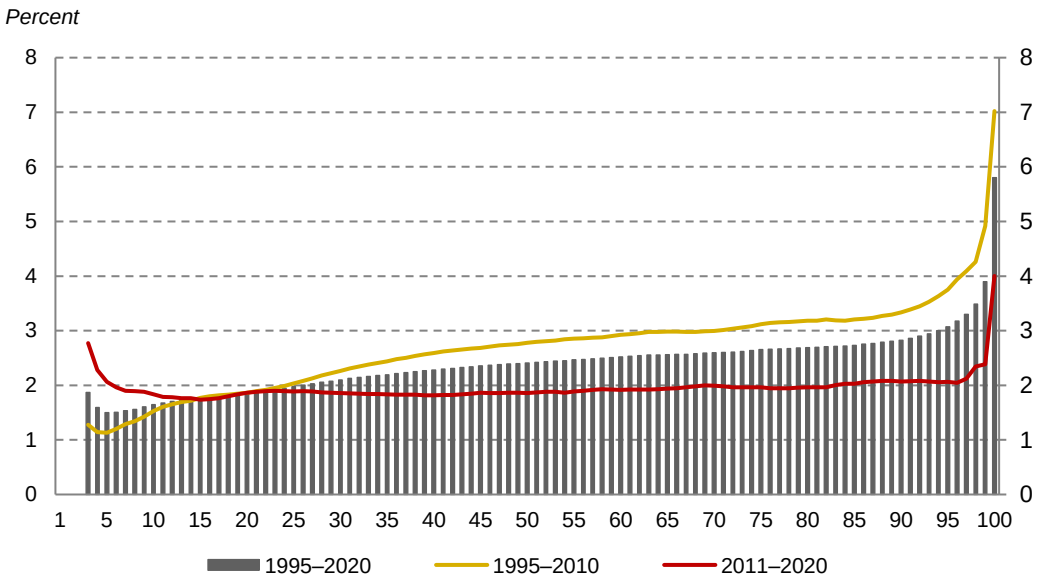
This illustrates how much of the top decile group's income growth comes from the top 1 group. The top P90-99 group also has a significantly better development when including realized capital gains, but this would almost disappear if realized capital gains were excluded. The capital gains also increase income growth in the top 1 group a lot but here it is also noteworthy how much better the development has been in this group even when capital gains are excluded.

A preliminary conclusion so far would be that the increased inequality development has taken place across the whole distribution, but it has been mostly driven by the top decile which in turn has been mostly driven by the top one group. Realized capital gains seem to make a big difference but they do not account for everything.

However, this picture still hides some details when it comes to time. Figure 4.4 now instead shows *yearly income growth per percentile group* over three separate time periods, the whole period 1995-2020 (the period shown in figure 4.3 above), and the two sub-periods 1995-2010 and 2011-2020. The income concept here is again equivalized disposable income (*ekonomisk standard*). This illustration, based on data from the Finance Ministry's *Fördelningspolitisk bilaga 2022*, highlights that while it is

true that the very top of the distribution has had a much better development than the rest of the population, over the whole period as well as the subperiods, the gradual increase in income growth across the full distribution is almost entirely driven by the pre-2010 period. After the global financial crisis, the yearly income growth across the whole distribution has been remarkably even, with disposable incomes growing at an average rate of just below 2 percent for all groups, *except* for the top-1 group where income growth has been about twice that, on average about 4 percent. The continued increase of the Gini coefficient after 2010 is, hence, completely driven by the very top of the distribution. This illustration emphasizes the fact that over the whole period it is indeed the top one group that explains most of the increase in overall disposable income inequality.

Figure 4.4 Relative disposable income growth across percentiles in Sweden



Note: Relative income growth across percentile groups (disposable, equivalized income, including realized capital gains) in Sweden since the mid 1990s, separate for the whole period and the sub-periods 1995-2010 and 2011-2020.
Source: Swedish Ministry of Finance.

4.3 The role of different income sources

The overall increase in the Gini coefficient, together with the differences across the distribution naturally raises questions about the development of different income components. Can we understand more about why inequality has increased by looking at the income composition of the inequality increase? Is it due to growing wage dispersion, changes in taxes and transfers, changes in business income, or capital income? We have already seen some hints in the above. The difference in how much inequality has increased depending on if we include or exclude realized capital gains is large, which raises issues about how these incomes should be treated. We will discuss this issue separately in the next subsection. Here we first look at different ways of trying to understand the contribution to increasing inequality from different income sources.

Björklund et al. (2019) calculates the overall contribution to the Gini coefficient from different income components between 1975-2013. Similar decompositions have been made in, Björklund and Jäntti (2011) for the period 1975-2009, the Swedish Fiscal Policy Council report 2018 comparing the years 1995 and 2016, the Ministry of Finance (2019) comparing the years 1995 and

2017, all showing similar pictures. The decompositions going back to 1975 show that the Gini is relatively stable at a low level until around 1990, illustrating that the exact starting point of 1995 does not change the long run picture going back to the mid 1970s.[39]

Decompositions show that labour income is the main contributor to overall income inequality simply because most of incomes consist of labour income. Even if this component is more evenly distributed than for example capital income, its contribution to overall inequality is larger simply because it makes up a bigger part of all incomes. However, this does not mean that labour income is the source of the *changing* inequality. On the contrary, the contribution to inequality from labour incomes has *decreased* since the 1990s. Components such as taxes and transfers have not changed much in terms of their contributions to the overall Gini (though taxes have become a little less equalizing). Instead, it is the contribution from capital incomes that explains most of the increase in the overall Gini.

It is worth emphasizing that the overall increase in inequality since the mid 1990s has *not* been due to increasing labour income inequality. Labour income inequality increased from the late 1980s to the mid 1990s but over the past 25 years it has moved in the opposite direction The same overall conclusion has been reached by several studies (e.g. Bengtsson, et al., 2014, and Friedrich et al., 2022). The latter summarize the development over the past decades as follows: "We find steady growth in real earnings across the entire distribution for men and women and decreasing inequality over more than 20 years". Friedrich et al (2022) also compares direct labour income to a broader concept including "work-related incomes" that is also including (taxable) income received when temporarily being away or out of work. Their analysis shows that while differences in direct labour income clearly decrease since the mid-1990s, the opposite is true when looking at differences in the broader concept including various transfers connected to absence from work.[40] This illustrates the role of less generous work-related incomes over time, also emphasized in e.g. Nordström-Skans et al., (2018). This can be described as replacement income when sick or unemployed not growing at the same pace as income when working.[41]

Analysis of the different components that affect total labour income, made in LU2019 (SOU2019:65), can be summarized as follows: Inequality in hourly wages increased until the late 1990s but has since remained relatively flat (SOU 2019:65, p. 87-88). They remain the lowest in the OECD and the fact that they have not systematically gone up is noteworthy given the increased polarization of the labour market and the prominence given to versions of "skill-biased technological change" in explaining the increasing inequality trends seen internationally.[42] Looking at differences in total earnings (hourly wage times hours worked) these have *decreased* since the mid 1990s as hours worked have converged through an increase in the lower half of the earnings distribution. Consequently, total earnings growth has a pattern that looks like the mirror image of

[39] The picture does, however, change if we go even further back in time. From the 1950s until the mid 1970s income inequality decreased (see e.g. Björklund and Palme (2000) and Roine and Waldenström (2008). After the mid 1970s until the around 1990 and the level is relatively stable and after that it has increased.

[40] The population in Friedrich et al. (2022) is limited to adults 25-55 and those with at least 1,5 times the monthly minimum wage. This means that they focus on the "working population" rather than all adults or the full population including children. In this sense they capture changes in the labour market and related income replacement systems, while analysis with broader populations includes, for example students and those who have retired etc. A summary of the study is available in Swedish (Friedrich et al (2023).

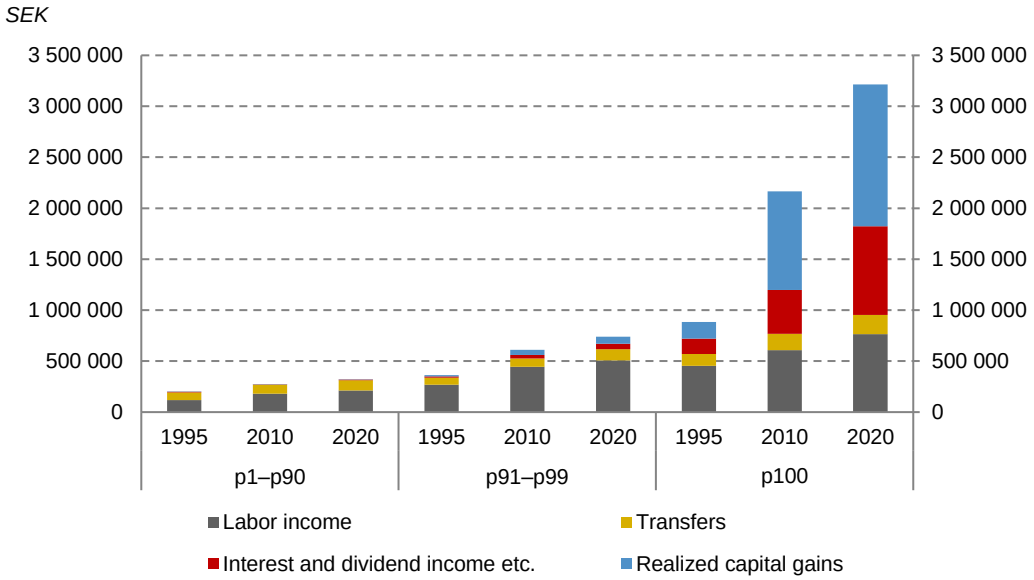
[41] However, it is worth noting that a number of reforms in the past decade (2011-2021) have been targeted to low income individuals. Such as lower taxes and some increases in unemployment and sick-leave compensation. See Prop. 2022/23:100 Bilaga 2, *Fördelningspolitisk redogörelse* 2023, p 6.

[42] Theories explaining increasing inequality in many Western countries focus on explaining increased wage dispersion. This has not happened in Sweden. Roine, 2016, gives an overview of theories on the interactions between technology, education and labour market outcomes. See also Roine, 2019.

that of total income growth in the sense that total earnings have grown the most for the bottom group of the distribution and then been positive but lower as one moves up the distribution (see figure 3.3, p. 92, SOU 2019:65). If we instead study a labour income measure that includes replacement income when sick, unemployed, on parental leave, etc., income differences increase over the whole period but, worth noting, the trend is relatively flat after around 2008-2009.[43]

Looking at inequality over the full population this matches the pattern of slightly increasing disposable income inequality until around the financial crises of 2008-2009 when excluding capital incomes (see figure 4.1. above). After 2010 little has happened in terms of overall disposable income inequality if we exclude the effects of capital incomes.

Figure 4.5 Change in composition of disposable income for different parts of the distribution in Sweden



Note: The change in income composition for income groups P1-P90, P91-P99, and P99-P100 between 1995, 2010 and 2010.
Source: Swedish Ministry of Finance.

The importance of capital incomes turns out to also explain the increasing income development of the very top group. Figure 4.5 illustrates the average composition of incomes for three groups, P1-P90, P91-P99, and P99-P100, and how it has changed since 1995. The figure clearly shows the increasing role of capital income, especially for the very top group. Given that the scale is in absolute numbers a first glance suggests that virtually nothing happens below the top 1. This is not the case. The (percentage) growth of capital incomes for the top decile (less the top 1 group) is also much larger than the growth of labour income. Interest and dividend income has grown by a factor of about 3,5 and realized capital gains by a factor of about 7 for the P91-P99 group, while labour income has grown by a factor of 1,9. The corresponding numbers for the P99-P100 are 5,8, and 8,6 for capital incomes and 1,7 for labour. The dramatic increase in the top is hence a combination of both slightly stronger income growth of the capital components in the very top, but also a result of a very skewed capital income distribution.

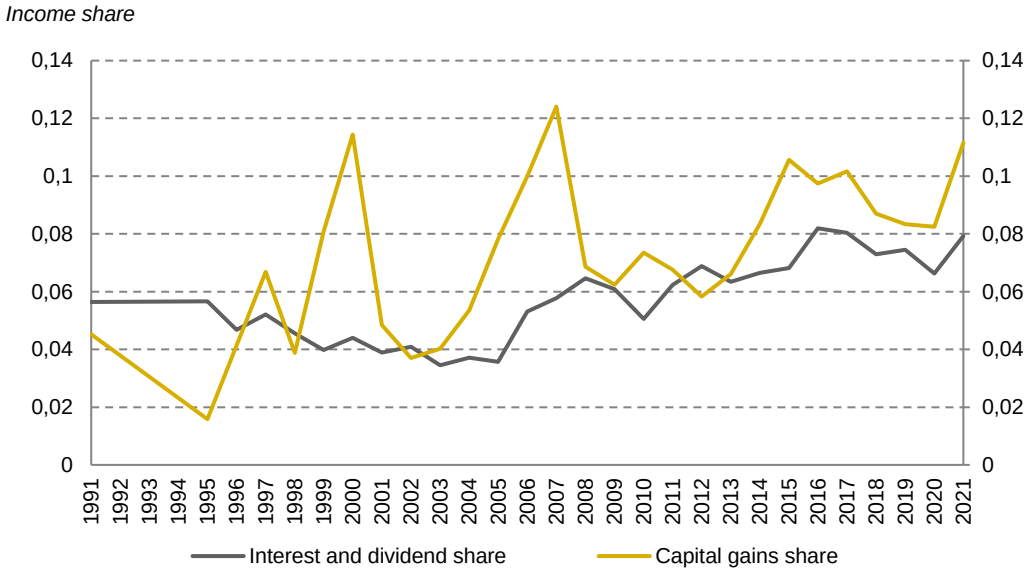
[43] It is worth noting that a number of reforms in the past decade (2011-2021) have been targeted to low income individuals. Such as lower taxes and some increases in unemployment and sick-leave compensation. See Prop. 2022/23:100 Bilaga 2, *Fördelningspolitisk redogörelse* 2023, p 6.

4.4 The development of capital incomes

Given the prominence of capital income growth in explaining both the overall inequality development in Sweden, and in particular the development in the top of the distribution, understanding this development seems to be of first order importance. A first overarching point, already mentioned in the above, is that capital incomes have increased in importance as a share of total factor income. The increase is driven both by an increasing, volatile trend for realized capital gains and an increased role for interest and dividend income especially after around 2005, as is seen in figure 4.6. In the 1990s both these components (capital income and realized capital gains) made up less than 10 percent of pre-tax factor incomes, after 2005 they make up more than 15 percent.[44]

Most of this income is earned by the top decile of the overall distribution. As a share of disposable income, capital incomes have gone from being around 20 percent in the top decile in the 1990s to well above 40 percent in the past decade. Looking just at the distribution of the capital incomes they are very skewed. In 2019 the Gini coefficient for capital incomes was 0,961 when including the full population above the age of 20, and 0,936 even if we limit the population to those with positive capital income. About 56 percent of all capital incomes are earned by the top 1 percent (of the capital income distribution), 69 percent by the top 2 percent and 94 percent by the top 10 (Statistics Sweden, 2021).

Figure 4.6 Share of capital incomes and realized capital gains in total factor income



Note: Total primary income consists of wages + business income + interests and dividends + realized capital gains. The figure shows the development over the period 1991-2021 of the two types of capital gains income as a share of total primary income.
Source: Statistics Sweden (SCB).

There are several well-known challenges when it comes to interpreting changes in inequality stemming from capital incomes. Many of these have been discussed in section 3 above, such as

[44] However, one might also note that this increase in capital incomes is not equally clear in the Swedish National Accounts. The wage share calculated as the sum of labour costs divided by (net) national income shows no clear trend since 1960 and has increased since the 1990s (see Björklund and Waldenström 2021, p 15, f.n. 23). Others, however, find the opposite trend, also in a broader international context (Karabarbounis and Neiman, 2014).

problems with under-reporting, and income shifting due to tax reasons. With regards to the first issue the impact on what we see in the official inequality statistics is determined by the distribution of the error in measurement; put simply, if under-reporting is larger in the lower part of the distribution than higher up, we overestimate income inequality, if it's the other way around we instead underestimate the shift. If income shifting is (proportionally) equally prevalent across the distribution, we may misjudge the income level but it doesn't impact our view of the distribution. In addition, for either of these effects to impact the trend, the relative importance of underreporting across the distribution must change. It is of course, by the very nature of the phenomenon, hard to say, but in general we do not see any reasons to think that the increasing role of capital incomes should stem from systematic changes in underreporting becoming more common in the lower part of the distribution. If anything (as discussed in section 3) the opposite seems more likely, especially when including offshore evasion.

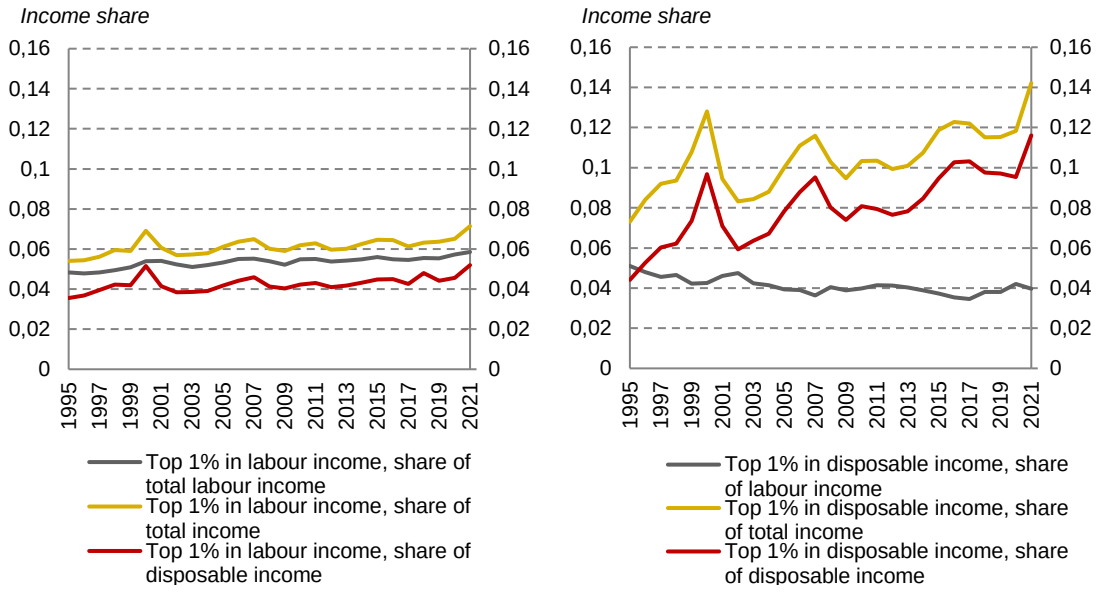
4.5 Differences across different top groups

One important, but often over-looked, point when discussing the large increase in income share for the "top 1 group" has to do with who is in this group. In particular, when it comes to realized capital gains it is well-known that such incomes are typically made with irregular intervals and for some assets, such as housing, only rarely. This means that individuals at the time of a realization may appear in the top group without this reflecting their long run income level. In the aggregate this can exaggerate the income share of the top group. As mentioned in Section 3 above Roine and Waldenström (2011) studies this in detail and show that ranking individuals according to incomes over longer periods, as well as ranking individuals excluding realized capital gains and then adding these incomes back (i.e. excluding individuals that only appear in the top as a function of having realized capital gains), and show that official statistics do indeed exaggerate income shares when including capital gains. Boschini et al. (2020) confirm this result for a longer time period. But this should not be interpreted as the effect being wiped out. Even if realized capital gains were smoothed out and allocated in a correct way, they would most likely still increase inequality as compared to not including them at all. Another point is that even though realized capital gains are important they do not constitute all of capital income. As seen in figure 4.6 interest and dividend income also increases over time and this is less volatile than the realized capital gains and, more importantly, constitutes an income flow that doesn't require selling the underlying asset (and can therefore continue to flow in future periods as well).

Another question relating to the ranking of incomes according to different income sources has to do with the base for this ranking. In many policy debates it is assumed that "the rich" can be treated as a group and then different policies will impact different parts of their income flow. This is, however, not the case in general. Figure 4.7 illustrates the income share of, to the right, the top 1 group according to the distribution of disposable income, and, to the left, the top 1 group in the distribution of labour income. Fixing the distribution according to disposable income, to the right, we see the by now familiar pattern of an increasing share both in terms of gross income and in terms of disposable income. However, they have not increased their share of labour income. In fact, the opposite seems to be true. The share of labour income earned by the top 1 group in terms of disposable income has decreased over time.

If we instead look at the income development of the top 1 group in the labour income distribution (*arbetsinkomster*) the overall development looks very different. Whereas the income share of the top 1 in disposable incomes has more than doubled the top income share of the top 1 in the labour income distribution has increased by around 10 percent. This is true even when we look at their share including capital incomes. This illustrates the problem with discussing the development of "the rich" without specifying the group more carefully. In other words, assuming that individuals in the top 1% of the labor income distribution are the same as those in the top 1% of the disposable income distribution is misguided.

Figure 4.7 Income shares for different top groups in Sweden



Note: The top 1 group in the right-hand panel is based on the distribution of disposable income and to the left on labour income. For each the shares of labour, total and disposable income are illustrated.
Source: Own calculations based on data from Statistics Sweden (SCB). Thanks to Johan Lindberg at SCB for providing data.

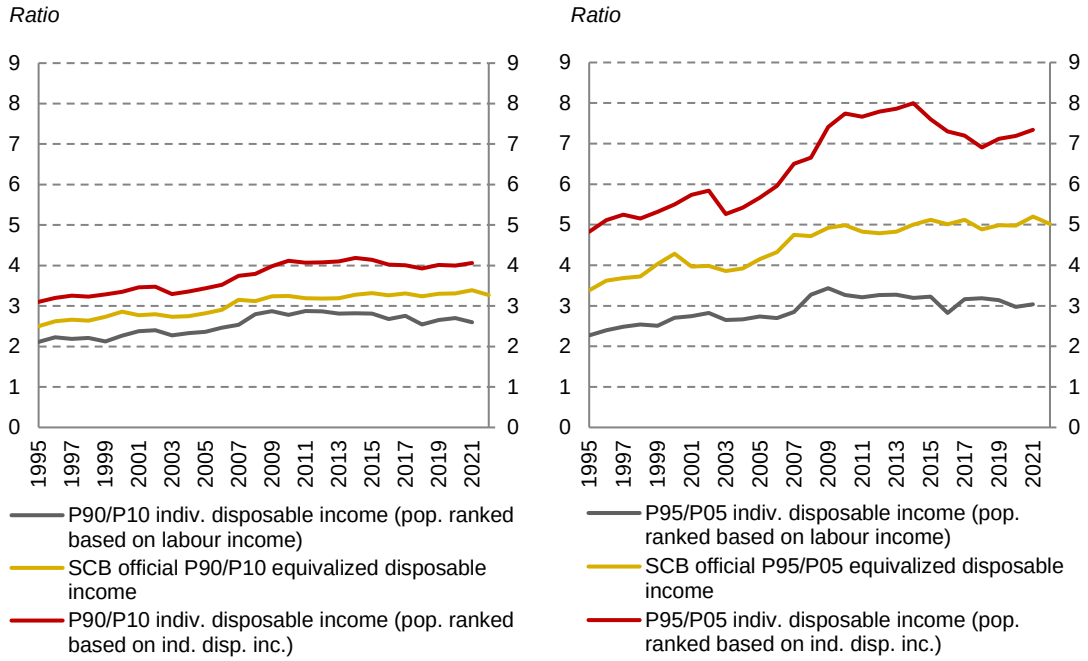
This example illustrates the importance of paying attention both to the income composition and to which top group is being referred to. Just as increasing inequality has not resulted from increasing dispersion of labour income, it is also the case that income shares for the top labour income earners have remained relatively flat over the past decades, even when adding their capital incomes.

4.6 Differences across different rankings in the overall distribution

Just as we can study differences in the top for different rankings, we can do the same for the rest of the distribution. This is yet another way to try to decompose the many possible underlying changes that make up the overall increase in inequality in disposable incomes since the 1990s. In figure 4.8. the focus is on developments of the percentile ratios – P90/P10 to the left and P95/P05 to the right – when ranking the population in three different ways. One, the blue lines, is based on all individuals with positive labour income (about 5,4 million individuals in 2021) and another, the green lines, is based on all adults with positive disposable income (about 7,9 million individuals in 2021). As a reference the figure also shows the Statistics Sweden official corresponding percentile

ratios for equivalized income over the full population, the red lines. Looking first at the blue lines the picture clearly shows that among the working population the differences in disposable incomes are smaller between high income earners and low-income earners than for the broader groups. It also shows that the differences between high- and low-income earners in this population have decreased over time since 2008-2009. When looking instead at the ranking over the broader adult population according to disposable income we see larger differences but also here it is clear that inequalities (measured in this way) have not increased since after the financial crises.

Figure 4.8 Percentile ratios of disposable incomes for different income rankings



Note: Percentile ratios for different populations ranked according to different incomes; all adults (20+) with positive labour income (TLONT>0), all adults (20+) with positive individual disposable incomes (CDISP04>0) in comparison to corresponding official series for equivalized disposable income from Statistics Sweden.
Source: Own calculations based on data from Statistics Sweden (SCB). Thanks to Johan Lindberg at SCB for providing data.

This exercise illustrates two important things. First, one cannot speak about the developments of income inequality without being clear about both which income concept is being referred to as well as what population group is used. Second, and more substantively, income inequality over the past 15 years has not increased and among those who work it has even decreased slightly. This is true not just when looking at labour income among those who work but also when looking at their disposable incomes.

4.7 Summarizing the development of income inequality in Sweden 1990–2021

Overall, we conclude that disposable income inequality has increased in Sweden since the 1990s. Whether the inequality level today should be considered "large" depends on what it is compared to. Inequality in official statistics has certainly increased substantially compared to most other OECD countries but from a low starting point. Sweden today looks more like an average

European country in terms of its income distribution than the "egalitarian outlier" that it was around 1980 (together with the other Nordics).

How large the increase has been also depends on how one treats and interprets capital incomes. If they are excluded completely the Gini coefficient has only increased from around 0,22 to between 0,24-0,25 since the 1990s, if all capital gains including realized capital gains are counted the increase is from around 0,23 to between 0,31 and 0,33. Whether the Gini coefficient has gone up by 2-3 points or by 8-10 points hence depends on how we treat capital incomes. Slightly less than half of the increase is due to capital incomes consisting of interest and dividends. Even if some of these are likely due to income shifting (and, hence, should be attributed to labour income) this part seems likely to have increased inequality. The more difficult part is the realized capital gains. For some cross-country comparisons it is clear that they should be excluded simply because they are not present in the data in many other countries. But at the same time, tax returns show hundreds of billions of Swedish kronor being reported in capital gains every year so ignoring them is not without problems either. The types of analysis that have been made suggest that including realized capital gains in the yearly cross-section data almost certainly overestimates inequality, both because of their "lumpiness" and due to the reporting being in nominal rather than real terms. However, it is equally plausible that completely excluding them leads to an underestimation of the increase in inequality. Realized capital gains are not evenly distributed in the population but more common higher up in the distribution.

While it is true that capital incomes drive what happens to overall measures such as the Gini-coefficient and, in particular, to the income shares of top income earners, capital incomes remain a very small share of income for the vast majority of people. Looking at the development of incomes when excluding all capital incomes inequality increased up until around the financial crises 2008-2009 but have since remained remarkably stable. In light of events such as a large inflow of migrants around 2015 and the recent Covid-19 pandemic this is noteworthy. The same picture emerges when looking at poverty measures, increasing poverty up until around 2010 but then a flattening out. How are we to understand the development when excluding capital incomes? As should be clear by now disposable income is impacted by a large number of interacting factors: wages and labour market outcomes, taxes, transfers, and also household circumstances. Identifying exactly how all changes across these factors impact overall inequality is difficult and a task for future research. However, there are some things that we can unambiguously conclude. First, labour earnings have become more *equally* distributed since the mid 1990s. Inequality in Sweden is not due to larger income gaps between high and low pay workers, in fact the opposite is true. Incomes on the Swedish labour market are more equally distributed than 30 years ago. Second, the difference in disposable income between working and not working has increased.[45] One might expect this to increase inequality, as there are more individuals out of work in the lower half of the distribution, but we do not see this in overall disposable income inequality. This does not change the fact that the income gap between an individual who is unable to work and one who works has increased. One can speculate that increased incentives to work have led to higher labour force

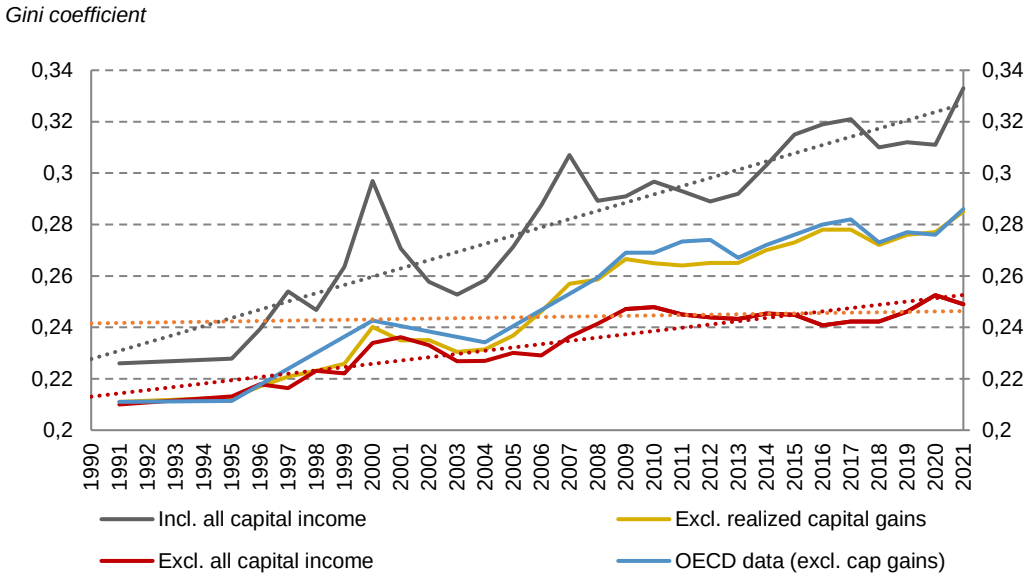
[45] Calculations of the replacement rate (*ersättningsgrad, ERS*), the ratio of "disposable income when not working" to "disposable income when working" have been made in e.g. SOU 2019:65, *Långtidsutredningen 2019, Huvudbetänkande,* Prop. 2022/23:100 Bilaga 2, *Fördelningspolitisk redogörelse 2023*. Laun and Palme (2019) have studied incentives for older workers to continue working rather than retire. They show that increased labour force participation among elderly partly can explained by incentives but is likely also impacted by other factors such as improved health.

participation and also more hours worked especially among low income groups but this needs to be studied more closely.[46]

Figure 4.8 sums up the overall trends and also gives an illustration of alternative interpretations of what has happened to income inequality in Sweden. It reiterates the main points from above: it is hard not to see a long run increase if we start in the 1990s, how capital incomes and realized capital gains are treated makes all the difference, and the increase is rather modest after 2010, especially if we exclude capital incomes. To this one could add that if we exclude the very top there is also virtually no change after 2010 (figure 4.4. above).[47]

In short, a number of aspects of the Swedish inequality development remain contested in the public debate mostly due to the choice of reference point and depending on the treatment of capital incomes.

Figure 4.9 The inequality development and its various interpretations



Note: The Gini-coefficient is calculated for equivalized disposable incomes in three different ways, including all capital gains, excluding realized capital gains, and excluding all capital gains. The dotted lines plot the rate of change of the Gini coefficient including all capital income (grey line), excluding all capital income (red line) and excluding all capital income for the period 2009–2021 (orange line)
Source: Swedish Ministry of Finance.

[46] Friedrich et al. (2022) as well as *Långtidsutredningen 2019, Huvudbetänkande* suggest that this may be a possibility.
[47] As an aside one can point out that the lack of increasing inequality after 2010 is interesting since it coincides with a period when a very large number of refugees came to Sweden, especially in 2015. In some debates immigration and increasing inequality are linked as if one causing the other was obvious. The development in Sweden over this period at least suggests that this is not the case.

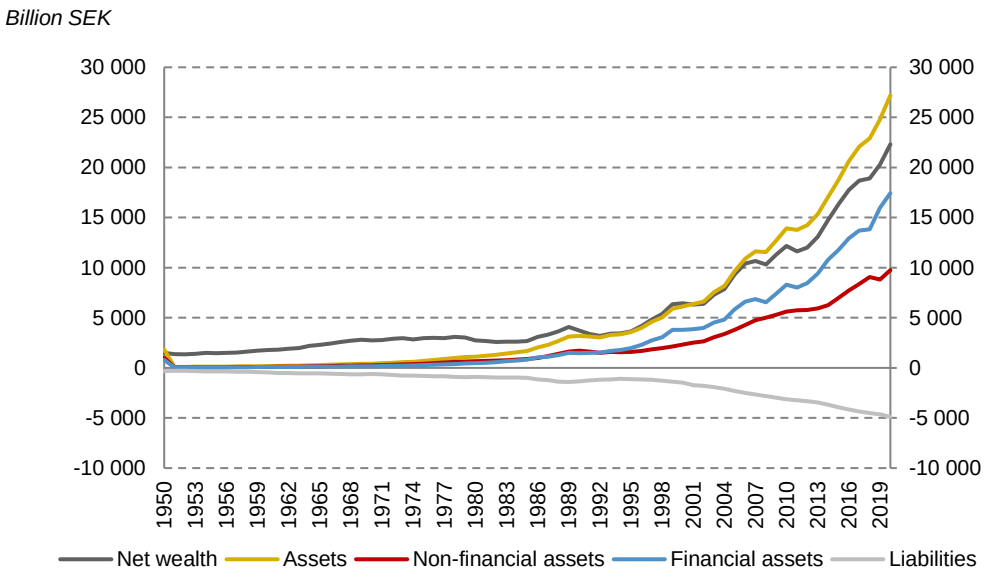
5 What we do *not* know about inequality in Sweden today

Although the detailed illustrations and breakdowns of various aspects of changing inequality in Sweden may suggest a clear picture, there are some other developments that raise important questions. These relate to the two key aspects that seem to be driving much of the development we see above, namely the increasing role of capital incomes and the development of top incomes.

As pointed out in section 2 the correct definition of income relates to both the flow of "new" income and to the change in the stock of "savings". These together make up the possibilities to "consume"; if you earn less in one period, but you have access to growing savings, your consumption possibilities do not necessarily change. Conversely, a substantial income in one period that must be budgeted for the future does not accurately represent consumption possibilities for that period.[48] To assess the true income development and the distribution of this, we need to keep track of both the income flow and the change in assets (or wealth), net of debt.

Figure 5.1 illustrates the rationale behind including wealth distribution to get a better picture of the inequality development in Sweden since the 1990s. Net wealth has simply grown in value at a much higher rate than before and, importantly, it has grown much faster than income (as defined in national accounts). Figure 5.2 illustrates the latter fact. The ratio of private wealth per adult to national income per adult remained relatively stable (slightly falling) in the period 1950-1990 but after 1995 it has steadily increased.

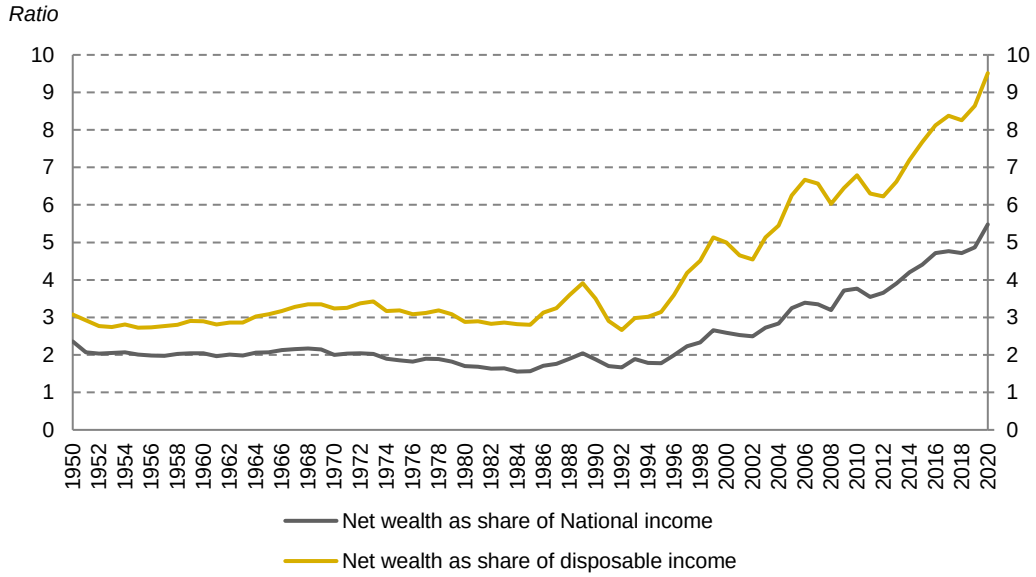
Figure 5.1 Aggregate wealth development in Sweden 1950-2020



Source: Official Swedish balance sheet statistics ("Balansräkningar enligt ENS2010") from Statistics Sweden (SCB), and own calculations based on data from SNWD, Waldenström (2017), data updated to 2020.

[48] This is the essence of Milton Friedman's famous "permanent income hypothesis" (in *A Theory of the Consumption Function,* 1957).

Figure 5.2 Per adult private wealth/per adult national income in Sweden 1950-2020



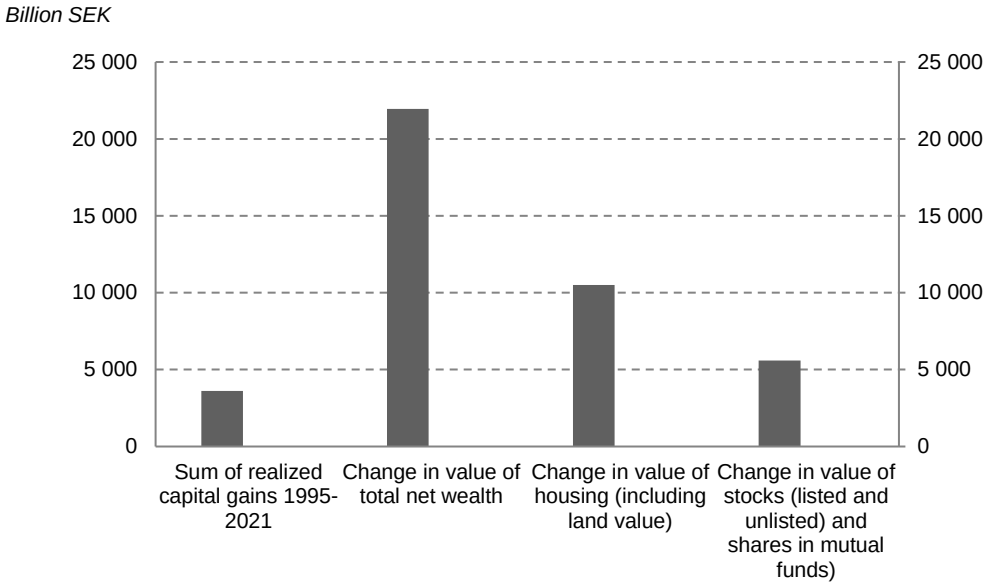
Source: Official Swedish balance sheet statistics ("Balansräkningar enligt ENS2010") from Statistics Sweden (SCB), and own calculations based on data from SNWD, Waldenström (2017) data updated to 2020.

This development seems to be in line with the increased role of capital incomes in observed income inequality. But the question is to what extent this whole development is reflected in what we observe as capital income. This is of course very difficult to answer since we do not have individual level data on the distribution of this wealth. However, even rough calculations suggest that it is unlikely we have captured the full increase in the significance of wealth.

A first example that indicates that some values remain unaccounted for, is to compare the sum of all taxed realized capital gains over the period 1995-2021 and to the value growth of assets over the period. Figure 5.3. illustrates the proportions of this exercise. The accumulated sum of realized capital gains over the period amounts to 3 600 billion SEK, the change in net wealth over the period is 22 000 billion SEK (both in 2021 prices). The growth in private sector wealth of course consists of many parts that could not be directly sold in a manner so that they would appear on individual tax returns. If we instead look at just a few components of wealth namely housing (including condominiums, (*bostadsrättsandelar*) and land values) and stocks and shares in mutual funds, these alone have increased in value by 10500 billion SEK and 5596 billion SEK respectively.[49]

[49] The total net wealth is net wealth (B90) in the balance sheet tables. The sum of housing is both the housing stock, the land value where these houses stand plus shares in owner-owned apartments (*bostadsrättsandelar*), AN111+AN2111A+AFA519A. The sum of stocks (listed and non-listed) plus mutual fund wealth is AFA511+AFA512+AFA52. It does not include AFA6 pension savings which has grown by about 6427 billion SEK.

Figure 5.3 Aggregate realized capital gains 1995-2021 in relation to net wealth growth of selected asset groups 1995–2021



Source: Own calculations based on official Swedish data on national wealth from Statistics Sweden (SCB).

Another way to look at the proportions is to assume that holding wealth generates an average percentage point return in every period. A possible thought experiment is the following: Assume one wants to keep the real value of one's wealth stock constant from one year to the next, how much money could be consumed while achieving this objective (recall the definition of income as the "consumption possibilities holding net worth unchanged"). Clearly this is not an exercise that could be repeated year after year since the growth of course in part is a consequence of exactly *not consuming* but instead using the capital productively to generate a return, however it still gives an indication of the magnitude by which the value of wealth is likely to be important. For example, the *increase* in net wealth between 2020 and 2021 was approximately 3 500 billion SEK. This is more than the total gross income in the full population that same year. Knowing the distribution of this seems important for the assessment of overall economic inequality.

So far, we have only looked at the size of wealth and income from wealth under various assumptions. It seems clear that Swedes on average are much wealthier than indicated by income statistics alone. Wealth has grown faster than income and this is true even though debt has also grown. The question is how this influences the distribution of economic resources?

Theoretically, the answer depends on how wealth is converted into individual income, the concentration of that wealth, and the correlation between income from wealth and other forms of income.[50] The short answer in practice is, we can't say for sure because we do not have data on individual balance sheets. We know that total wealth has grown, we know that debt has also grown, and we know that the balance is fine in the sense that asset values have grown much more than debt, but we don't know the distribution at the individual level. This is an important drawback for many important policy and research questions. Currently inflation and interest rates are in focus. A key policy question here is how sensitive individual households are to interest rate increases.

[50] There is a large literature on this question going back to Ricardo. See e.g. Milanovic (2017) for an overview.

The answer is that it depends, in part, on their disposable income, but equally important is their net wealth (and the form this takes). A young family with relatively high disposable income but also a high mortgage (and most net wealth tied in their home) may be very sensitive to changes while an elderly couple with relatively low disposable income but living in a house with no loans may be much less sensitive. Not having information on the proportions of these different types can lead to a number of different policy mistakes including ones that potentially threaten the financial stability. They also impact questions about poverty and well-being. Björklund (2023) points out how the issue of owner-occupied housing can lead to an incorrect picture of poverty among pensioners.

There are many areas of policy making and research that would benefit a lot from having individual level data on assets and debts. The inquiry (SOU 2022:51) concerning statistics on household assets and debts, has submitted a proposal for creating a register to gather this information (*Betänkande av utredningen om statistik överhushållens tillgångar och skulder*). The proposal contains a thorough background to all pros and cons with creating such a register and concludes that the importance of the information clearly outweighs costs and risks that have been put forth. Since the proposal was submitted it has received strong support by a large number of academic researchers and experts in the field and also by institutions such as the Swedish Riksbank and Finansinspektionen, as well as the Fiscal Policy Council. It suffices to again emphasize here the importance of making sure this information becomes available.[51]

In the absence of knowing the distribution we can simply make some observations based on what we know from historical data and from other countries. One very robust finding is that wealth is more unevenly distributed than income. If wealth increases in importance this therefore almost certainly increases overall economic inequality by more than what is reflected in the income inequality data. By how much? If we just take the non-listed stock and assume that the yearly return on this is 5% in 2021 this equals 133 billion SEK. If we make the same assumption for stocks and shares in mutual funds this equals 314 billion SEK. The total gross income for the top 1 % in this year was 231 billion. About a third was labour income, another third capital income and a third was realized capital gains. Given what we know about the concentration of the ownership of financial assets (and non-listed stock in particular) it is very difficult to think that there is not a substantial amount in retained income in the top groups. Norwegian data suggests that the top 1 share increases by some 5 percentage points when adding retained income in closely held corporations. If we make the same assumption in Sweden the top 1 income share would increase by about a third, from 10 percent to 15 percent.

Another way of illustrating how to think about the impact is to assume that underlying wealth holdings are reflected in observed capital incomes. In its crudest form this would suggest that the vast majority of wealth is held by individuals in the top decile of the income distribution (and the majority within this group is held by the top 1 group) since observed capital incomes are highly concentrated to this group (in the order of more than 90 percent of capital incomes typically being earned by individuals in the top decile). If this is taken to imply that 90 percent of the increase in

[51] The proposal as well as the comments on the importance of this data is available here: https://www.regeringen.se/remisser/2022/12/remiss-av-sou-202251-en-ny-statistik-over-hushallens-tillgangar-och-skulder/

assets values also has gone to the top income decile, this would increase economic inequality when net wealth has grown faster than income.[52]

It is, however, possible that knowing more about the individual wealth distribution could give some surprising results in the other direction. One reason is that pension wealth has also increased a lot. This is in absolute terms disproportionately held by high income individuals but as a percent of their income this may be even more important for low and middle income individuals.[53] Another dimension which could give surprising results, and which does not follow the income distribution but rather generational lines, is the impact of housing wealth, which tends to have a clear life-cycle component. Here some cohorts, rather than income groups could have substantial life-time income gains, while other generations are not equally positively affected. Housing also has the potential to have intergenerational effects. Again, it is possible to speculate about many things but what we need is better data so that these important questions can be studied.

[52] As pointed out before this is not likely to be a very good assumption since assets held by individuals lower down in the distribution are not likely to generate direct returns. This is certainly the case for pension wealth but also housing wealth does not produce a stream of observable capital incomes.

[53] For example, recent work by the European Central Bank (ECB) on the distribution of wealth in 20 European countries find that net wealth has grown a lot and at the same time inequality, measured as the share held by the top 5% in relation to wealth held by the bottom 50%, has, in fact, *decreased* slightly over past five years. https://www.ecb.europa.eu/press/pr/date/2024/html/ecb.pr240108~ae6f7ef287.en.html

6 Conclusions

This report can be summarized in four points. First, it is clear that *inequality in disposable income at the household level in Sweden has increased since the 1990s*. Importantly, over this period all groups have experienced positive real income growth, but this has, seen over the full period, been higher the higher up we move in the distribution. Seen over the past 15 years, however, income growth has been very even across all groups except for the very top, where income growth has continued to be stronger due to capital incomes. When decomposing the changes in income inequality it is important to note that labour earnings inequality has *not* increased, but rather decreased (at least since the early 2000s) as a result of very little movement in wage inequality at the same time as hours worked have increased among low-income groups (SOU 2019:65, chapter 3). Also, as the generosity of benefit programs decline over time there has been stronger earnings growth among low-income workers, consistent with higher self-sufficiency (Friedrich et al. 2022).

Second, remaining disagreement about *the extent of the observed increase in income inequality have to do with how capital incomes are viewed and measured*. If one excludes realized capital gains, the inequality increase is not as marked as when they are included, but it still remains. If one has doubts about the comparability of how capital incomes are reported, the increase observed in data potentially becomes even less pronounced. However, looking at aggregate developments of the growth of capital values in relation to income flows, paired with what we know about capital incomes in general being more concentrated than other incomes, it seems difficult to conclude that capital incomes would not have contributed at all to growing inequality over the past 30 years.

This brings us to the third point on what is missing, in terms of data, to allow for a more complete picture economic inequality in Sweden. As pointed out in section 2 above a more complete income definition includes changes in net wealth of households. The *lack of household level data on assets and debt stands out as a major obstacle* to analysing a number of important policy questions including assessing the change in the distribution of economic resources. This has been pointed out by academic researchers and experts, and also by institutions such as the Swedish Riksbank and Finansinspektionen, as well as the Fiscal Policy Council. Making such data available would be preferable to the current uncertainty. This would be true under any circumstance but seems particularly important given how strong net wealth growth has been in past decades. The lack of shareholder data in Sweden draws an effective cloak of invisibility over true inequality and ownership of resources. Owners of closely held and shell corporations may retain income within the firm as well as consume within the firm, effectively understating the true level of their income in statistics based on realized individual level income from tax data.

Fourth, and finally, we allow ourselves to speculate on the question: "Has inequality increased more or less than what we observe in our standard measures if we were to extend it to broader definition of income, including household net wealth, extended income from government provided goods and services, as well as accrued income retained in firms and unreported income, etc?". This is a difficult question, mainly due to a lack of data, but also due to conceptual issues regarding what should count as an individual's income. But we can make some general remarks and observations. First, it is well known that extending income to include government provided goods and services this lowers inequality substantially. This means we can safely say that the Gini-coefficient would be much lower if we include various government programs that are not usually

included in inequality analysis. However, if the question is how this component has *changed* it would be hard to argue that it lowers inequality more today than it did in the 1990s. In fact, broad indicators of government provision, like the tax-to-GDP ratio and the ratio of public consumption to GDP, have declined. Put simply, extended income inequality (including government subsidised consumption and in-kind goods and services) is lower than what we see in standard measures, but this effect is likely to be unchanged or smaller today compared to the 1990s. Second, with respect to net wealth we know that this 1) is more unequally distributed than income, we also know that 2) aggregate net wealth has grown faster than income, but 3) we do not have any clear evidence on the distribution of wealth becoming more skewed (but we do not know due to lack of data). As has been pointed out there are many possibilities but the combination of what we know about the distribution of wealth in general, what we observe in terms of the concentration of capital incomes, and the strong growth of net wealth in relation to observed disposable income, it seems more likely that the combined effects have *increased inequality more than what we observe*. It is, however, important to stress that this conclusion is based on judgement rather than certainty due to insufficient data.

Not having access to data creates problems in the debate about inequality in society. Both sides – those who wish to downplay the increase in inequality, as well as those who want to exaggerate it – have plenty of room for speculation about the true development. Regardless of what one would like to do, or not do, in response to inequality, this is not a satisfactory base for discussion.

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