

ON THE ROLE OF CAPITAL GAINS IN SWEDISH INCOME INEQUALITY

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Realized capital gains are typically disregarded in the study of income inequality. We show that in the case of Sweden this severely underestimates the actual increase in inequality and, in particular, top income shares during recent decades. Using micro panel data to average incomes over longer periods and re-rank individuals according to income excluding capital gains, we show that capital gains indeed are a reoccurring addition to rather than a transitory component in top incomes. Doing the same for lower income groups, however, makes virtually no difference. We also try to find the roots of the recent surge in capital gains-driven inequality in Sweden since the 1980s. While there are no evident changes in terms of who earns these gains (high wage earners vs. top capital income earners), the primary driver instead seems to be the drastic asset price increases on the post-1980 deregulated financial markets.

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1. INTRODUCTION

In recent decades income inequality has increased in many developed countries. A number of studies have shown that much of this development is due to increases in the very top of the distribution and this, in turn, has created an interest in understanding the details of top incomes.¹ A key feature in terms of composition is that capital income is especially important at the top, often being the largest source of income for top earners. Still, how to treat one specific type of capital income, namely realized capital gains, has been a debated question. On the one hand, capital gains, realized and unrealized, are undoubtedly a source of income according to the classic Haig–Simons income definition.² On the other hand, data based on income tax returns typically only show capital gains at the point of realization, making it difficult to properly allocate them in time. In addition, many

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¹See Atkinson and Piketty (2007, 2010) and Leigh (2009) for overviews of the top income literature.

²According to Haig (1921) and Simons (1938), income is the value of consumption plus any increase in real net wealth, that is, it should include all capital gains, not just the realized ones.

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top income studies use data that groups individuals in different income brackets, making it impossible to allocate observed capital gains to the right individuals.³

The recent literature on top income shares has therefore taken a pragmatic approach to capital gains. Whenever possible the top income shares, based on repeated cross sections, have been presented both including and excluding realized capital gains.⁴ In other cases, various approximations are made to estimate the potential effect of realized capital gains.

The overall importance of capital gains to both trends and levels of top income shares is somewhat mixed. Historically they do not seem to make much of a difference for the long run series in most countries. For example, Saez and Veall (2005) and Veall (2010) show that in Canada, series with and without capital gains are very similar and display the same general pattern for the period 1972–2007. Piketty and Saez (2003, p. 18) draw similar conclusions for the U.S. In summing up the evidence from both these studies, Saez (2005) concludes that the dramatic increase in top income shares in the U.S. and Canada is “totally independent from the erratic evolution of capital gains” (Saez, 2005, p. 408).

However, in some countries, and in particular during recent years, the importance of capital gains in top incomes seems to have increased. Figure 1 displays the ratio between the share of total market income earned by the top income percentile when capital gains are either included or excluded in countries for which such data are available.⁵ As is clear from the figure, this ratio has trended upwards in Finland, Spain, and Sweden in recent years. The pattern of an increased role of capital gains to top incomes is especially marked in the case of Sweden. Between 1990 and 2008 the income share of the top 1 percent when including realized capital gains is, on average, almost 40 percent higher than when excluding them.⁶ This means that the Swedish *average* yearly difference between excluding and including realized capital gains over this period is larger than even annual peaks in the other countries for which we have data, with the only exception being the U.S. tax reform spike in 1986.

The increased importance of capital gains has also received some attention by Statistics Sweden. In recent official publications over the income distribution, capital gains are included and it is noted that as they are concentrated in the top of the distribution they contribute to the increased inequality. For example, Gini

³Due to the difficulties of correctly allocating realized capital gains, they are typically (for example, in the influential Luxemburg Income Study) excluded from the income concept used. See Björklund *et al.* (1995) for a discussion and an example of how to approximate capital gains incomes.

⁴In most top income studies, grouped income data have been used, making even the allocation of capital gains to the right individuals difficult. Treating capital gains separately over the long-run has so far been possible in Canada and the U.S., in Sweden and in Finland, and in Spain. Estimates are also available for Japan but only for the top 0.1 percent (see Moriguchi and Saez, 2008). See Atkinson *et al.* (2010) for a discussion of the definition of taxable income in the top income literature.

⁵Again, as is standard in the top income literature, these ratios are based on repeated cross sections of the income share of the top percentile. It is precisely the potential problems with these data that will be addressed in this paper. Also, as in the top income literature, the main income concept is total market income, which then in the analyses often is decomposed according to source.

⁶Throughout this article (and in most of the literature on top incomes in general), “income share” refers to the share of total (gross) income from all sources before taxes and transfers, including or excluding realized capital gains.

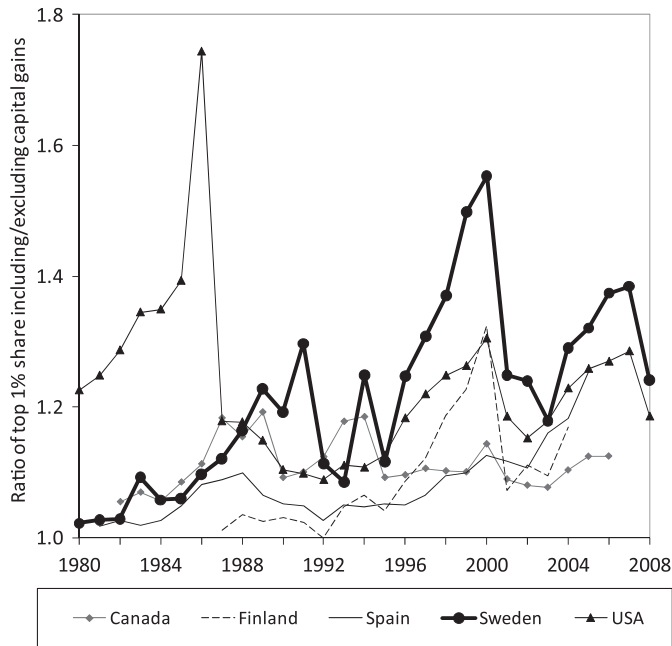


Figure 1. Ratio of Top Percentile Shares Including and Excluding Capital Gains in Five Countries
 Source: Table A1.

coefficients since 1991 are on average about 20 percent higher when including realized capital gains than when excluding them.⁷

Given the problems with using tax-based income records it is, however, not obvious how to interpret the differences between yearly cross-sectional data when including or excluding realized capital gains. Indeed, some of the most obvious spikes in Figure 1, such as the spike in capital gains in the U.S. in 1986 and the sharp increase in the Swedish capital gains in 1991 and 1994, are known to be linked to tax changes that made it advantageous to sell assets in these particular years.⁸ If the increased inequality when including realized capital gains only reflects increased incentives to realize gains, or if the cross-sectional data are not able to take into account mobility and the possible re-ranking of individuals, then actual inequality may not be as high as suggested by the above series. If, on the other hand, realized capital gains are more of a reoccurring addition to individuals already in the top of the distribution, then excluding them may underestimate the

⁷This result holds for the disposable income Gini index using equalized household distributions (Statistics Sweden, 2010, tables 2 and 4).

⁸In the U.S. case the 1986 Tax Reform Act has been subject to many studies. In particular, Auerbach (1989) shows that this one time spike was due to changed tax incentives (see Saez *et al.*, 2011, for further references). In the Swedish case, Björklund (1998) notes that "... due to changes in the incentives to sell stock, realized capital gains were unusually high in 1991 and 1994" and goes on to treat the values of inequality in those years as outliers.

actual increases in inequality. The main objective of this paper is to determine the true role of realized capital gains in the increase in income inequality in Sweden that started in the 1980s.

Our main focus will be on the top of the distribution of market incomes. This is motivated by the cross-sectional Swedish evidence, as well as some international evidence (e.g. Burman and Ricoy, 1997), showing that realized capital gains matter much at the top but make little difference further down in the distribution (see further Section 3.1). Using a nationally representative individual panel dataset for Sweden over the period 1980–2008, we can use two ways of getting at the key question. First, we compute annual top income shares including capital gains, but ordering individuals according to income either including or excluding capital gains. This answers the question: “To what extent are realized capital gains an addition to the incomes of those who are already in the top (when excluding capital gains)?” Second, we recalculate top income shares including and excluding realized capital gains, but this time ordering individuals according to their *long-run average incomes* using multi-year windows.⁹ Doing this allows us to examine the impact of realized capital gains holding potential cross-sectional mobility constant (over the respective time periods). If high incomes are relatively transitory, concentration should go down as we average over longer periods, and if this is especially true for realized capital gains, the difference should be larger when these are included. We then go onto studying who it is that makes large capital gains. Are they dispersed widely across the top decile or concentrated at the very top? Are they individuals who already have most of their income from capital (“rentiers”) or are they persons with high labor earnings (“working rich”)? Has the composition between these groups changed over time?

Our main finding is that the inequality increasing effect of including realized capital gains in Sweden is a real phenomenon, not one driven by problems in the previously used data, and it does alter the picture of Swedish inequality in important ways. Regardless of us ranking individuals according to income including or excluding capital gains, or calculating top shares over longer periods, the effects remain. And the quantitative difference is important. The impact on the top percentile share of adding capital gains has grown from increasing by 50 percent in 1980 (from 4.3 to about 6.5 percent) to more than 70 percent today (from 4.3 to 7.4 percent).¹⁰ However, we also find that the impact of capital gains on income shares is almost entirely a top percentile phenomenon. In the lower half of the top decile there is essentially no difference depending on how capital gains are treated.

When searching for economic explanations to these results, we study the composition of income of those who earn large capital gains. We find no major trend shift between high wage earners and high capital income earners, nor has the top percentile increased its share of overall capital gains since 1980. Instead the capital gains-driven rise in top percentile income shares seems attributable to

⁹Our main analysis presents estimates using three- and five-year windows. We have constructed even longer averages (up to nine years) but the pattern does not change markedly beyond the five-year average.

¹⁰These numbers are likely to be lower bounds of this exercise. When comparing top shares in the total tax statistics and the LINDA sample (which we use in this paper) we see that especially for extreme years the top shares are lower in LINDA.

capital gains becoming a larger part of all incomes in the economy. While we cannot entirely determine the drivers of this shift, the growth of financial market values certainly appears to be the main contributor to this development.

2. DATA AND METHODS

In the top income literature the series of top income shares are typically based on tax and other administrative records for groups of earners in different classes of income (see Roine and Waldenström, 2008, 2010, for details on the Swedish evidence). The use of income tax data has important advantages, in particular regarding its broad coverage of very high incomes, but it also has some well-known problems.¹¹ In terms of analyzing realized capital gains using grouped data, the main problems are that they cannot be appropriately allocated to the right individuals and, perhaps even more importantly, that we do not know the extent to which the top group making big capital gains is the same set of individuals from one year to the next. In order to allocate realized capital gains to the right individuals and also to deal with the issues of mobility at the top, we need longitudinal individual data. We therefore use a Swedish micro panel database, LINDA, which contains yearly observations of individuals' incomes for a nationally representative sample (about 3 percent of the Swedish population, approximately 200,000 individuals), starting in 1968.¹²

Incomes in LINDA are taken from the exact same tax records that form the bases for the tabulated statistics previously used in Roine and Waldenström (2008, 2010), with individuals being the unit of analysis. Consequently the main income concept, total income, is also the same, defined as income from all sources (labor, business, and capital) before taxes and transfers with the possibility to add realized net capital gains.¹³ Unfortunately, the realized capital gains data have no information on what type of asset has been sold. Hence, we cannot, for example, distinguish between gains from real and financial assets, something that would obviously be interesting for the economic interpretation of these incomes.

We begin our analysis in 1980. The prime reason for this starting date is that before that year the amounts of realized capital gains were low, both in the economy as a whole and among top earners. Most likely this can be explained by

¹¹The pros and cons of using tax data when studying top income have been extensively discussed in just about every paper in this literature and will not be reviewed in any detail here. For the main points, see Atkinson *et al.* (2010).

¹²For a closer description of LINDA (Longitudinal Individual Database), see Edin and Fredriksson (2000). The estimated top income shares are essentially equal when using LINDA and when using total tax statistics. In years when realized capital gains have been extreme, the top shares in LINDA are somewhat lower, probably because of an underrepresentation of extreme observations. This means that if anything we are likely to underestimate the effect the importance of including realized capital gains for the very top groups when using LINDA. There are some other differences as well. For example, the reference total income in the series based on total tax statistics includes approximations for income of those not filing tax returns while the reference total in LINDA is the total income of all included individuals. This is, however, not likely to make much of a difference, especially not after 1978 when virtually all individuals filed tax returns. Yet another difference lies in the population total, which in the main series in Roine and Waldenström (2008, 2010) is the whole adult population aged 16 and above, while it is 20 and above in the LINDA sample.

¹³We only analyze net capital gains, i.e. gains net of losses, as these are what we observe in the data before 1991, whereas we observe both gross gains and losses from 1991 onwards.

the low returns on the Swedish financial investments (see further our discussion of this in Section 5).¹⁴ Prior to 1980 there are thus no visible differences in the Swedish top income shares depending on how capital gains are treated (see further, Roine and Waldenström, 2008, 2010).

The consistency of our analysis relies on a proper measurement of the capital gains in the economy. The data are based on personal tax returns and this implies that the observation of capital gains is closely associated with tax laws. For example, a change in the tax rate or possibility to deduct losses could influence the timing of realizations as well as the share of gains that are taxable. We have therefore studied all changes in the income tax legislation with potential relevance to the reporting of capital gains.¹⁵ Ideally we would also like to assess the coverage of our tax data with respect to the reported capital gains by comparing them with other sources for estimating aggregate capital gains in the economy. Unfortunately, the Swedish national accounts and financial accounts do not report capital gains of the households.¹⁶

The main tax legislation event during our period of analysis is the Swedish tax reform of 1991, when capital gains went from being added to and taxed at the same rate as all other personal incomes to being taxed at a separate, flat capital income tax rate. For high income earners, the reform effectively cut the capital gains tax rate substantially and those who were able to shift their realizations from 1990 to 1991 did so, as seen in the spikes in both the amounts realized and the top income share in 1991 (see Figures 3 and 7). Apart from the comprehensive reform in 1991, there have been a number of changes in the taxation of capital gains during the study period.¹⁷

As outlined in the introduction, our basic methodology is to utilize the panel structure of the dataset to investigate the impact of capital gains on inequality. First, we order all individuals aged 20 or above according to their total income when excluding realized capital gains. Maintaining this order we then add realized

¹⁴We have done all calculations that appear in this text for the full period since 1968 and these confirm that nothing of numerical importance for our study happened in the period before 1980. Below we will discuss to what extent this is likely to reflect real circumstances, or whether it is due to reporting being less complete.

¹⁵In 1977 (before our analysis begins), there was a legislative change in the taxation and reporting of capital gains. Previously, no gains made on assets held longer than five years were taxable, and for shorter holding periods an increasing fraction of the gains were taxed. From 1977, no exemptions were made, but for assets held over two years only 40 percent of the gain was made taxable. The impact of this change on the reported capital gains is not possible to discern but there is no evident shift in the time trend of capital gains during the 1970s. When calculating up pre-1991 gains assuming that half of them were long term (and thus only reported at 40 percent), the overall trend of an increasing share for capital gains is unchanged except for a sharper increase in the late 1980s.

¹⁶In a recent overview of the financial accounts-based statements of assets and debts among Swedish households and private firms, the lack of proper measures of capital gains over and beyond the tax returns-based sources was discussed as being a “blind spot” in the statistics (Bergman *et al.*, 2010, p. 89).

¹⁷The right to deduct losses was somewhat restricted in 1989–90 when only 40 percent of losses on short-term sales was made deductible (previously they were fully deductible, just as the short-term gains were fully taxable). The tax on financial asset gains was lowered from 30 to 25 percent in 1992, and lowered again to 12.5 percent in 1994 but raised to 30 percent in 1995. The tax rate on housing sales was 30 percent in 1991–93, lowered to 15 percent in 1994 and raised to 20 percent in 2001. For further details on the capital gains changes, see National Tax Board (2009). Recent tax incidence studies also suggest that these capital gains tax changes were of importance for realization behavior (Daunfeldt *et al.*, 2010; Jacob, 2011).

capital gains to the total income of each individual. Doing so gives an indication of how important the addition of realized capital gains is to those who already have the highest incomes.¹⁸ Second, we calculate three- and five-year averages of total income, both excluding and including realized capital gains.¹⁹ We then order individuals according to their total income over these longer periods and calculate top income shares.

By studying the degree to which shares including and excluding capital gains drop, when averaging over longer periods, we get an indication of how much more transitory capital gains are compared to other income. This, in turn, provides an estimate of their impact on actual income. Put differently, if the difference between shares including and excluding capital gains remains important even for long-run averages of individuals' incomes, this would indicate that realized capital gains in top incomes are not so infrequent after all and that they do, in fact, add substantially to income inequality.

3. MAIN RESULTS

3.1. *The Role of Capital Gains Across the Distribution of Market Incomes*

Let us begin by looking at the differences in income shares across the full distribution depending on how realized capital gains are treated. Figure 2 clearly illustrates to what extent this seems to be a top income phenomenon. For all groups below the top percentile, the maximum deviation between income shares when either including or excluding capital gains in the yearly cross-sectional data is about 5 percent. For the top decile, income shares seem to increase, i.e. move above the unity line in the graph when adding realized capital gains, but the rest of the distribution gets a smaller share. This indicates that we should focus on determining what is going on at the top of the distribution.

3.2. *Are Capital Gains Mainly Transitory and Unrelated to Other Incomes?*

Next we wish to study the impact on inequality from adding realized capital gains to total income in two ways: using different income concepts when sorting individuals, and averaging individual incomes over several years to remove the impact of short-run income shocks. In Figure 3, three different representations of the top percentile income share are presented: one where incomes include capital gains and tax units are ranked according to this concept; a second with incomes including capital gains but where tax units are ranked according to incomes excluding capital gains; and a third one where incomes excluding capital gains throughout were used. As the figure clearly shows, realized capital gains appear to

¹⁸This is precisely what Piketty and Saez (2003) do for the U.S., concluding that shares become slightly different, but that this does not affect the overall trend.

¹⁹When calculating multi-year averages, we drop observations for which there is at least one year missing. These are less than 5 percent when requiring positive income in the first year of the period. Dropping them has no discernible impact on the overall series; in the case of the three-year averages for total income including capital gains, the top income shares increase by about 1–2 percent. We have also run the analysis using nine-year average in order to rule out any arbitrariness regarding the length of the multi-year periods analyzed, with similar results as for the five-year average.

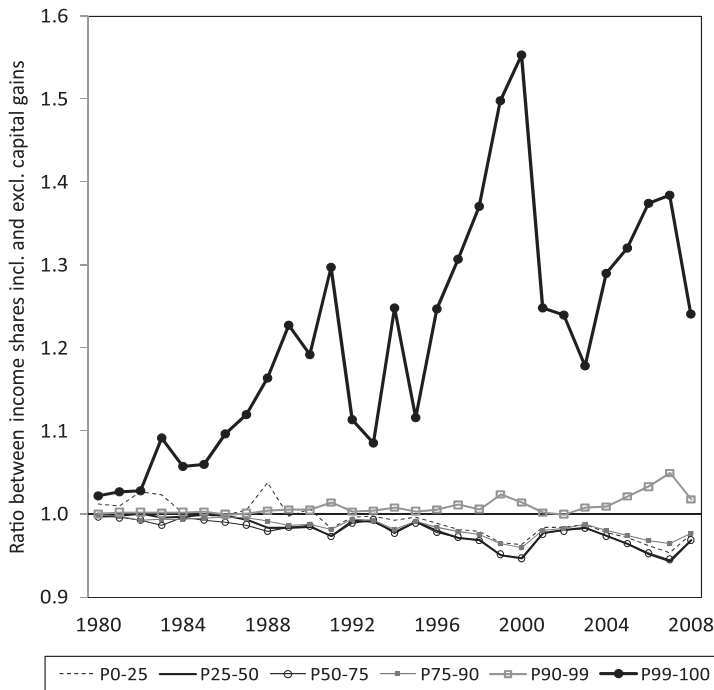


Figure 2. The Role of Capital Gains in the Swedish Income Distribution

Source: Table A2.

be an important addition to total income for those who make up the top percentile even without capital gains, i.e. much of capital gains realized every year seem to go to individuals who are already in the top of the income distribution. Furthermore, the importance of this additional income seems to have been growing markedly over time. In fact, in a recent study of the presence of statistically significant structural breaks in top income shares series, Roine and Waldenström (2011) find that when adding capital gains, not only is the inequality trend since 1980 steeper but it also begins earlier (in the early 1980s instead of the 1990s, when excluding capital gains).

The message of Figure 3 does, however, only indirectly address the concern that capital gains may be transitory and not appropriately measured in the tax data. A more direct way to deal with this issue is to repeat the exercise, but this time averaging individual incomes over longer time periods in order to reduce the relative importance of a one-time realization of a capital gain. The top left panel of Figure 4 coincides with Figure 3, while the two bottom panels report the same series computed not on annual but on incomes averaged over three or five years, respectively. If high incomes are relatively transitory we should see a decrease in concentration as we average over longer periods. While this also turns out to be the case, the decrease is limited and instead the strong upward trend in the income share remains in the averaged series ranked according to incomes excluding capital gains. Consequently capital gains among top earners are not only made up of

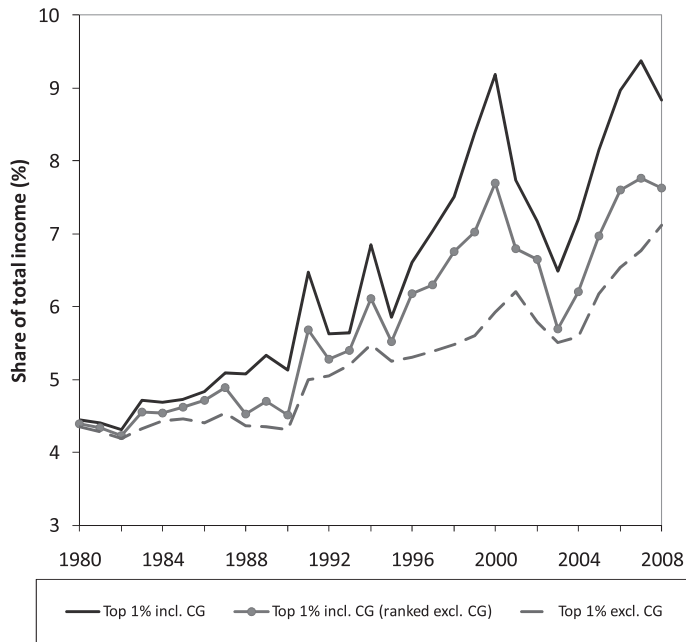


Figure 3. Swedish Top Income Percentile with Different Capital Gains Status and Ranks
 Source: Table A3.

one-time events that create spikes in individual years, but indeed are a complementary source of income that increases their share of total income. In short, including realized capital gains makes an important difference to top income inequality in Sweden.

3.3. Are Large Capital Gains a Top Phenomenon Only?

One part of understanding what might lie behind the importance of realized capital gains in the Swedish context is to examine if they are mainly a top phenomenon or if they also make a big difference for broader top groups. As previously stressed in Roine and Waldenström (2008), the top decile is a very heterogeneous group in terms of income composition, in particular with respect to capital being much more important for the top percentile. The right-hand panels of Figure 4 show that this difference within the top is present with respect to the importance of capital gains too. For the lower half of the top decile group (P90–95), the inclusion of realized capital gains makes virtually no difference to their income share. When comparing the standard yearly shares including realized capital gains to those where we first rank individuals excluding realized capital gains and then add these gains, we see virtually no difference. The same is true when averaging over longer time periods. When we average over longer time periods income shares fall slightly due to mobility, but again there is no noticeable difference with respect to the treatment of realized capital gains.

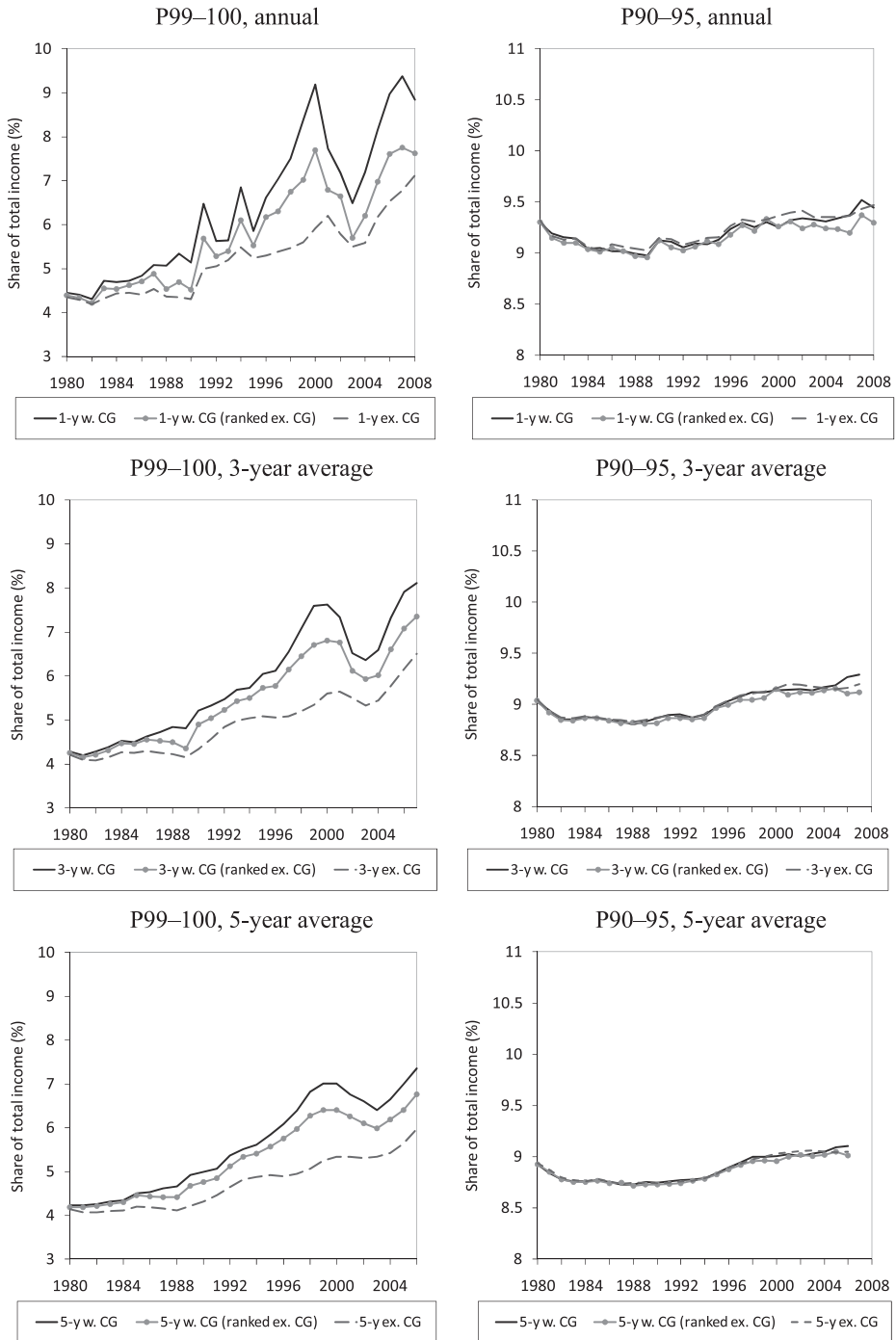


Figure 4. Income Shares, Averaged 1, 3, and 5 Years, Different Rankings and Fractiles

Note and Source: “CG” denotes including realized capital gains. Data from Tables A2 and A3. Years on the x-axis represent the center years whenever multi-year averages are used.

3.4. *Are the Capital Gains Associated with Labor Earnings or Wealth Returns?*

Another interesting issue is to what extent the rise in capital gains in the top income percentile is associated with labor earnings, for example, as part of a capital-based remuneration scheme, or if they are returns to personal wealth. Unfortunately, the Swedish tax data do not detail what assets, e.g. stock or homes, have been sold with a capital gain. Indirectly, however, other items in the tax registers allow us to acquire information about this issue. For example, one could plausibly assert that a necessary condition for capital gains to emanate from financial asset sales is a prior ownership of such assets. We do have some information about such ownership. In the Swedish Wealth Register, available since 1999, individual asset holdings are specified across a range of categories. Moreover, income statements on interest earnings and dividends also indicate ownership of income-yielding financial assets. Based on these background facts we make a crude distinction of individuals within the top percentile group; we call them “working rich,” “rentiers,” and “hybrids.” The working rich are those who get at least two thirds of their total income from labor income, the rentiers get at least two thirds from interest and dividends, and the hybrid group consists of those who are neither working rich nor rentiers according to these definitions.²⁰

Figure 5 shows the evolution of the relative income shares of these three income earner categories within the top percentile. Clearly, the working rich is the dominant group, representing roughly 80 percent of all incomes, while rentiers and hybrids represent about one tenth each. The share of the working rich has declined over time, first slowly during the 1980s and 1990s and then rapidly in the mid-2000s when the incomes of rentiers gained ground relatively. When examining these compositional trends in terms of the number of income earners instead of income shares, the pattern is largely the same.²¹

With respect to the overall trends in these compositional shifts, whether they are in terms of income shares or in numbers of income earners, they do not match the pattern of the capital gains-driven increase in the top percentile share displayed in Figures 2, 3, and 4. Not even when we also control for a changing age structure, where the declining share of the working rich might be due to an increased share of old-age pensioners who are predominantly rentiers (or hybrids), the overall trend from Figure 5 is changed markedly.²² Therefore we conclude that it is not primarily a change between who earns the capital gains that explains the role of capital gains in Swedish income inequality.

²⁰These particular definitions are of course arbitrary and we have no particular theory for why to set the cut off at two thirds of total income (excluding capital gains) from a particular source. For our purposes this does not matter much. We want to see if there have been shifts in terms of the importance of capital gains between groups *mainly* earning wage income or *mainly* earning capital income. We have tried different cut-offs (one tenth, one fifth) and the principal difference lies in a shift of levels, while the trend (which is what we mainly care about here) is not sensitive to our choice of cut-off.

²¹The working rich dominates more but its share still declines, from about 95 percent to 80 percent (results are available upon request).

²²Specifically, we removed all individuals aged 65 or more from the basic population and reran the analysis. The main difference appeared in the 1980s when the top income shares dropped 10–15 percent whereas there was virtually no difference in the later decades. Most importantly, the overall trend in top income shares with and without capital gains did not change markedly.

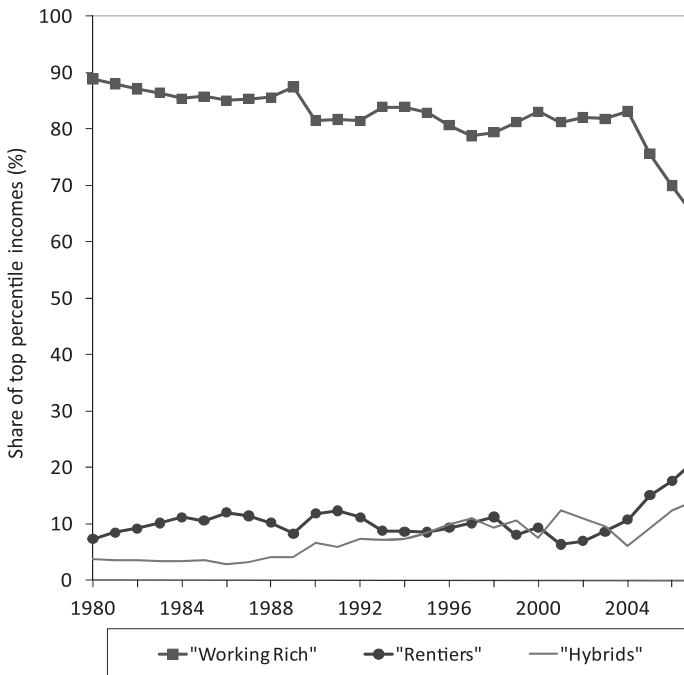


Figure 5. Income Share of the Top Percentile, Divided into Subgroups

Note: Earners are ranked according to total income excluding capital gains. “Working Rich” are those in the top percentile whose labor income represents at least two thirds of their total income excluding capital gains. “Rentiers” are those with interest earnings and dividends exceeding two thirds of their total income excluding capital gains, and “Hybrids” are all others. Three-year averages are used. Years on the x-axis represent the center years whenever multi-year averages are used.

Source: Table A4.

But perhaps such a compositional shift should not be expected to materialize in terms of total incomes, as displayed in Figure 5, but rather in terms of realized capital gains. When examining the share of all capital gains earned by the top percentile (not shown graphically), we find two things. First, it is strikingly high: around 20–25 percent of all capital gains were earned by the top percentile even when ranked according to incomes *excluding* capital gains. Second, the share exhibits no evident time trend since 1980. Also, when we split this relatively stable share between the three subgroups, working rich, rentiers, and hybrids, a similar picture emerges. While there is variation between single years within these groups, there are no obvious trends that can match the distinct capital gains-driven rise in the top percentile income share that was documented in Figure 3.

3.5. Have Capital Gains Become a More Important Source of Income in the Economy?

Our starting point of this investigation was the fact that realized capital gains have had a marked impact on the rise in top income shares since 1980. The

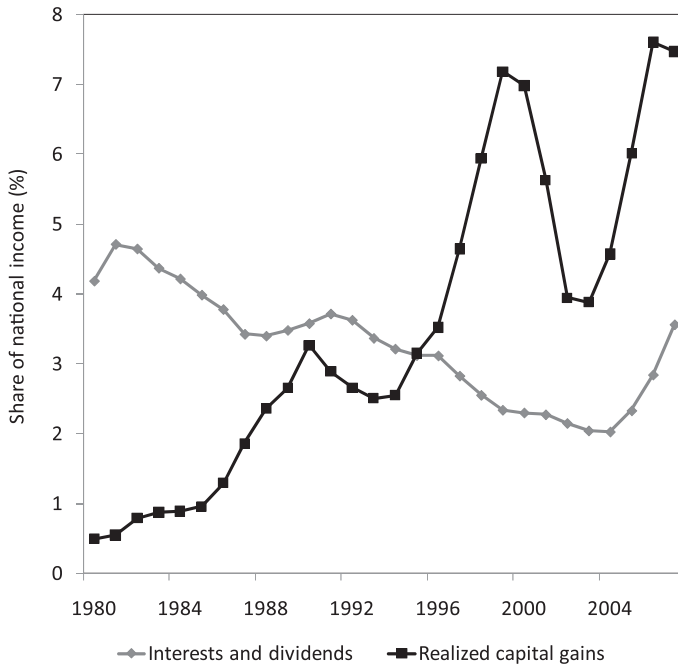


Figure 6. Aggregate Shares of “Interests and Dividends” and “Realized Capital Gains”

Note: Data based on calculations in LINDA.

Source: See Table A6.

subsequent analysis showed no signs of capital shares becoming more important for any particular top group over time. This leads us to a final candidate explanation: have capital gains become a more important source of income in the economy as a whole, and thus, those who have always earned a lot of capital gains have simply benefited from such a development? As Figure 6 shows, this is indeed the case.

Since the early 1980s, interest and dividend income has declined steadily from about 4 percent of total income to just above 2 percent in recent years, though with a marked increase since 2004. Realized capital gains, by contrast, has increased from being well below 1 percent of total income in 1980 to, on average, being above 4 percent in recent years, with a maximum of almost 8 percent today. The fact that top income earners have kept their share of this rapidly growing income component explains why their income shares have grown so much more when including realized capital gains.

4. THE SWEDISH TRANSITION—A POSSIBLE EXPLANATION?

Our main results above conclusively show that the role of capital gains in top income shares in Sweden has grown substantially since 1980. While questions about the economic explanations for this increase remain, our analysis of how

these gains are spread across the top decile, how they are divided between different types of income earners, and how this has changed over time, offer some indications.

For example, we rule out real estate realizations as the main driver of the increased capital gains in the top percentile. Even though we have seen important increases in real estate values over this period, the magnitudes are simply not large enough.²³ Furthermore, real estate sales are less frequent than financial assets transactions, implying that differences between yearly estimates and top shares averaged over longer time periods should be larger than what they appear to be if this was the main driver of what we observe. Also, if real estate was a key factor we would expect differences to show for groups below the top percentile as well.

Another unlikely primary explanation is a capital-based “topping-up” of high wage incomes. The Swedish tax reform in 1991 introduced a much lower marginal taxation of capital income (including capital gains) than on high wages, which certainly made it attractive to devise strategies where part of wages would take the form of capital gains. If this were the case, Sweden would be an “Anglo-Saxon country in disguise” in the sense that increased wage inequality would lie behind the increased top income shares, but this would not show up in reported wages but in capital gains.²⁴ However, then we would also expect a higher (and growing) share of all realized capital gains at the top to be earned by top wage earners and, also, that individuals with high capital income be earning a relatively smaller share of capital gains.²⁵ This is, as we saw above, not the case. By this we do not mean to say that there are no capital gains related to work effort, or that no remuneration schemes include things that in the end show up as realized capital gains. However, in a recent survey of executive remuneration in Sweden, Bång and Waldenström (2009) show that fixed salary represents about two thirds of Swedish top executive pay while the remaining part is predominantly annual bonuses. Long-term incentive plans, including stock- or options-based compensation plans, play a relatively minor role, in the case of options mainly for tax reasons.²⁶ Hence, based on the available evidence from executive pay in Sweden, it is not likely that

²³Between 1981 and 1990, the real price of one- or two-family houses increased by 1 percent per year and between 1990 and 2000 they did not increase at all in real terms (+0.01 percent) (Statistics Sweden, 2001).

²⁴As pointed out in many previous studies, the increase in Anglo-Saxon top income shares, in particular in the U.K. and in the U.S., have primarily been driven by increases in top wages. See Atkinson and Piketty (2007) and (2010) for overviews.

²⁵These statements are not just mirror images of each other. It would be possible for an individual to show up as someone earning a small share of income from wages if that person received close to all his work related benefits as a capital gain, but it is not possible (nor would it be desirable) for a person with most of his income from capital to show up as such in our data. Hence, given that individuals with substantial shares of their total income from capital have kept their share of realized capital gains, at the same time as the share of total capital gains has increased in the economy, capital income earners have benefitted from the underlying reason for the increase just as much as high wage earners.

²⁶Before 1990, stock options hardly existed in Sweden, and after the 1991 tax reform, they were made quite disadvantageous for their holders. The reason is that although any options-related capital gains were taxed at a relatively low rate (a flat rate around 30 percent), their assessed “tax benefit value” (before execution) to the holder was taxed as labor income at a much higher marginal rate (around 52–57 percent). Furthermore, in the case of a sharp stock price drop, perhaps making the options worthless, the holder would generate a *net loss* because of the previous wage taxes paid without any subsequent capital gain.

the increased share of capital gains in total income is directly explained by an increasing substitution of traditional salaries for capital-based compensation in the top groups.

The explanation we find most plausible relates to what we might call “the Swedish Transition.” In 1980 Sweden was a highly regulated economy with virtually no stock market activity, regulated capital and credit markets, and with a debate about so-called “wage earner funds,” which were schemes designed to shift corporate ownership over to trade unions by way of increased corporate taxes. In a series of reforms, starting with the deregulation of capital markets and international capital movements in the 1980s, tax reforms in the mid-1980s and early 1990s, and the abolition of the wage-earner funds in the early 1990s, all these things changed dramatically. The impacts of these profound changes have been the subject of extensive discussions and research.²⁷ In this study, we are primarily interested in its effect on financial asset values since we believe that these are the most important contributors to the trend in capital gains realizations among top earners.

Swedish stock market values have experienced dramatic changes that parallel this transition. In the 20 years between 1960 and 1979, the Swedish economy grew at a real rate of 3.4 percent per year, but at the same time real stock prices *decreased* by 2.6 percent on average.²⁸ A number of factors contributed to this poor stock market development, and among the most important may have been the strict rules for issuing and floating new shares, listing and participation in the trading at the Stockholm Stock Exchange.²⁹ After around 1980, the Swedish stock market went into a booming period, with average annual real price increases of 13 percent during the 1980s and over 16 percent in the 1990s. As a reference, real stock prices on the New York Stock Exchange increased annually by a relatively modest 3 percent in the 1980s and 6 percent in the 1990s. All of this is clearly visible in Figure 7, which shows real stock prices in Sweden and the U.S. as well as real Swedish GDP between 1960 and 2008.

Linking these stock market developments to capital gains realizations in the top of the income distribution requires information about individual stock ownership and transactions and personal incomes. In particular, how dispersed was stock ownership among top income earners during the early years of our study period? Unfortunately, we lack detailed knowledge about these things in the early years. One reliable source of information about wealth holdings among income earners is the study by Jansson and Johansson (1987) of the Swedish wealth distribution in 1985. It finds that 44 percent of the persons in the top income decile held exchange-listed shares with an average value of SEK 287,000. Interestingly, SEK 287,000 is very close to the starting capital a person would have needed in 1980 to keep realizing the average annual capital gain of the top income percentile every subsequent year, given that the capital grew at the same rate as the stock

²⁷See, e.g. Swedenborg *et al.* (1997, 2010) and Lindbeck (1997). Domeij and Flodén (2010) study inequality trends over the period 1978–2004, focusing on earnings inequality both pre- and post-tax. They find clear inequality increases in market outcomes (i.e. pre-tax and transfers) but also that this increase is much smaller when looking at disposable income.

²⁸Real returns, i.e. price gains plus dividends increased at a rate of 1 percent per year.

²⁹For a description of how Swedish stock market regulations hampered activities and values and how the developments from 1980 onwards changed all this, see Hägg (1989, pp. 57–100).

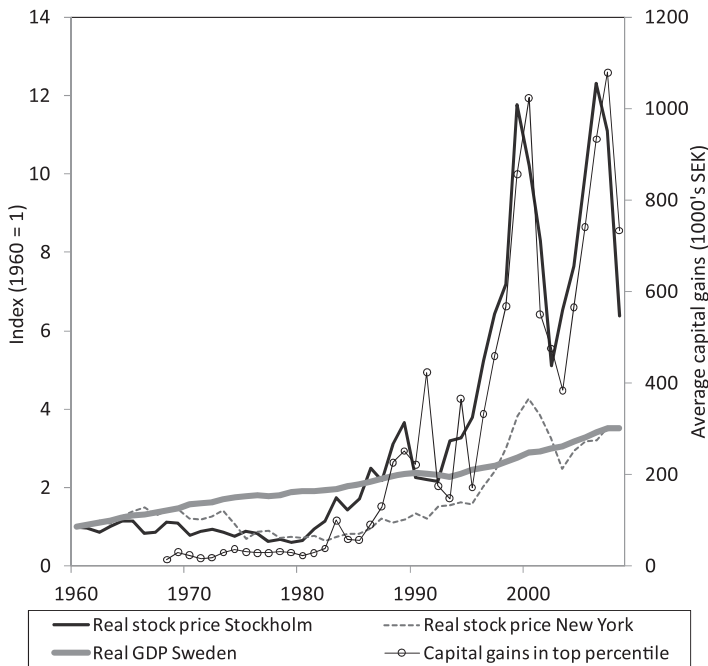


Figure 7. Top Percentile Capital Gains, Stock Prices in Stockholm and New York, and GDP

Note: Income earners are ranked according to total income including capital gains. Capital gains (right y-axis) are in thousands of Swedish kronors and in 2008 prices. Real stock prices and real GDP are indices with 1960 as base year.

Source: See Table A6.

market index, and given what we know about concentration of stock ownership in the wealth distribution (the top percentile of the wealth distribution held almost half of the total privately held stock, with an average value of SEK 523,000), it seems likely that much of this was concentrated at the top.³⁰ From the more recent Wealth Register we access similar data for the end of our study period. In year 2000, over 80 (88) percent of all income earners in the top income decile (percentile) held corporate stock, with average values of SEK 584,000 (SEK 2,484,000).

A final piece of information from Figure 7 is the amounts of capital gains realized by the top percentile alongside the stock price index at the Stockholm Stock Exchange. Both the visual pattern and the correlation coefficient of 0.95, are clear indications of a close link between stock prices and realized capital gains.

5. CONCLUSION

In this paper we have shown that including income from realized capital gains significantly adds to the recent increase in top income inequality in Sweden. We

³⁰Jansson and Johansson (1987, pp. 91–97). Our back of the envelope calculations show that one would need about SEK 270,000 in 1980 (with 300,000 one would still have 1,000,000 left in 2004, and starting with 400,000 one would have about 3,000,000 left in 2004).

have also shown that the inequality-increasing impact of capital gains has grown over time since 1980. Using a large, nationally representative, individual panel dataset, we have also shown that this result is not due to spurious recordings of capital gains realizations. Instead, the effect remains regardless of ranking individuals excluding or including capital gains before adding capital gains to total income, as well as when computing long-run averages of individual incomes.

Importantly, the distributional impact of capital gains appears to be exclusively a top income phenomenon. While capital gains are, of course, also earned at lower income levels, they make virtually no difference for the income *shares* of groups below the top percent. When relating capital gains to the general income composition of those who earn them, essentially contrasting high wage earners and capital income earners, we find no trends over time in their respective share of total capital gains. Instead, their increasing importance can be found in the fact that total capital gains as a share of all incomes have increased substantially since 1980. This, paired with the fact that their distribution is highly skewed, seems to be the most likely explanation of their increasing contribution to inequality.

These findings offer important clues for how to interpret the recent increases in top income shares in Sweden. In the U.S. context it seems clear that the main driving force behind top income growth is increasing wage inequality. In the European, and especially in the Swedish case, there is much less evidence of such pronounced wage dispersion (though wage inequality also has gone up). If the capital gains that we have found to make a big difference to inequality in Sweden stem from work effort and are in effect “hidden” wage income, then the Swedish development is much closer to the recent Anglo-Saxon development than what previous studies suggest. If, on the other hand, the main reason for growing inequality in Sweden is more related to a skewed distribution of private wealth and large increases in asset values, the story is a different one.

Given our data we cannot conclusively discriminate between these scenarios, but as pointed out above the strongest channel seems to be personal wealth holdings, and especially ownership of corporate stock that has increased in value substantially over the past decades. While these fortunes may indeed emanate from high labor incomes as part of a successful career, the role of capital-based remuneration schemes (e.g. stock- or option-plans in executive pay) have most likely been relatively minor in Sweden, making a direct channel from labor income to capital gains less likely.

Finally, our results also raise a number of questions regarding the role of realized capital gains elsewhere, especially in the other Scandinavian countries. After all, the changes described above as the Swedish transition, have in various ways happened in these countries too. It would, therefore, be interesting to explore whether capital gains have been more important than previous studies suggest, or if Sweden indeed is different in this respect (and if so, to understand why).

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Table A1: Total Income Shares When Excluding or Including Realized Capital Gains, for Five Countries

Table A2: Total Income Shares When Including or Excluding Realized Capital Gains in Sweden

Table A3: Income Shares of Top Income Percentile (P99–100), with Incomes and Rankings either Including or Excluding Capital Gains, Using 1-, 3- and 5-year Averages, 1980–2008 (%)

Table A4: Income Shares of Working Rich, Rentiers and Hybrids in Top Percentile, 1980–2008, Three-year Averages, (%)

Table A5: Population Totals for Income from “Interests and Dividends” and “Realized Capital Gains” as Share of Total Income (%)

Table A6: Real Stock Price and GDP Indexes, 1960–2008 (1960 Base Year)

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