

Changing Patterns of Inequality in Norway: the Roles of Gender, Education, Immigration, and Unions

Patrick Bennett*

Kjell Salvanes†

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Abstract

We assess the evolution of inequality over time in Norway and the underlying factors which determine such changes. Inequality is low in Norway, and remains relatively unchanged from 1980–2019. However, these aggregate measures mask considerable inequalities across sex, education, and immigrant status. Among men, inequality increases from 1980 while the opposite is true for women. Low-educated workers fare increasingly worse over time relative to middle- and high-educated workers. Despite this, the earnings of women lag behind those of lower educated men and considerable gender gaps exist. While immigration increases considerably, immigration itself does not drive the rise in inequality among men. Decomposing the importance of unions for earnings reveals that the declining importance of unionization for earnings among men in the bottom half of the distribution may be an important factor behind rising inequality.

*University of Liverpool, FAIR-CELE, & IFS. Email: Patrick.Bennett@liverpool.ac.uk

†Norwegian School of Economics & FAIR-CELE. Email: Kjell.Salvanes@nhh.no

1 Introduction

Norway has relatively low levels of inequality compared to other countries. Relative to the US and UK, Norway has low rates of inequality in earnings. Figure 1a shows a 90:10 ratio for all workers of 3.5, which is roughly 50% and 40% lower than similar rates in the US and UK. While overall measures of inequality are low, this aggregate figure masks considerable inequalities in Norway which exist along important dimensions such as gender, education, and immigrant status. Why is inequality so low in Norway and, where inequalities do exist, what are the factors which explain these remaining inequalities?

The Norwegian labor market is characterized by a strong benefit system in both direct transfers as well as in-kind transfers through the provision of local public services (Aaberge et al., 2019), moderate employment protection compared to other European countries (Huttunen et al., 2011), and high rates of unionization which collectively bargaining over wages (Dodini et al., 2021; Bhuller et al., 2022). Key transfers from the state such as maternity leave (Carneiro et al., 2015; Dahl et al., 2016), childcare (Havnes and Mogstad, 2011, 2015), and disability insurance (Kostøl and Mogstad, 2014; Autor et al., 2019) are generous and universal. Education is an important determinant of labor market success throughout the life cycle (Bhuller et al., 2017) and is an important factor in equality of opportunity across generations (Björklund and Salvanes, 2011). While many studies examine the importance of these factors in the labor market, there is little comprehensive analysis of how these key factors jointly relate to overall levels of inequality.¹

In this paper, we provide an understanding of the evolution of inequality in Norway over time and the factors which determine such changes, focusing primarily on a sample of workers aged 25–60. First, we describe inequality over time, focusing on differences within genders (Section 3). A key point which we focus on throughout the paper is the considerable difference which exists between men and women: while inequality among men has increased over time, the opposite is true within a sample of women.

Second, we relate labor market trends to the overall low levels of inequality and how this relationship changes over time. We highlight three key factors—the strength of the Norwegian labor market, the importance of the welfare state, and the importance of unions—and describe how each of these factors are associated with inequalities (Section 4). We show that in addition to high-educated workers, middle-educated workers, largely comprised of those with vocational education, fare well in the labor market over time. In contrast, low-educated workers are increasingly losing out over time in both earnings and employment. The welfare state provides strong support to those at the bottom of the distribution

¹Almås et al. (2011) show the importance of adjusting for age when measuring inequality in Norway, Aaberge et al. (2011) highlight the importance of measurement issues in equality of opportunity in Norway, Aaberge and Mogstad (2015) show inequality increases over the life cycle in Norway, and Gottschalk and Smeeding (2000) provide a cross-country comparison of inequality.

as well as those in the top of the distribution, who are increasingly more supported by benefits over time. Unionization remains strong in Norway, and roughly half of workers are union members in 2019, although male workers, low-educated workers, and immigrants are increasingly less likely to be union members over time.

Third, we highlight key areas where inequalities do remain, focusing on differences between men and women; low-, middle-, and high-educated workers; and Norwegian and non-Norwegian born workers (Section 5). Considerable gender gaps remain in the Norwegian labor market, as median earnings of high-educated females lag behind those of middle-educated males. Indeed, at all education levels, the earnings of women lag behind the earnings of lower educated men. The declining position of low-educated men, who historically had high rates of employment, may contribute towards rising inequality among men, while middle-educated men fare comparatively well over time. While Norway has seen considerable increases in immigration over time—the share of immigrants in the labor market doubles from 2004–2019—inequality is not driven by increasing immigrants as focusing on change in inequality among Norwegian men reveals a similar rise in inequality among men. In addition to these three key factors, we assess the importance of the discovery of oil in Norway and the subsequent resource boom for inequality. High and low oil areas become increasingly similar over time, suggesting that while the oil boom may impact levels of inequality, these differences are becoming less important over time.

Finally, to better understand the underlying mechanisms behind these patterns of inequality, we examine the importance of changes in one key factor over time: unionization (Section 6). Comparing union membership among women and men reveals that membership is considerably higher among women throughout the earnings distribution. In addition, while union rates have remained roughly constant among women, they have declined considerably among men, particularly for those in the 2nd and 3rd quartiles in the distribution. To further understand the importance of unions throughout the earnings distribution, we decompose the unconditional union premium as in Firpo et al. (2018), which develops a decomposition similar to the Oaxaca-Blinder decomposition but at any quantile in the distribution. This decomposition exercise reveals three key facts. First, the unconditional union premium is much higher among women compared to men, despite considerably higher unionization rates among women throughout the distribution. Second, while unions provided greater support to men at the bottom of the earnings distribution in the 1990s, this is increasingly less true over time. Indeed, the unconditional union premium is rising in the top half of the distribution and falling in the bottom half of the distribution. Finally, decomposing the unconditional premium into the portion explained by key labor market characteristics, including measures of cognitive ability at age 18, and what remains unexplained suggests that over time, unionization is increasingly less important for the

earnings of men at the bottom of the distribution and increasingly more important at the top. While the unexplained component of the union premium is declining over time at the bottom of the distribution, it is constant, or even increasing, over time at the top. Taken together, these results suggest that the declining importance of unions among men may play a role in the observed rise in inequality. Such findings mirror an extensive literature on the decline of manufacturing and technological change (Autor et al., 2003; Acemoglu and Autor, 2011; Autor et al., 2013; Graetz and Michaels, 2018; Acemoglu and Restrepo, 2020), as unionization rates are considerably higher among men in manufacturing industries at the start of the 1990s.

2 Data, definitions, sample, and institutional details

The primary data used is administrative Norwegian Register Data, provided by Statistics Norway. We combine data from different registers on earnings, employment, demographic characteristics, education, and union membership. We follow the same individuals annually over time, and supplement the annual level data with data from the 1980 census which provides employment information before 1986. Detailed earnings data is available from 1993 on, and we measure pre-tax annual earnings (including self-employment) as the sum of any earnings across any job held in a year. In addition to this earnings measure, we also measure pre-tax income over a longer period, which includes pre-tax earnings and transfers such as parental leave, unemployment, and sickness benefits. Union membership is measured annually as any contribution of dues to a union.

Education data is measured annually, and includes information of any qualification an individual attains in that year. The Norwegian education system provides high-quality education throughout the system from young ages through to higher education (OECD, 2018). Higher education is accessible to all, with no tuition fees and generous financial grants and stipends available to students. We categorize education into three categories throughout, low (ISCED 0–2), middle (ISCED 3–5), and high (ISCED 6–8). For a large fraction of men in the sample, we also observed cognitive ability measures from a test taken at age 18. The test is measured on a 9 point scale, comprising aggregate scores from arithmetic, word similarities, and figures exercises, and takes an average value of 5.

Throughout the paper, we focus primarily on a sample of workers aged 25–60, unless otherwise noted. While we focus primarily on inequality among individual workers, Bennett and Salvanes (2023) presents results on inequality among households, and also includes further details of the construction of the final sample, data sources, and institutional settings in Norway.

3 Describing the evolution of inequality over time

Figure 1 describes the evolution of inequality in Norway over time. Panel (a) focuses on inequality in pre-tax earnings, measured by the 90:10 and 50:10 ratios, and panel (b) focuses on inequality in pre-tax income, where data is available over a longer time horizon, measured by the Gini coefficient. Overall, while inequality in both income and earnings fluctuates up and down, it remains relatively unchanged since the 1990s. Historically, there has been a decline in overall inequality from 1980, seen in Figure 1b using data on income. Consistent with the patterns for earnings in Figure 1a, there exist strong gender differences: while inequality among women has *declined* considerably over time, inequality among men has *increased* since 1980.

4 Relating labor market trends to low levels of overall inequality

4.1 Employment and education

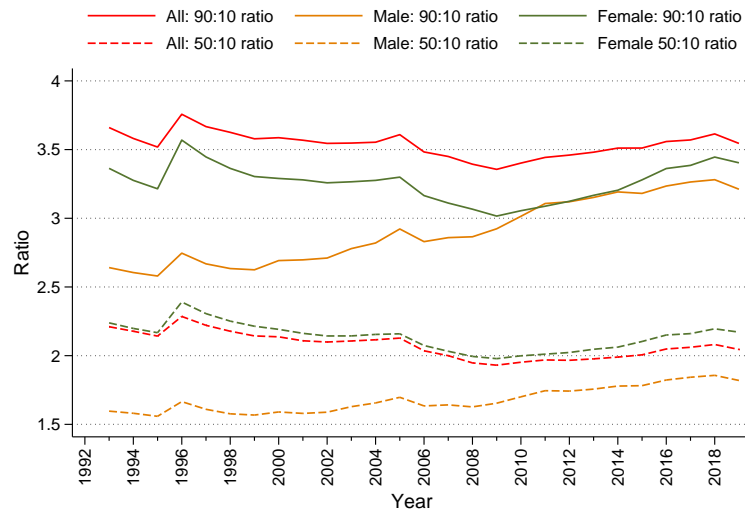
Employment rates are relatively high in Norway, roughly 80% for females and 85–90% for males. While the employment rate of women has steadily increased over time, male employment rate has a slight downward trend in the 2000s.

Norway is a relatively well educated country, although this was not always the case. As seen in many other countries, the proportion of those with low education levels (defined as ISCED 0–2) has declined considerably over time. Middle education (ISCED 3–5) has historically been a very important category in Norway and, due to the division of academic and vocational tracks in upper secondary education, is predominately comprised of those who graduate from vocational education. Middle education has remained relatively more important among men compared to women in recent years. A main reason why Norway has become increasingly well educated over time is the expansion of higher education over time. While this is true among men, it is particularly true for women, where 50% of women aged 25–60 are higher educated by 2019. However, roughly 20% of the population still have low education by 2019, a higher fraction compared to other countries such as the UK or the US.

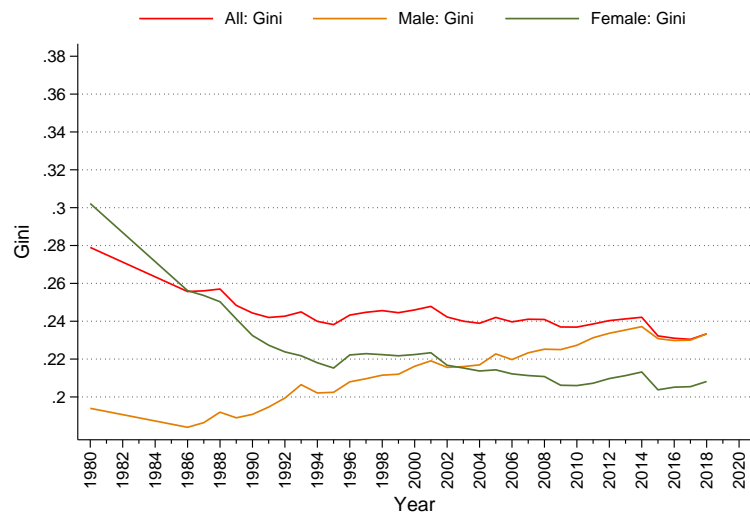
Changes in education are inherently linked to equality, as Figure 3 reveals considerable gaps between the employment rates (panel a) and earnings (panel b) of high- and low-educated workers. Relative to high-educated workers, those with middle education do very well in the labor market. While their earnings lag behind those with high-education, they follow the same trends in earnings over the period. In contrast, the earnings of low-educated workers starts to lag behind in the late 2000s and 2010s. Despite the declining earnings levels among the low-educated, overall inequality in Figure 1 remains unchanged over time.

Figure 1: Inequality ratios of pre-tax individual earnings/income, overall and by sex, over time

(a) Inequality in earnings



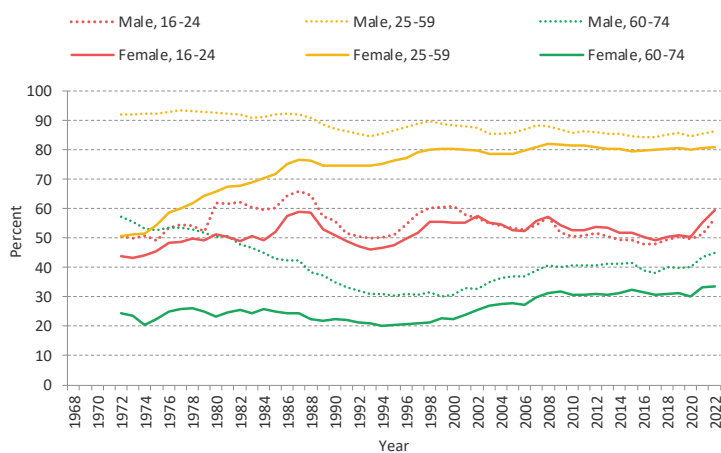
(b) Inequality in income



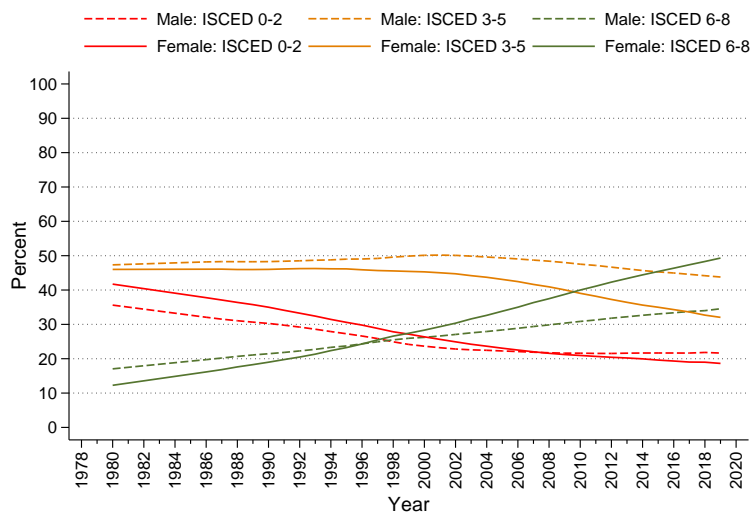
Note: Sample of workers aged 25–60. Gini coefficient in panel (b) excludes the top and bottom 1% of the distribution.

Figure 2: Employment rates and educational attainment by sex, over time

(a) Employment rate



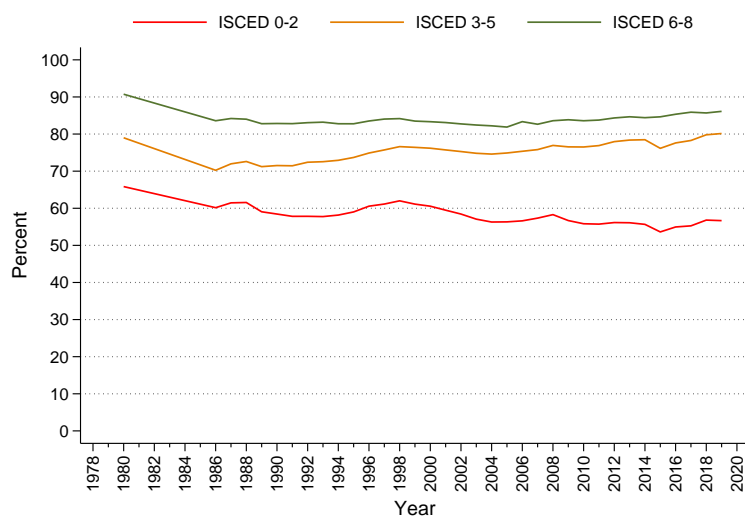
(b) Educational attainment



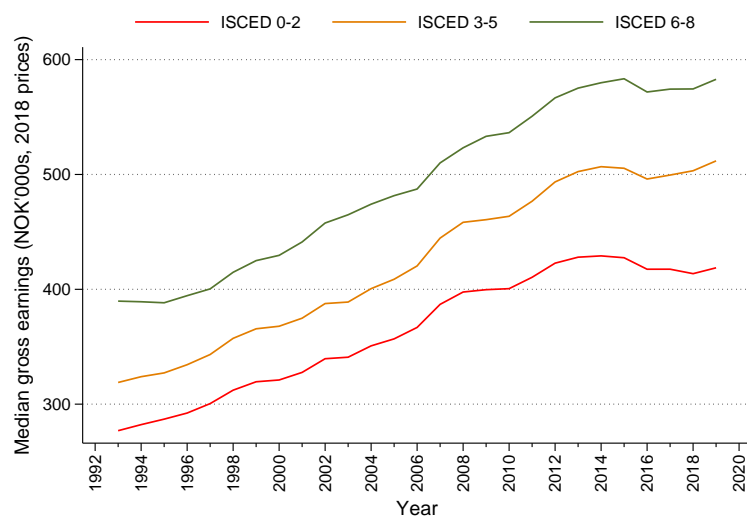
Note: Sample of individuals aged 25–60. Data from labor force survey in panel (a), authors own calculations with register data in panel (b).

Figure 3: Employment rates and earnings by education, over time

(a) Employment rate



(b) Earnings



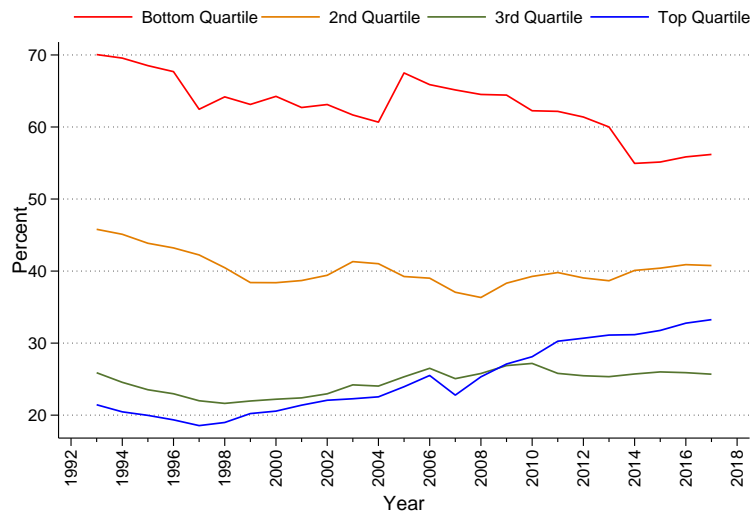
Note: Sample of individuals/workers aged 25–60 in panels (a) and (b) respectively. As of 2018, \$1 = 8.142 NOK; 1 EUR = 9.606 NOK.

4.2 The welfare state

Norway has a strong welfare state which offers a generous support system. The national government finance and organize the provision of public services, however, municipalities have a good deal of autonomy in decisions over social welfare, education, and long-term care. The state promotes active labor market policies through various measures with an aim to help unemployed workers transition back into work. Certain social welfare transfers such as social assistance are means-tested, targeting those from more disadvantaged backgrounds, while benefits such as unemployment insurance and disability insurance are less dependent on an individual's circumstances.

Figure 4 shows strong support from the state, not just in the bottom of the distribution, but throughout the distribution. Indeed, those in the second quartile have strong and consistent support from the state. In addition, the top half of the household income distribution also receives 25–35% of its income of benefits from the state. Interestingly, the top of the distribution is receiving an increasing share of income from benefits, while those at the bottom are receiving a decreasing share of income through benefits over time. The Norwegian welfare state has a considerable role in supporting the income of households throughout the distribution but, in particular, at the bottom of the distribution.

Figure 4: Benefits as a proportion of income, by net household income quartile



Note: Sample of individuals aged 25–60.

4.3 Labor market institutions

Norway has historically had strong labor unions, and although unionization rates have declined in recent years, high unionization persists over time with rates of over 50% among all employees aged 25–54 by 2019 (Figure 5). Unions collectively bargain over wages in Norway and play a key role in

such negotiations. By international standards, Norway has a relatively compressed wage distribution. The compressed wage distribution in Norway may be an important factor behind low levels of overall earnings inequality as while inequality in hourly wages has increased in other countries such as the US, it has remained relatively flat in Norway.²

Figure 5 also highlights the differences in unionization rates by sex (panel a), education levels (panel b), and immigrant status (panel c). Across all three measures, there exist strong differences in the probability of being a union member. Females have considerably higher unionization rates compared to men, and this difference is increasing over time. While the unionization rates of females are virtually flat at 60% from 1993–2019, male unionization rates decline considerably, from 53–44%. High- and middle-educated workers see relatively smaller declines in unionization over time, while low-educated workers see the largest declines in unionization, from 50–36%. As such, the relationship between union membership and education has become increasingly strong over time in Norway. Focusing on differences by immigrant status reveals that as the immigrant share has increased (see section 5.2), unionization rates have declined considerably among immigrants. While those born in and out of Norway have equal rates in 1993, there exists an 18 ppt gap in unionization by 2019, as the decline in unionization is comparatively much smaller among Norwegian born workers. Such strong differences across all three factors highlight the importance a more detailed analysis of inequalities beyond the aggregate measures.

4.4 The Importance of Oil

The discovery of oil in 1969 in Norway, and the subsequent oil boom, may also impact levels of inequality. Consistent with this, Bütikofer et al. (2022) show that the oil boom increases intergenerational mobility among men but not for women in areas which experienced a boom in the oil industry. To the extent that the oil and natural resource industries provide high paid job opportunities among the low-skilled (Black et al., 2005; Emery et al., 2012; Wilson, 2020), high oil areas would have lower levels of inequality. However, as the oil industry developed over time, high-skilled opportunities also grew. In addition, the labor market impacts of the oil boom also differ between men and women (Kearney and Wilson, 2018; Bennett et al., 2021).

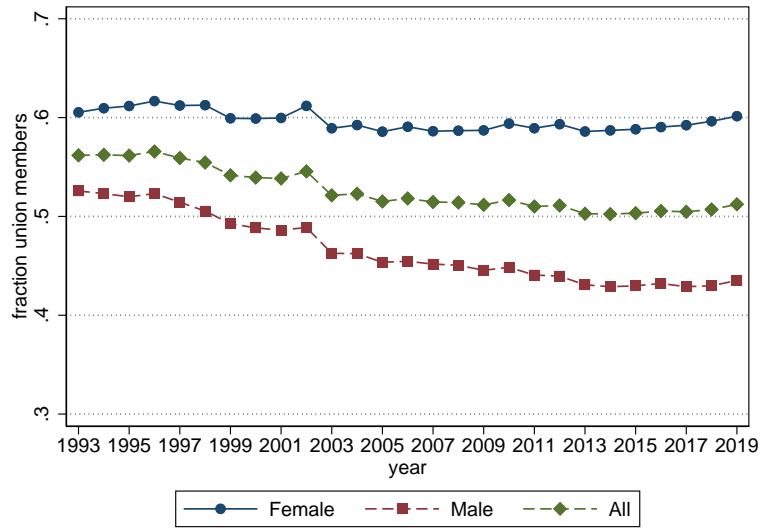
Figure 6 presents the evolution of inequality over time between high and low oil areas for men (panel a) and women (panel b). Following Bütikofer et al. (2022), we define high and low oil areas, where a high oil area has more than 10% of employment in the oil industry in 1980 and a low oil area has employment of less than 7.5% in the oil industry.

While the oil boom may impact levels of inequality, it seems that over time, high and low oil areas become increasingly similar in terms of inequality. For men, inequality is slightly higher in low oil areas

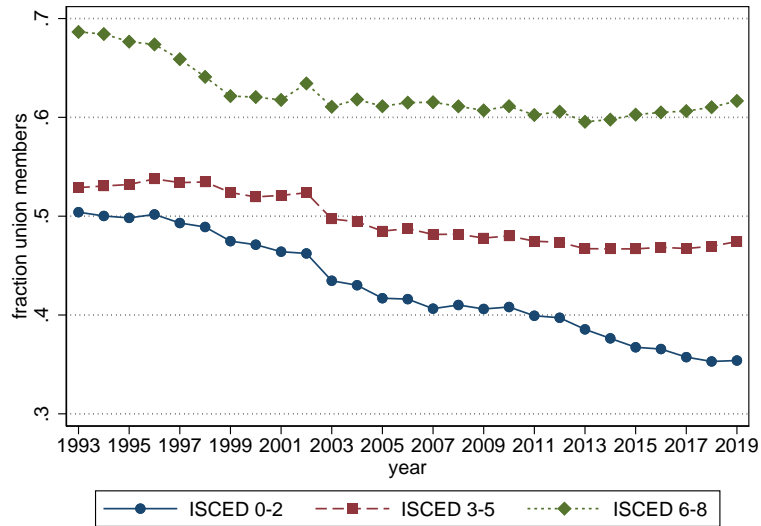
²Results are reported in the full set of analyses in Bennett and Salvanes (2023).

Figure 5: Union density over time

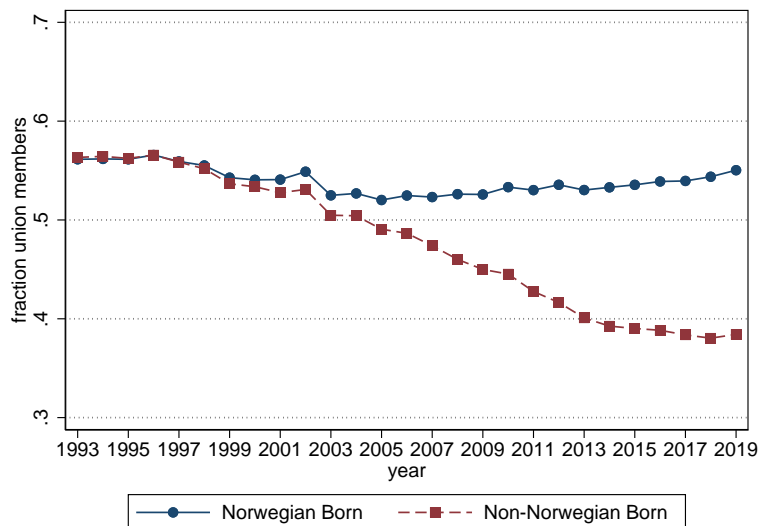
(a) Union density by sex



(b) Union density by educational attainment



(c) Union density by immigrant status

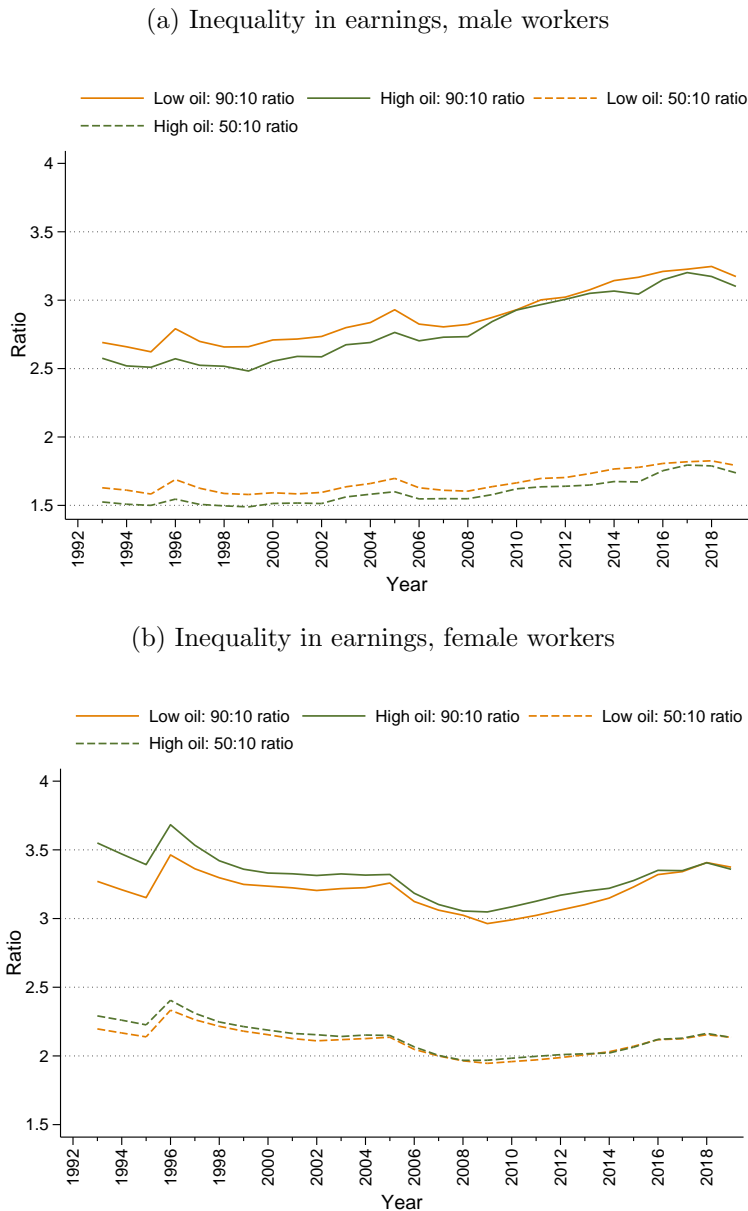


Note: Sample of workers aged 25–54. Sample is restricted to those with 1 “Grunnbet” to ensure attachment to the labor market (1 grunnbet is an amount which corresponds to one basic amount in the National Insurance system, 96883NOK in 2018). Immigrant status defined using country of birth.

compared to high oil areas, suggesting that the oil boom may have slightly lowered levels of inequality for men. However, these differences fade out over time, and low and high oil areas become increasingly similar over time and follow a similar trend of increasing inequality.

For women, in contrast, inequality is slightly higher in high oil areas, suggesting the oil boom may have increased inequality among women. Similar to the evolution between high and low oil areas among men, these differences also fade out over time as inequality among women in high and low oil areas becomes increasingly similar.

Figure 6: Inequality ratios of pre-tax individual earnings, by high and low oil areas, over time



Note: Sample of workers aged 25–60. High oil and low oil defined as in Bütikofer et al. (2022), where the oil industry comprises over 10% of employment in high oil areas and less than 7.5% of employment in low oil areas.

5 Understanding the stark inequalities which remain

While aggregate levels of inequality suggest Norway is a relatively equal country by international standards, closer examination reveals that the big picture overlooks stark levels of inequality by education, gender, and immigrant status.

5.1 Inequalities by sex and education

Given the strong gender differences in education, Figure 7 jointly examines the labor market outcomes by both sex and education. Employment rates of the middle educated are high (Figure 7, panel a), for both men and women, and they are not dissimilar from those with high-education. However, the low-educated lag behind compared to their higher educated counterparts. While low-educated men historically had high levels of employment, this is no longer true.

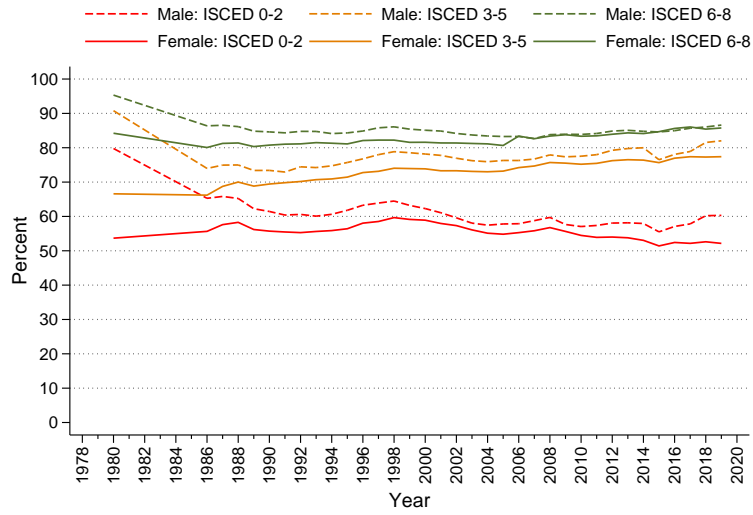
Examining trends in median earnings (Figure 7, panel b) also points to large earnings gaps by education. As with employment rates, the low-educated fall behind their higher educated counterparts over time; this is true for both men and women. In addition, there are even starker patterns of gender inequality among workers with different education levels: at all education levels, earnings of women lag behind earnings of lower educated men.³ For example, the median earnings of high-educated women are not only less than high-educated men but are also lower than median earnings of middle-educated men. A similar pattern exists for middle-educated women: not only do such women have considerable gaps in earnings to middle-educated men, they also lag behind low-educated men.

While the middle educated perform relatively well in the labor market, they do so within their own gender. As such, focusing on inequality levels within women, as in Figure 1a, masks considerable differences which exist between women and men. Despite the strong performance of middle-educated men in the labor market relative to women, inequality has increased considerably among men over time while falling for women. The strong performance of middle-educated men relative to the high-educated suggests that those with vocational high school degrees, which dominate the middle-education category in Norway, don't contribute greatly to the rise in p90:p10 among men. However, the declining relative positions of low-educated workers may contribute somewhat towards increasing inequality among men observed in Figure 1a.

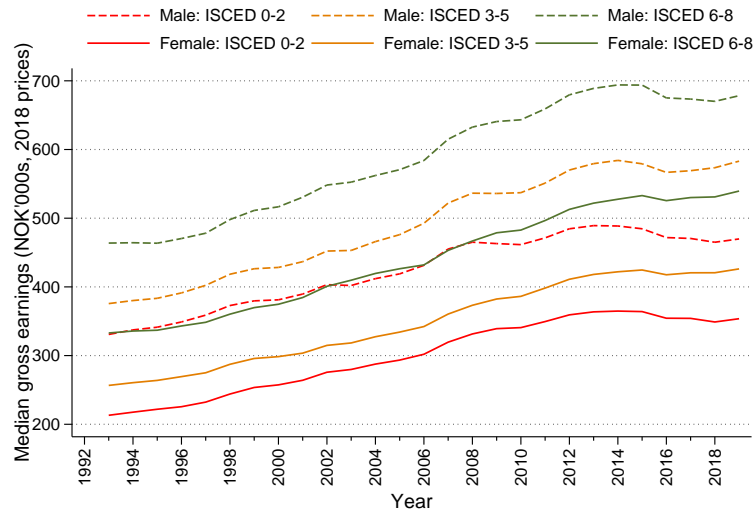
³Results using wages show similar patterns, suggesting differences in hours worked by sex are not the dominant explanation behind such patterns.

Figure 7: Employment rates by sex and education, over time

(a) Employment



(b) Individual Earnings



Note: Sample of individuals/workers 25–60 in panels (a) and (b) respectively.

5.2 Inequalities by immigrant status

Norway has historically had very low levels of immigration, however, those born outside of Norway have become an increasingly dominant share of the population recently. In 1970, immigrants accounted for just 3% of the population. Over time, there has been considerable growth in the immigrant share. Despite the strong growth of immigration into Norway, immigration is not the sole driver of rising inequality among men over time.

Panel a of Figure 8 plots the growth of the immigrant share over time. In 2004, an expansion of the European Union, which facilitated a more accessible immigration process into Norway from newly included countries, increased the growth of the immigrant share. By 2017, immigrants make up nearly 23% of the total population. This strong growth in immigration after 2004 represents a doubling of the immigrant share over the 13 year period.

Panel b suggests that, coinciding with increasing rates of immigration, the economic opportunities available to immigrants have become increasingly lower paid over time. While the growth of the immigrant share at the bottom of the earnings distribution was increasingly prior to this expansion, in particular among the bottom 10%, the expansion of the EU made this growth even more pronounced. By 2017, immigrants are overwhelmingly concentrated at the bottom of the income distribution.

While a number of explanations may be behind this, a remaining question is how much immigration has impacted the overall growth in inequality observed among men. Panel c of Figure 8 re-creates the growth of earnings inequality over time focusing just on those born in Norway. Despite considerable influx of immigration into Norway, panel c suggests that while immigration is certainly important for inequality, it is not the sole driver of rising inequality for men: focusing on changes in inequality among native men reveals a similar, albeit slightly smaller, rise in inequality compared to that in Figure 1a.

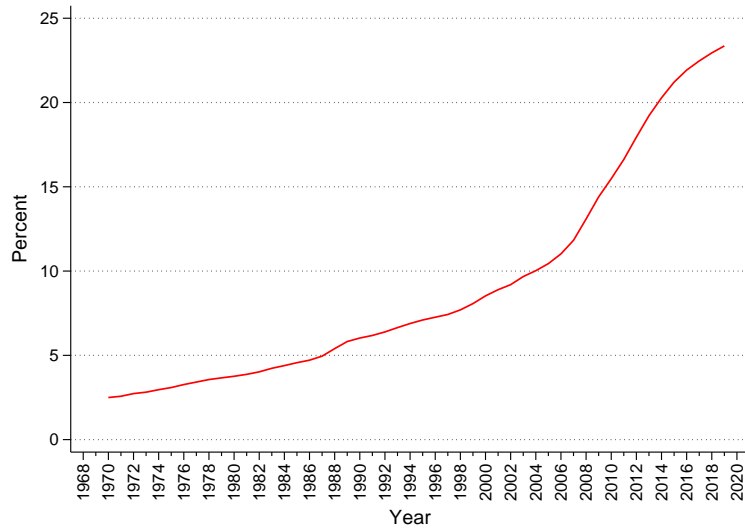
6 Decomposing the importance of unions for inequality

To further understand the underlying mechanisms behind the rising inequality among men, Figure 9 describes the importance of unions throughout the earnings distribution.

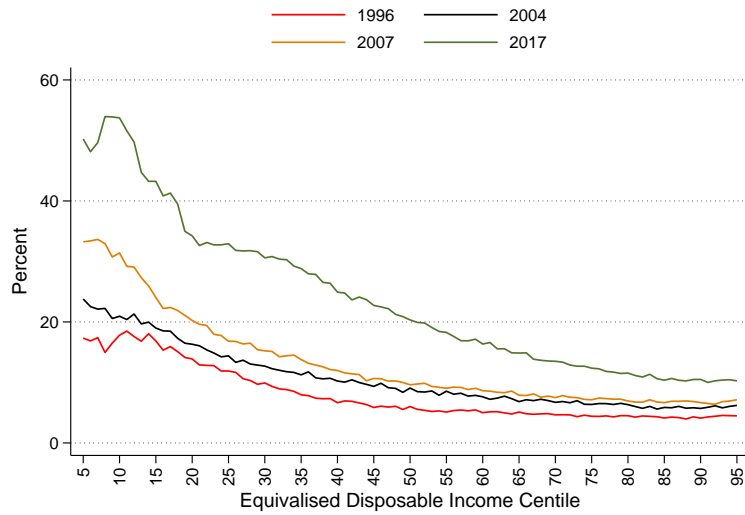
Panels (a) and (b) break down union membership rates across the earnings distribution for men and women respectively. At the start of the 1990s, unionization was stronger among the middle 50% of the earnings distribution for men (panel a); by 2017, this is no longer the case. Indeed, unionization among men was prevalent in the middle 50% of the distribution in the early 1990s, with unionization rates from 60–65%, but this declines considerably over the period. By 2017, the top 25% of the earnings distribution have very similar rates of unionization compared to men in the the middle 50%. Over this

Figure 8: The importance of immigration in Norway over time

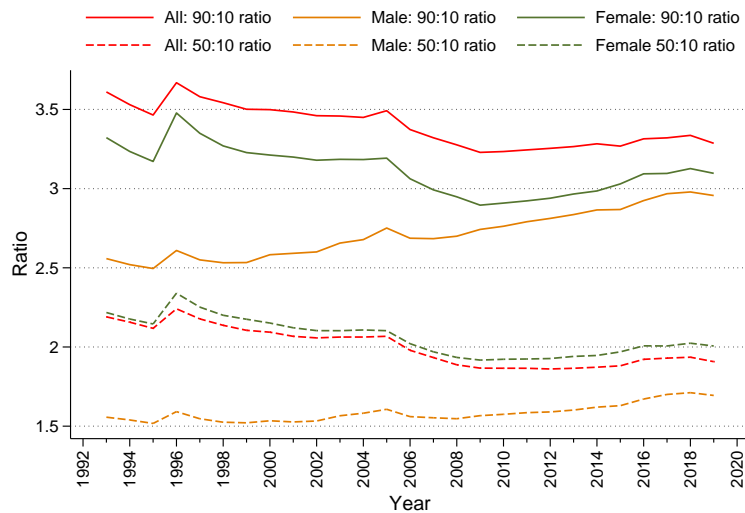
(a) Share of immigrants in population, over time



(b) Immigrant share, by disposable income distribution over time



(c) 90:10 ratio of pre-tax individual earnings, Norwegians



Note: Sample of individuals aged 25–60 in panels (a) and (b), workers aged 25–60 in panel (c).

25 year period, the average union member has shifted across the distribution for men. This is true even at the bottom of the distribution, which has historically had the lowest rates of unionization, and increasingly become less unionized over time relative to the top 25% of the distribution.

In contrast, rates are stable throughout the distribution over time for women (panel b). While there exist level differences, with high rates of unionization among women above the bottom quartile of the earnings distribution, the trends in unionization are relatively similar across all quartiles. The decline in unionization rates among men relative to women, particularly among those outside of the top 25% of the earnings distribution, suggests declining union membership may play an important role in increasing inequality among men.

To shed further light on the importance of unions for earnings, panels c and d estimate the unconditional union premium for men and women at different points in the earnings distribution. Using the quantile decomposition methods developed in Firpo et al. (2018), we estimate the union earnings premium at various points in the earnings distribution and describe what factors explain the earnings gap between union and non-union members. The approach produces results similar to the standard Oaxaca-Blinder decomposition, with the advantage that the union premium can be estimated throughout the distribution and not just for the average worker.

Two important facts emerge from this exercise. First, the unconditional union premium is much higher for women compared to men. This is true across all years and throughout the distribution, where females at the same point in the gender-specific earnings distribution have an estimated union premium 2–3 times higher than equivalent men. These strong differences are even more striking because unionization rates are so much higher among women compared to men, and increasingly so over time. For instance, while the second quartile has similar rates of unionization among men and women in 1993 (panels a and b respectively), unionization rates are roughly 15ppt higher by 2017 among women relative to men.

Second, while the union premium remains positive among men in the bottom 50% of the distribution, it declines considerably throughout the period and does so unevenly throughout the distribution. As a result, the difference in the union premium to the decile above shrinks at each point in the earnings distribution, as the union premium declines in the bottom of the distribution and rises in the top of the distribution. While unions provide greater support to the earnings of men the lower they are in the earnings distribution, this is increasingly less true over time. For instance, in 1993 the premium is 0.28 at the 20th percentile, 0.17 in the 30th percentile, and 0.12 in the 40th. By 2017, these same premia are 0.17, 0.13, and 0.10. In contrast, those in the 50th, 60th, and 70th percentiles have unchanged, or even higher, union premia over the same period. The shrinking importance of unions across the male

earnings distribution stands in contrast to women, who see a much more constant change in the union premium throughout the earnings distribution.

As unions increasingly provide lower earnings premia to those in the bottom half of the distribution, panel e reveals that inequality and the average union premium in the bottom half of the earnings distribution diverge over time. While the unconditional union premium shrinks considerably, inequality among all men rises steadily. This strong association suggests an important role of unions for overall inequality, as the difference between union and non-union members has eroded in the bottom of the earnings distribution while overall inequality has increased.

6.1 Decomposing the importance of factors which explain the union premium

The union premium can decline among men at the bottom of the distribution and rise among men at the top of the distribution for a host of different reasons. A remaining question is how much of this change is due to changes in patterns of selection into unionization and how much is attributed to unexplained factors which exist between union and non-union members. Indeed, we might expect that selection into unionization changes considerably over time as unionization declines from 53–43% among men from 1993–2017 and unevenly throughout the earnings distribution.

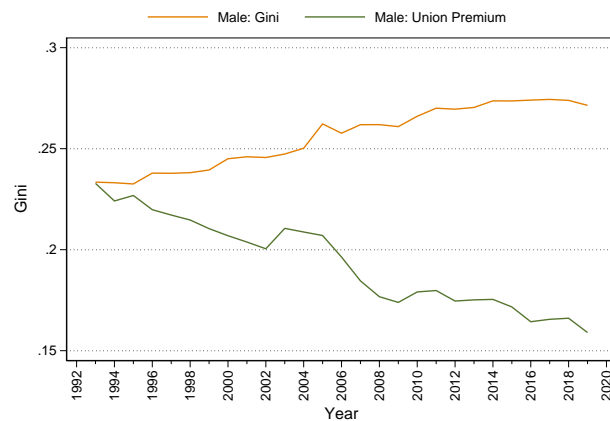
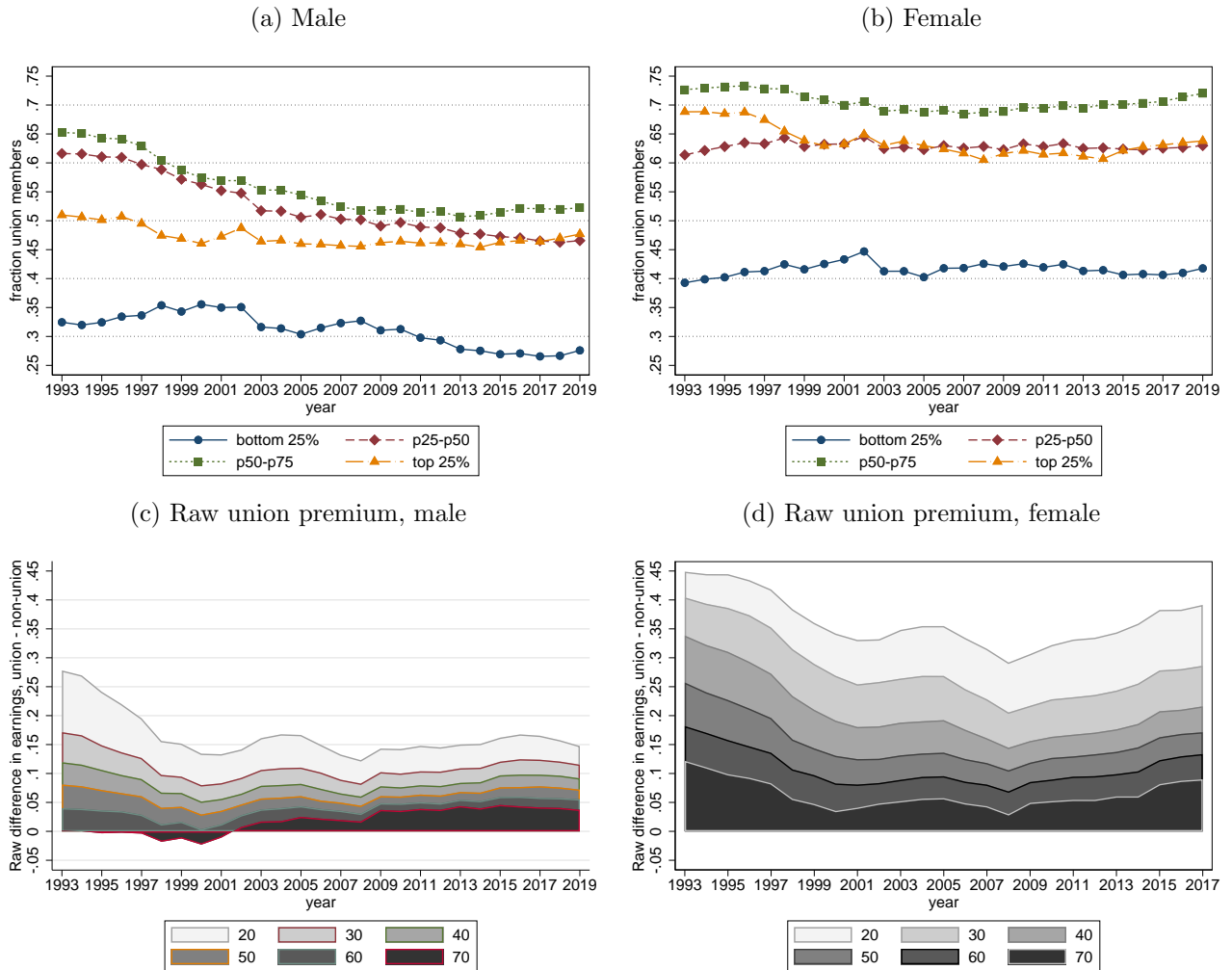
Similar to the standard Oaxaca-Blinder decomposition, the decomposition exercise throughout the earnings distribution as in Firpo et al. (2018) decomposes the unconditional difference in earnings between union/non-union members into an explained and unexplained component. Given the detailed data available for key labor market characteristics of men, where we also have data on cognitive ability measured at age 18 for all men in the sample used in Figure 10, we ask how these explained and unexplained components vary over time. Equation (1) details the standard Oaxaca-Blinder decomposition of the union earnings premium:

$$\overline{\ln W_u} - \overline{\ln W_n} = \underbrace{\hat{\delta}_u(\overline{X_u} - \overline{X_n})}_{\text{explained by differences in characteristics}} + \underbrace{\overline{X_n}(\hat{\delta}_u - \hat{\delta}_n) + (\hat{\delta}_{u0} - \hat{\delta}_{n0})}_{\text{unexplained component}}, \quad (1)$$

where $\overline{X_u}$ and $\overline{X_n}$ are vectors of average labor market characteristics—differences in education, cognitive ability, age, and immigrant status—among union and non-union members respectively, and $\hat{\delta}_u$ and $\hat{\delta}_n$ are vectors of estimated coefficients.

Each panel presents the raw difference (already seen in Figure 9, panel c) and the amount of this unconditional difference which is explained by differences in characteristics between union/non-union members. The remaining part in each panel represents the unexplained difference (subtracting the darker shaded region from the lighter shaded region). Focusing on the 20th percentile in panel (a), the

Figure 9: Describing the Importance of Unionization Throughout the Earnings Distribution



Note: sample of workers aged 25–54, panels (a)–(b) and (e), and workers aged 28–42, panels (c) and (d). Panels (a) and (b) show union density across the gender-specific earnings distribution for males and females respectively. Panels (c) and (d) present the raw earnings premium to union membership across the earnings distribution. Panel (e) plots the gini coefficient for men in Figure 1b against the estimated union premium in the bottom half of the earnings distribution. Sample in panels (c) and (d) is restricted to those with 1 “Grunnbølpet” to ensure attachment to the labor market (1 grunnbølpet is an amount which corresponds to one basic amount in the National Insurance system, 96883NOK in 2018). Panels (c) and (d) focus on a sample of workers aged 28–42 for the purposes of having a sample comparable to that in Figure 10.

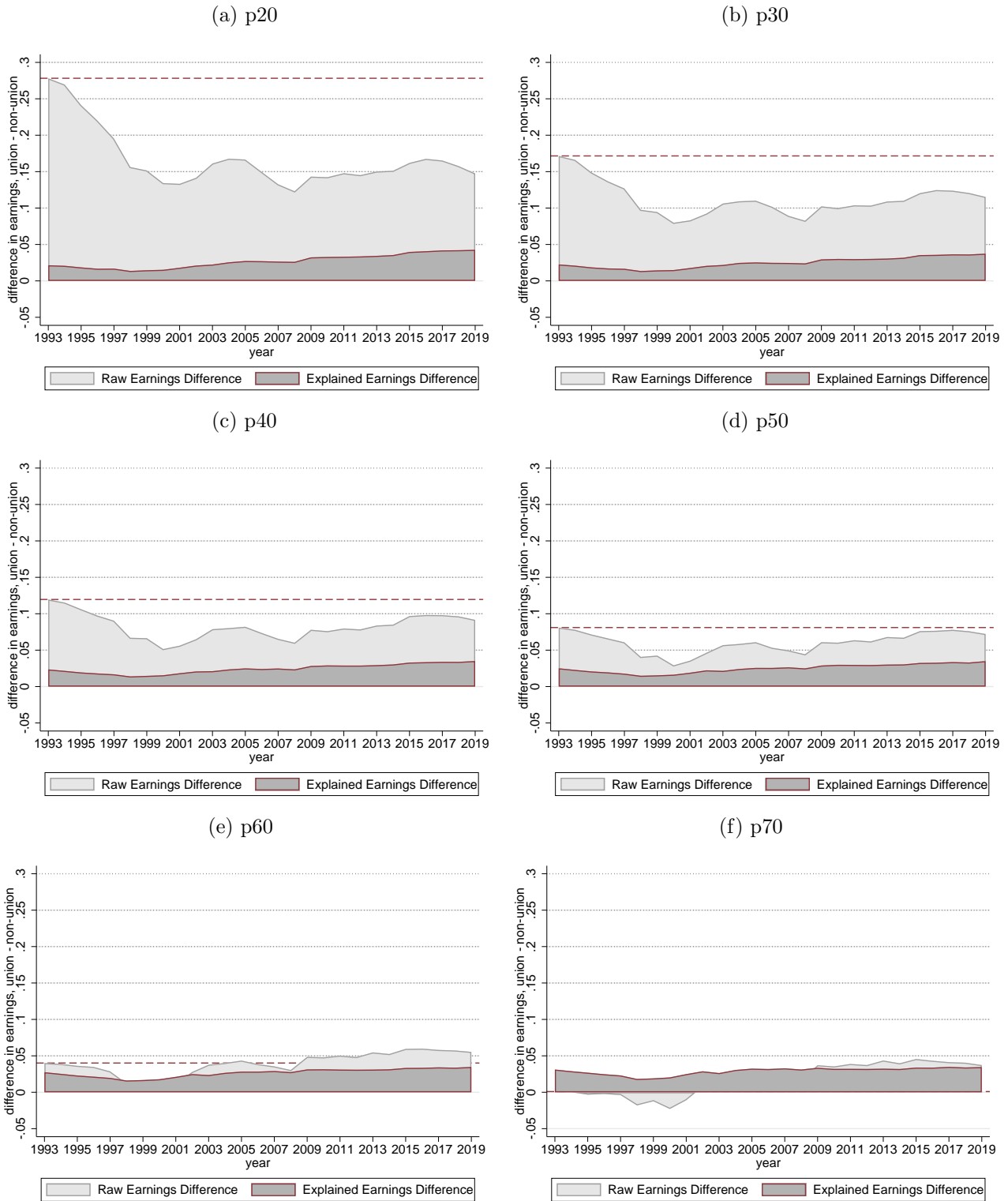
raw premium is 0.278 in 1993, of which 0.021 is explained while 0.257 remains unexplained. While the decomposition exercise does not estimate the causal effects of unionization on earnings, it suggests that there is something which unions do for earnings beyond that which is explained due to differences in education, cognitive ability, age, and immigrant status. Over time, this unexplained component of the union premium is shrinking as the unconditional premium declines and the explained premium rises. By 2017, the raw premium has declined to 0.165, of which 0.042 is explained and 0.123 is unexplained. Thus, while unions still matter for earnings beyond what is explained by important labor market characteristics, this unexplained component has shrunk considerably over time. Similar patterns are seen among those in the 30th and 40th percentiles.

In contrast, those in the 50th–70th percentiles exhibit unconditional premium which are unchanged, or even increasing, over time. At the same time, the unexplained component of this raw union premium is constant, or even increasing, over time. As such, unionization is increasingly *less* important for earnings in the bottom half of the distribution and increasing *more* important in the top half of the distribution. Such stark patterns, combined with the differences observed in Figure 9, suggest that the declining importance of unions among men may play an important role in rising inequality.

7 Conclusion

Overall levels of inequality in Norway remain low, in part due to a strong welfare system. Despite this, there exist considerable inequalities in Norway along important dimensions such as gender, education, and immigrant status. Similar to many countries, inequalities by education are increasing over time in Norway, as the labor market prospects of the low-educated have deteriorated relative to middle- and high-educated workers. Considerable gender gaps exist, where, on average, educated women earn less than men with lower levels of education. Immigrants are increasingly concentrated at the bottom of the income distribution, yet strong increases in immigration into Norway have not fueled rising inequality among male workers. The declining influence of unions among men in the bottom half of the earnings distribution suggests that shifts in unionization over time explain some of the rising levels of inequality among men.

Figure 10: Decomposing the Importance of Unions for Earnings Throughout the Distribution



Note: sample of males workers aged 28–42 for whom cognitive ability data is available. Figure decomposes the unconditional earnings difference between union/non-union members into explained and unexplained components throughout the distribution as in Firpo et al. (2018). Panels (a)–(f) present results for the 20th, 30th, 40th, 50th, 60th, and 70th percentiles. Light shaded area represents the unconditional difference, darker shaded region represents the component of the difference explained by key labor market characteristics, while the difference between the light and dark shaded areas corresponds to the unexplained component. Dashed maroon line corresponds to the unconditional earnings premium in 1993. Sample is restricted to those with 1 “Grunnbøløpet” to ensure attachment to the labor market (1 grunnbøløpet is an amount which corresponds to one basic amount in the National Insurance system, 96883NOK in 2018).

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