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Inequality in Sweden 1985-2020



Inequality in Sweden: 1985–2020

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1. Executive summary

In an international comparison, Sweden exhibits low wage and earnings inequality: the Gini for male wages has been below 0.26 and the Gini for male income below 0.32 since 1985. However, inequality in household disposable income has continuously increased during the last 30 years, despite constant working hours inequality.

The first part of this development has its roots in a deep recession, which Sweden experienced in the early 1990s. It occurred during a time of increasing wage and earnings inequality, particularly among male workers. The crisis had a strong and persistent effect on employment, with large decreases in employment for young workers aged 16–24. Earnings inequality spiked during the crisis for males and remained constant afterwards, while it temporarily increased for females. Wage inequality spiked for both genders and continued to rise until the 2000s.

The period after the recession is characterised by steady earnings growth and constant or slightly decreasing levels of employment and of wage and earnings inequality. Since 1993, the employment rate has remained stable among the young and prime-aged, albeit at a lower level compared to the pre-crisis period, while it has increased for older workers (aged 61–64). Neither wage nor earnings inequality for males decreased enough to match its pre-crisis state. The development for females is somewhat different. Female wage inequality has continued to rise until today, though at a slower pace since the 2000s, and hours worked increased for women during the entire period due to higher labour force participation. Female earnings inequality has nearly decreased to its pre-crisis level. This development translates into a decreasing gender wage and earnings gap overall.

While the developments differ by gender, overall wage and earnings inequality has decreased since the end of the crisis. However, disposable household income inequality has simultaneously shown an opposing trend. Assortative matching has only slightly increased, and the share of single households has remained stable over time and cannot explain the trends in inequality. We find that capital incomes appear to drive a substantial part of the increased disposable income inequality since the early 2000s. There also seems to be a smaller reliance on social insurance at the bottom of the income distribution over time, as well as a declining generosity in the public benefits system such as a decreased replacement rate in unemployment insurance (Friedrich, Laun and Meghir, 2020).

2. Institutional background

The Swedish welfare state model encapsulates two core concepts: universal and large-scale transfers financed through taxation and social security contributions, with very little reliance on means-tested benefits; and wages and working conditions being set through centralised bargaining between trade unions and employers' confederations without direct involvement of government. Below, we give a brief overview of the main institutions that make up the welfare state in Sweden.

Provisions of the welfare state

Unemployment insurance¹

Sweden is one of few countries with a voluntary unemployment insurance (UI) scheme. The UI system in Sweden consists of two parts: the first part is mandatory, and provides basic coverage financed by a payroll tax. The benefits received under this basic coverage do not depend on the individual's earnings prior to job displacement, and the benefit level is low: in 2019, the basic UI benefit was 365 SEK per day (approx. 35 EUR or 39 USD)², corresponding to 24% of the median full-time equivalent daily wage.

The second part of the UI system is voluntary: workers can opt for comprehensive coverage by paying an insurance premium to a UI fund. Upon job displacement, workers who have paid a premium for comprehensive coverage during the 12 months prior to displacement receive benefits that replace 80% of pre-displacement wage income, up to a cap, instead of the basic coverage, conditional on fulfilling a work requirement.

Even though the administration of the comprehensive coverage is administered by UI funds, UI in Sweden is publicly provided. The government determines benefit levels and insurance premiums, and the premiums cover only a small share of the benefits paid to unemployed individuals; the difference is subsidised by the government.

During the COVID-19 pandemic, the benefit level in the basic coverage was raised to 510 SEK per day (around 49 EUR or 55 USD), to dampen the effects of job displacement on income and consumption. In the comprehensive coverage, the ceiling was raised for the first 100 days during an unemployment spell (from 910 to 1,200 SEK daily, corresponding to an increase from 60% to 80% of the median wage), and for the remainder of an unemployment spell from 760 to 1,000 SEK daily (from 50% to 66% of the median wage). Moreover, the membership conditions and the work requirement were eased (see, for example, Adermon et al., 2022, for an overview of the changes made to all aspects of the welfare system in Sweden during the COVID-19 pandemic.).

Sickness insurance

¹ See, for example, Landais et al. (2021) for a thorough description of the Swedish unemployment insurance scheme.

² Exchange rate in December 2019: 1 SEK = 0.0952 EUR, and 1 SEK = 0.1068 USD. For a very rough approximation, divide all SEK values by 10 to get the EUR or USD value.

Sweden has a universal, compulsory, publicly administered sickness insurance (SI) scheme, financed by a proportional payroll tax, that replaces forgone earnings for workers whose work capacity is temporarily reduced due to health issues. The replacement rate is 80% of previous earnings, up to a cap. After a one-day waiting period, the employer compensates a sick worker for the first 14 days of a sickness spell with sick pay, after which the Social Insurance Agency pays sickness benefits. A doctor's certificate is required for sickness spells longer than 7 days.

During the COVID-19 pandemic, the one-day waiting period in the SI scheme was reimbursed by the Social Insurance Agency, to encourage workers with symptoms to stay home from work. The requirement to supply a doctor's certificate for continued sick pay and sickness benefits was postponed from day 8 to day 21, and later abolished altogether. Moreover, the sick pay provided by employers was reimbursed by the government (for more details see Adermon et al., 2022).

Both unemployment benefits and sickness benefits are taxable income.

Other benefits³

Income support: Individuals who are unable to financially support themselves are eligible for means-tested basic income support in the form of social assistance from their municipality. Means-testing takes place at the household level, and includes depletion of any savings or other assets (owned property) for eligibility. Families with children and young adults may also be eligible for (means-tested) housing allowance from the Social Insurance Agency. (During the COVID-19 pandemic, the housing allowance was raised to prevent eviction of families.)

Child allowance: A universal benefit that is not means-tested is disbursed to all families with children eligible for social insurance. The child allowance amounts to about 100 EUR per child and month until the child reaches 18 years old (or finishes high school). Families with two or more kids also receive a supplementary multi-child allowance, the size of which varies with the number of kids. The allowance and supplementary allowance are paid out by the Social Insurance Agency. Social assistance, child allowance, and housing allowance transfers are not taxable.

Parental benefits: Parents are eligible for up to 480 days of paid parental leave per child, which can be used before the child turns 12. Out of the 480 days, 390 are compensated at a rate of 80% of previous earnings, up to a cap, and the remaining 90 days are replaced with a low flat rate. Parents who do not meet the work condition receive a daily flat rate for the full 480 days. For working parents of children younger than 12 years old, there is also a temporary leave benefit that compensates for earnings losses, up to a cap for a maximum of 60 days per year and child, when caring for a sick child. Parental benefits are taxable.

Before the pandemic, the temporary benefits for caring for a sick child required a doctor's certificate from day 8, but this was postponed to day 22 during the pandemic.

Provision of public services

Healthcare

³ See Adermon et al. (2022) for a more detailed overview of the benefits systems in Sweden.

Healthcare in Sweden is mainly funded by direct income taxes raised by the three different levels of government: central, regional (county council), and local (municipality). The regional county councils are the main providers and funders of healthcare in Sweden, responsible for both primary and specialised in- and outpatient healthcare in their catchment areas. Each council sets its own patient fees, but the amount a patient pays out of pocket is capped at the national level. Patient fees make up only a small share (around 3%) of total healthcare spending. Thus, all Swedish citizens have strong financial protection from both direct costs for healthcare and indirect costs due to forgone income from temporary or permanent work capacity reduction.

Education

Local government (i.e., Swedish municipalities) is mandated to supply childcare to children with parents who either work or are full-time students. In addition to childcare, the municipalities are responsible for supplying primary and high school education. The education system is financed from locally collected tax revenues.

Swedish tertiary education is free of tuition fees and government run. All students are offered stipends and subsidised student loans.

Tax system

The Swedish tax system is a dual income tax system in which labour earnings and capital incomes are taxed separately. In addition, the income tax is individual-based (i.e., spouses are taxed separately).

All individuals aged 65 and younger face the same tax schedule, with some variation in the local tax rate across municipalities. A proportional local tax rate applies to the sum of all earned income (and taxable transfers). The average local income tax rate in 2019 was 32.19%. For total labour earnings exceeding a certain threshold, a central government income tax is due (levied on around 11% of the population in 2023). The central government income tax schedule consisted of two brackets until 2020: the marginal tax rates in each bracket were 20% (for incomes between 490,700 and 689,300 SEK annually) and 25% (for incomes above 689,300), respectively.

Since 2007, there has been an Earned Income Tax Credit (EITC) in Sweden. The EITC is a function of earned income, and thus not granted for transfers such as UI or SI benefits. Moreover, the EITC in Sweden is general: all individuals aged 66 or younger face the same tax credit schedule regardless of marital status or the number of children in the household.

Wage setting

Sweden is heavily unionised: the vast majority of workers (91%) are covered by collective bargaining agreements, formed at the sector level, imposing lower bounds on workers' wages. Wage bargaining occurs at three levels. First, unions and employer organisations set the frame for wage formation through central agreements. Once negotiations at the central level are complete, bargaining at the local (establishment) level occurs, where the local union and firm representatives translate the central agreement to the establishment level. Finally, wages at the individual level are negotiated between the manager and the worker.

3. Notes on measurement and definitions

Time periods

- Our data cover the period 1985–2020 and 1990–2020 for family-related measures
- In charts showing selected periods, we have chosen the years 1985, 1993, 2001, 2009, and 2020.

Unit of analysis and sample

- Throughout, the unit of analysis is individuals.
- For most parts of the analysis, we restrict the sample to those aged 25–60 who have completed full-time education (except for Figures 1–2). Data for individuals older than 64 years are not consistently available, so even in figures without age restrictions, we use 64 as the maximum age.

Definitions:

- **Employment rate:** we define employment based on the individual's existence in the matched employer–employee register (all workers with an employment link, or self-employed, at any point during the calendar year). This does not account for short-term unemployment, which can lead to slightly higher employment levels overall. We cannot determine the active versus inactive population, instead we use all Swedish residents aged 16–64 as the baseline.
- **Gross earnings:** gross annual real individual earnings (includes self-employed).
 - Employees: Information on earnings is derived from the tax register. Gross earnings include overtime pay, vacation pay, the first 2–3 weeks of sick pay and severance payments. When an individual has multiple jobs, the earnings from all jobs are added. This measure does not include business income. We convert nominal gross earnings into real terms (2019 prices, using the CPI).
- **Hours of work:** Our variable is contracted hours worked expressed as a percentage of a full-time employment. Overtime work is not included. We also have data on this for self-employed workers. There are 52 observations of zero hours worked (which we will drop from the analysis when focusing on those in work); there are no negative hours. Between 1990 and 1994 there are quite a few large outliers, which is why we will exclude all values higher than 2.5 (250%) between those years.
- **Wages:** Full-time equivalent monthly wages or approximate hourly wages, in 2019 prices (SEK). This variable comes from the wage structure statistics, which cover the entire public sector and approximately 50% of the private sector. Sometimes we convert this variable to hourly wages using an approximation where we multiply the wage by 12 (months) and divide it by 1985.54 (the mean number of hours worked per year). Zero, negative and missing wages are dropped if they exist.

-
- **Disposable household income:** Household equivalised income after deducting taxes and adding benefits and tax credits. Starting in 1991, our raw variable includes capital income. We correct for that by subtracting net capital income from the raw variable.
 - Household equivalised income is obtained by summing the earnings of each member of the household and divide by a scaling factor. We use the OECD-modified scale, where the first adult receives a weight of 1, and each additional adult (age 14 or older) a weight of 0.5, and every child below the age of 14 a weight of 0.3. The weights are summed to form the scale factor.
 - **Benefits:** We only measure unemployment and certain parental benefits separately; we do not have separate data on sickness-related benefits.

Splits:

- **Sex:** female, male.
- **Education:** We follow the ISCED-2011 definition to construct three education groups. The first group contains categories 0–2 and is entitled ‘no high school’, the second corresponds to category 3, 4 and 5 (‘high school’) and the third corresponds to categories 6 and above (‘University’). Due to changes in the reporting of education categories in Sweden in 2000, there is a tiny shift in levels in that year.
- **Household types:** Single without dependent children; single with dependent children; couples without dependent children; couples with dependent children; adult child; other. Parents of adult children go in the ‘other’ category. A dependent child is a child aged 0–15 or 16–19 and in full-time education, living with parents.
- **Cohabiting couples:** Cohabiting couples without joint children are not identified in the data. We thus consider individuals to be cohabiting if they are married, in a same-sex partnership, or in a cohabitation with joint children.

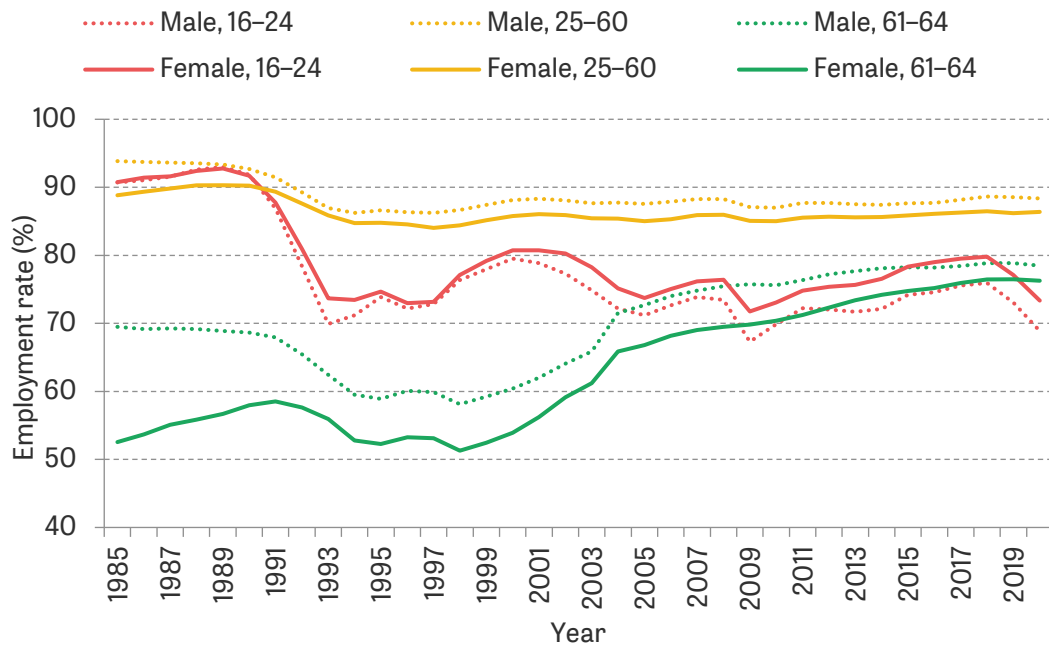
4. Individual employment and earnings

This section looks at trends in individual employment and earnings. We start by examining trends in employment and then continue with individual labour market outcomes. As earnings are a product of wages and hours worked, we will look at these separately, before analysing trends in earnings. Our analysis for wages and hours will focus on employees but include self-employed when it comes to earnings.

4.1 Trends in employment

Figure 1 shows that the crisis in the early 1990s in Sweden had a significant impact on employment, especially among young workers (16–24) and older workers (61–64). Prime-aged workers were only slightly affected. Since the crisis and its aftermath, the employment rate has increased again but without attaining its pre-crisis level. The trends and levels for men and women throughout are very similar except for the oldest age group (61–64) in the pre-crisis years.

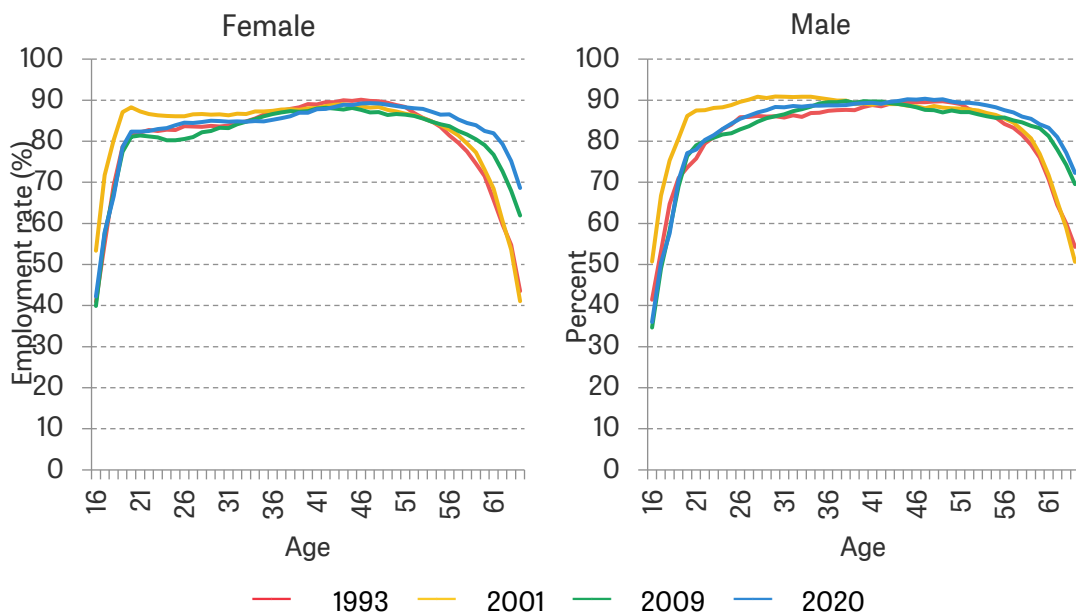
Figure 1. Employment rates by age and sex, over time



Note: We define employment based on the individual's existence in the matched employer–employee register (all workers with an employment link, or self-employed, at any point during the calendar year). This does not account for short-term unemployment, which can lead to slightly higher employment levels overall. We cannot determine the active versus inactive population, instead we use all Swedish residents aged 16–64 as the baseline.

Figure 2 shows again that the employment rate in the crisis year 1993 was relatively low for young and old people compared to the employment rate in 2001 for young workers and 2009–20 for older workers. Older workers may have faced longer-term consequences of the crisis, while young workers were more affected by the more recent crises such as the financial crisis and COVID. In general, the differences are small and even the rates for men and women are very similar in behaviour and magnitude.

Figure 2. Employment rates over life cycle by sex, selected years



Since 1985, there has been a considerable decrease in the number of people attaining a high school diploma, dropping from 40% to 16% in 2020. High school graduates have remained more or less constant around 50–60%, and the proportion of people with a university degree has risen by almost 20 percentage points since 1985 (Figure 3). The small shift in levels in 2000 is due to changes in reporting of educational groups.

Figure 3. Educational attainment over time

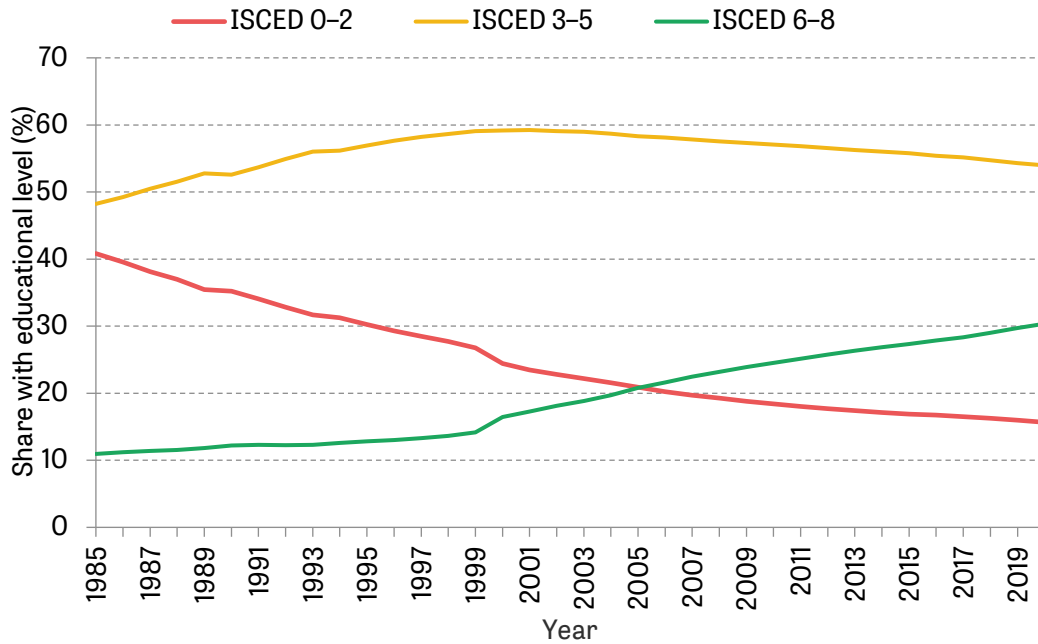


Figure 4. Educational attainment by sex, over time

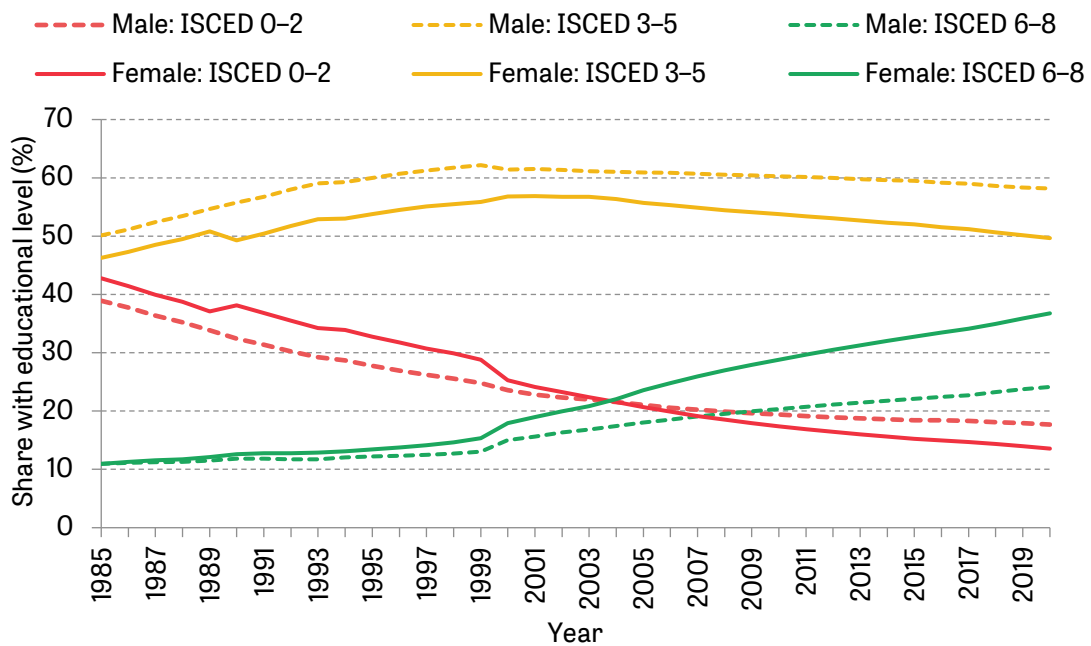
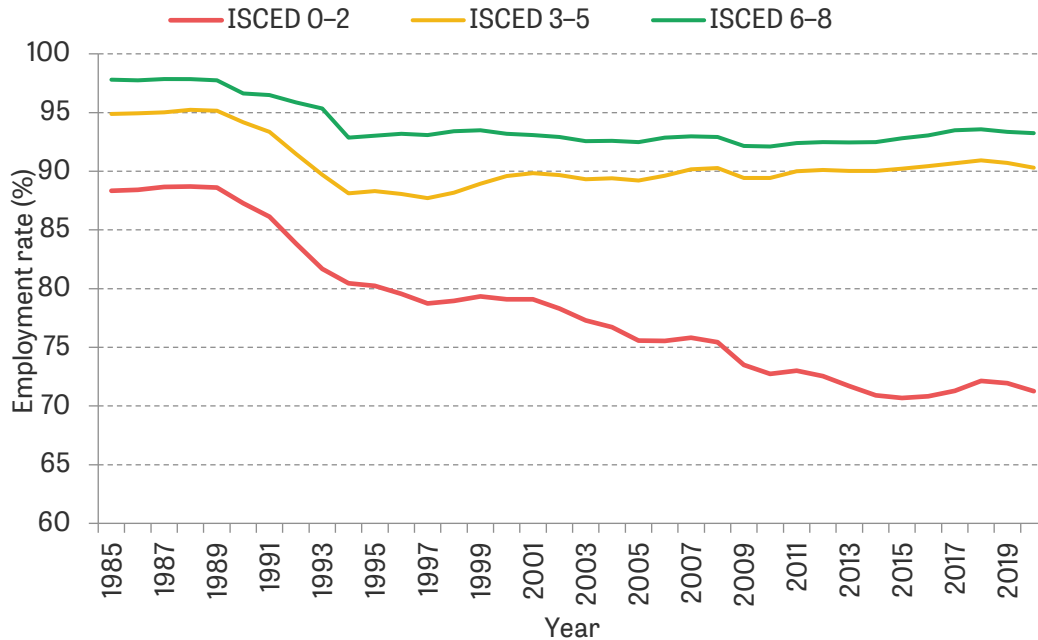


Figure 4 paints a very similar picture to Figure 3. The additional split by gender shows that women have a slightly higher proportion in all categories except ISCED 3–5 (high school), where men represent the larger percentage. The increase in university degrees is especially pronounced for women, rising from 10% to 34%, while the male percentage only increased from 10% to 23%.

Figure 5. Employment rates by education, over time



Note: We define employment based on the individual's existence in the matched employer–employee register (all workers with an employment link, or self-employed, at any point during the calendar year). This does not account for short-term unemployment, which can lead to slightly higher employment levels overall.

Employment rates decreased slightly during the 1990s crisis, and most strongly for the lowest educational group, ISCED 0–2. Employment among high school dropouts has continually decreased ever since the crisis, dropping from 88% in 1985 to 71% in 2020 (Figure 5). This seems to be due to an increasing share of immigrants in the lower educational groups. The other educational groups (ISCED 3–8) had a relatively small decrease and have since managed to remain more or less constant, albeit without regaining their pre-crisis level.

Figure 6 confirms this and shows that men tend to have a higher employment rate in all educational categories except among university graduates where there is almost no gender gap. The largest gender difference appears to be among high school dropouts, where the male employment rate in 2020 is more than 10 percentage points higher than the female employment rate.

Figure 6. Employment rates by sex and education, over time

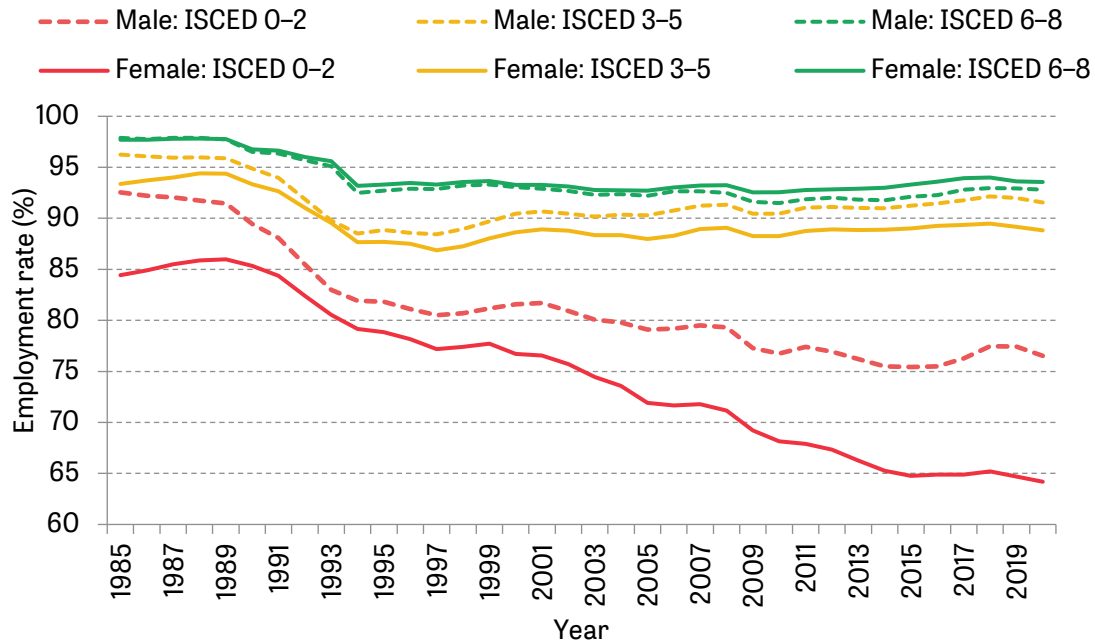
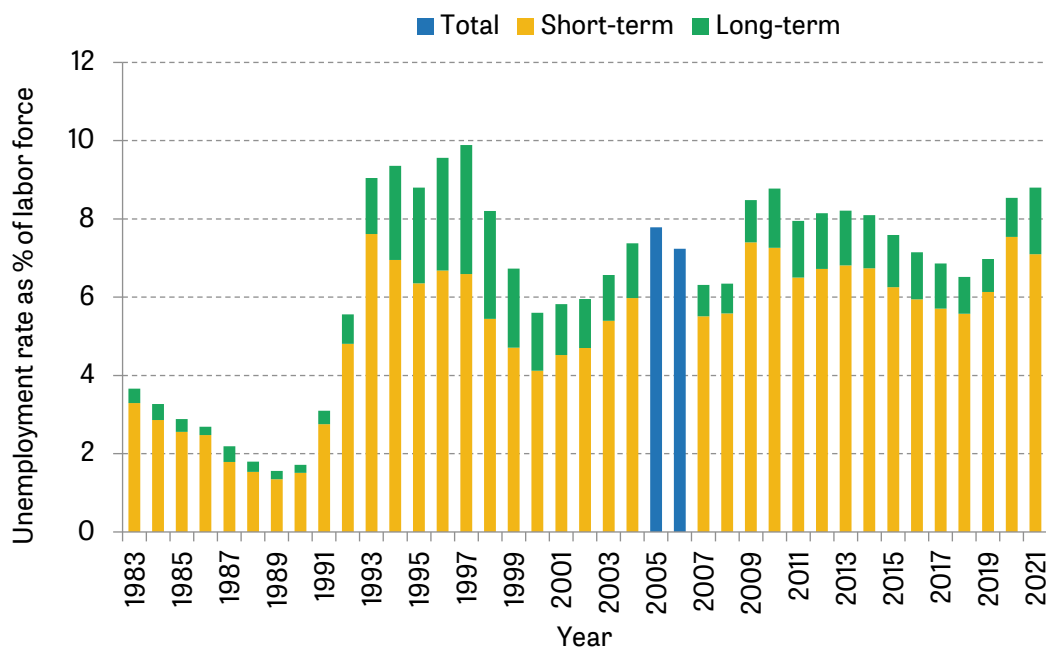


Figure 7. Unemployment rate by duration of unemployment over time



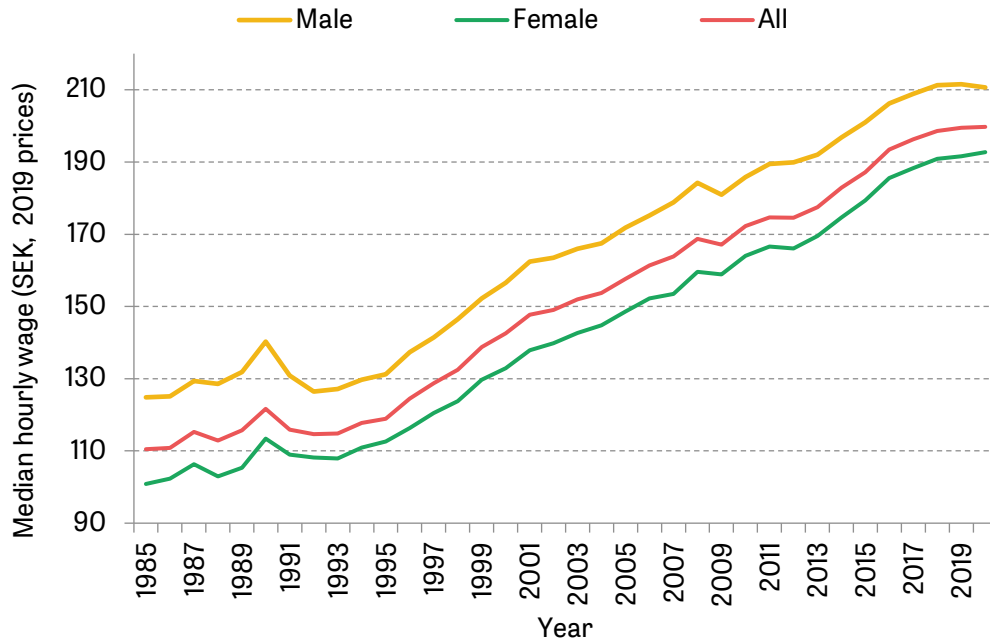
Note: Data from the OECD, retrieved 19 May 2023. There were no data on long-term unemployment for 2005 and 2006.

The unemployment rate in Sweden was very low until the crisis hit. Ever since then, unemployment has varied between 5% and 10%. There was another increase in unemployment during the financial crisis in 2008 and in the COVID years 2020-21, but much smaller in magnitude than the increase during the 1990s crisis. This is to a great extent due to short-term unemployment. The long-term unemployment rate has decreased slightly since the 1990s with some variation due to the aforementioned crises (Figure 7).

4.2 Trends in wages (employees only)

While the overall trend in wages is upward, rising by about 80 SEK/hour⁴ from 1985 to 2018, there was a small but clearly visible dip during the years of the crisis, before wages recovered again. The 2008 crisis is much smaller in magnitude than the crisis in the 1990s and hardly discernible. Female median wages remain almost 20 SEK/hour (very roughly around 2 EUR or 2 USD) lower than male median wages over the entire time period (Figure 8).

Figure 8. Median hourly wages among employees, overall and by sex, over time



The gender wage gap seems to be increasing in education, with male university graduates earning much more than equally qualified women. While there was only a small difference in wages for female high school dropouts and high school graduates in 1985, wages for female high school graduates have increased slightly more over the years so that there is now a higher return to education on this level than 35 years ago (Figure 9).

⁴ 80 SEK in 2019 corresponded to approximately 7.6 EUR or 8.5 USD.

Figure 9. Median real hourly wages among employees, by sex and education, over time

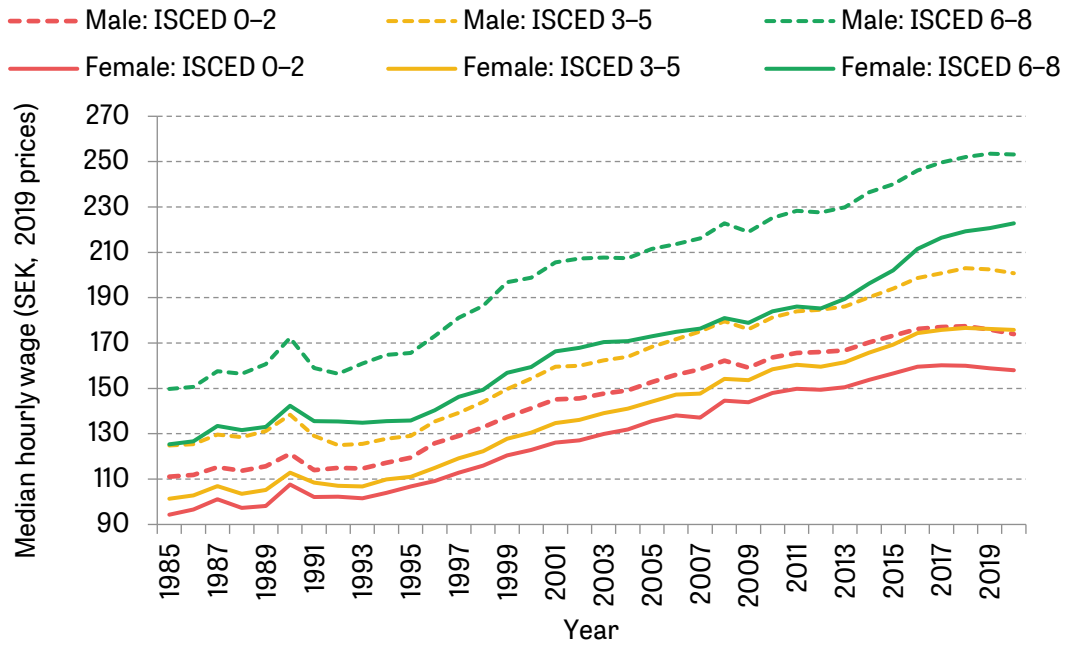
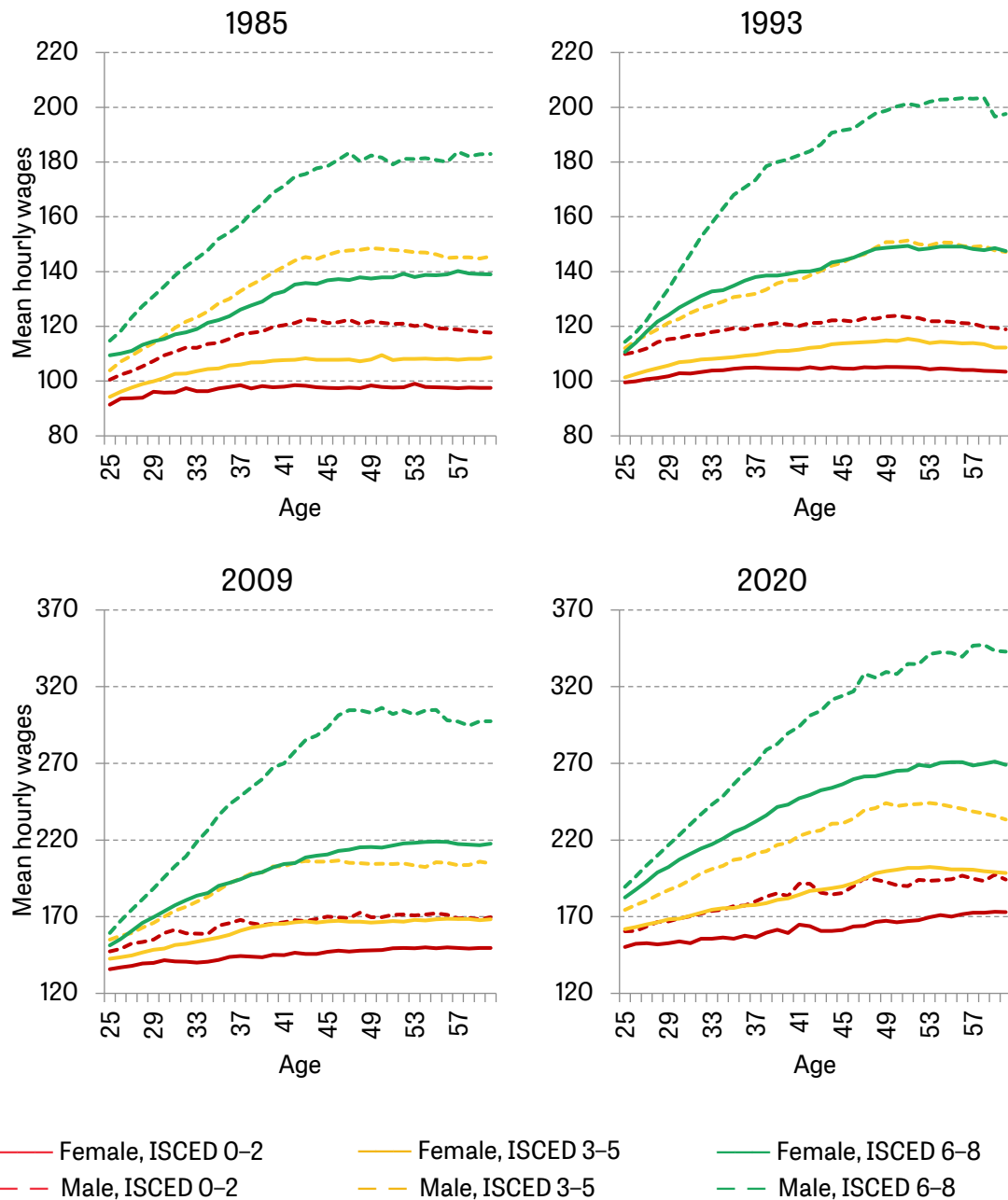


Figure 10. Median real hourly wage among employees over life cycle, by sex and education, selected years

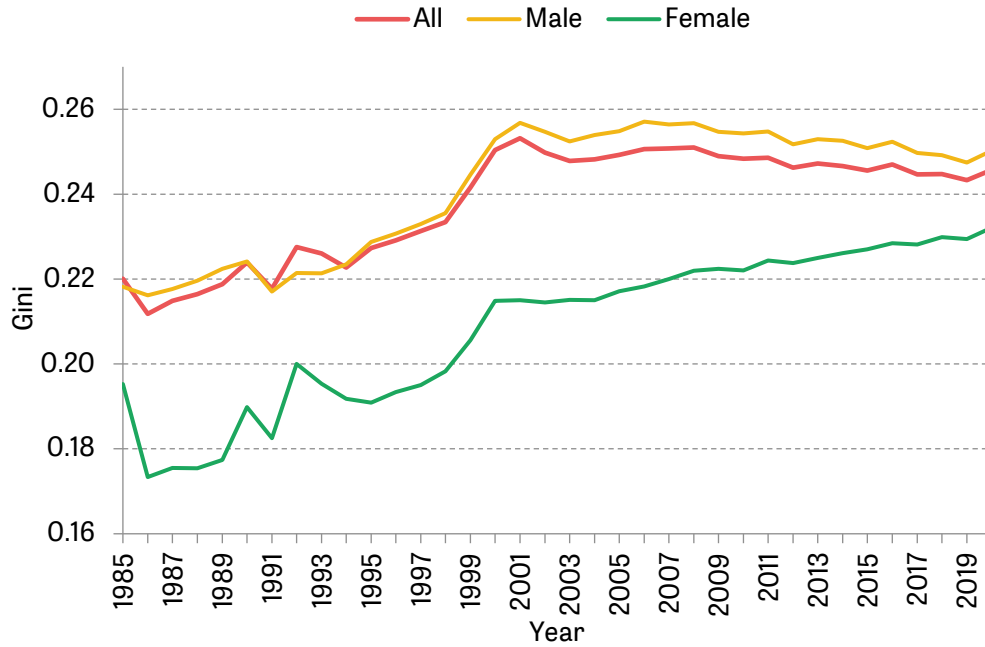


In Figure 10 we see an overall increase in median wages for the higher educated, while the lower educated keep a similar wage throughout the life cycle. Men are always better paid than women and this gap is larger the higher the educational level and increasing in age.

Figures 11 and 12 show a rise in wage inequality with three measures, the Gini coefficient, the 90:10 ratio and the 50:10 ratio, overall and for males and females. In all measures, inequality among men is higher than among women and there is a rise in inequality in the aftermath of the crisis. The Gini coefficient and 90:10 ratio increased sharply until the early 2000s, whereafter they decreased very slightly. Broken down by gender, we see that female inequality continued to increase until 2020 and only male inequality stagnated. The 50:10 ratio shows less variation in total and only a very slight increase of roughly 0.1 since 1985, which occurred during the past 10

years, meaning that the rising inequality in the 1990s is mostly due to relative increases in wages in the top half of the distribution. The slightly decreasing Gini coefficient but rising percentile ratios since 2001 can be explained by a relative decrease in inequality among the top 10% of the wage distribution.

Figure 11. Gini coefficient of monthly wages among employees, overall and by sex, over time



Note: The top and bottom 1% of the gender-specific wage distribution have been excluded.

Figure 12. 90:10 and 50:10 ratios of monthly full-time equivalent wages among employees, overall and by sex, over time

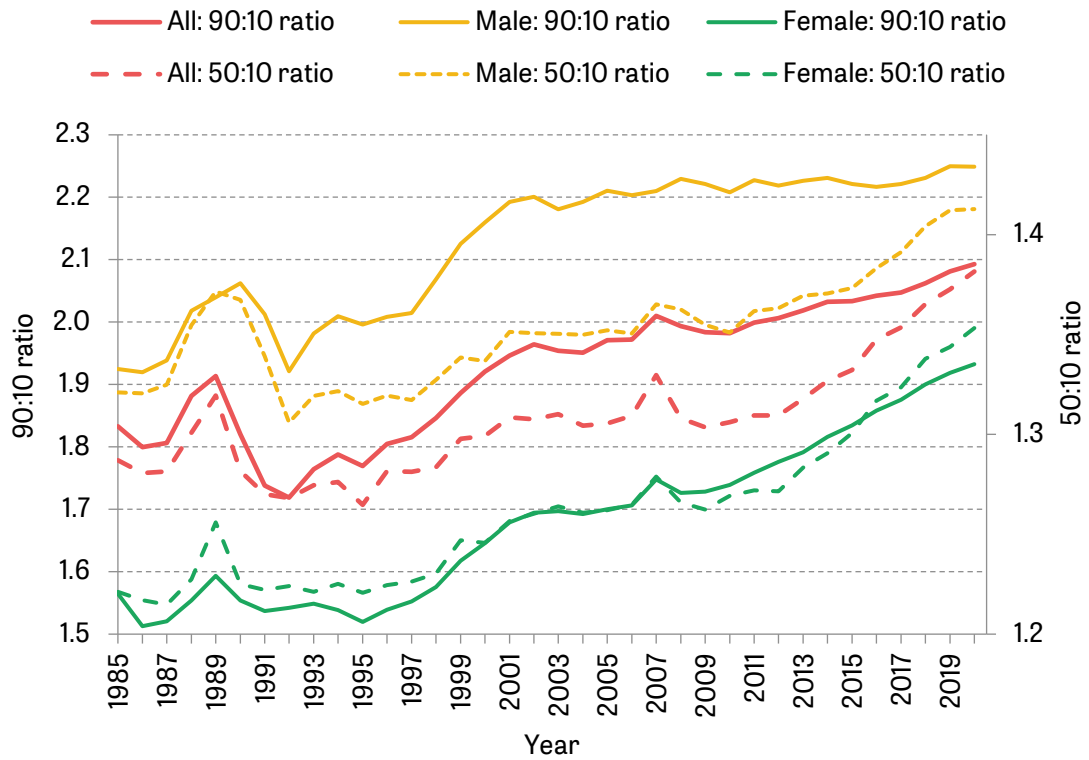
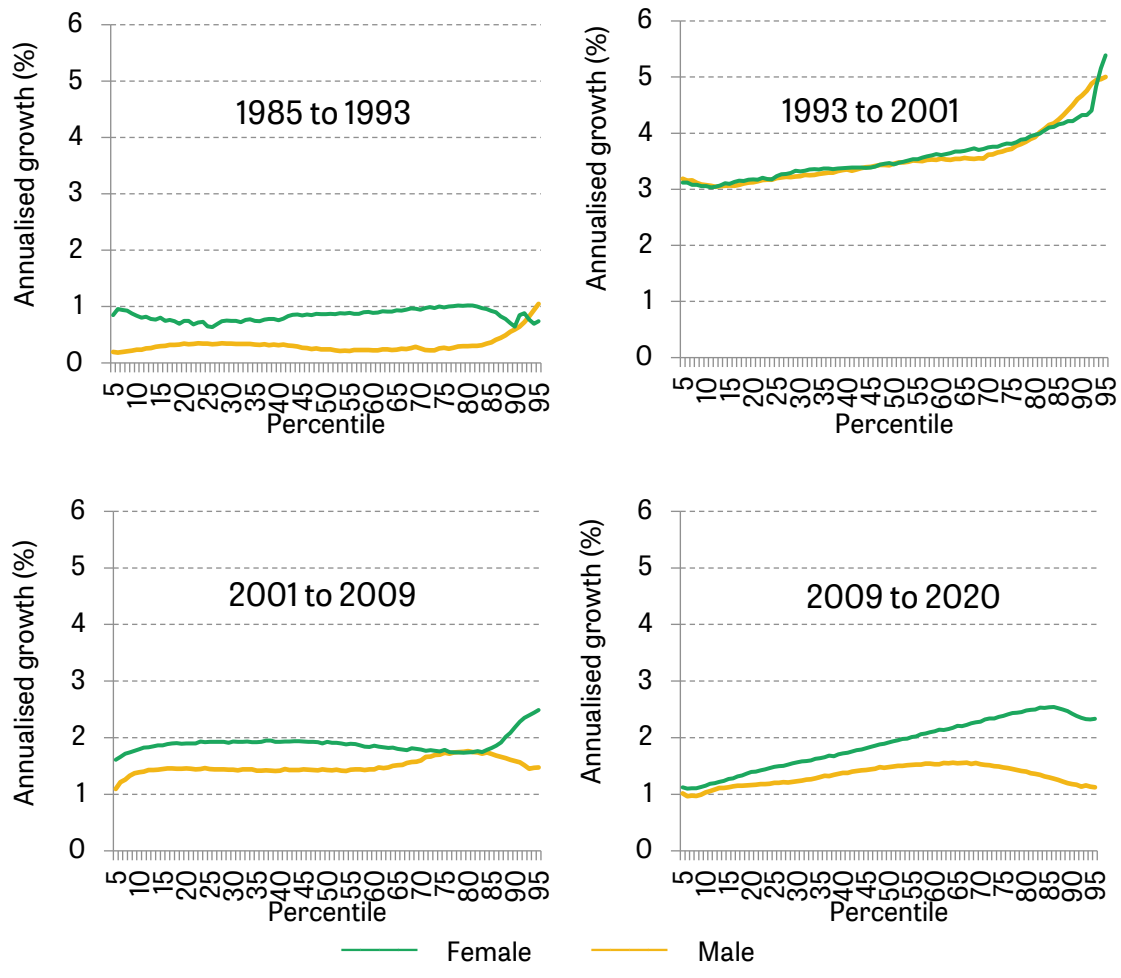


Figure 13. Annualised growth in monthly full-time equivalent wages among employees by wage percentile, overall and by sex, selected periods



Except for in the period 1993–2001, women tend to have a higher growth in wages than men (Figure 13). The period 1993–2001 is unique also because it exhibits a much higher general growth rate for wages, similarly for men and women. The lowest percentiles saw their wages rise by roughly 3% per year, while the top 5% earners even saw growth rates of 5%.

4.3 Trends in hours worked (employees only)

Average hours worked (measured in our data as the percentage of full-time that an individual is contracted for) among employees dipped slightly during the crisis in the 1990s. While male hours worked regained its previous level and remained there, female hours worked steadily increased since after the crisis, from 80% in 1985 to more than 90% in 2018 (Figure 14).

Figure 14. Mean hours (as % of full-time) worked among employees, overall and by sex, over time

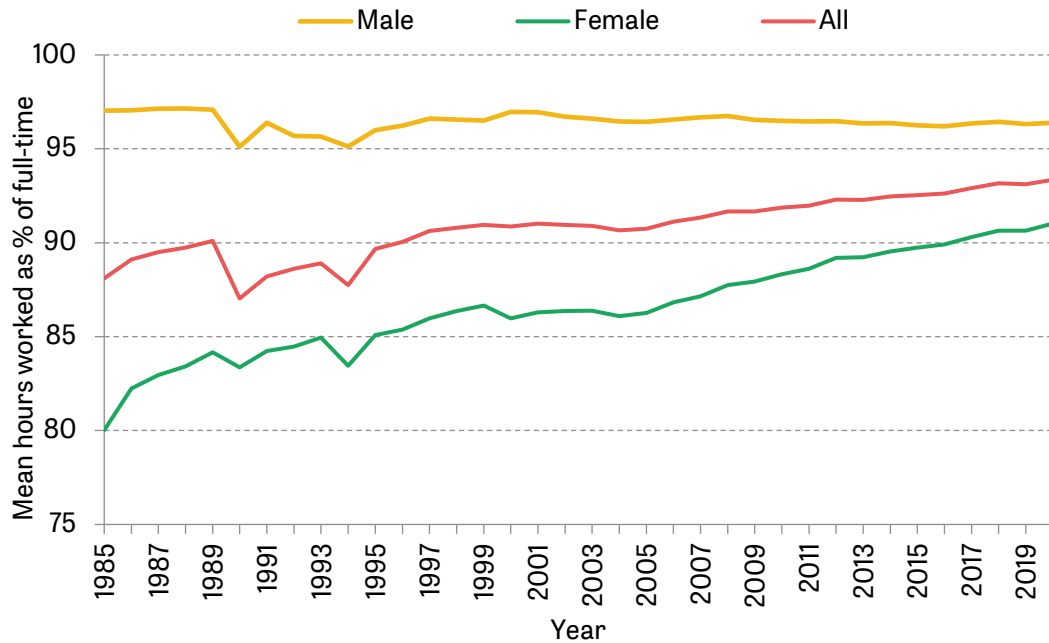
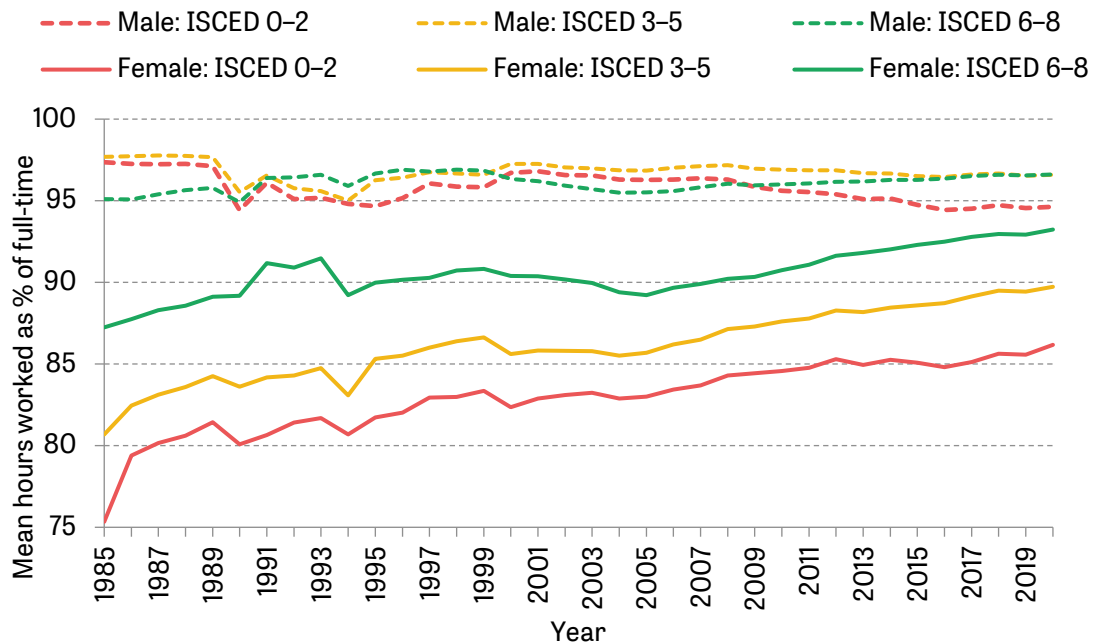


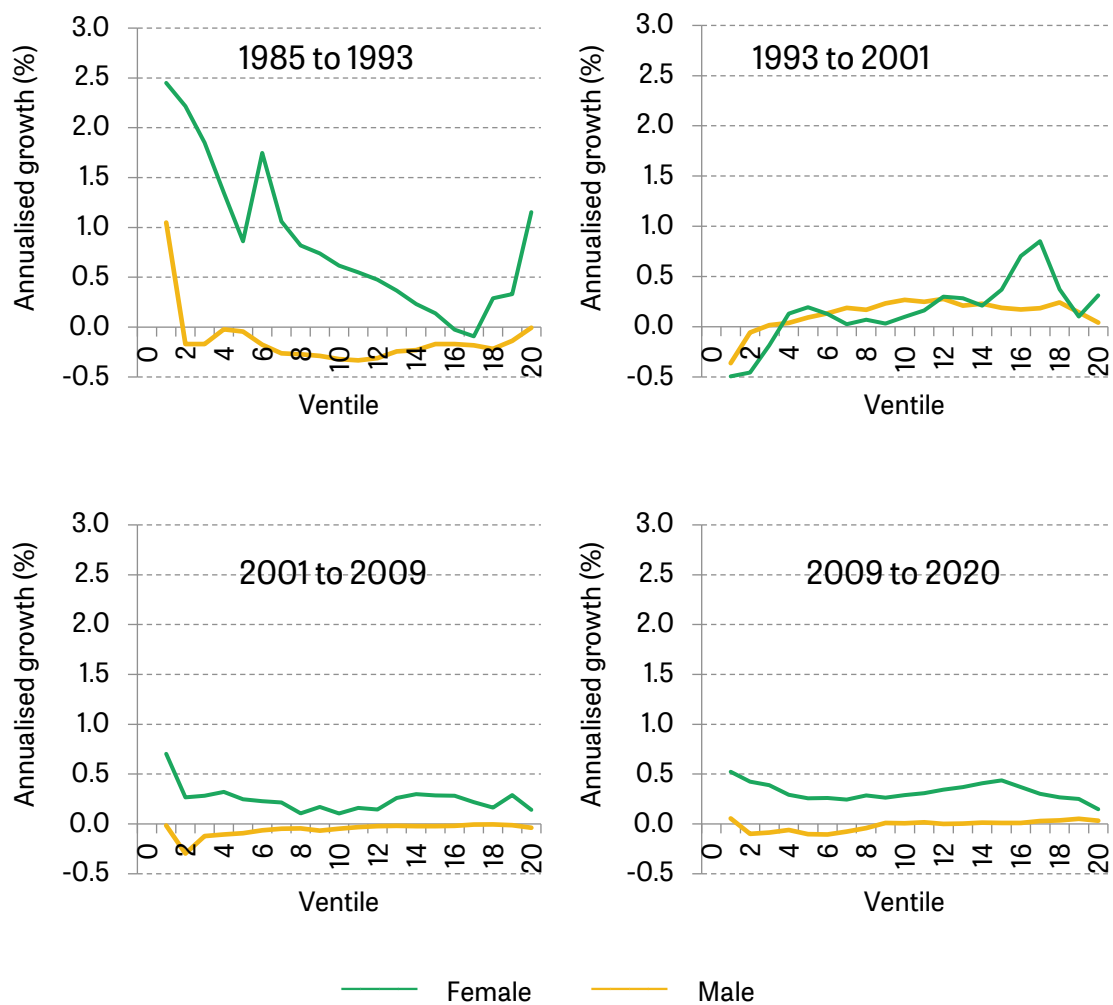
Figure 15. Mean hours (as % of full-time) worked among employees, by sex and education, over time



The split by education in Figure 15 shows that, among males, all education groups work similar hours. However, there is a clear difference in the level of hours worked for women, with higher-educated women working more hours. This difference remains roughly the same all along the overall increase in hours worked for females.

Figure 16 illustrates that the growth in male working hours is very close to zero and often even negative, meaning men tend to work less than in previous years. The only exception is the period 1993–2001, which includes the crisis and its aftermath. The male growth rate is also relatively stable across wage ventiles. The opposite holds for women: female working hours have tended to increase in past years. While the highest growth during most periods came from the lower end of the wage distribution, there are also local peaks at other points of the distribution. Between 1985 and 1993, female wage growth was the highest of all the periods, with peaks both in the lower ventiles and the very top. The period 1993–2001 is an outlier again, with the lower end of the wage distribution showing decreasing working hours and the peak being at around the top quartile.

Figure 16. Annualised growth in mean hours worked among employees by monthly wage ventile, overall and by sex, selected years



4.4 Inequality in individual earnings among those in work (employees and self-employed)

Median earnings have risen by more than 150,000 SEK over the observation period and in parallel for women and men, with women having more than 50,000 SEK lower earnings than men (Figure 17). During the crisis in the 1990s, earnings remained constant, but in all other

periods there was a steady increase with the exception of a small dip around the financial crisis in 2008. The split by education groups in Figure 18 supports this, with earnings in all educational groups rising rather equally. The lowest-education group sees a slightly smaller increase starting in the 2000s than the higher-educated individuals.

Figure 17. Median real gross individual earnings, overall and by sex, over time

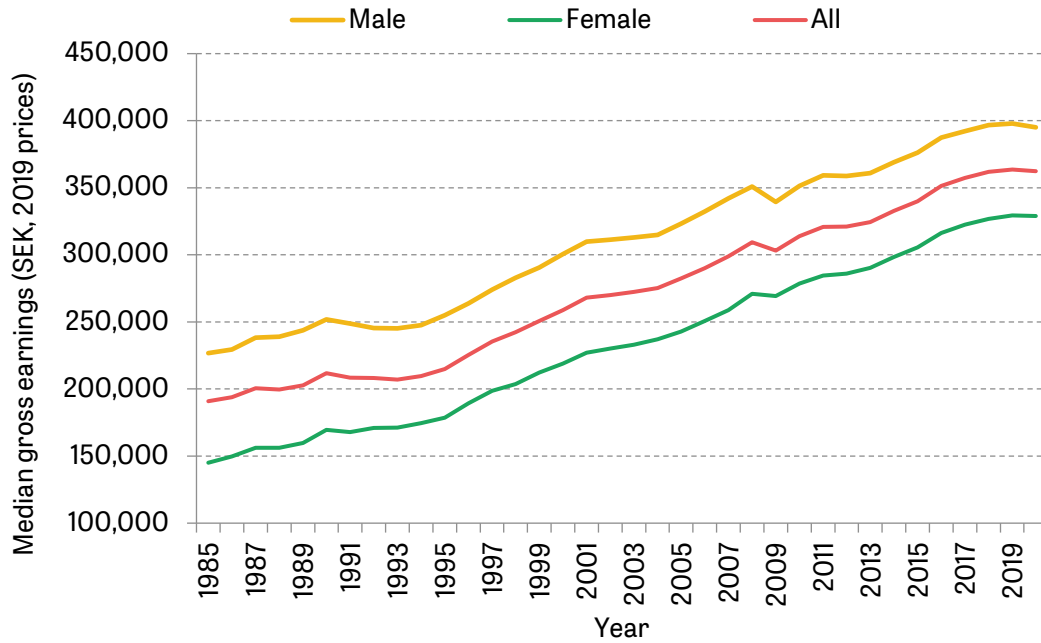
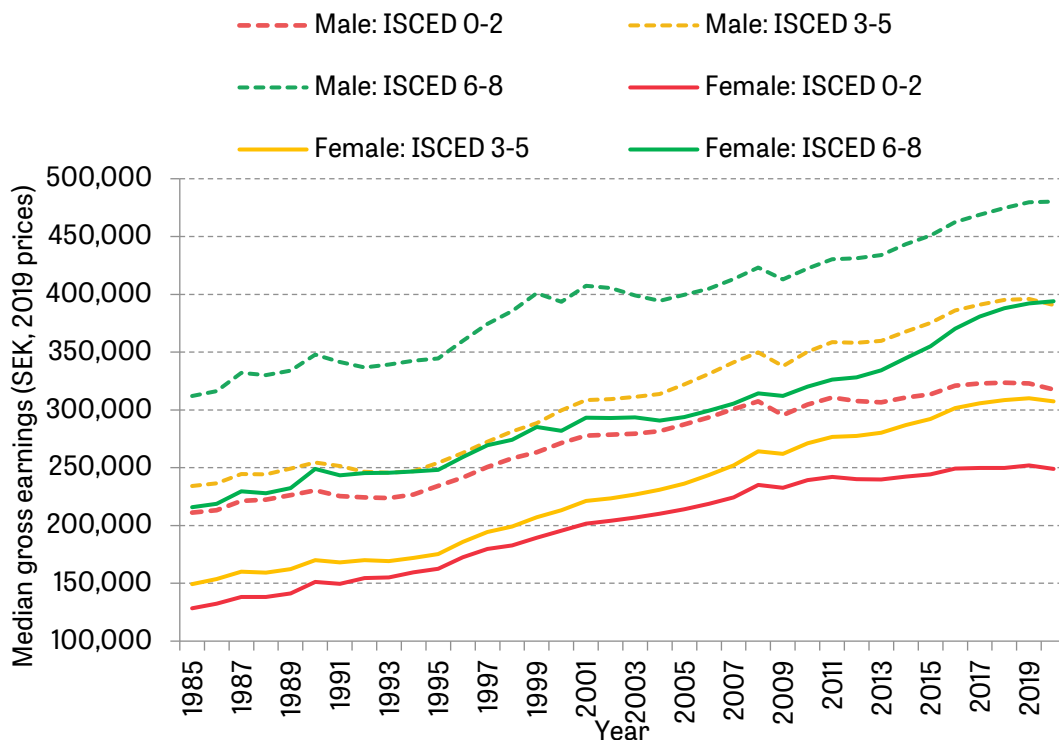


Figure 18. Median real gross individual earnings, by sex and education, over time



Looking at inequality, Figure 19 shows that earnings inequality for women is higher than for men. While women's inequality had a surge and subsequent decline from the mid-1990s to 2008, it is now at a similar level to 1985. Men's earnings inequality started at a much lower level in 1985 and rose sharply until its peak in 1994, although never attaining the same level as female earnings inequality. After its peak it declined a bit, remaining relatively stable until 2005, after which it declined a bit again. However, it remains significantly higher in 2018 than it was in 1985.

Figure 19. Gini coefficient of gross individual earnings, overall and by sex, over time

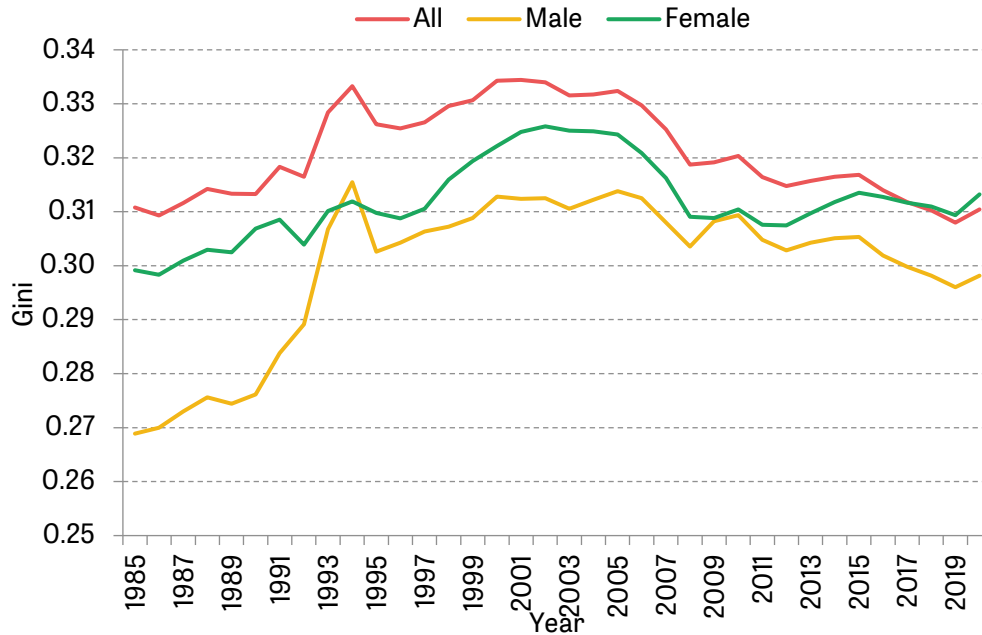


Figure 20 shows the Gini coefficient for individual earnings and total employer costs. Since employer costs in Sweden are a percentage of earnings (except for some reductions for young and old workers for specific years), there is no difference in the Gini coefficient of these two measures.

Figure 20. Gini coefficient of gross individual earnings and total employer costs, over time

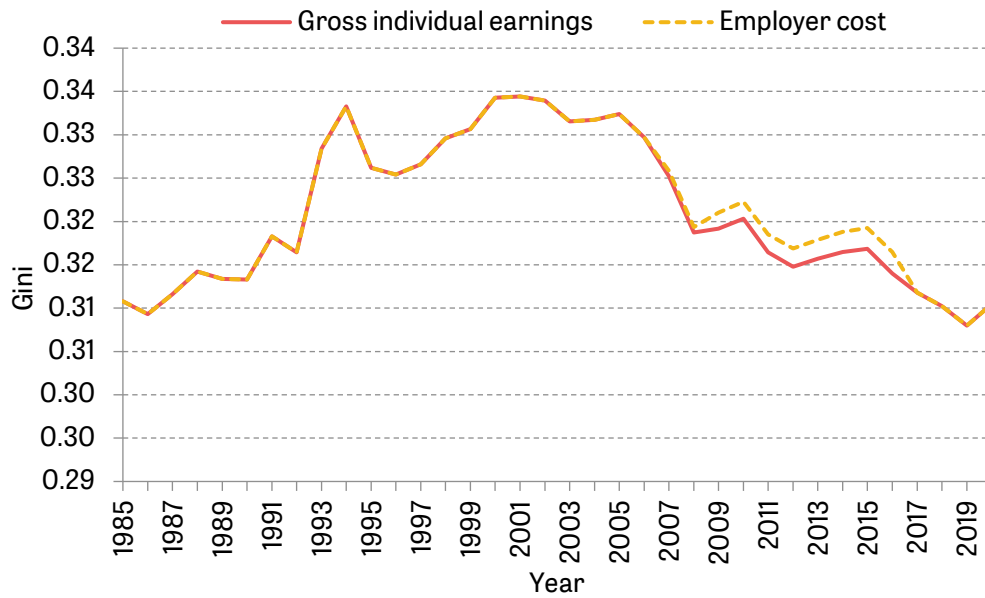


Figure 21 shows that the 90:10 and 50:10 ratios of earnings move in parallel for both genders. While men start at a much lower level, they see a sharp increase in the early 1990s before the ratios decrease again until they attain pre-crisis level in 2018. Female inequality rises continually until its peak around 2004, with only a slight additional increase during the crisis. It then declines sharply to regain its 1985 level again by the end of the observation period.

Figure 21. 90:10 and 50:10 ratios of gross individual earnings, overall and by sex, over time

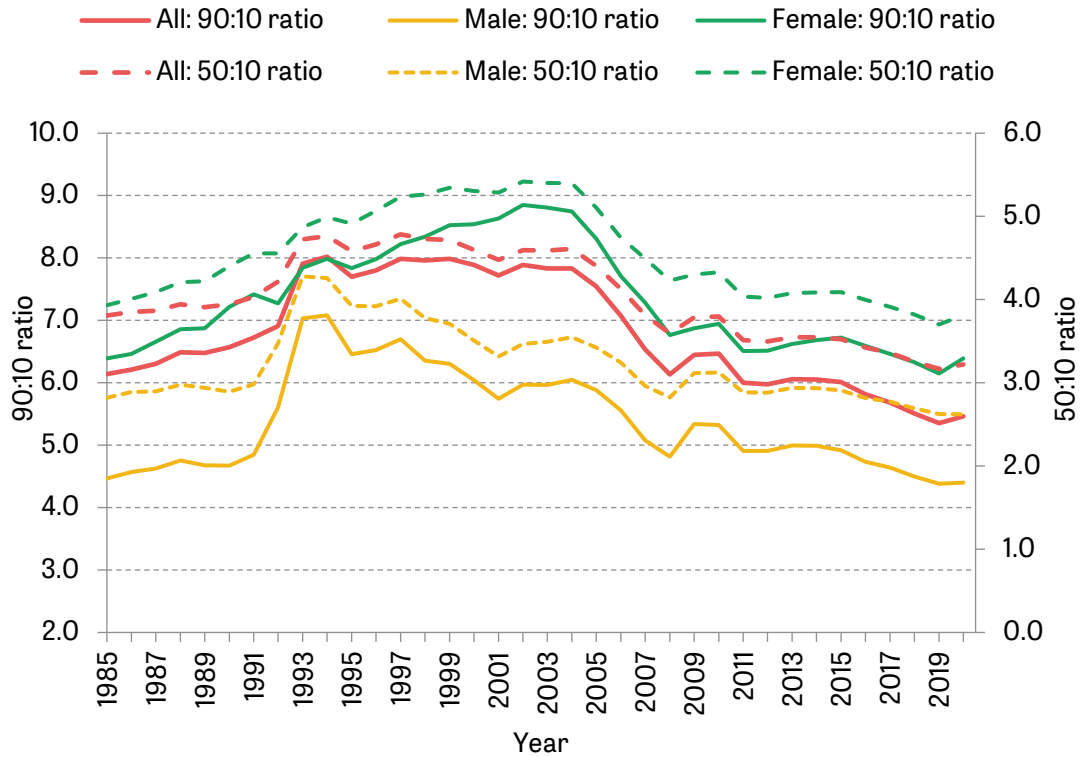


Figure 22 shows the growth in earnings across the distribution for four different periods. It illustrates how earnings growth is fairly even across the upper part of the distribution. The period 1985–93 is unique in that the lowest percentiles see a decrease in earnings, while they have relatively higher earnings growth rates in all other periods. The crisis period 1993–2001 even exhibits growth rates of nearly 9% for men in the lowest percentiles, but also a significant gender gap in growth rates. Figure 23 shows that including employer taxes makes nearly no difference to the trends.

Figure 22. Annualised growth in gross earnings by earnings percentile, overall and sex, selected periods

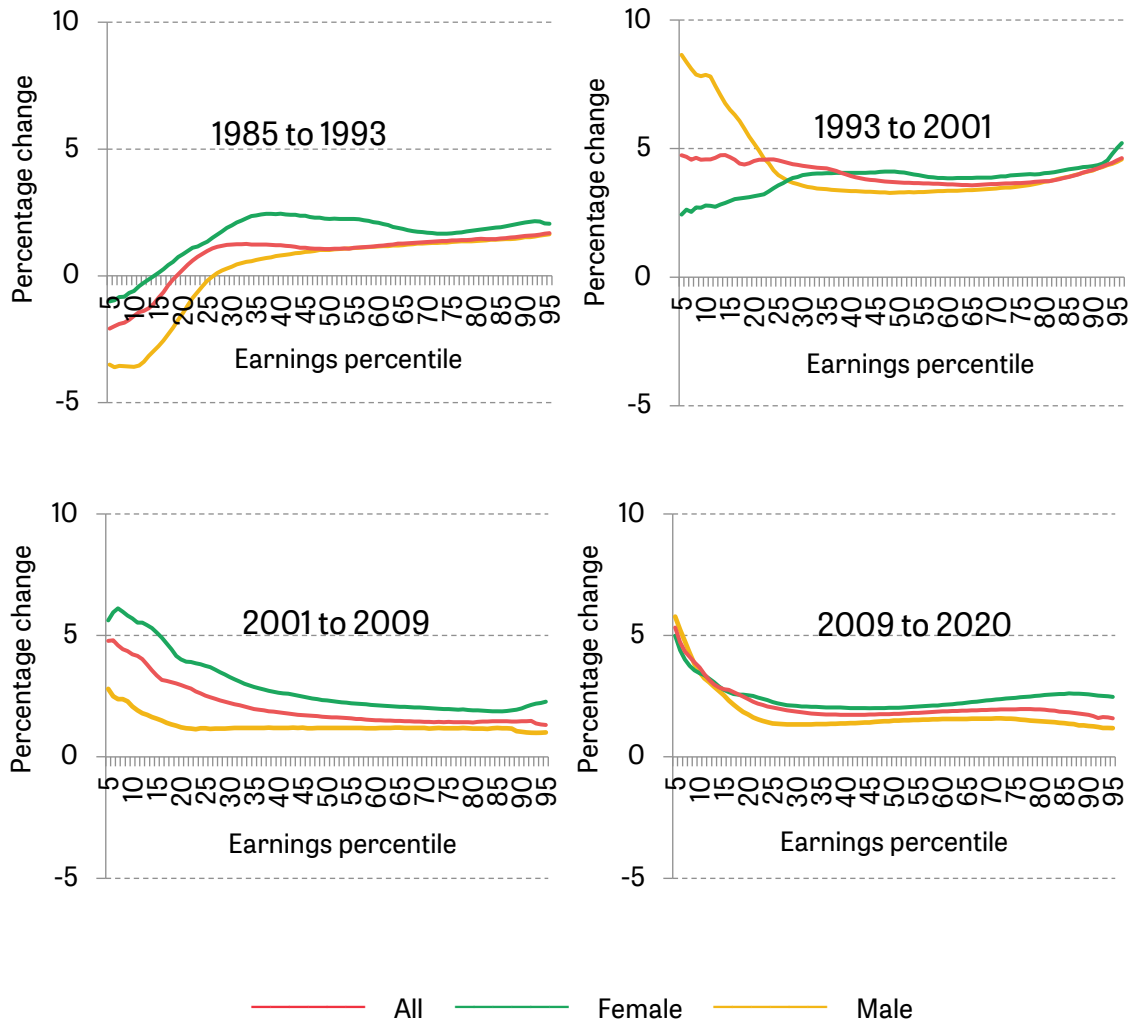
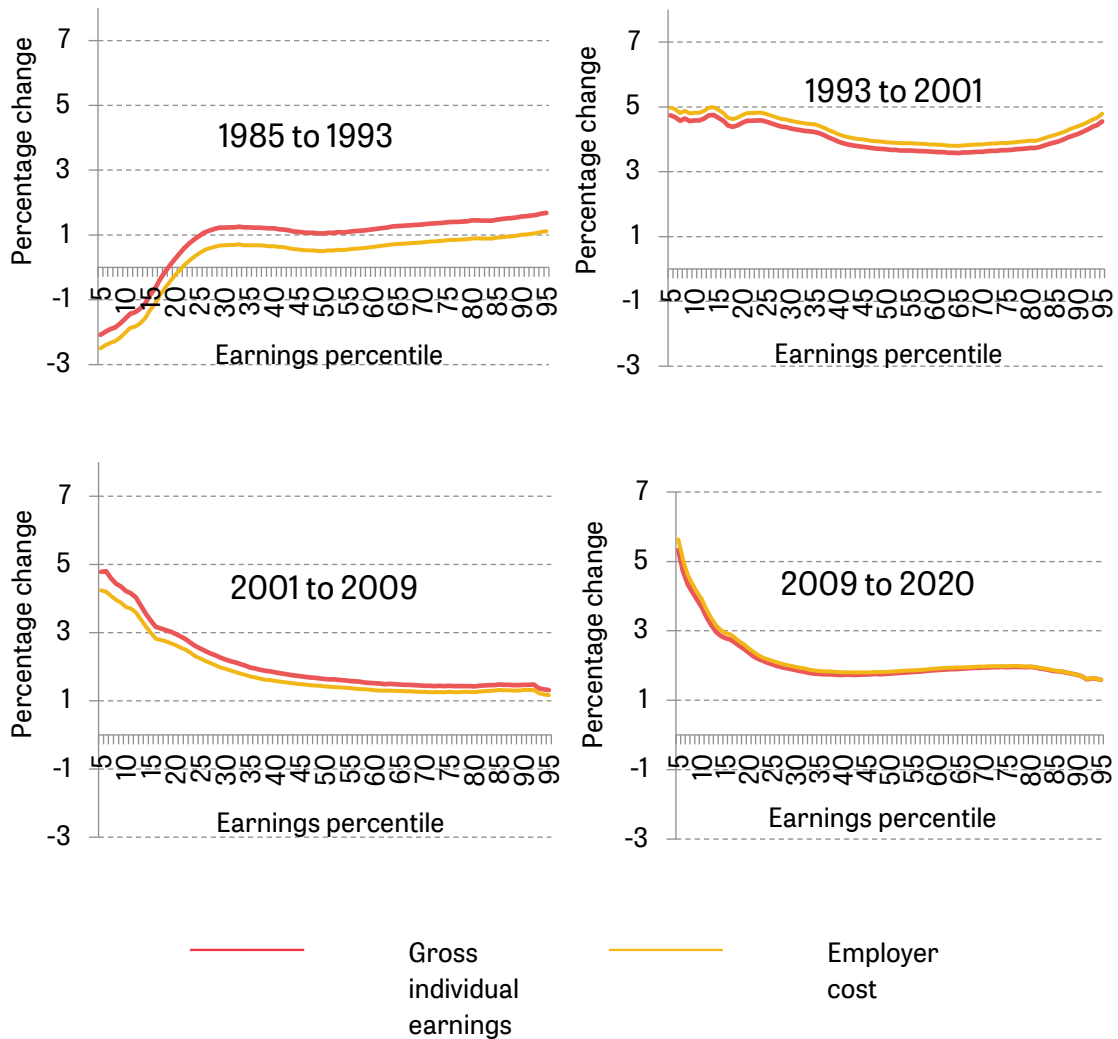


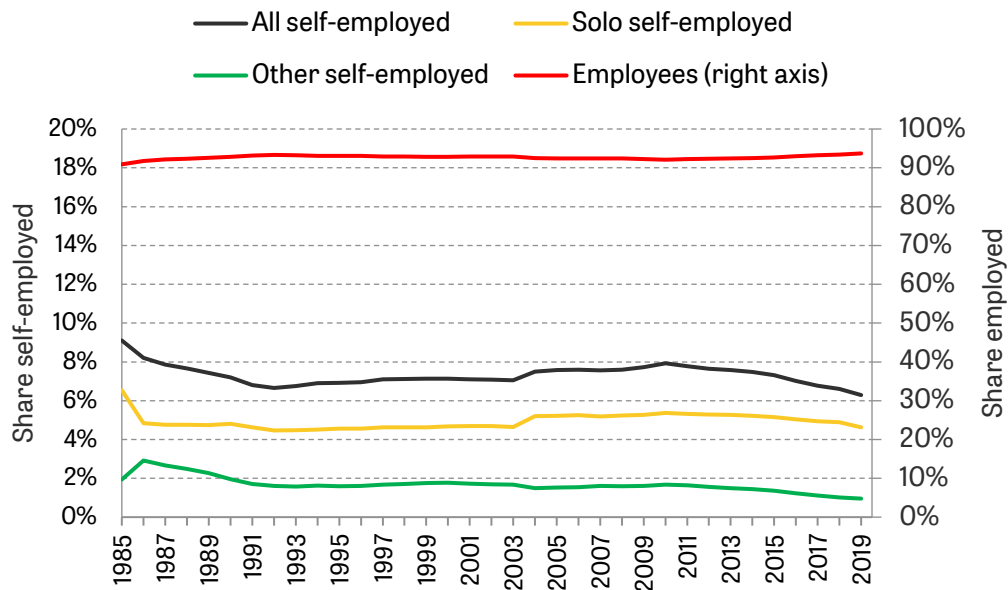
Figure 23. Annualised growth in gross earnings and employer cost by earnings percentile, selected periods



4.5 Self-employment

Self-employment is not very common in Sweden. The share of self-employed over all workers starts around 8% in 1985 and decreases over time to 4%. Of this about half are solo self-employed and the rest are other self-employed. The share of employees is very high, with around 95% of all workers in an employment situation. This share is relatively constant over time (Figure 24).

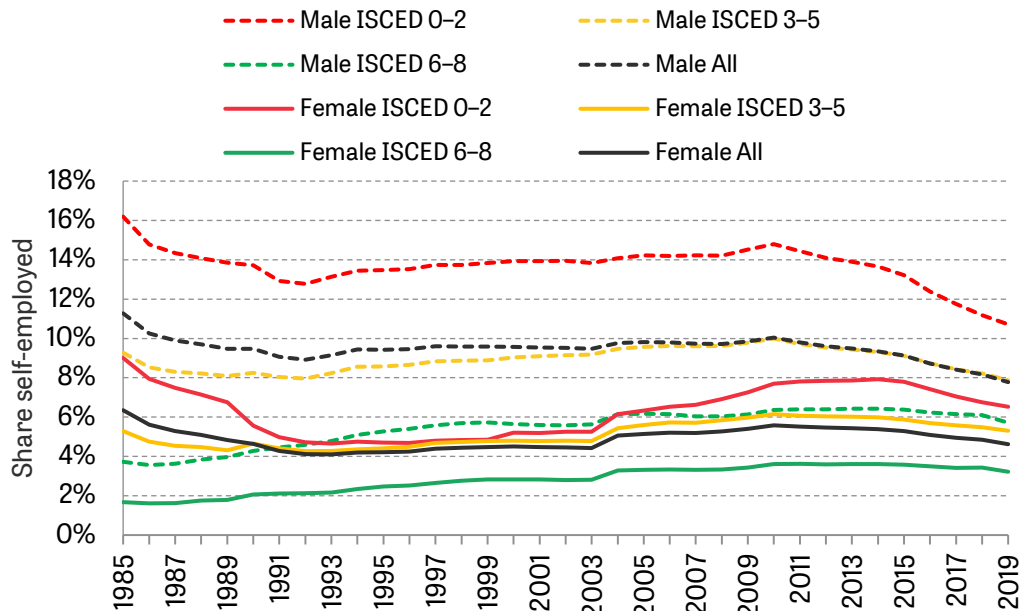
Figure 24. Share self-employed by sex and education, over time



Note: Sample is the Swedish population aged 25–60. ‘Solo self-employed’ are self-employed without employees, ‘Other self-employed’ includes self-employed with employees and family workers.

Figure 25 looks at how the rate of self-employment differs by sex and education. Males and lower-educated workers are more likely to be self-employed than women and highly qualified individuals.

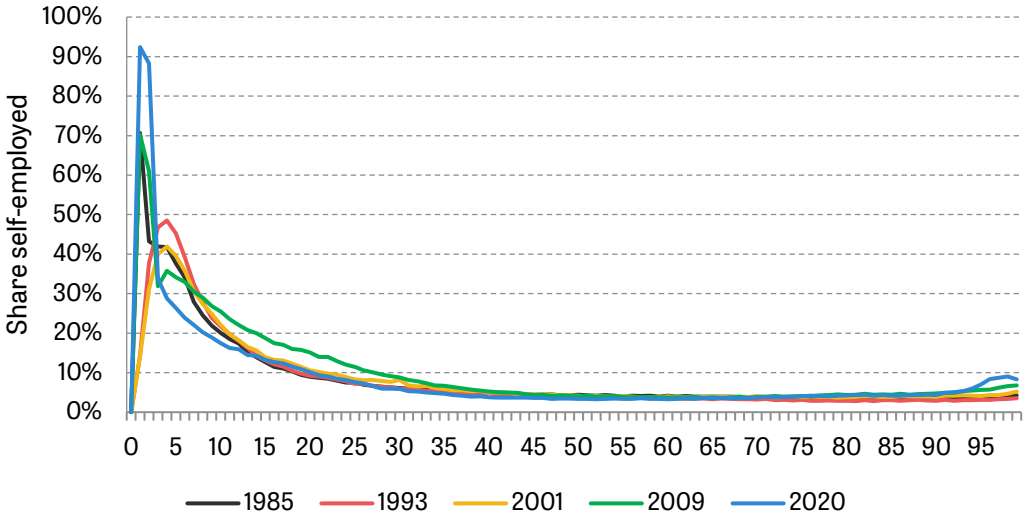
Figure 25. Share self-employed by sex and education, over time



Note: Sample is the Swedish population aged 25–60.

The share of self-employed by percentile of individual disposable earnings (Figure 26) exhibits a clear negative relationship for all years. The largest variation across time takes place in the bottom 10% of the disposable income distribution. The last year of our data, 2020, shows the highest share of self-employed between the second and third percentiles. This could be a consequence of the COVID-19 pandemic, where being employed guaranteed a certain income stability, while self-employment did not. However, more research is necessary to confirm this speculation.

Figure 26. Share self-employed by percentile of individual disposable earnings, selected years



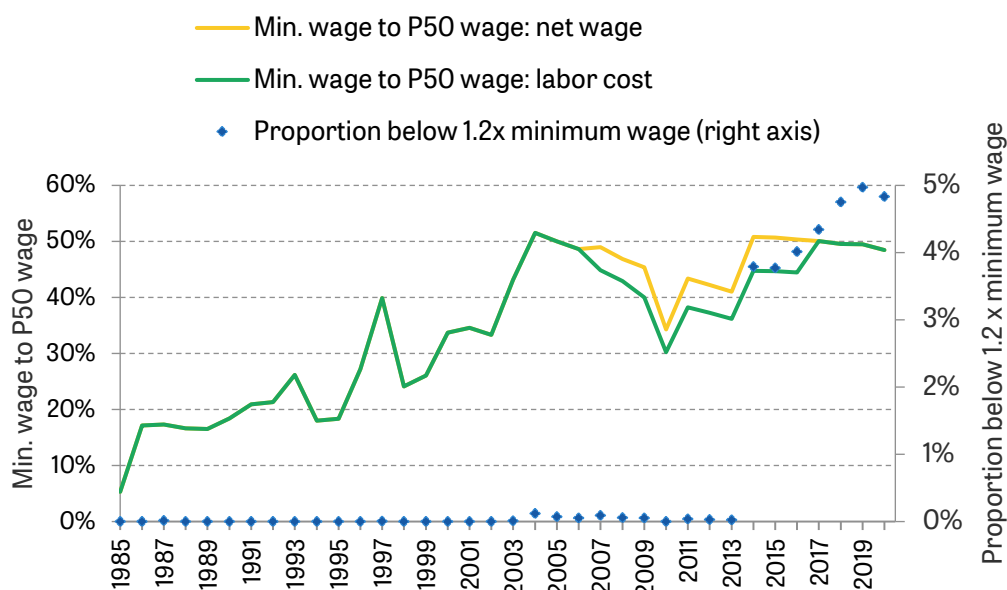
5. Labour market institutions

This section focuses on labour market institutions which impact labour market outcomes. We look at minimum wages and union density.

5.1 Minimum wage and unions

Sweden does not have minimum wage at the national level, instead wages are mainly negotiated by the unions in each sector. In Figure 27, we instead show the effective minimum wage (as monthly full-time equivalent wage), being the lowest wage observed in the data by year until 2014. We exclude some obvious outliers. After 2014, we have more exact measures of negotiated minimum wages by sector, which we extract from collective agreements documented by the Swedish National Mediation Office. Only about 35% of all existing collective contracts contain negotiated minimum wages (Hällberg and Kjellström, 2020). We use the lowest negotiated wage by sector for workers at least 25 years old, but not necessarily with any prior education or work experience. We match these wages to the individual workers by sector, and then take the minimum to get the minimum wage. The ratio of the minimum to the median wage is relatively high for both the net wage and labour cost. However, the share of workers earning less than 1.2 times the minimum wage is extremely low. Until 2013, it is almost zero, which is due to the minimum wage being measured as the observed minimum wage. This likely captures more irregular wages than official wages. Still, the proportion of those with less than 1.2 times the minimum wage after 2014 also never crosses the 5% mark. Labour cost in Sweden is a share of the wage, which is why the ratios of minimum wage to median wage and minimum labour cost to median labour cost are identical until 2006. Between 2007 and 2016 there is a slight divergence because labour cost was reduced for young workers.

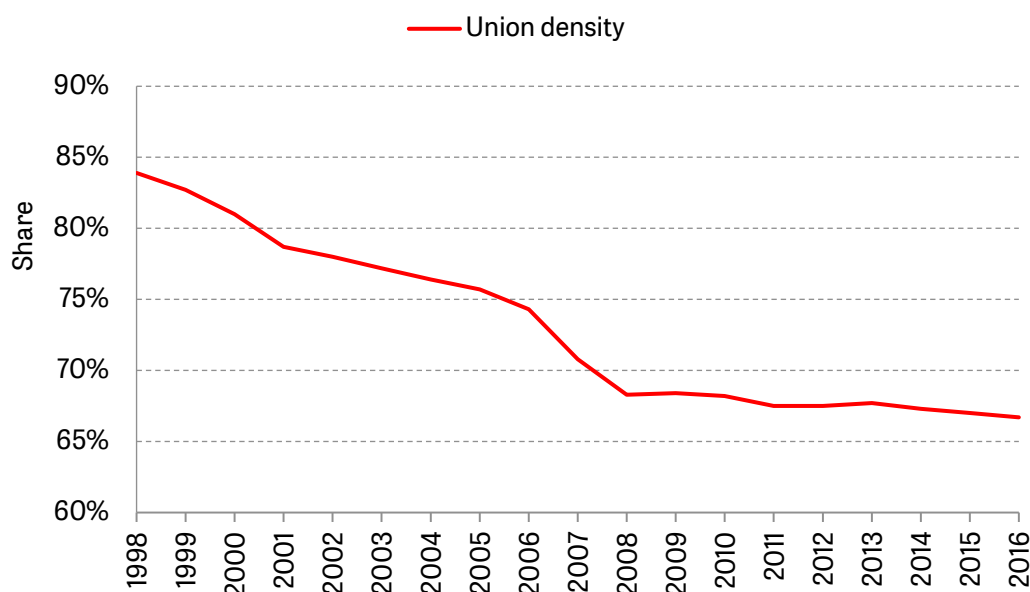
Figure 27. Bite of the minimum wage, over time



Note: Individuals aged 25–60. Starting in 2014 we measure minimum wages according to collective agreements documented by the Swedish National Mediation Office (Medlingsinstitutet); before that we approximate minimum wages by using observed minimum wages.

Figure 28 shows union density for Sweden from 1985 onwards. Sweden has always had high union density rates even though there has been a visible decline until 2008. Since then, union density has stabilised at almost 70%. Data on collective contract coverage rates are not publicly available. However, according to a report from Hällberg and Kjellström from the Swedish National Mediation Office (Hällberg and Kjellström, 2020), the share of employees covered by collective contracts is around 90% (in 2018).

Figure 28. Union density, over time



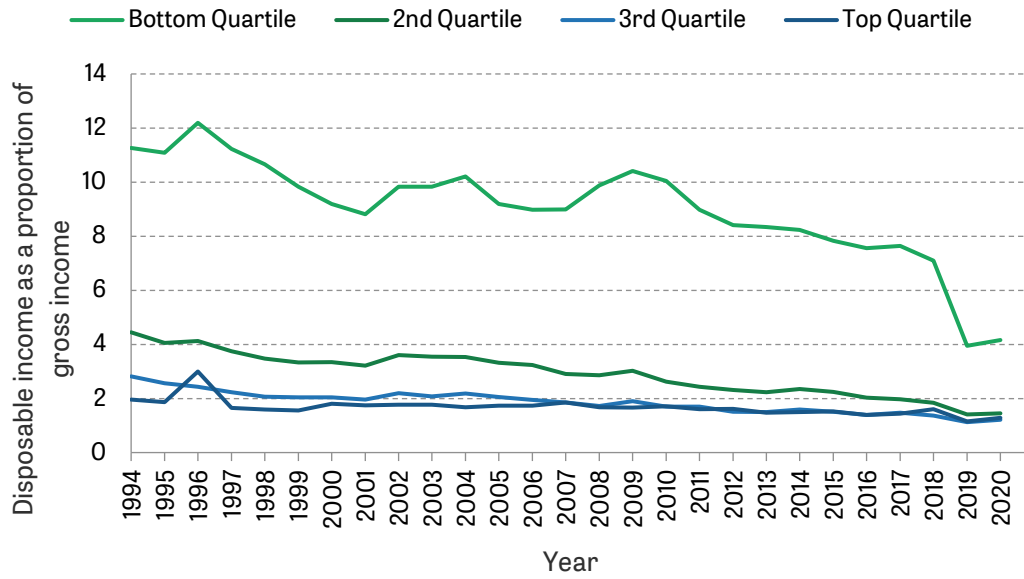
Note: Individuals age 15+ years of age.

Source: OECD

5.2 The effects of taxes and state benefits across the income distribution

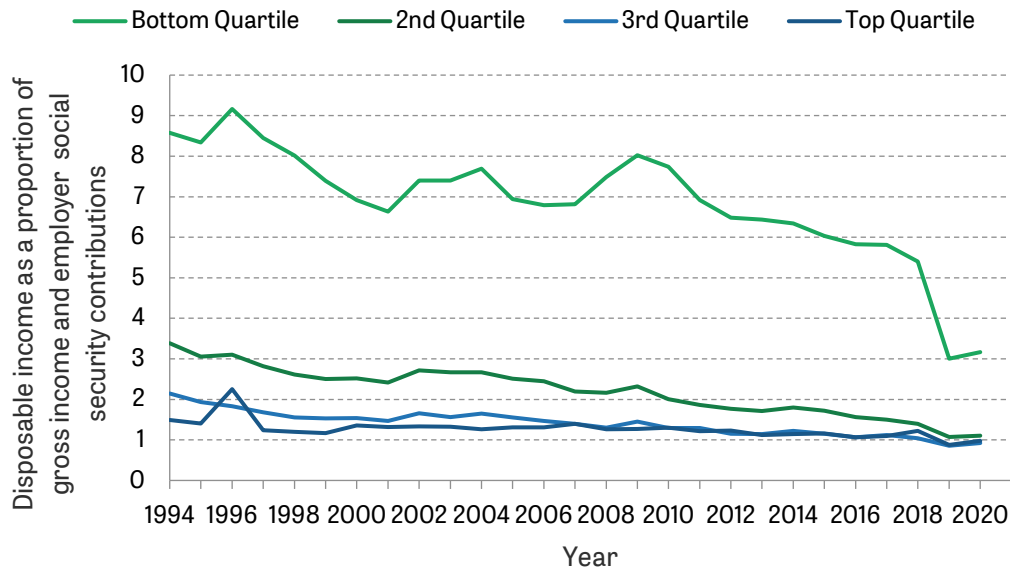
Taxes and benefits are an important factor of the Swedish welfare system. Unfortunately, our database does not currently include a representative measure of taxes or benefits, which is why we cannot provide separate graphs on these. However, we have a disposable income measure. Disposable income includes benefits and subtracts taxes from earned income. It is thus a relevant concept to look at in the absence of separate data on benefits and taxes when thinking about redistribution from the rich to the poor. Figure 29 shows how disposable income as proportion of gross income has changed over time. The trends for all quartiles are decreasing but at a faster rate for the poorest quartile and a slower rate for the top three quartiles. The same holds for Figure 30, which includes employer social security contributions. The sharp dip in 2019 is driven by a substantial increase in labour force participation in the lowest quartile and thus increased household gross earnings. Both Figures 29 and 30 in this section show the same dip in 2019. The levels in these graphs are very high. This results from our gross income measure, which mainly captures labour income but does not include business income.

Figure 29. Disposable income as a proportion of gross income, by household disposable income quartile



Note: Sample is individuals aged 25-60. All incomes have been equivalised using the modified OECD equivalence scale. Given our more restrictive gross income measure, the proportions we measure are all larger than 100%.

Figure 30. Disposable income as a proportion of gross income and employer social security contributions, by household disposable income quartile



Note: Sample is individuals aged 25-60. All incomes have been equivalised using the modified OECD equivalence scale. Given our more restrictive gross income measure, the proportions we measure are nearly all larger than 100%.

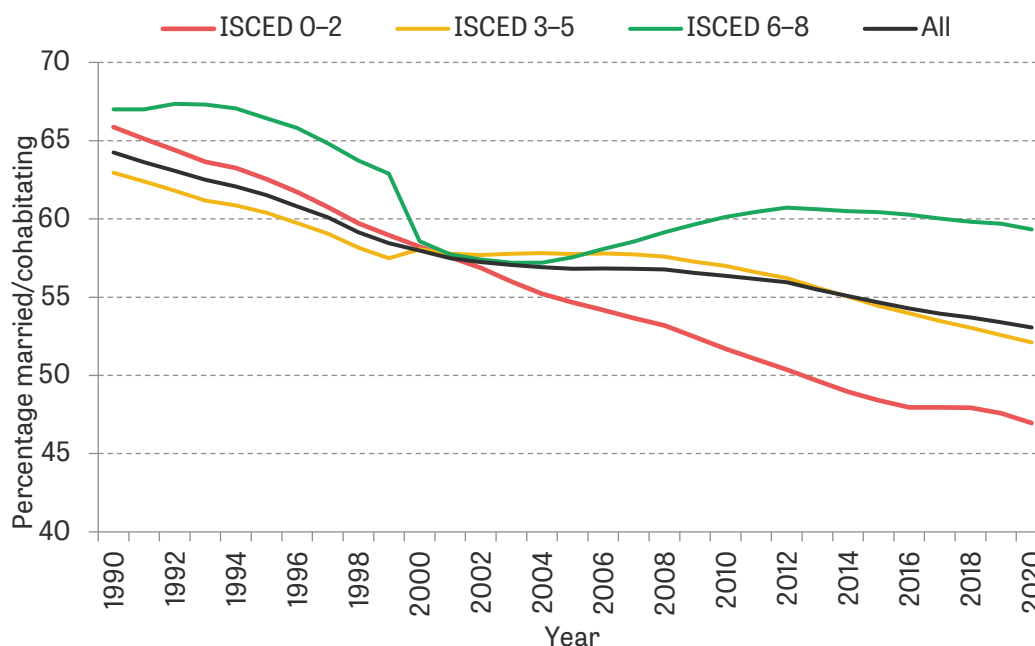
6. Household incomes

This section looks at trends in household incomes by examining household composition, assortative matching and trends in household earnings. We compare trends in gross household income and disposable household income to highlight the role of the tax and transfer system over the years. Finally, we look at inequality measures relating to household income.

6.1 Trends in household composition

Figure 31 shows the share of individuals who are married or cohabiting. Overall the share of married/cohabiting individuals has decreased since 1990 and is at a low level compared to other countries. The split by education group shows that this overall decline is most strongly driven by workers without high school education. Individuals with high school education or even higher have also seen a decrease over the years, albeit less pronounced. However, the share of married/cohabiting individuals among university graduates decreased in the early 2000s but rose again until 2012, since when it has very slightly decreased. This is the only educational group that has not experienced a clear decrease. Note that part of the shifts happening in 2000 is due to a change in the reporting of educational groups.

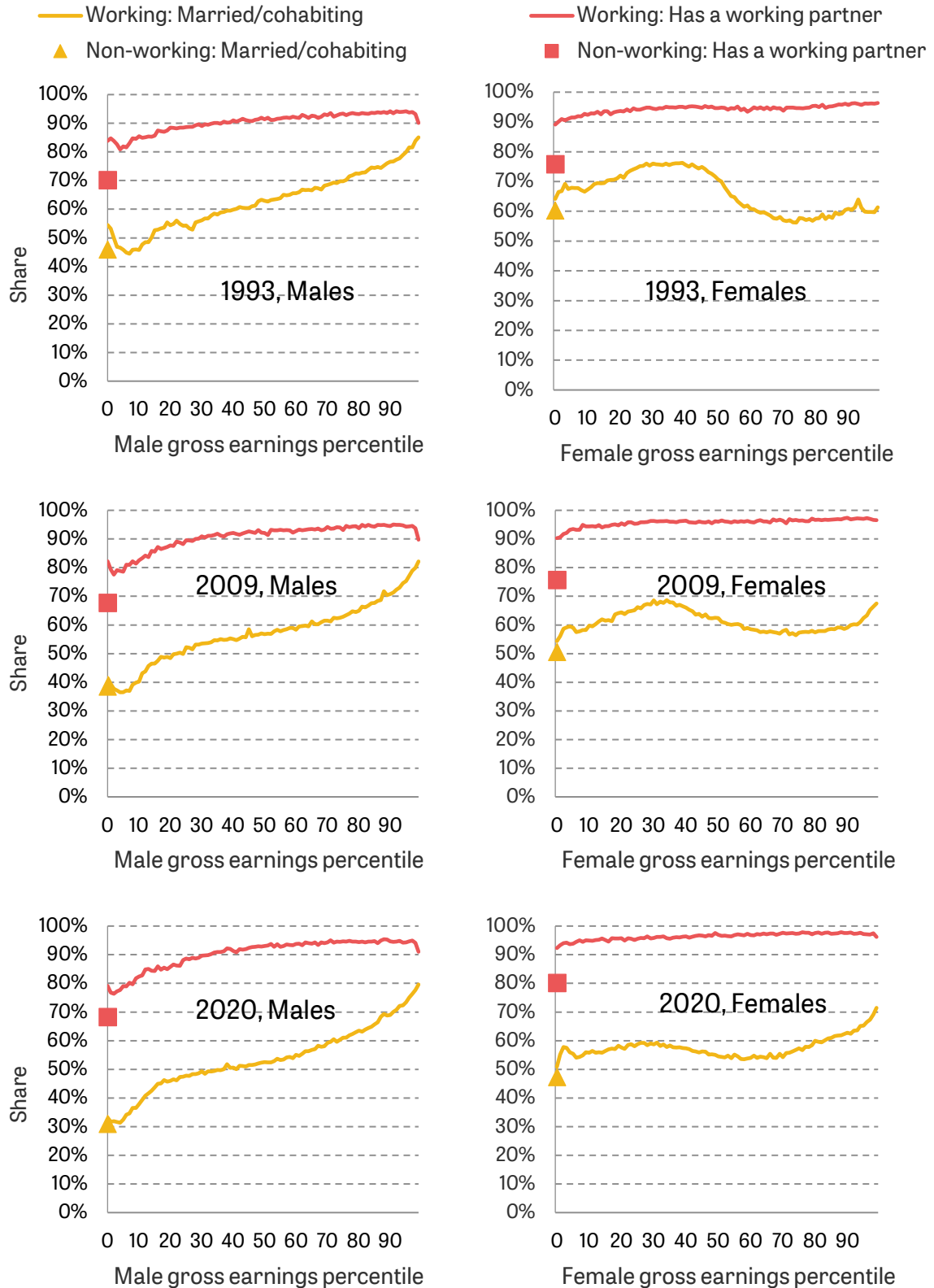
Figure 31. Share married/cohabiting, overall and by education, over time



Note: Sample is the Swedish population aged 25–60. Marital status for same-sex couples without children is unobserved.

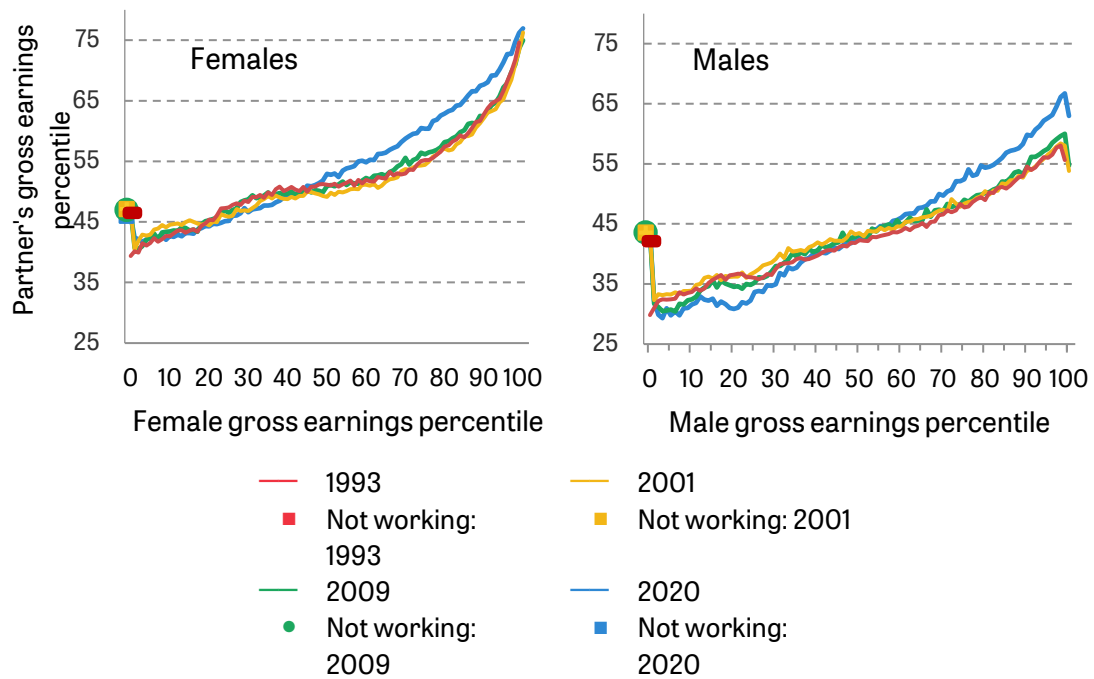
The correlation between earnings and cohabiting has increased over time for men (see Figure 32), but not for women. Women in lower earnings percentiles (but not at the very bottom) are slightly more likely to have a partner, while the opposite holds for men. There is a less pronounced positive correlation between earnings percentiles and having a working partner for men. For women, this relationship is very close to zero and for both it is persistent over time.

Figure 32. Share married/cohabiting and share with working partner, by sex and individual gross earnings percentile, selected years



Note: Sample is individuals aged 25–60. Married/cohabiting also includes civil partnerships, although we cannot observe them if no children exist in the partnership. The proportion with a working partner is conditional on being married/cohabiting.

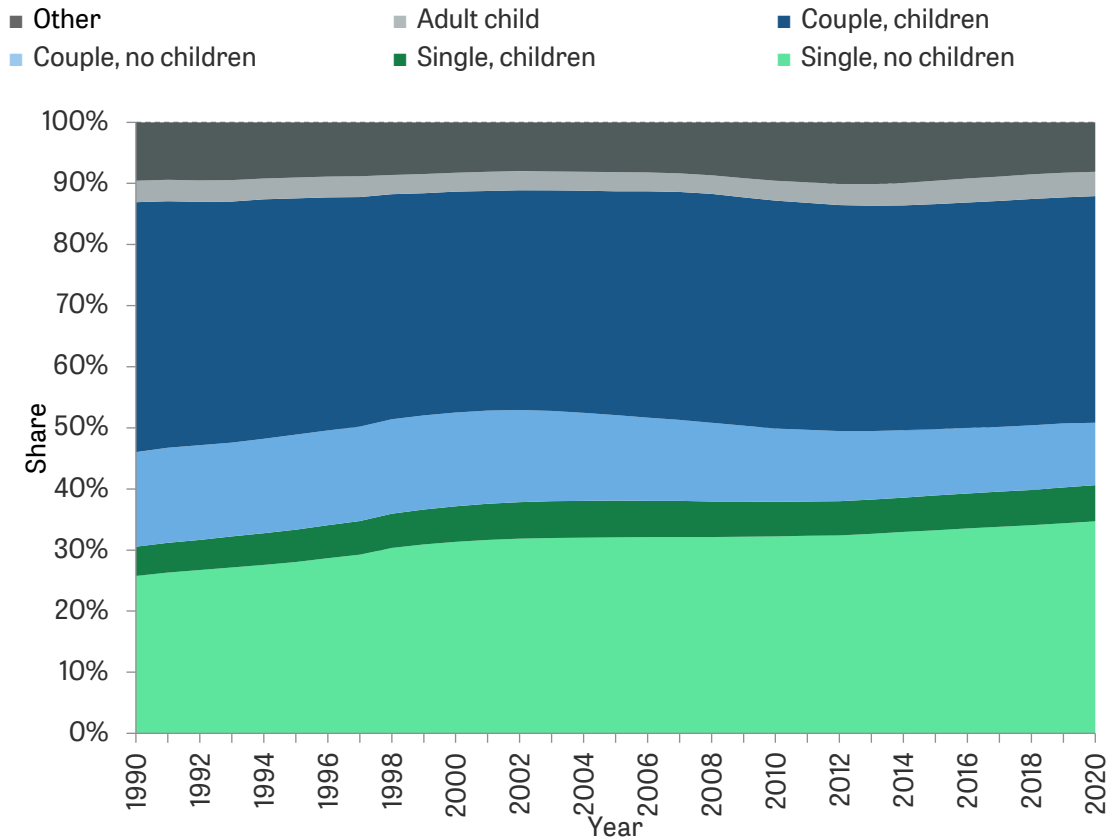
Figure 33. Mean gross earnings percentile of partner/spouse by individual's gross earnings percentile, selected years



Note: Sample is individuals aged 25–60. Married/cohabitating also includes civil partnerships.

The positive correlation between the female and male percentile rank (in a partnership) in Figure 33 shows that high-earning males are typically in a marriage or partnership with high-earning females and that this correlation has increased across the years. Low-earning males are married or cohabiting with low-earning females to a greater extent than low-earning females with low earning males. This means that it is more common for low-earning women to have a high-income partner than the opposite. While the trends across years overlap between 1993 and 2009, the trend for 2020 shows some differences. The slope for females is steeper at higher percentiles, which would mean that females with above-median earnings are more often married to or cohabiting with higher-income males than they were in previous years. The same holds for above-median earning males, but low-income males between the 10th and 30th percentile are actually married to or cohabiting with lower-income females more than before.

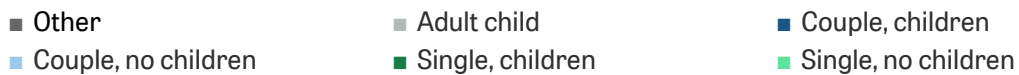
Figure 34. Share of individuals by position in the household, over time

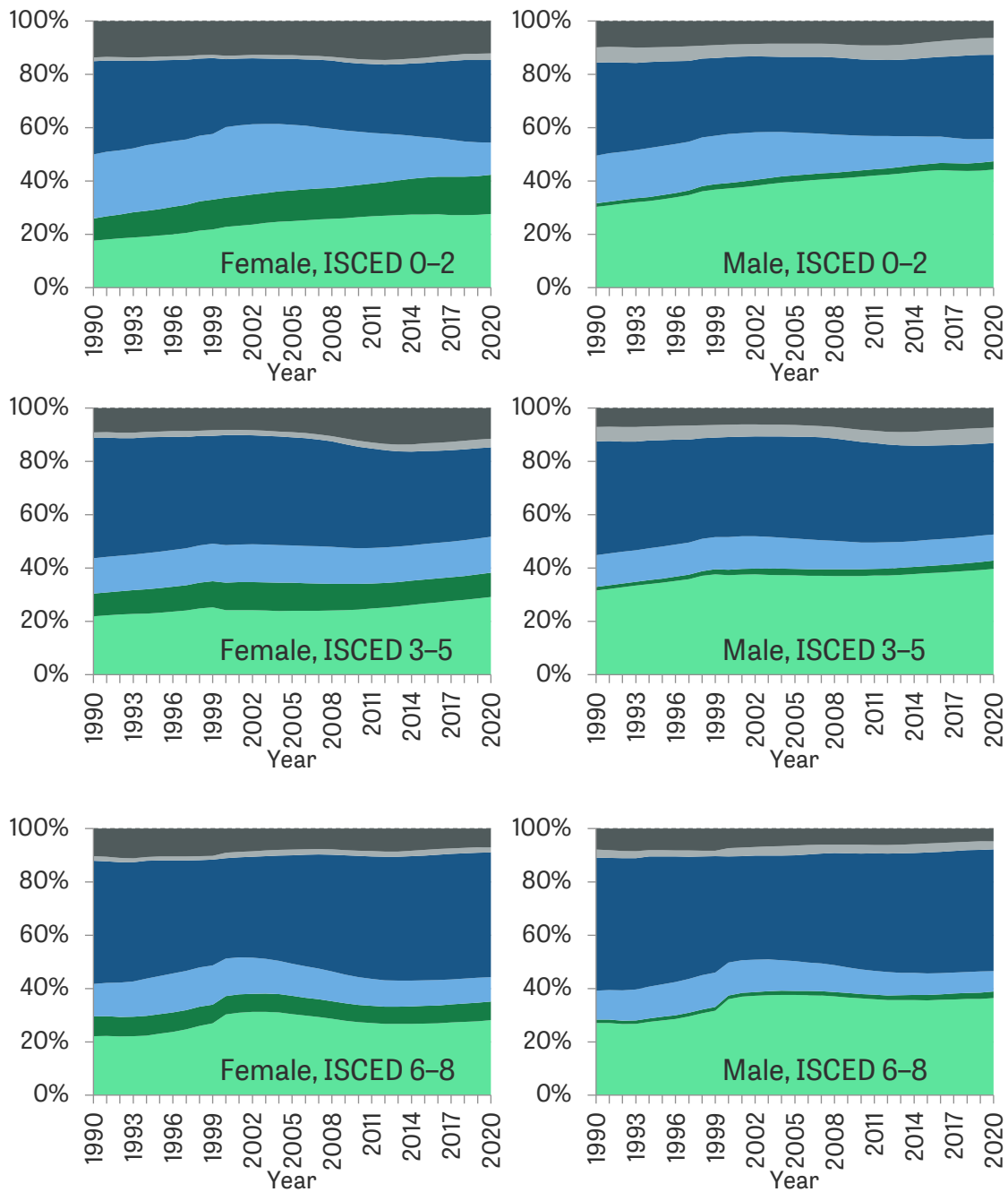


Note: Sample is individuals aged 25–60. 'Single, children' and 'couple, children' refer to households with at least one minor child. Parents of only adult children are categorised as 'other'.

The most common household positions in Sweden are a single household without children and a couple household with children (Figure 34). Both shares are relatively constant over time, with only a small increase in the share of single households without children. The share of single households with children and other households has also been very constant over time. However, the share of couples without children has decreased slightly to the benefit of single households.

Figure 35. Share of individuals by position in the household, by sex and education, over time





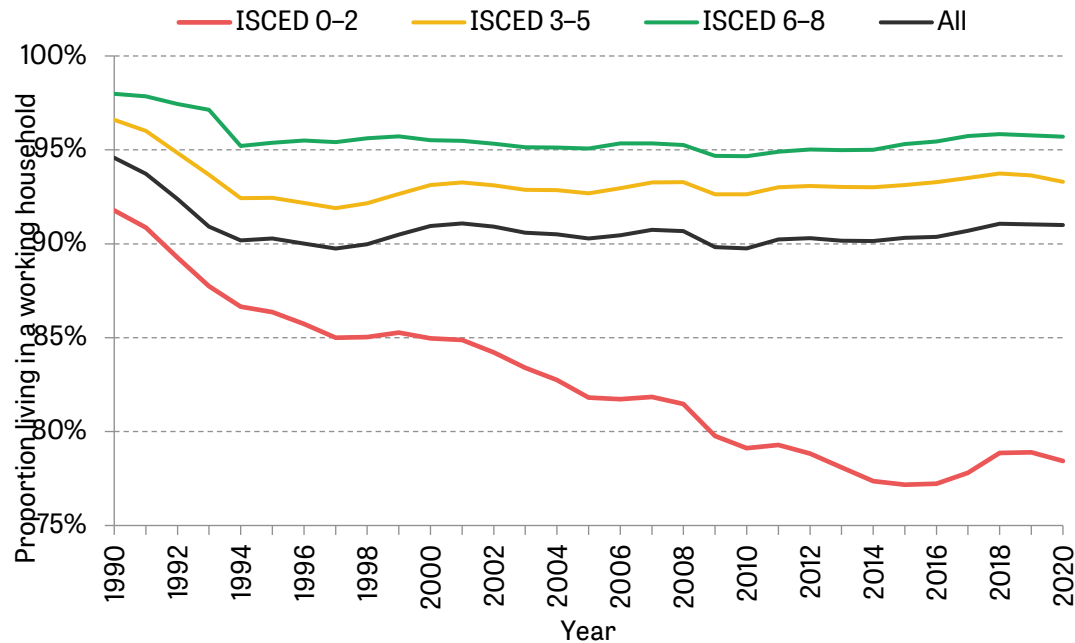
Note: Sample is individuals aged 25–60. ‘Single, children’ and ‘couple, children’ refer to dependent children only. Parents of adult children are categorised as ‘other’.

Unsurprisingly, the share of women in a single household with children is much higher than the same for men (Figure 35). In the event of divorce, women still take care of the children more often. For high school dropouts, the share of single households with children has increased over time, at the expense of the share of couple households without children. All other shares have remained more or less constant over time. There is a small shift in the year 2000, most clearly visible for the highly educated, which is likely due to a new education classification which was introduced around this time.

6.2 Earnings and incomes among working households

Figure 36 shows the changes in the share of individuals in a working household over time. After an initial decrease from 1990 to 1994, the share has remained relatively constant for all but the lowest education group. The share for university graduates has been around 95% since 1994, while the share for individuals with high school degree has increased by about 2 percentage points. These are all relatively small changes compared to the decrease from 92% in 1990 to 78% in 2020 for high school dropouts.

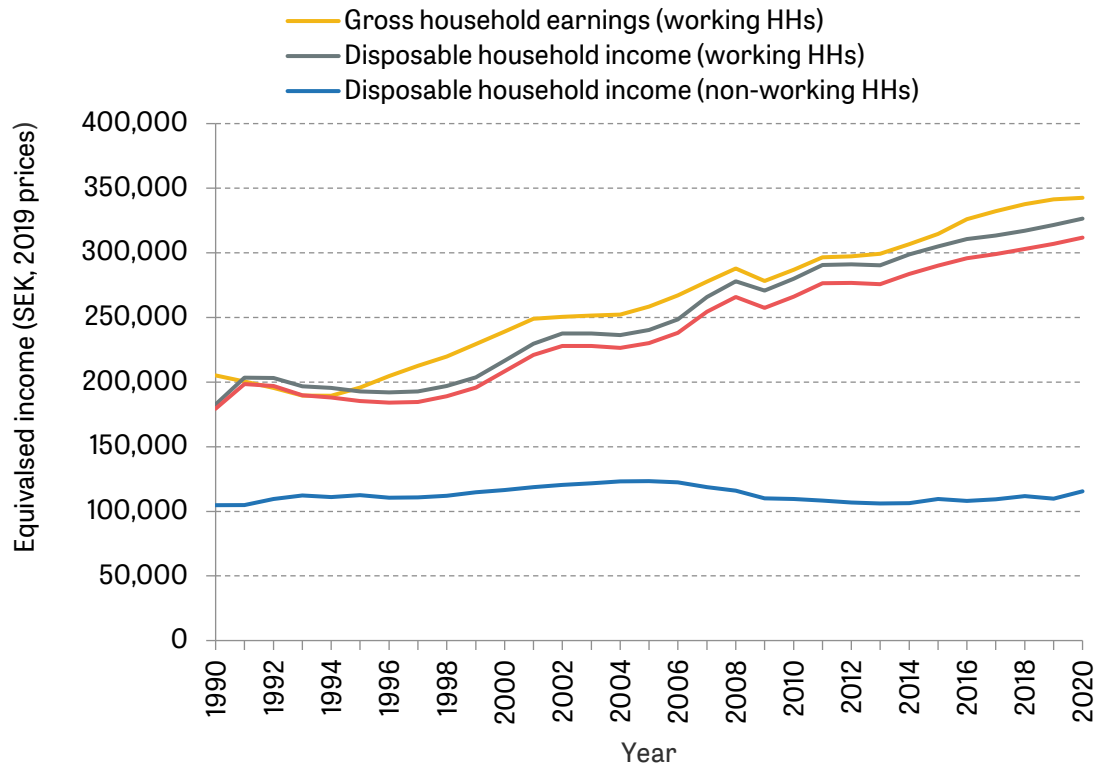
Figure 36. Share of individuals in a working household, overall and by education, over time



Note: Sample is individuals aged 25–60. A working household is defined as a household in which at least one adult is in work.

Gross income and disposable income have risen continually and in parallel over the years for working households, but not for non-working households (see Figure 37). The gap in income between working and non-working households indeed doubled from 1990 to 2020.

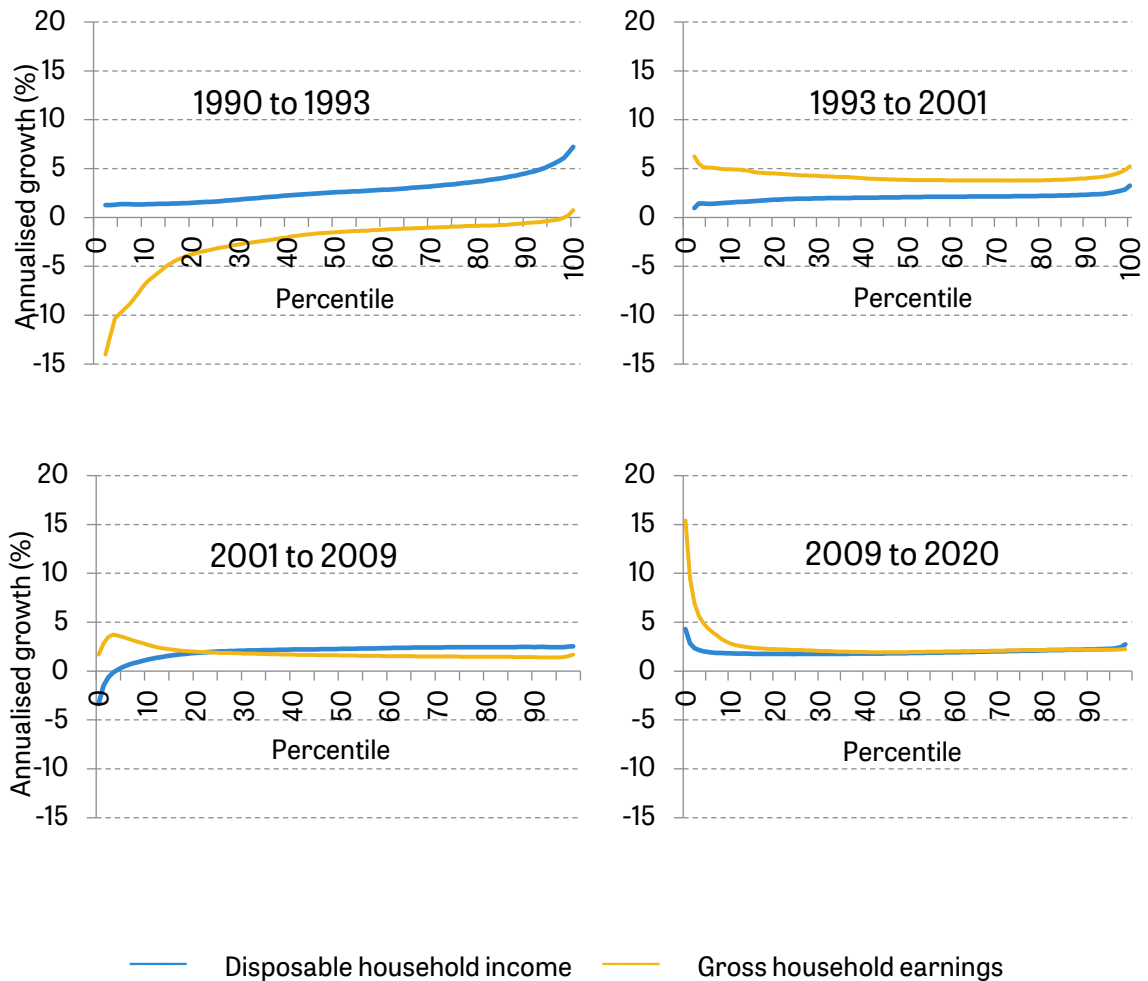
Figure 37. Median real gross household earnings and disposable household income among working households, over time



Note: Sample is individuals in working households. A working household is defined as a household in which at least one adult is in work.

Figure 38 shows the change in gross and disposable household income by percentile for different time intervals. In the crisis years 1990–93 gross income grew less than disposable income, meaning that transfers managed to smooth the income decrease. For all other periods, gross income exhibits similar or larger growth rates than disposable income, especially at the lower end of the earnings distribution. Since 1993, growth rates have been overall positive and relatively constant across the earnings distribution, with exception of the lowest 5% between 2001 and 2009. Even in the period 2009–20, which covers the first year of the COVID-19 pandemic, the overall growth rates were positive.

Figure 38. Annualised growth in real gross household earnings and household disposable income for working households, by percentile, selected years



Note: Sample is individuals in working households. A working household is defined as a household in which at least one adult is in work.

6.3 Inequality in incomes among all households

Figure 39 shows the trends in median real disposable household income by education. Disposable income has increased for all educational groups relatively equally. There are only small differences in the slopes of the trends. In 1990, the largest gap in household income was between individuals with a high school diploma and university graduates. Over the years, the earnings of individuals with high school degrees and university degree have become more similar. On the other hand, the gap between high school graduates and dropouts has increased, due to the income of individuals with less than high school education increasing much more slowly.

Figure 39. Median real disposable household income for all households, overall and by education, over time

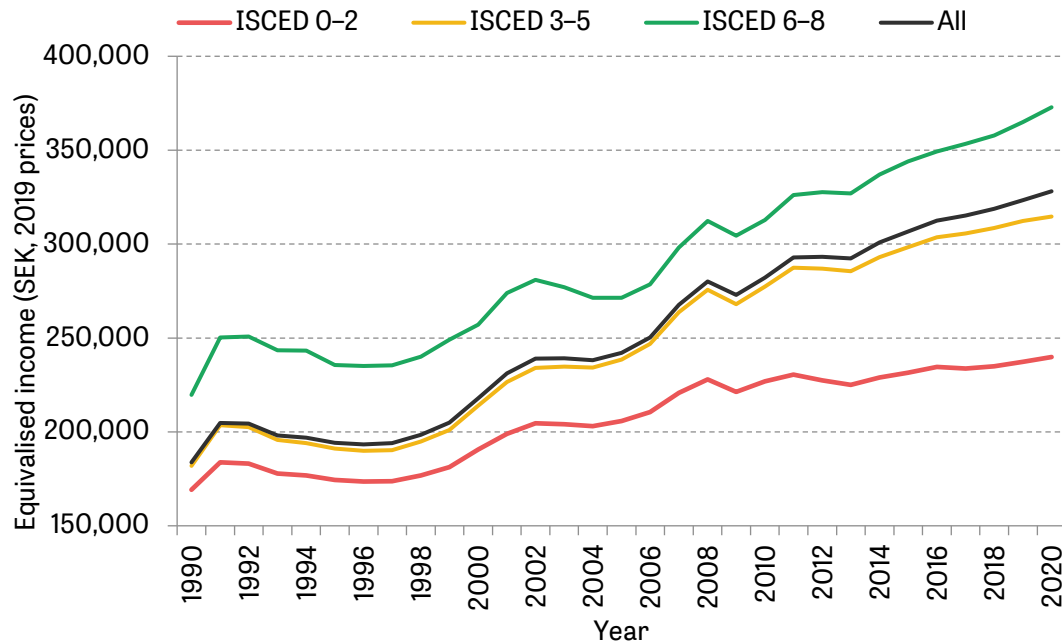


Figure 40 shows inequality measures for household disposable income over the years. Both the Gini coefficient and relative poverty have risen over time. Relative poverty is defined as the share of individuals with less than 60% of median income. The increase in inequality at household level thus seems to be driven by a relative decrease at the lower end of the distribution. Hällberg and Kjellström (2020) estimate the share of the population with wages lower than 60% of the median wage to be less than 1% in 2018. The group that is below this threshold consists mostly of young workers (less than 20 years old) and part-time workers. The share of the top 1% has also increased over time, but less steadily. It has not yet crossed the 5% mark. When winsorising household disposable income at the 99th percentile, the level of the Gini coefficient shifts downwards.

Figure 40. Gini, relative poverty and top 1% share of disposable household income for all households, over time

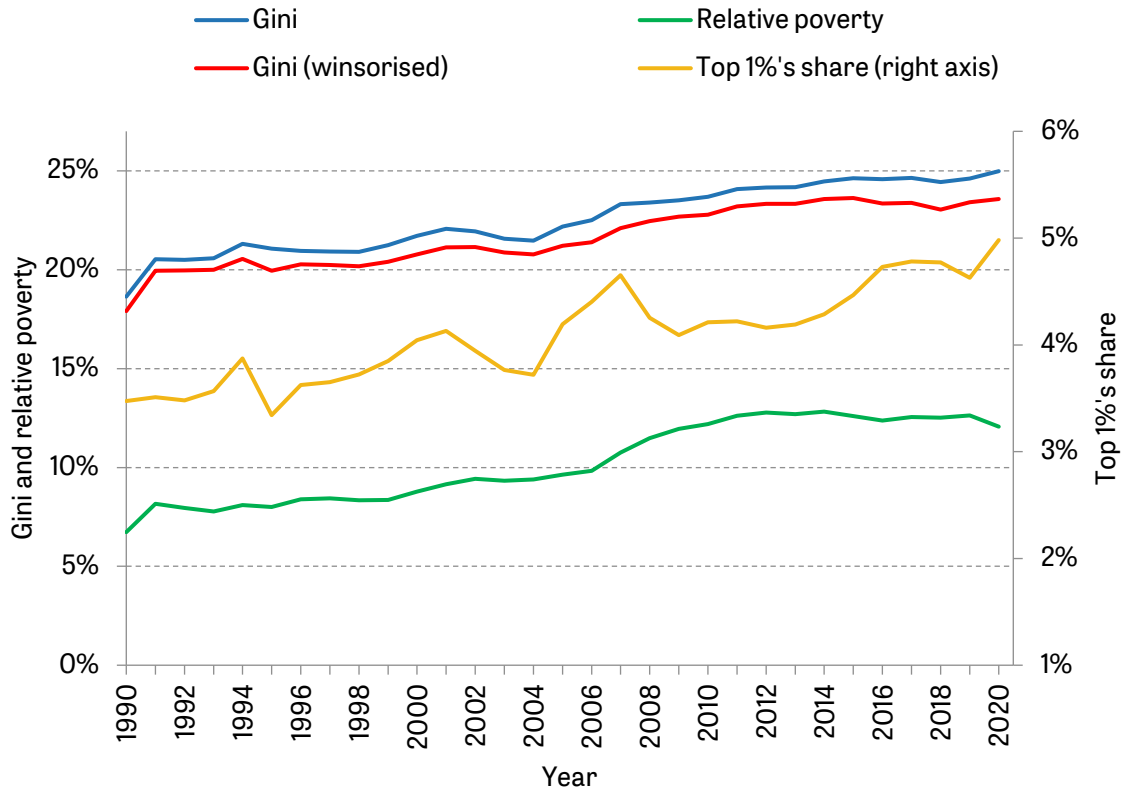
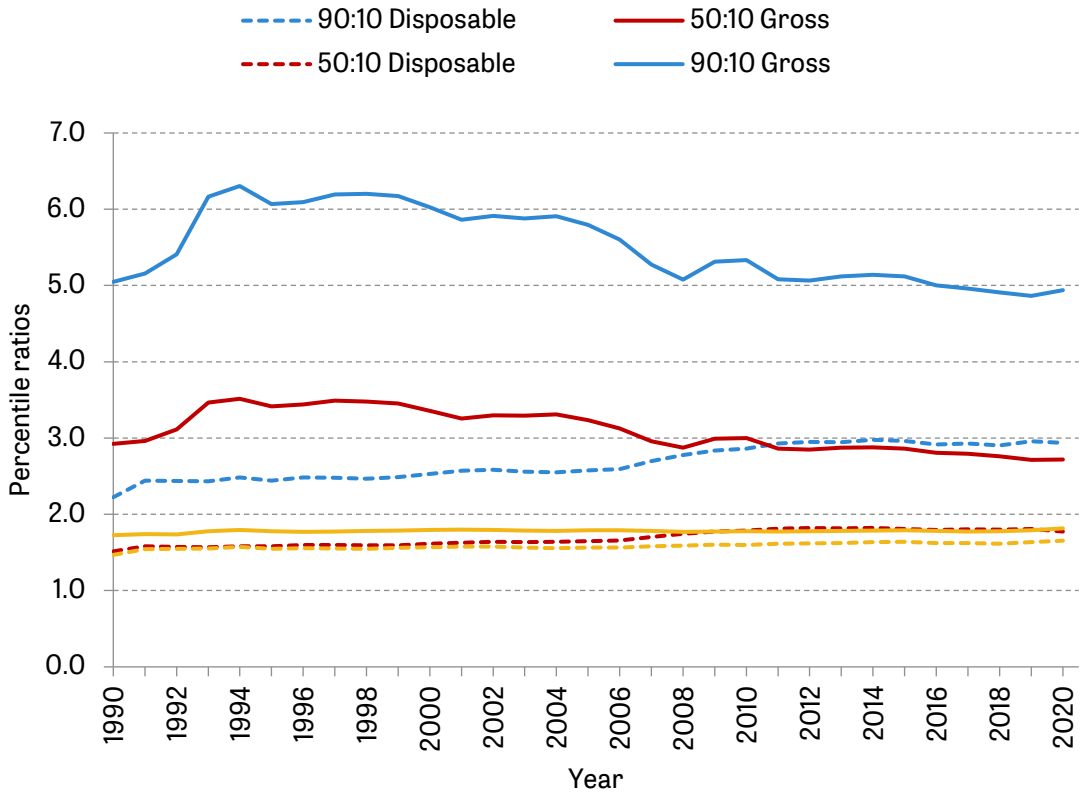


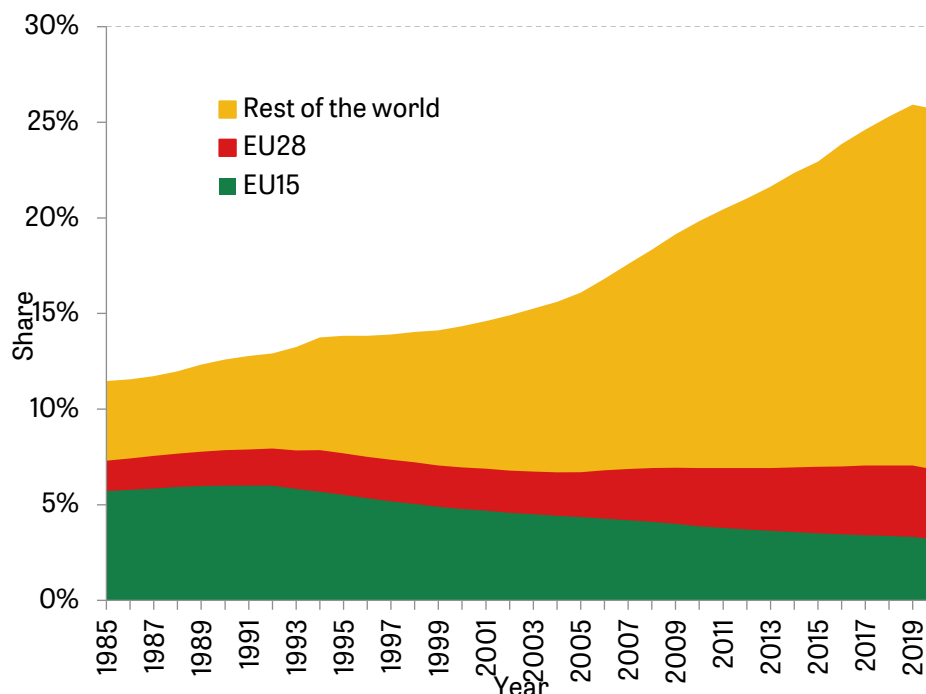
Figure 41 shows that any increase in gross income inequality in the first half of the sample is driven by the lowest 10 percentiles. In more recent years, a slight increase in disposable income inequality is visible, again due to the bottom 10%.

Figure 41. Percentile ratios of disposable household incomes for all households, over time



7. Immigrant outcomes

Figure 42. Share of immigrants in the population 25–60 years of age, 1985–2020



Sweden has had a very high immigration relative to its own population. In 1985, only about 12% of the population were born in other countries, most in the EU15 member states. In the early 2000', the share of non-EU immigrants increased rapidly such that about 18% of the population are immigrants from non-EU countries and in total one fourth of the population is a first-generation immigrant (see Figure 42).

Figure 43 shows the share of immigrants across the disposable income distribution for various years. The highest share of immigrants is persistently found in the lower part of the income distribution. In accordance with Figure 42, we see an overall increase in the share of immigrants over time, but this increase is more pronounced among the lowest percentiles than at the top of the distribution.

Figure 43. Share of immigrants in the population, across the disposable income distribution, 25-60 years of age, selected years

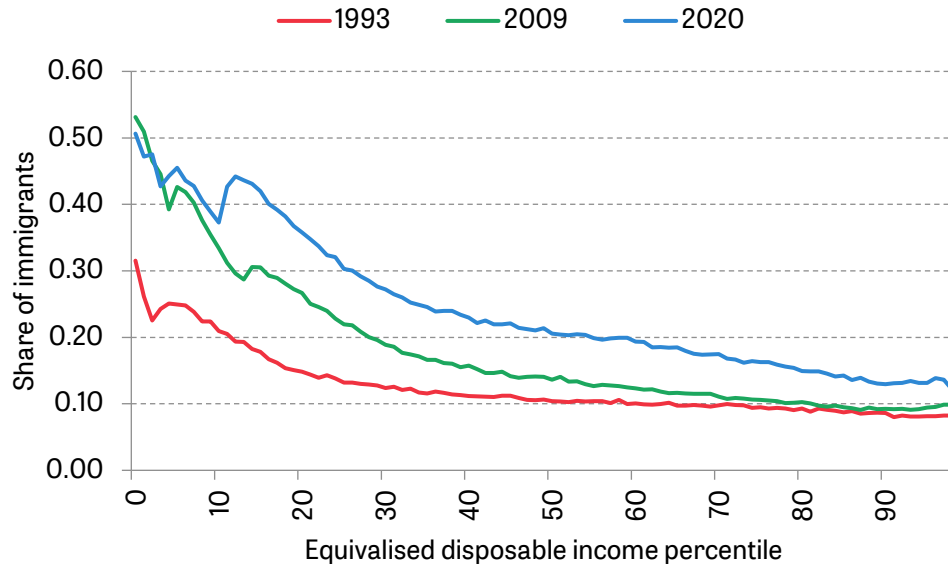
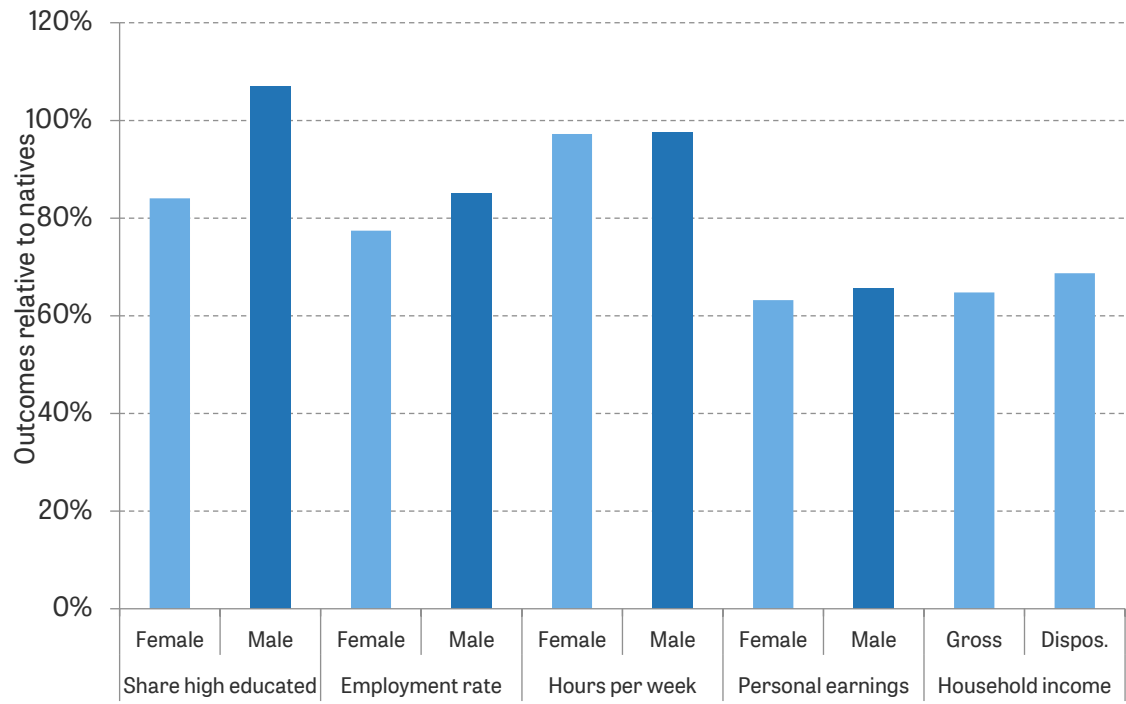


Figure 44 breaks down the outcomes of immigrants relative to natives for the year 2019. In terms of gross individual and household income, immigrants are lagging behind natives. The same holds for the employment trends. Hours worked are very similar between immigrants and natives, with immigrants working only slightly less. The share of highly educated female immigrants is low relative to natives, but the share of highly educated is now higher among male immigrants than among native men.

Figure 44. Outcomes of immigrants relative to natives, ages 25–60, 2019



8. References

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Friedrich, B., Laun, L. and Meghir, C., 2022. Earnings dynamics of immigrants and natives in Sweden 1985–2016. *Quantitative Economics*, 13(4), 1803–47.

Hällberg, P. and Kjellström, C., 2020. Collective agreements and minimum wages. Report from the Swedish National Mediation Office, Stockholm.

Landais, C., Nekoei, A., Nilsson, P., Seim, D. and Spinnewijn, J., 2021. Risk-based selection in unemployment insurance: Evidence and implications. *American Economic Review*, 111(4), 1315–55.

9. Data appendix

We use data from the Longitudinal Integration Database for Health Insurance and Labour Market Studies (LISA), which is provided by Statistics Sweden, the Social Insurance Agency, and the Swedish Agency for Innovative Systems, and accessed via the Institute for Evaluation of Labour Market and Education Policy (IFAU) database. It contains annual information on education, earnings and governmental transfers for all individuals registered in Sweden aged 16 and older. From 1990 onwards, the register also includes information on marital status. We link these data to a population-wide matched employer–employee register (Jobbregistret), which covers all firms and workplaces in the private and public sectors, non-governmental organisations, and the self-employed. The matched employer–employee register contains information on the income earned for each individual at each workplace. Finally, we link the above administrative registers to the Wage Structure Statistics (*Lönestrukturstatistiken*) collected by the National Mediation Office and maintained by Statistics Sweden. Wage Structure Statistics is an annual survey of establishments and their workers, with information on the wages and working hours for all employees who worked at least 1 hour during the month measured. Wages are reported as full-time equivalent monthly wages and working hours as contracted working hours (expressed as a percentage of a full-time employment).⁵ To enhance comparison, we convert the monthly full-time equivalent wages to hourly wages for some figures by multiplying by 12 (for months in a year) and dividing by 1985.54, which is the number of hours worked per year on average (according to an estimate based on collective contracts).

Wage Structure Statistics covers the universe of workplaces in the public sector and private-sector firms with at least 500 employees. For smaller private-sector firms, a random sample is drawn based on a cross-classification of industry and establishment size. In total, roughly 50% of all private-sector employees are covered. All three data sources described cover the time period 1985–2018. We express all earnings/income measures in 2019 prices (SEK).

We document trends in marriage and cohabitation rates during the time period 1990–2018, using the data on the full population of individuals in Sweden aged 16–64. Family links are provided in LISA through unique family identifiers. The register also contains information on marital status and household structure: it indicates whether an individual is in a same-sex partnership, is a married female/male with or without children, a single/divorced female/male with or without children, or is a child of a married/single/divorced/cohabiting couple. Cohabiting couples without joint children are not identified in the data. We thus consider an individual to be cohabiting if they are married, in a same-sex partnership, or in a cohabitation with joint children. These data allow us to calculate the number of adults and children in the household. To identify the age of each household member (including children), we combine the longitudinal individual register with the multigenerational register that contains links between children and their biological parents, with information on their year of birth.

For a handful of figures, we use aggregate data because the Swedish register data did not cover the required topics. For Figure 7, we use data from the OECD, retrieved on 19 May 2023, because we cannot observe unemployment spells in our data. The OECD provides data on unemployment overall and long-term unemployment, although this measure is missing for 2005 and 2006. For Figure 27, we collected data from various collective agreements documented by the Swedish

⁵ Values higher than 100% were top-coded to 250%, but results remain unchanged if we instead drop these outliers from the sample.

National Mediation Office (Medlingsinstitutet), to approximate sectoral minimum wages. This was available from 2014. In Figure 28 we again make use of OECD data, more precisely the OECD ICTWSS data base. Unlike our other data sources, this data contains individuals aged 15 and older. Union density is not collected by Swedish register data, because this is private data and monitored by the unions. For the same reason, we cannot compute the share of workers covered by collective agreements.

10. Appendix charts

Figure 45. Share self-employed by percentile of individual gross earnings, selected years

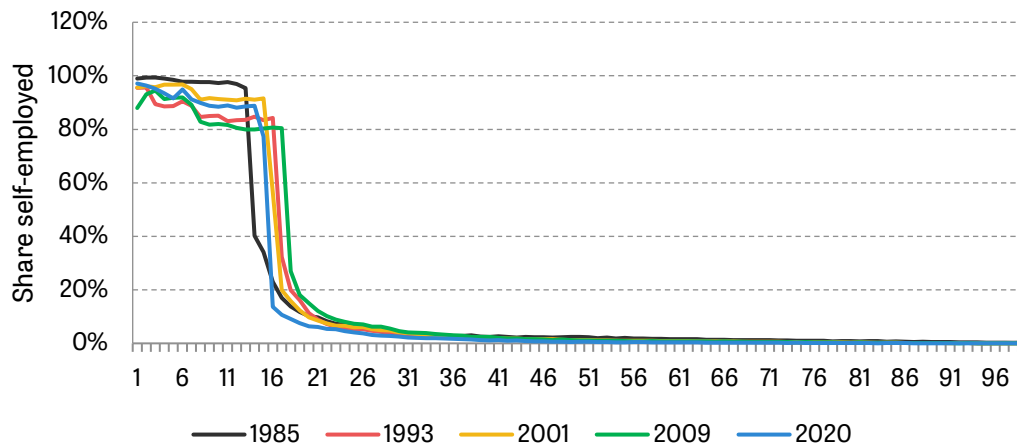
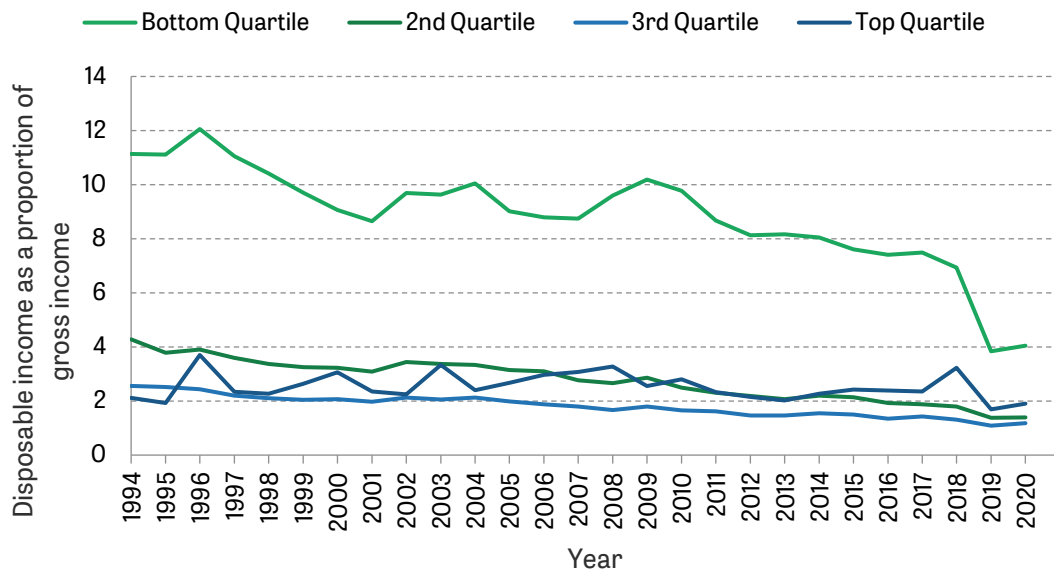


Figure 45 is an alternative to Figure 26. The sharp cutoff around 15% is likely due to tax reasons. However, our individual gross earnings measure does not capture business income, so Figure 45 is less useful for the overall interpretation.

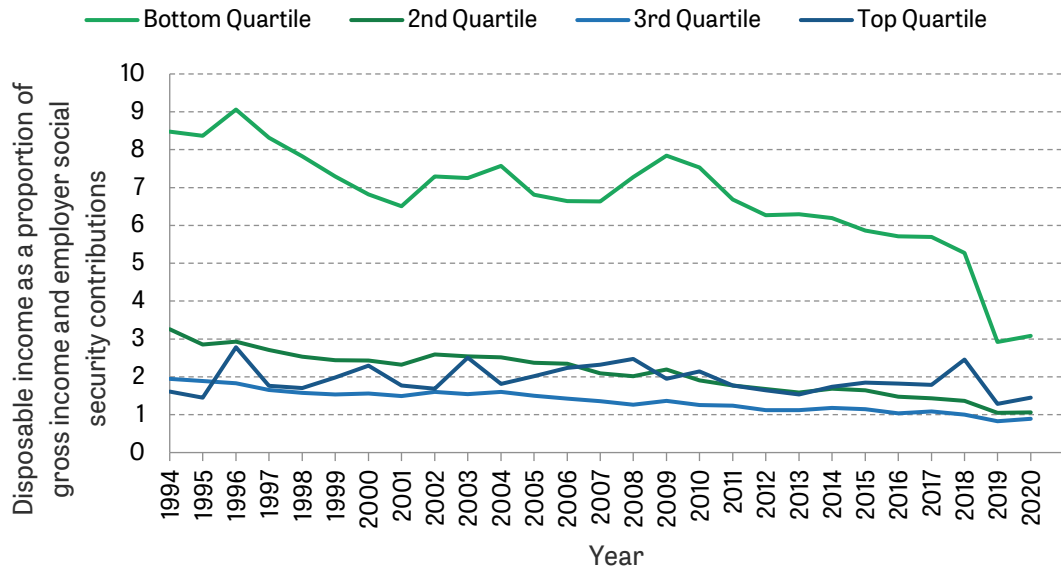
Figures 29–30, 37–41 and 43–44 exclude capital income from consideration of disposable income. Figures 46–54 reproduce the former figures, with capital income included.

Figure 46. Disposable income as a proportion of gross income, by household disposable income quartile



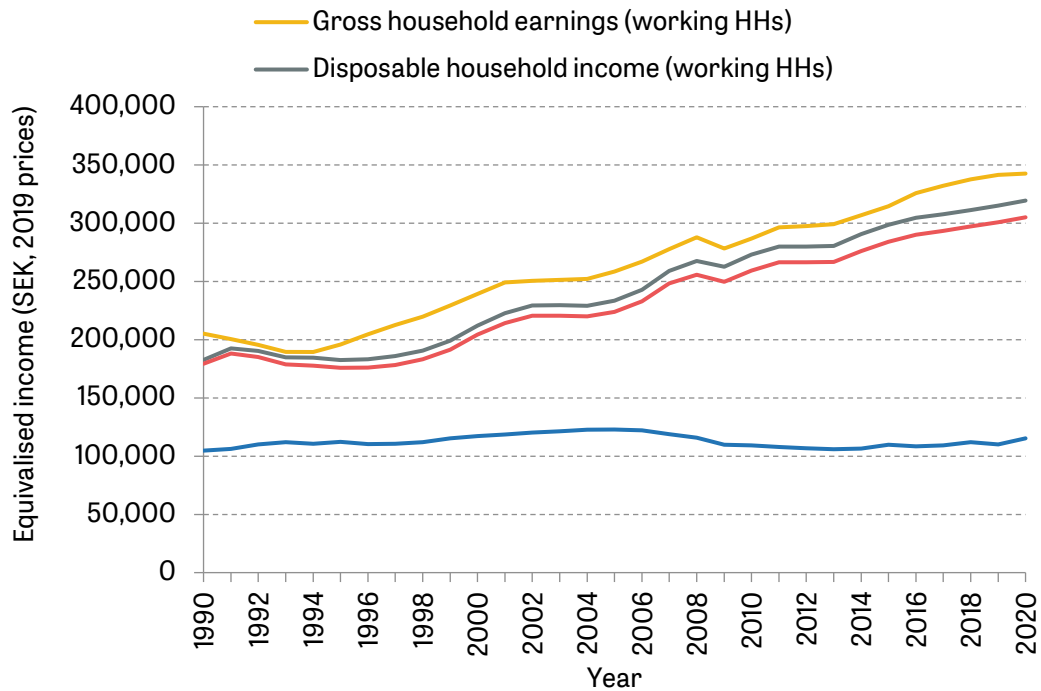
Note: Sample is individuals aged 25–60. All incomes have been equivalised using the modified OECD equivalence scale. Given our more restrictive gross income measure, the proportions we measure are all larger than 100%.

Figure 47. Disposable income as a proportion of gross income and employer social security contributions, by household disposable income quartile



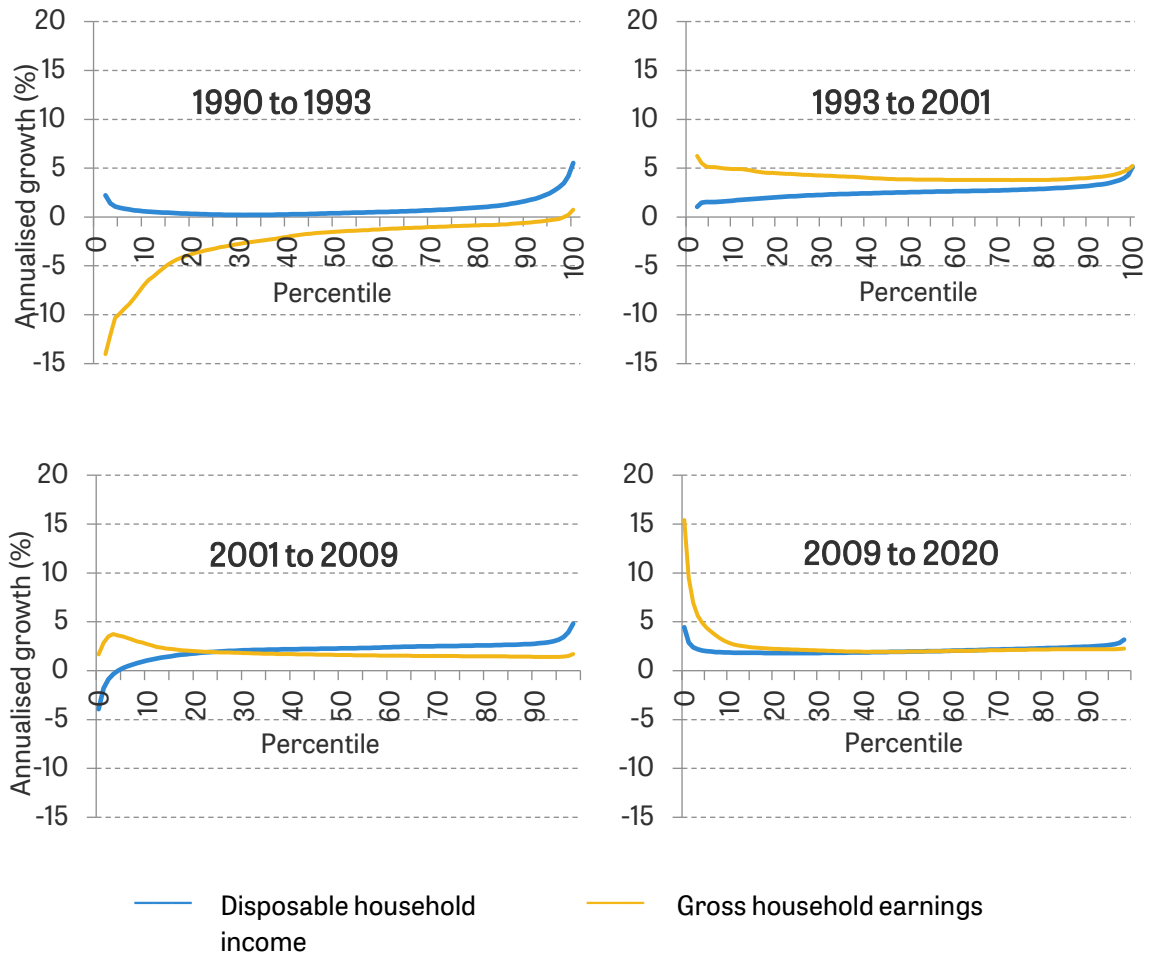
Note: Sample is individuals aged 25–60. All incomes have been equivalised using the modified OECD equivalence scale. Given our more restrictive gross income measure, the proportions we measure are nearly all larger than 100%.

Figure 48. Median real gross household earnings and disposable household income among working households, over time



Note: Sample is individuals in working households. A working household is defined as a household in which at least one adult is in work.

Figure 49. Annualised growth in real gross household earnings and household disposable income for working households, by percentile, selected years



Note: Sample is individuals in working households. A working household is defined as a household in which at least one adult is in work.

Figure 50. Median real disposable household income for all households, overall and by education, over time

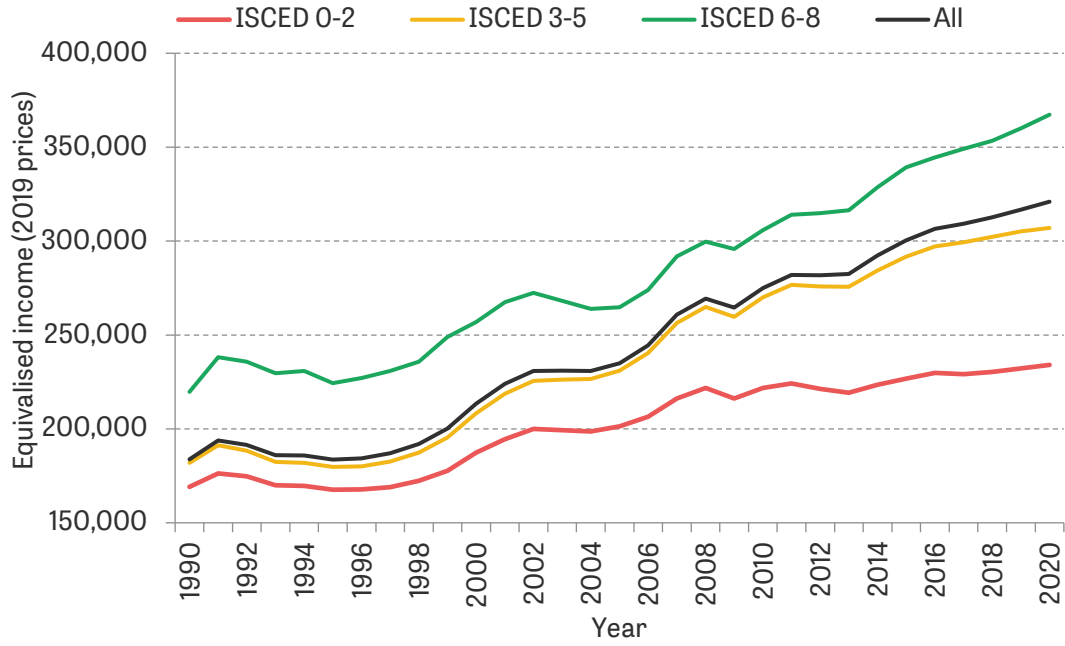


Figure 51. Gini, relative poverty and top 1% share of disposable household income for all households, over time

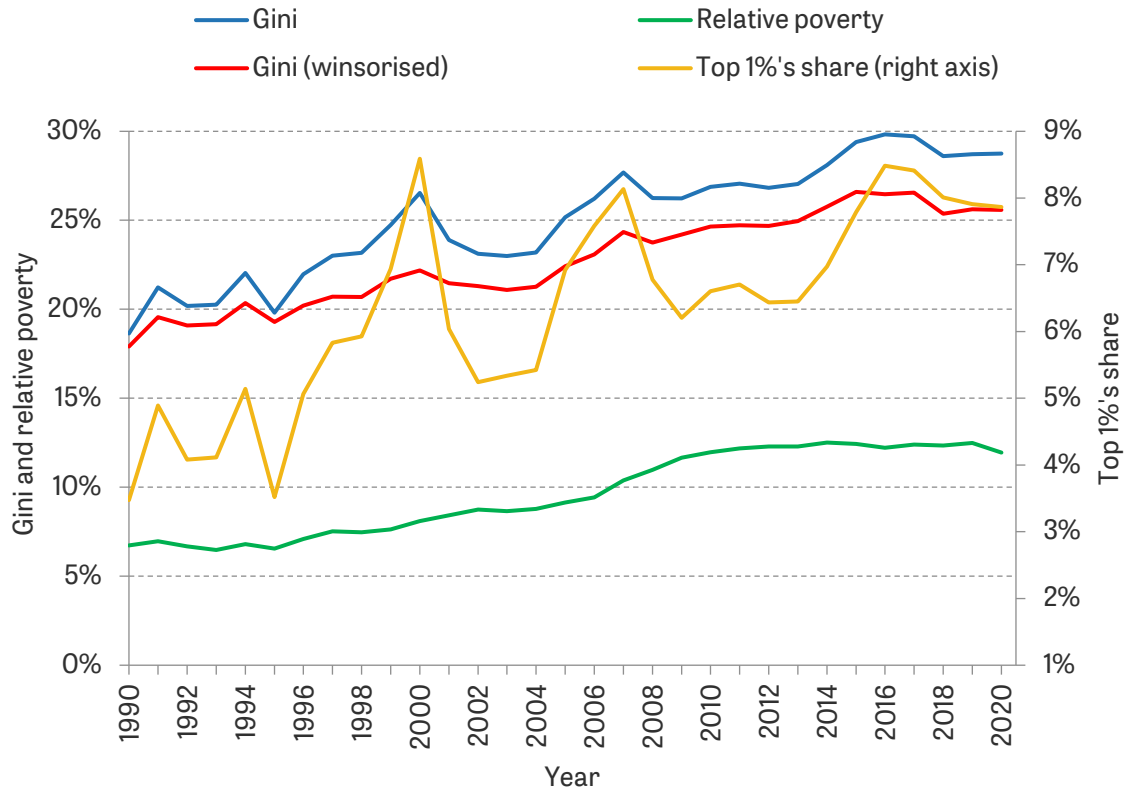


Figure 52. Percentile ratios of disposable household incomes for all households, over time

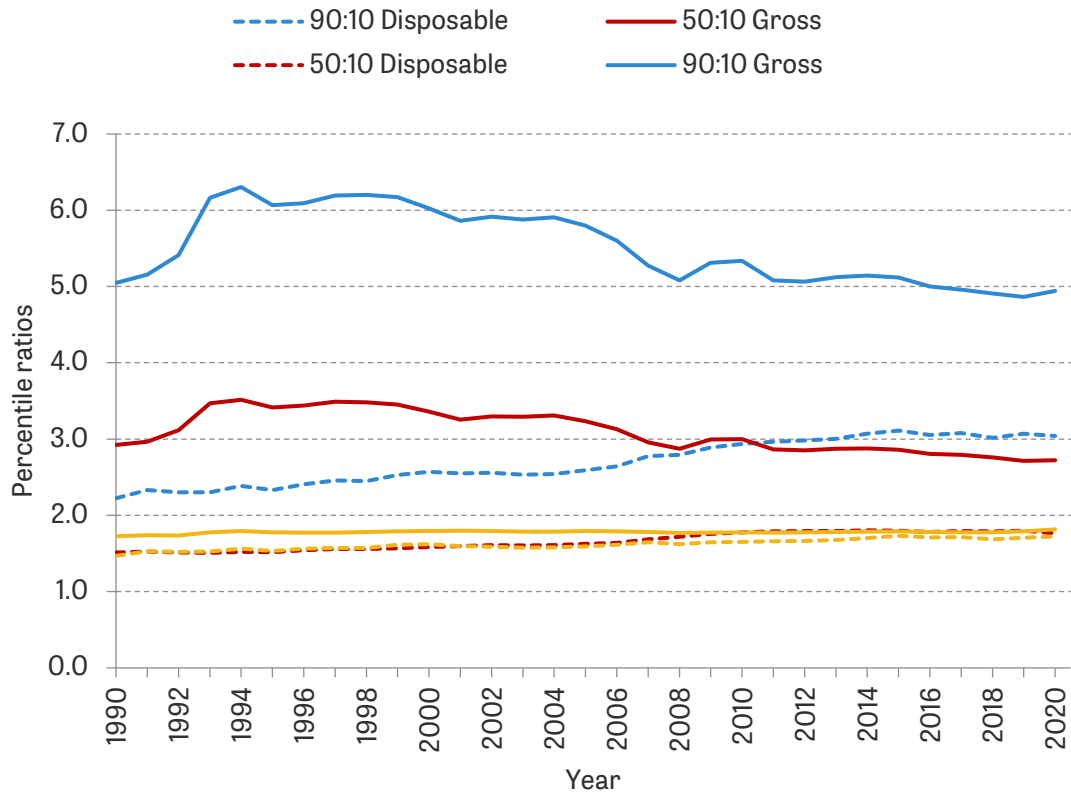


Figure 53. Share of immigrants in the population, across the disposable income distribution, 25–60 years of age, selected years

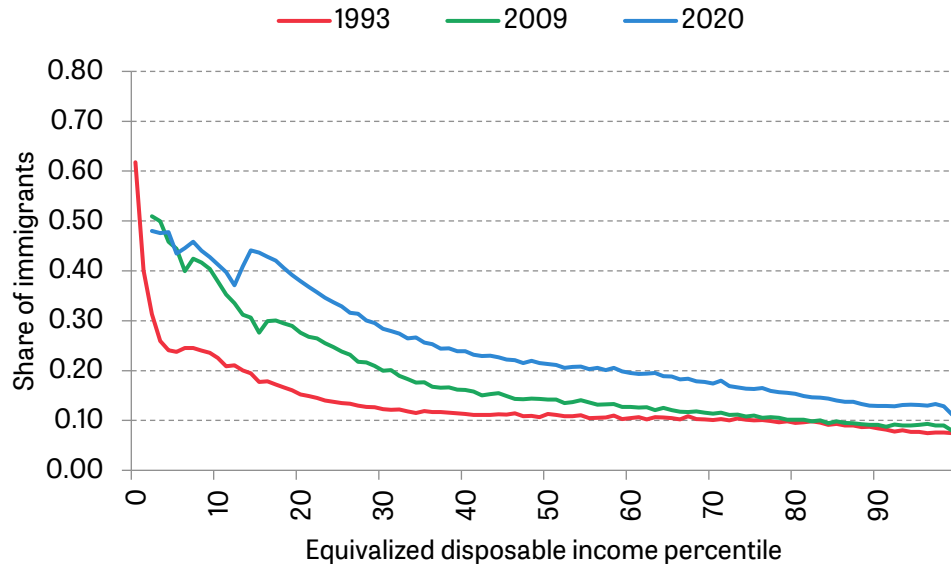


Figure 54. Outcomes of immigrants relative to natives, aged 25–60

