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Abstract

In the present report, we investigate the patterns and trends of inequality in disposable income in the working-age population in Swedish municipalities 1986-2013. This period coincided with when Sweden changed from very low levels of inequality to one with substantially increasing inequality.

Incomes has increased in all parts of Sweden, but differences in incomes between municipalities have widened. As a result, large parts of Sweden have become poorer in a relative, although not in a nominative sense. At the same time, income inequality has increased substantially within as well as between municipalities. Present-day Swedes live in much more unequal environments, both at the national level and in the municipalities. The large city areas, or at least part of them, have had a much more advantageous economic development, but they also became more unequal. We see a division between parts of Sweden; there are clear differentiation tendencies between urban and rural parts, centre and periphery. Another finding is that the relation between mean income and income inequality has changed from the 1980s to the present. This association was negative a couple of decades ago, meaning that inequality was somewhat higher in poorer municipalities. From the 1990s onwards, the association is instead positive – affluent municipalities are more unequal.

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Income inequality in Swedish municipalities 1986-2013. Development and regional patterns[1]

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Introduction

Throughout the history of human societies, power distribution between people has always been unequal, but to a larger or smaller extent. Some have the power to rule while others are subordinate, sometimes having very restricted chances to influence their own lives and the lives of others around them. One crucial factor determining power and status in societies is access to economic resources. Income distribution is a theme that has gained increased interest in recent years, exemplified by the studies of Piketty (2014) and Atkinson (2016). Worries about increasing differences are now heightened, and differential access to economic resources has been identified as one of the significant problems in the world. In societies around the world: "… today, we face a powerful threat to progress around the world: Inequality" (World Bank 2016, ix). Sometimes inequality has not been considered a problem as long as the economy improves for all groups. Many assume that good possibilities for the wealthiest and most potent to earn even more are beneficial for the economy in societies as a whole, i.e., for groups that lag. The economy and living conditions of the less affluent would gain from an economic development stimulated by allowing the rich to be even more prosperous. This idea of benefits trickling down has, however, been questioned. Some argue that the support for any beneficial effects of allowing increasing inequality are small or non-existent (see Rowlingson 2011), and economic institutions such as IMF and the World Bank now express worries about possible adverse effects on the economy of significant differences: "… inequality is constraining national economies and destabilizing global collaboration in ways that put humanity's most critical achievements and aspirations at risk." (World Bank 2016, ix). Income inequality and skewed income distribution can be obstacles to growth and sustainability. In a report from IMF, the authors state: "We find that increasing the income share of the poor and the middle class increases growth while a rising income share of the top 20 percent results in lower growth—that is, when the rich get richer, benefits do not trickle down" (Dabla Norris 2015 et al., 4). The authors conclude that policies need to be country-specific and focus on raising the income share of the middle class and the poor.

Consequently, inequalities observed and experienced by people in the everyday world should be seriously considered. In the present report, we investigate this question in Sweden, a country that has been characterized by a high degree of equality in international comparison. We focus on the local contexts and examine the development of inequality in disposable

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income in the working-age population in Swedish municipalities 1986-2013. This period coincided with when Sweden changed from an equal society with very low levels of inequality by international standard to one with substantially increasing inequality. Since income inequality may be a key determinant of social conditions and health on various geographical levels (Wilkinson and Pickett 2009; Edvinsson et al. 2013; Ng et al. 2020), we here examine the patterns and trends of inequality on the regional level to describe the patterns, rather than to explain the mechanisms behind.

The main questions are:

- Has income inequality at working active ages and within municipalities in Sweden increased in the latest decades?
- Have the differences in economic standards between municipalities increased?
- Have the differences in levels of income inequality between municipalities increased?
- Are the relative positions between municipalities stable over time?
- How is the spatial distribution of income inequality for different types of municipalities?

Economic background

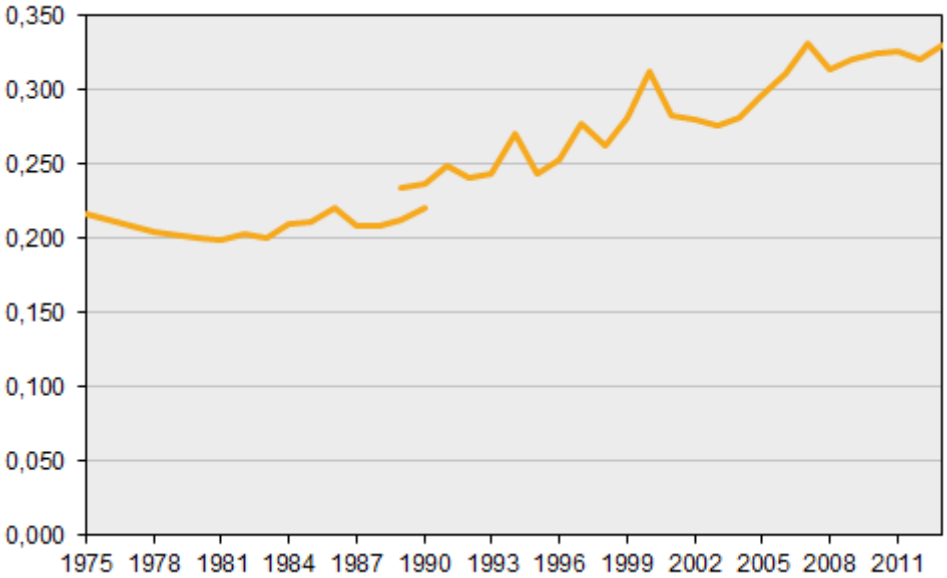
The long-term development of economic inequality has been of interest for researchers for a long time. The most influential scholar in this field has been Simon Kuznets (1955), who suggested that the development of economic inequality during the last centuries is U-shaped. Differences increased during industrialization when those involved in the most profitable economic sectors gained the most but decreased when all parts of society came to gain from the advances in production technology. This hypothesis has in recent years been investigated and revised by the French economist Thomas Piketty (2014). His empirical analyses show that, contrary to what Kuznets stipulated, income and wealth inequality has increased during the last decades from an all-time low around 1980. Piketty ascribes the long period of increasing income equality during the 20th century to capital destruction caused by wars and the political systems in many countries becoming more democratic. This process towards more equality changed, however, towards the end of the century. Thus, the period of high economic equality may instead be a parenthesis in history and not something that finally has ended a world of substantial economic and social differences.

The development of economic inequality in countries worldwide has been analysed in detail from a comparative perspective and for a long-term period by Roine and Waldenström (2014). They set out to scrutinize the Kuznets curve by bringing together income and wealth data to select countries as early as the late eighteenth century for some countries and all up to the present. Their focus is on the top income and top wealth groups, i.e., the share of income and wealth we find in the top decile. In most countries, inequality in income and wealth was historically high in the early 20th century. For some countries, a concentration of wealth and incomes took place before that time, but for most countries, the inequalities were stable at a high level during the 19th century. During the first 80 years of the 20th century, wealth and income inequality decreased considerably almost everywhere, mainly due to less wealth concentration and declining capital incomes for the wealthiest. The increases are associated with periods of high economic growth, while the trend towards equality is closely connected with increased democracy and high marginal taxes. For the last decades, economic inequality has increased, but the patterns differ somewhat between countries. The most significant increases have appeared in the Anglo-Saxon countries, but increases are visible in the Nordic countries. Countries in continental Europe, on the other hand, do not show similar significant

increases. The explanations for the increases also differ. The Swedish increase is predominantly created by a larger share of capital income, while this has not been the case in the US.

Sweden has for a long time been considered an egalitarian society with minor economic differences. However, this characterization is not self-evident anymore, as demonstrated in several studies (Almqvist 2016; Roine and Waldenström 2008, 2009, 2014; Waldenström 2016). Björklund and Jäntti (2011) show that income inequality in Sweden, based on disposable equalized income, had increased in recent decades from the early 1980s when incomes were reasonably compressed. At that time, Sweden must be considered an economically equal society compared to other countries compared to other periods in Swedish history. Inequality has increased after that, particularly from the early 1990s and onwards, possibly partly explained by reforms following the economic crisis at that time. However, reforms that led to some increase in the economic differences were implemented already in the 1980s. Still, Sweden continued to be a comparatively equal society, but the differences have increased substantially during the last 25 years. The level of inequality in 2004, measured from top incomes, was about the same level as in the 1940s (Roine and Waldenström 2008). A possible explanation for this is the growing share of incomes from capital. Income from work is no longer the most crucial factor in determining economic position. Instead, income from the stock market or selling houses or apartments, which often have increased enormously in value during the last decades, cause the most significant differences. There have certainly been increases in income inequality based on employment, but not as much income from capital.

Figure 1. Income inequality in Sweden 1975-2013, Gini index. Based on HEK (Economy of households)



Source: Statistics Sweden

Note: The estimations were based on individual disposable income from the family unit, capital incomes included. The Gini coefficient's calculation changed around 1990.

Sweden has thus experienced an increased economic inequality during the last decades, as shown in Figure 1 from Statistics Sweden. In this figure and our analyses in the present report, the Gini coefficient measures inequality. This coefficient is a commonly used measure for the distribution of resources in societies (a more thorough description of Gini, see below).

The calculations are based on disposable income in the Swedish case, including transfers and income from capita and taxes withdrawn. The gap in the curve around 1990 is caused by a change in the statistics on disposable income (see Björklund and Jäntti 2011, p 28). While the Gini coefficient was very low in the early 1980's — probably among the lowest in the world — there has been a continuous increase in the levels of inequality from the late 1980s and onwards. Inequality levels increased considerably during the years after the economic crisis in the early 1990s. The increase slowed down during the early 2000s, only to increase rapidly once again from about 2005. The increasing inequality could strongly be connected to economic development, employment rates, and political decisions. The economic crisis led to significant reforms in economic politics.

In a recent investigation of the regional differences in Sweden of income inequality, Almqvist (2016) found that the income inequality in 2014 is most prominent in the counties with the big cities. She also analysed the development at the county level from 1996/97 to 2012/2013. In almost all counties, inequality increased during this period, but particularly in the big city counties.

The increased impact of income from the capital has contributed significantly to the higher Gini levels during the last decades. A relevant question is if and how much changes in economic politics contributed to the development of more significant differences. A welfare system has characterised Sweden with high taxation and substantial redistribution between population groups. Following the Nordic version of the welfare system (Esping-Andersen, 2013), much of the transfers are universal, i.e., the whole population gets access to the benefits. After the crisis in the 1990s, the system has been reformed in many ways, for example, lower taxes and a reformed pension system. Palme argues, however, in his analysis of the development from the crisis in the 1990s to the early 2000s that these policy changes "… since 1990 have not changed the redistributive strategy fundamentally." (Palme 2006, 25). If this also holds for the development after that and how much changes in the welfare system have contributed to increasing inequality is not completely clear. (See also Björklund and Jäntti 2011, 47-52, mainly Figure 2.11.)

In a recent study, Aaberge et al. (2016) have studied the development of income inequality in Norway 1875-2013, a country having many similarities with Sweden. Contrary to what often is suggested, they show that 19th century Norway was not an egalitarian society. Income inequality is much lower now than 100 years ago, and the fall in inequality has taken place in a series of episodes. As in Sweden, the most recent decades are characterised by increasing levels of inequality.

Data and methods

In our analysis of economic inequality and economic standard in Sweden, we utilize information from the Linnaeus database (Malmberg et al. 2010), an anonymized longitudinal database maintained at the CEDAR (Centre for Demography and Ageing Studies at Umeå University). The Linnaeus database consists of register data from *Statistics Sweden's* LISA database (a longitudinal database for health insurance and labour market studies) for 1986-2013 and population censuses every fifth year from 1960 to 1990. LISA provides us with basic demographic and economic information. The Linnaeus database also includes several other registers not utilized here, for example, Cause of Death Registry and Patient Registry from *the National Board of Health and Welfare* and the Västerbotten Intervention Project (VIP). Consequently, it provides the researcher with rich information about socio-economic conditions for each individual and residence and the possibility of following individuals' exposure to conditions in their residential areas.

This report analyses the development of incomes and inequality in economic standards in Swedish municipalities 1986-2013. We have annual figures on individual equalized household income (see Definitions) based on LISA data, allowing us to study the development continuously. However, we also present snapshots at specific points in time from 1986 to 2013.

In this study, we use the Swedish municipality structure of 2007. The municipalities are categorized according to the region families of the FA regions (functional regions) (Myndigheten för tillväxtpolitiska utvärderingar och analyser 2015).

- Big city areas – Stockholm, Gothenburg, and Malmö.
- Bigger region centres
- Small region centres.
- Small region – the private sector. Municipalities outside the central areas with an economy dominated by the private sector.
- Small region – public sector. Municipalities outside the central areas with an economy dominated by the public sector.

Two economic variables are created for each municipality, based on economic information at the individual level, i.e., the Gini coefficient measuring income inequality and mean income representing the municipality's economic level

. The Gini coefficient is one out of several commonly used measures of inequality and provides a good characterization of the economic distribution in society. It is based either on the distribution of wealth or, as in our case, income. If there is no difference in income levels, i.e., total equality, the Gini index would be 0. However, if the complete opposite distribution is at hand - one person earns all the income - then Gini would be 1.

Gini index and other measures of income inequality are susceptible to what sort of income data is used. For example, if only gross income is considered, cross-country comparisons are difficult due to differences in tax policies, insurance systems, redistribution systems, etc. Ignoring these aspects of the economy would furthermore be unrepresentative of the actual economic situation of people, something we ultimately strive for in most studies. Other relevant aspects are the family situation and incomes (life-long earnings or measures every year).

When it comes to income distribution, individualized disposable (household) income is the most commonly used measure (see Björklund and Jäntti 2011, p 20 ff). Disposable income is considered to reflect the consumption standard of individuals. Consumption standard is, however, dependent on the household situation. Consequently, the total household income is summarized and divided into household units (according to specific rules defining these units). We then get an equalized household income for each person.

Statistics Sweden has made national income distribution studies based on incomes, transfers, and taxes from 1975. These are presented in "Hushållens Ekonomi” (household economy, abbreviated HEK), which is included as the Swedish contribution to "Luxembourg income study" (LIS), an organization creating a database of comparable income data. HEK is a yearly survey for collecting economic data on the household level (SCB 2016). A difference concerning the Swedish data between HEK and LIS is that “realiserade kapitalvinster” (capital incomes) are excluded in LIS. The reason for this is that information on capital income lacks for many countries. On the other hand, income information is vital for understanding differences in economic conditions. When working with Swedish data, it is, therefore, an advantage to use HEK. In LISA, which is part of the Linnaeus database, the variable used in our studies is equalized individual income.

We have also calculated the mean income for each municipality to measure the general economic standard in residence for the studied population. The estimation is based on the same income data as for the Gini coefficient, i.e., individualized disposable household income in the age group 30-59 years for 1986-2013, equalized for family size. By restricting the population into this age group, we base the measure on those in working-active age and, consequently, avoid it being diluted by age structure, such as having a large population retired or studying. We do not want the economic differences to be a function of age structure in the municipality. The mean income is corrected for the consumer price index according to the 2013 currency.

Outline of analysis

In the following, we present and discuss the development of mean income and income inequalities in municipalities and according to the type of municipality and the associations between the two measures in animations and figures for 1986-2013 together with the situation in 1970 a background. First, an animation illustrates the changing patterns of income inequality and mean income and possible changes in the relation between these two variables. After that, we look at the geographical distribution of mean income and income inequality at the start (1986) and end (2013) of our studied period. The results give us an idea of the geographical distribution of these variables. Finally, we analyse the possible stability in the relative position of municipalities when it comes to mean income and the Gini coefficient as a measure of income inequality.

Results

The association between income and income inequality 1986-2013

In the present section, we investigate the differentiation, especially economic standards and income inequality patterns, on the municipality level. Are the observed changes at the national level due to economic segregation between municipalities, i.e., are the differences in mean income between municipalities increasing. In contrast, the income inequalities within municipalities are stable, or do we find increasing inequalities within municipalities? First, we look at the general development of these measures for 1986-2013, and then we turn to the relation between economic standard and income inequality.

The development is shown in Animations 1-3 and Figure 2-4. In animation 1, mean income is presented in the x-axis and income inequality measured by the Gini coefficient in the y-axis. Municipalities have different colours depending on the region family they belong to, the mean income is given in 100 SEK (corrected for consumer price index of 2013), and the size of the bubbles corresponds to population size. As mentioned, both measures are based on disposable equalised individual income for the population 30-59 years. Animations 2 and 3 present the same development but are separated according to population size (largest 50% vs. smallest 50%). The development of single municipalities can be identified by scrolling over the bubble, and users can stop the animation at any year. The code for each identity is presented in the appendix.

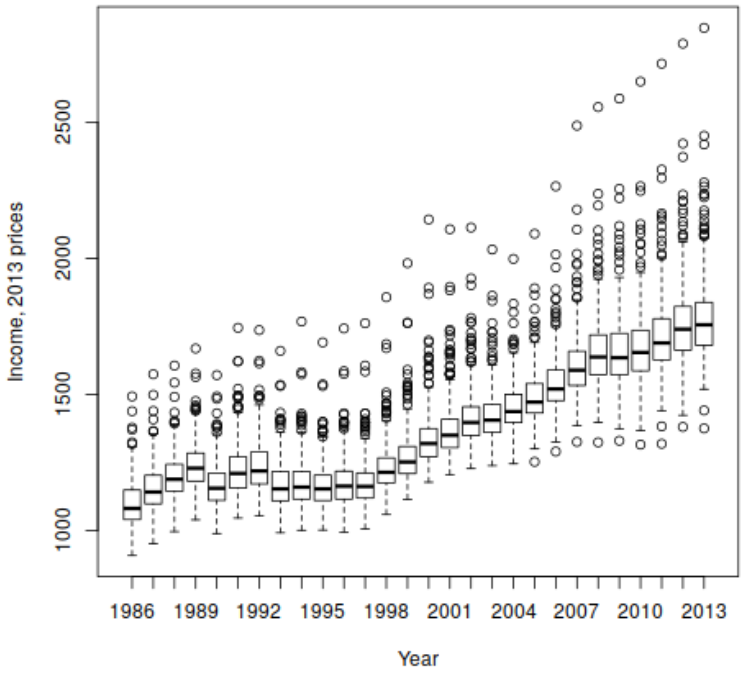
If we start by looking at the development of mean income on the x-axis in animation 1, we observe a substantial increase during this period; in broad terms, the incomes have increased three to four-time and in several municipalities even more (Animation 1 and Figure 2). It is also evident that some municipalities have been much more favoured than others. In 1986, the differences in economic levels measured in this way were relatively small (Ödeshög in the county of Östergötland having the lowest and Danderyd north of Stockholm the highest with 64% higher incomes). However, the dispersion has increased during the following 27 years, illustrated both by a higher standard deviation and a more significant difference between the

richest and poorest. Some municipalities have become extremely better-off than others; the most apparent ones are Danderyd and Lidingö right north of Stockholm. In 2013, the mean income was almost three times higher in Danderyd than the municipality with the lowest mean income – Årjäng in Värmland County. The majority are, however, clustered within a smaller spectrum, although with somewhat increased differences. First, let's look at the types of municipalities. The animation shows that those in the big city regions generally have higher incomes, becoming increasingly apparent as time goes by. Still, the differences between municipalities in this region type have also become more significant in recent years. The differences between other municipality types are less clear, even though large regional centres' income tends to be higher than in the other region types. Smaller regions and smaller regional centres have comparatively low incomes.

Link to animation

https://erling-lundevaller.netlify.com/post/gini/

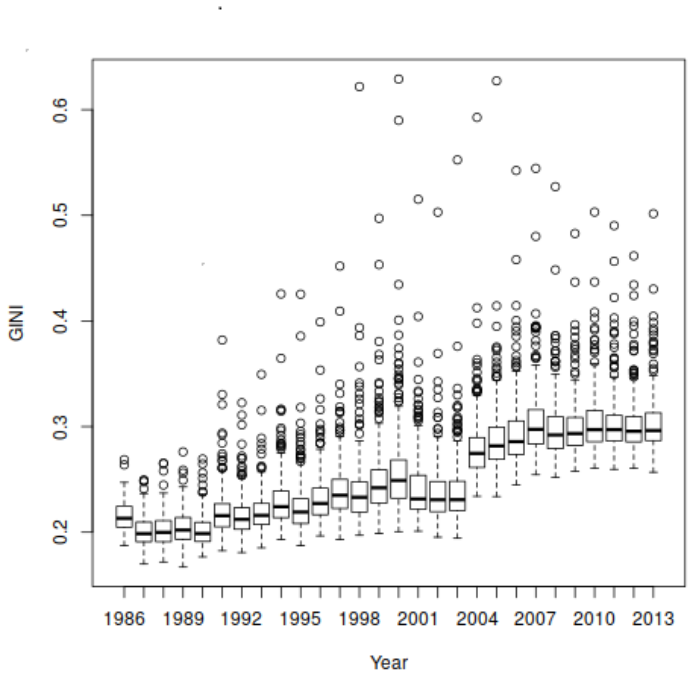
Figure 2. Mean income based on equalized family income for the age group 30-59 years in Swedish municipalities 1986-2013



The development of income inequality in the working-age population (Animation 1, y-axis and Figure 3) shows increasing levels but not as strong as for mean income, except for some municipalities. In 1986, the Gini levels in the municipalities were relatively compressed and, in most cases, very low. The Gini coefficients for almost all were within the range of 0.19 (Oxelösund south of Stockholm lowest with 0.187) to 0.27 (Borgholm on Öland with 0.268, a difference of 43%) in 1986. Swedish municipalities were consequently characterized by high-income equality. During the years following the economic crisis in the early 1990s, Gini levels increased. No longer do we find any municipality having below 0.25. Inequality continued to increase, but from about 2007, the Gini levels have not increased in the same way as before. The range in 2013 was within 0.26 (Dorotea in Västerbotten county with

0.257) to 0.39 and a couple of outliers (Danderyd with 0.50 as the highest and Lidingö). Not only is there a trend towards increasing inequality within municipalities, but the distribution of Gini has also turned larger during these decades. Thus, there has developed a differentiation in local inequality patterns in Sweden, also indicated by increasing standard deviations in 2013. For single municipalities, there are sometimes yearly solid deviations in Gini levels.

Figure 3. Income inequality (by Gini) based on individualized equalized disposable household income for the age group 30-59 years in Swedish municipalities 1986-2013



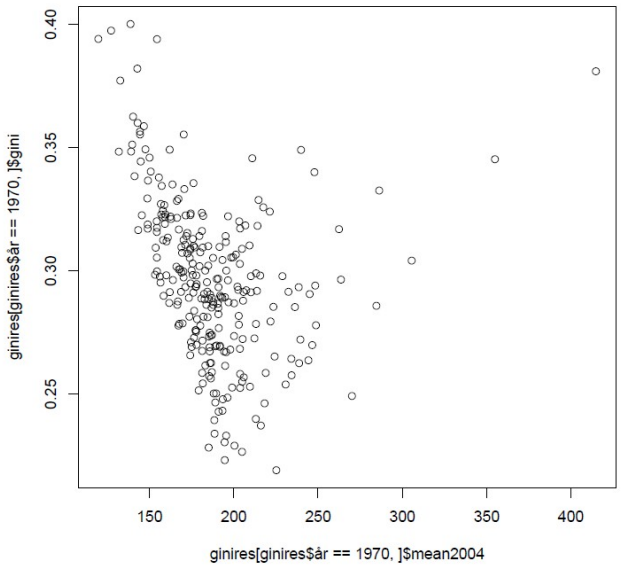
When it comes to the development according to region type (see Animation 1), we find that municipalities in the large city areas had a much more rapid change towards higher inequality and mean incomes. On the contrary, municipalities of the other types are mainly clustered with reasonably small differences. However, the small region municipalities had the lowest incomes and were most economically equal at the studied period. Thus, the large city areas have distanced themselves from the rest of the country.

We now turn to how the association between economic standard and income inequality has developed. In animation 1, we plot the relationship between the two measures: mean income and income inequality in municipalities and its development, both based on the population 30-59 years at different points in time from 1986 to 2013. As historical background, Figure 4 adds the relation for 1970, thereby extending the development time frame. However, the data for 1970 (taken from census data) is somewhat different and not wholly comparable. It is, however, of interest to compare the basic pattern of the distribution of income with what we see later. Mean income has been converted into the consumer price index based on the figures of 2013.

In 1970, we found a distribution of mean individual income in municipalities from about 120.000 to more than 400.000, but most municipalities within the range 150.000 to a little more than 200.000. The range of income inequality stretches from a low Gini of about 0.21 up to 0.40, i.e., a more dispersed distribution than later. However, a remark is necessary on the 1970 data - the differences become more significant when we use individual income, mainly

when many women had no income of their own or a meager income. Consequently, differences between municipalities could be dependent on gender differences in workforce participation and incomes. Nevertheless, the association between mean income and income inequality is negative. Higher mean incomes in the municipality are associated with more equal incomes. It is mainly a couple of outliers with very high incomes that do not fit into this pattern, indicating a tendency towards a U-shape in the association.

Figure 4. Income inequality (Gini) and mean income (1,000 SEK, adjusted to the price level in 2004). in Swedish municipalities 1970. Based on individual income from work for working-age population 30-59 years.



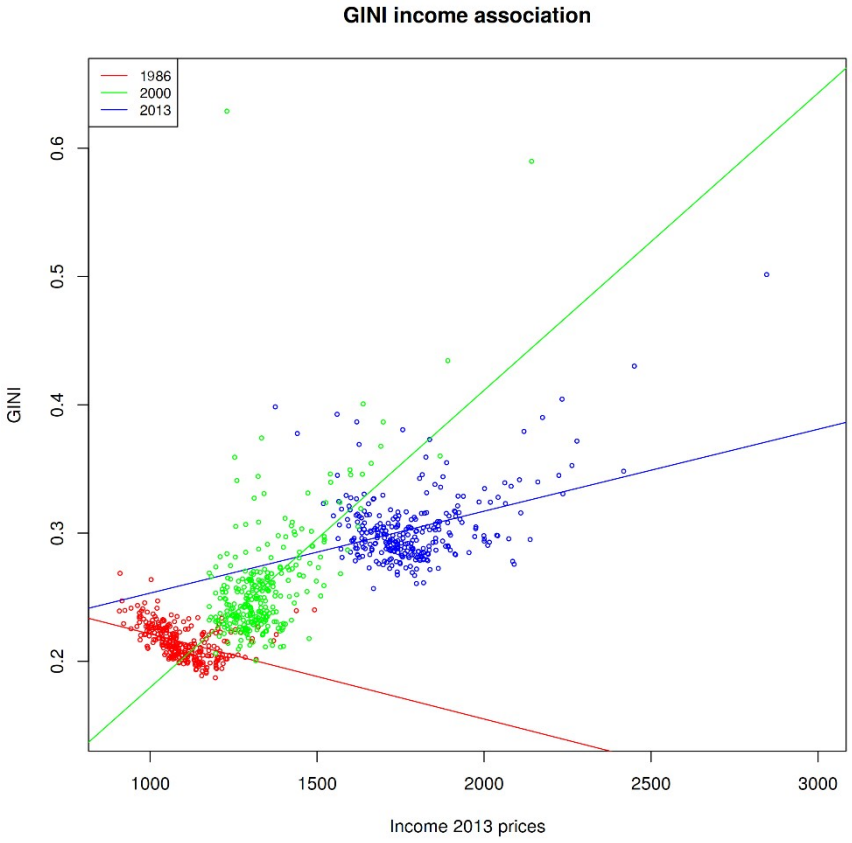
For the chosen years 1986-2013, we present measures based on individual equalized disposable household income. Female labour force participation has increased considerably and does not diverge to the same extent as before. Therefore, one can study the association between mean disposable income and income inequality from Animation 1. The position and development of each municipality can be followed in all animations but especially in Animations 2 and 3. Different colours indicate the characteristics of each municipality.

As mentioned above, mean income and income inequality have increased considerably during 1986-2013, and the increase is apparent in all municipalities, in some cases in a fundamental way. Thus, there has been a shift in economic conditions from a situation where all parishes were concentrated in the low left section of the figure in the animation (representing low inequality and lower mean incomes) towards a situation where all municipalities have drifted towards the upper right corner with higher inequality levels and higher economic standard. This finding indicates that inequality is caused by segregation between municipalities and within these units.

The transformed economy has led to a fundamental change in Gini levels and income (Figure 5). In 1986, in line with the previous situation based on the census 1970, the association was negative but tended towards being u-shaped. Poorer municipalities had more considerable inequality while Gini decreased with higher mean incomes. The exception is a couple of municipalities with high income and high Gini (once again Danderyd and Lidingö north of

Stockholm). In the later periods, the association is entirely positive. At the three points measured in Figure 5, the strongest positive association was in the year 2000. The more affluent municipalities are the unequal ones, and the equal municipalities have low mean income. These differences coincide with more considerable differences in income as well as inequality levels. Consequently, there has been a shift in the association during the economic transformation in the last decades.

Figure 5. The association between mean disposable income and income inequality in Swedish municipalities 1986-2013.



The geography of mean income and income inequality in Swedish municipalities 1986-2013

The previous analyses have shown that the development differed depending on region type, and we have already indicated that there are differences between different parts of Sweden. In the following, we take a closer look at the geographical distribution of incomes and income inequality.

Sweden is a relatively large country in European comparison. It covers significant climate and environmental differences and economy by stretching south to north from 55 to 69° latitude. Maps 1 a-d to 4 a-c show distinct patterns of the economic variables studied here for four points in time − 1986, 1996, 2006, and 2013, corrected for price index of 2013.

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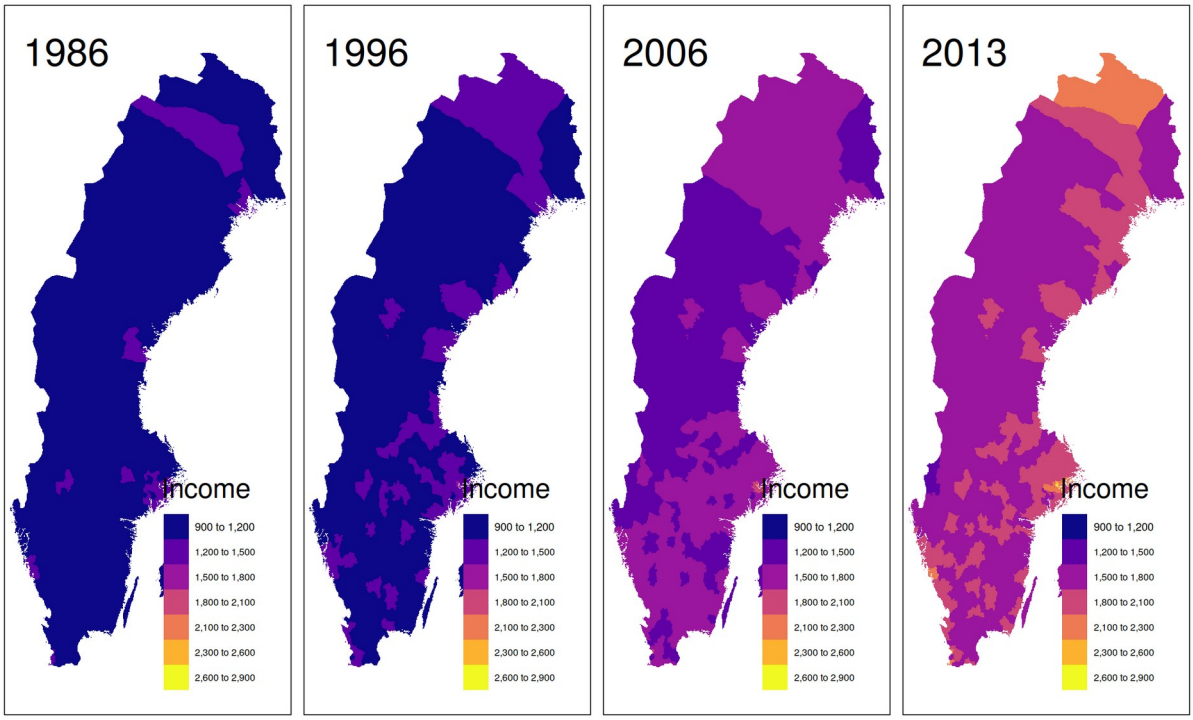
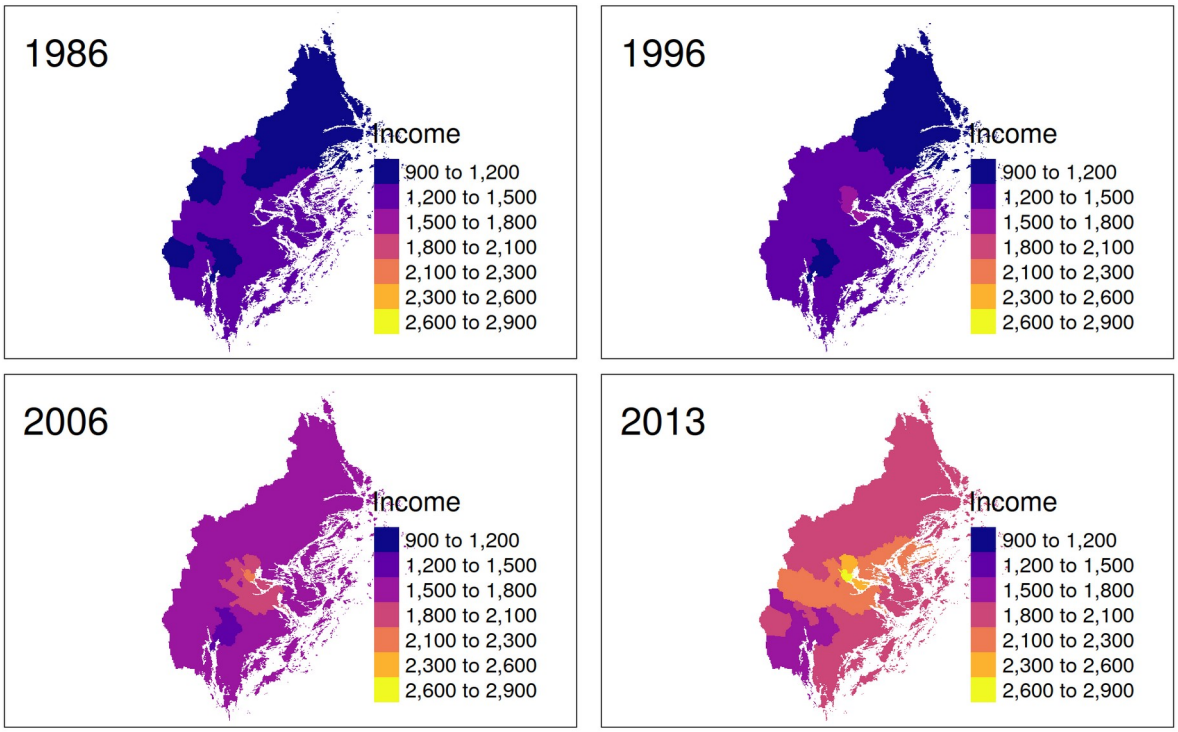
Maps 1 a-d. Mean disposable income for the population aged 30-59 years in Swedish municipalities 1986, 1996, 2006, and 2013. We corrected the estimation for the price index of 2013.



Map 2 a-d. Mean disposable income for the population aged 30-59 years in Stockholm County 1986, 1996, 2006, and 2013. We corrected the estimation for the price index of 2013.

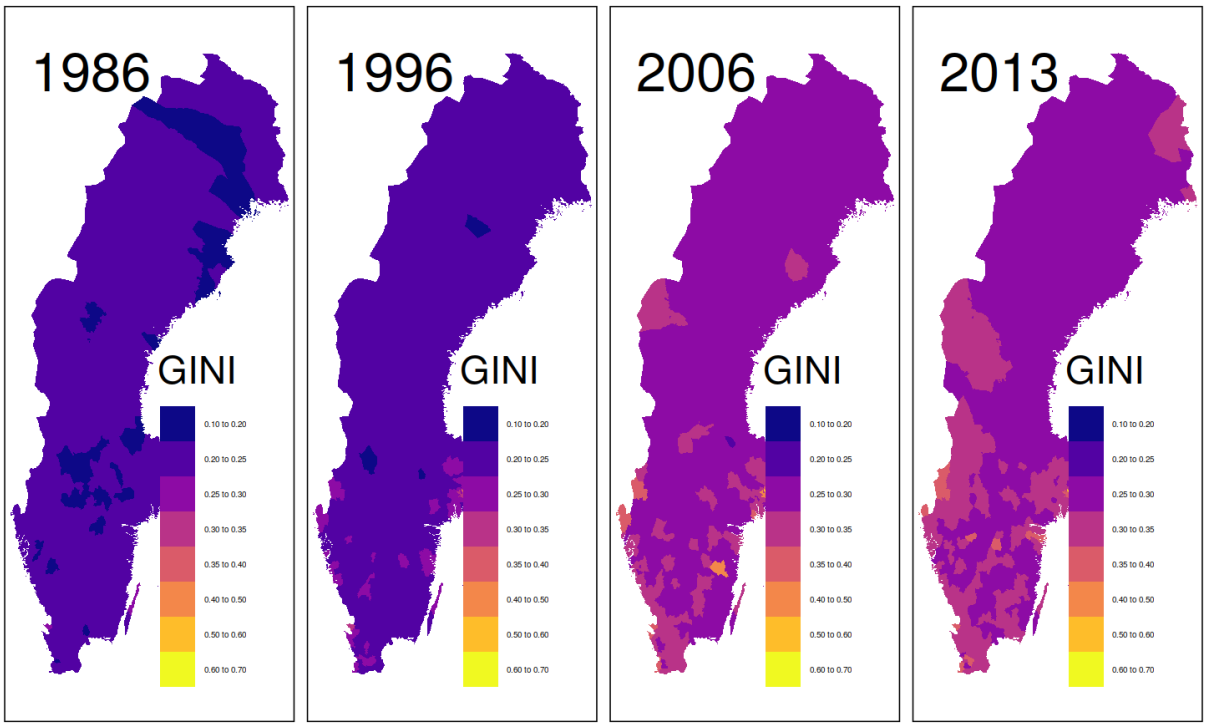


Maps 1 a-d show the mean income for all Swedish municipalities, and maps 2 a-d present the values for Stockholm County. During these 27 years, mean income has increased substantially. In 1986, most of the municipalities had a mean income between 90.000 and 120.000 SEK per year in the prices of 2013. Municipalities with a somewhat higher economic standard are mainly found in urban places, for example, in Stockholm County. Still, the majority of the municipalities are concentrated to the lower levels. Ten years later, mean income has increased in several other municipalities, but the differences remain somewhat restricted. In 2006, the process of increasing mean incomes had continued, and now we observe a pattern that already was indicated in 1996 of a difference where many municipalities in mid-northern Sweden and the inlands have lower incomes. We also find that municipalities in the Stockholm region have a much higher income level though the differences within the region were also increasing.

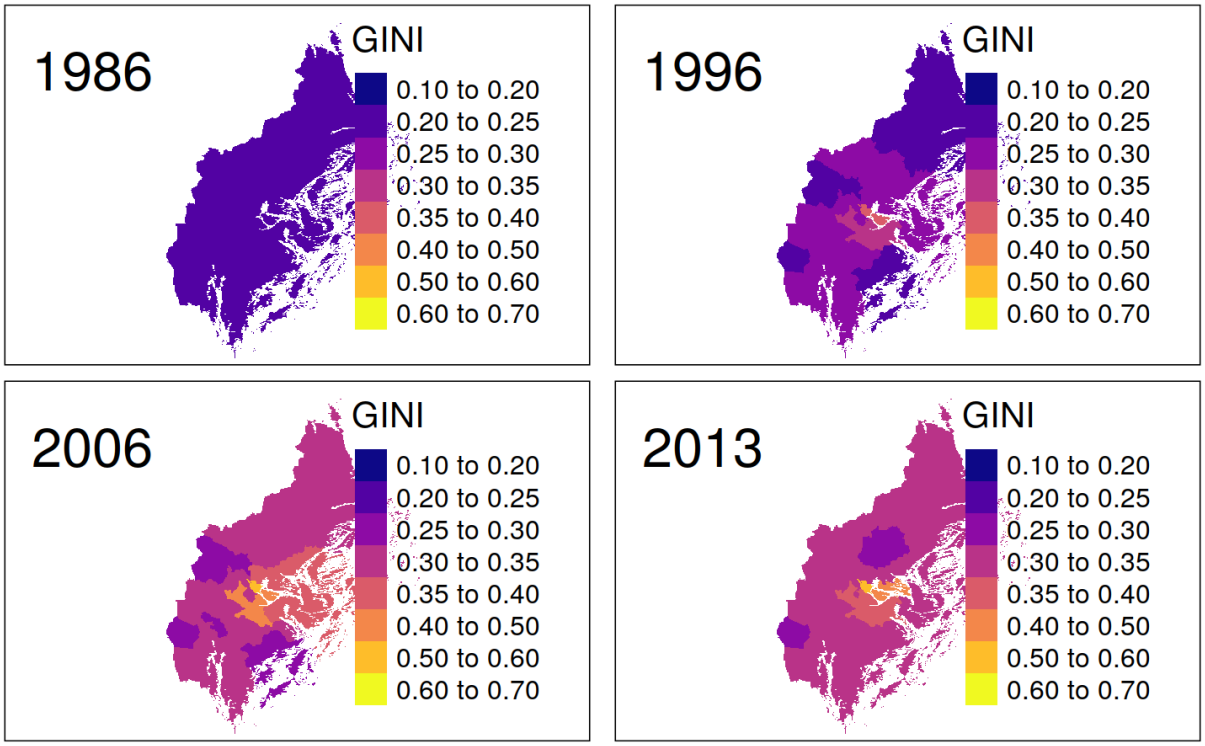
In 2013 finally, the incomes were much higher, and the differences between municipalities have increased. The high-income municipalities are primarily found in the big city regions. The Stockholm area is characterised by high incomes, particularly in the centre and most surrounding municipalities. There has, however, developed a north-south divide within this region. Some municipalities (for example, Botkyrka) south of Stockholm have relatively low incomes. At the same time, the economic conditions north of Stockholm seem to be consistently favorable, indicating that the region is economically and socially segregated. Low-income municipalities are otherwise mainly situated in the remote parts of the country, at a far distance from the larger cities. There is a concentration in the northern parts of Sweden and municipalities in the inlands. Those at the bottom of the income ladder are primarily situated in the most remote parts of the country, now facing significant out-migration, an ageing population, and stagnant economies. The main exception is Kiruna, the northernmost municipality in Sweden, with an economy dominated by iron mining.

When looking at income inequality measured by the Gini coefficient, we find many similarities with the maps of mean income. The metropolitan areas are more unequal, and the remote parts are, in general, relatively equal. In 1986 the differences between municipalities were reasonably small, but with very low inequality levels in some scattered municipalities in the inlands. Ten years later, the Gini coefficients have increased, most apparent around Stockholm and along the west coast. This pattern is even more accentuated in 2006 and 2013. The Stockholm region has now become characterised by much higher inequality, especially in the central parts of the region, and a clear north-south divide in inequality levels. Most parts of northern Sweden are more equal than in the southern parts of the country. Northern Sweden and the inlands of mid-Sweden are dominated by lower income inequality. In contrast, areas of comparatively high inequality are more common in the other parts of mid-Sweden and in the southern parts of the country.

Map 3 a-d. Income inequality (Gini coefficient) for the population aged 30-59 years in Swedish municipalities 1986, 1996, 2006, and 2013.



Map 4 a-d. Income inequality (Gini coefficient) for the population aged 30-59 years in Stockholm county 1986, 1996, 2006 and 2013



Stability in economic position 1986-2013?

Finally, we examined to what extent municipalities have remained in the same position over time regarding the rank of mean income and income inequality. For this purpose, we have divided mean income and income inequality 1986, 2000, and 2013 into three equally large groups, representing high, medium, and low mean income and income inequality, respectively.

Our analysis shows a significant consistency over time in the relative position of mean income (see Figure 6 a and b). A municipality rarely moved from one extreme to the other. For those belonging to the high mean income in 1986, the majority remained in the same group in 2013. However, some were transferred to the median, mean income group, while only 14 belonged to the low mean income group in 2013. We should not pay too much attention to single examples because a position at a particular year may not be typical for every municipality. However, several of the municipalities that lost their positions represent places that have faced many problems due to the economic transformation. Many of them are in the old industrial region called *Bergslagen* in the inlands of mid-Sweden. Some large or relatively large places also belong to the losers, for example, Malmö, Eskilstuna (west of Stockholm), Södertälje, and Botkyrka (both south of Stockholm).[2]

Figure 6 a. Income class change 1986 to 2013, Swedish municipalities.

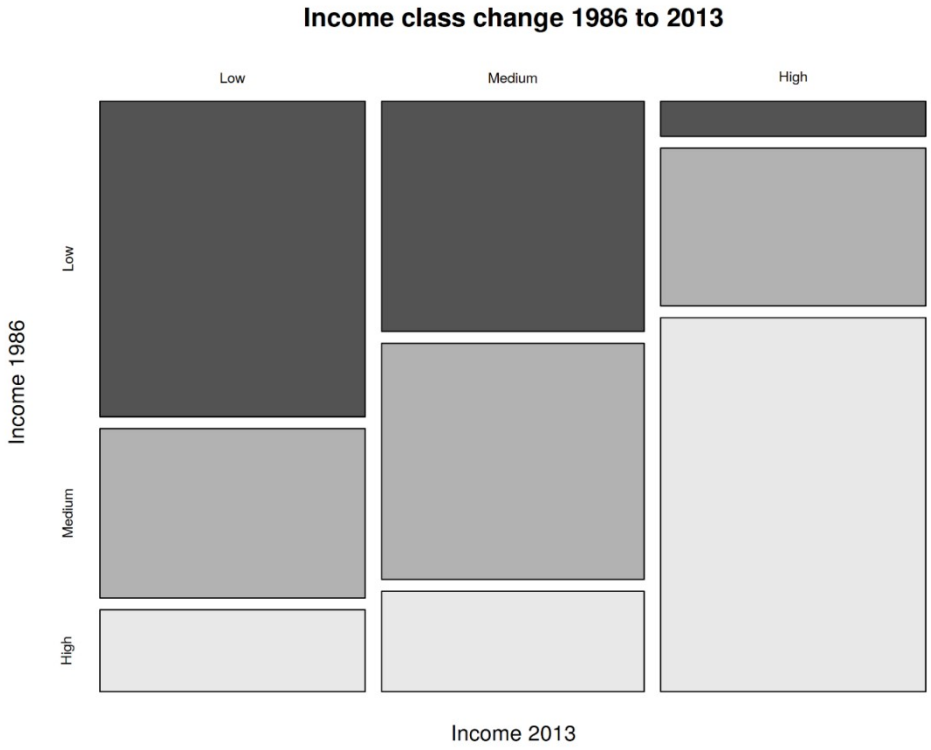
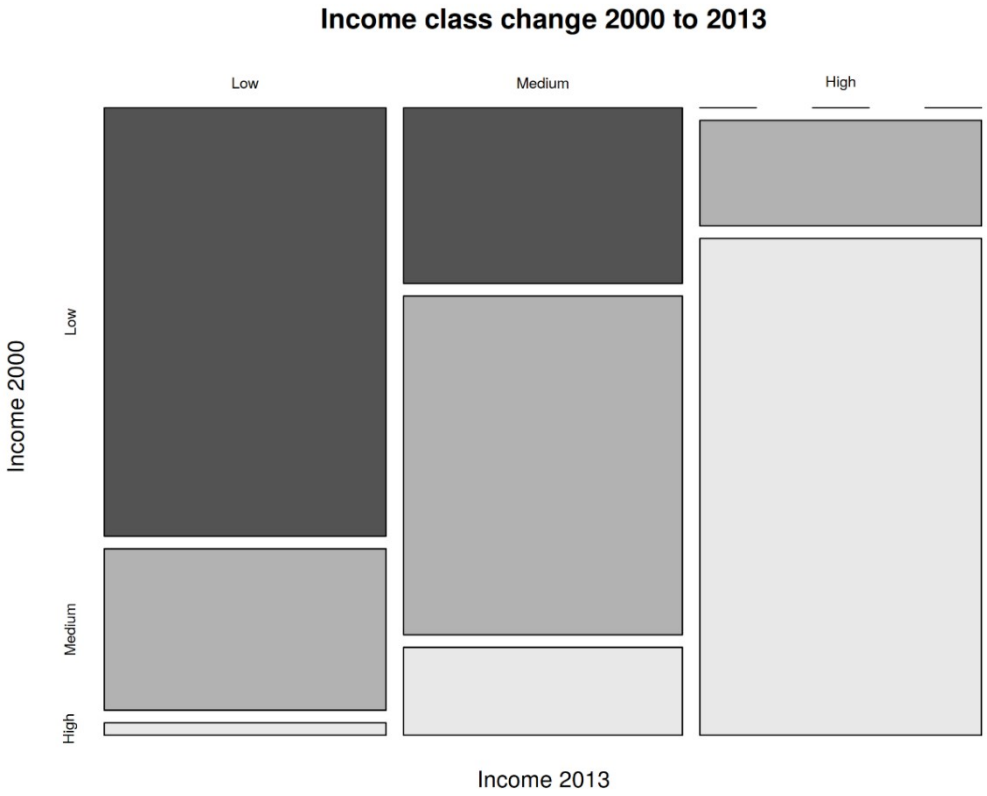


Figure 6 b. Income class changes 2000 to 2013, Swedish municipalities.

[2] The municipalities are Botkyrka, Burlöv, Eskilstuna, Filipstad, Grums, Hagfors, Hällefors, Härnösand, Kristinehamn, Malmö, Munkfors, Perstorp, Söderhamn, Södertälje



The corresponding but reversed development can be seen when we look at the low-income municipalities in 1986. Then, a clear majority remained in the low mean income group. It was even rarer that a poor municipality in 1986 moved to the high mean income group in 2013; there are only six cases, several on the west coast and southern Sweden.[3]

The consistent position is even more apparent when comparing 2000 and 2013, which is no surprise because of the shorter time interval between the years. No municipality in the high group had moved to the low group in 2013, and only two in the low group had moved to the high group. The majority remained in the same group in both years.

Thus, there have been no significant position changes in the pattern of income levels. There has, however, been less stability in Gini levels compared to changes in income level (Figure 7 a and b), but there is still a high degree of stability. Of those municipalities being most unequal in 1986, 18 had changed to being among the equal third in 2013, and of those with lowest Gini levels in 1964, 24 were transferred to the highest group in 2013. The lower stability is reflecting the changing direction of the association between the two measures as described above. Those with high Gini levels in 1986 belonged to the lowest mean incomes, while the unequal municipalities were those with high mean incomes.

Most of this change has occurred in the 1990s, and the difference in the pattern is consequently more negligible between the years 2000 and 2013. The number of municipalities moving from high to low was 6, and those changing in the reverse direction were 12.

[3] The municipalities are Båstad, Mjölby, Orust, Söderköping, Varberg, Öckerö

Figure 7a. Gini class change 1986-2013, Swedish municipalities.

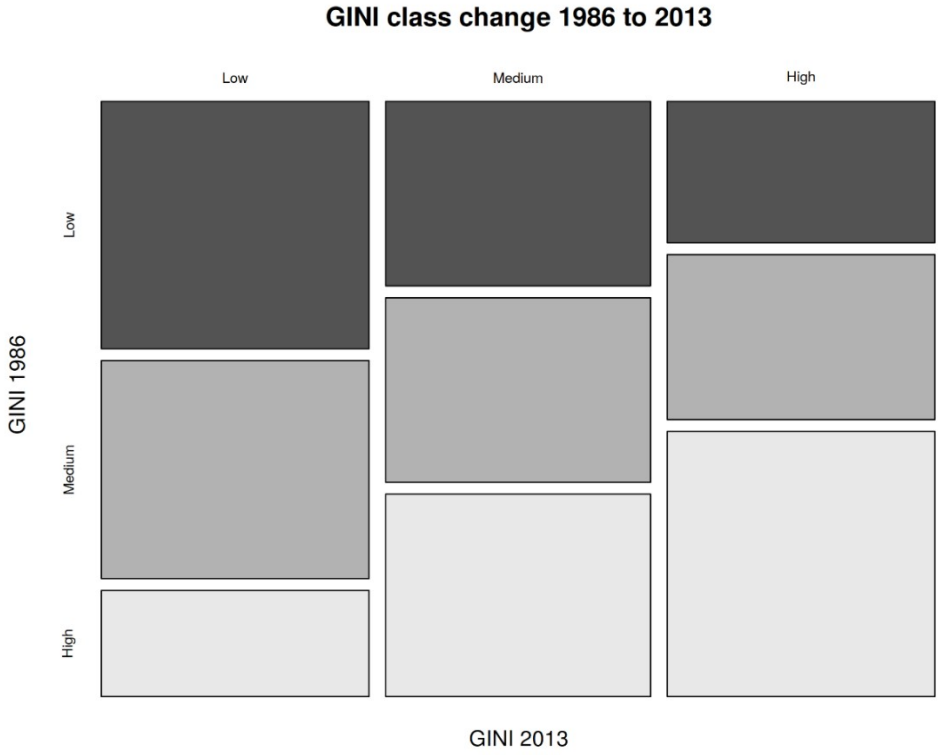
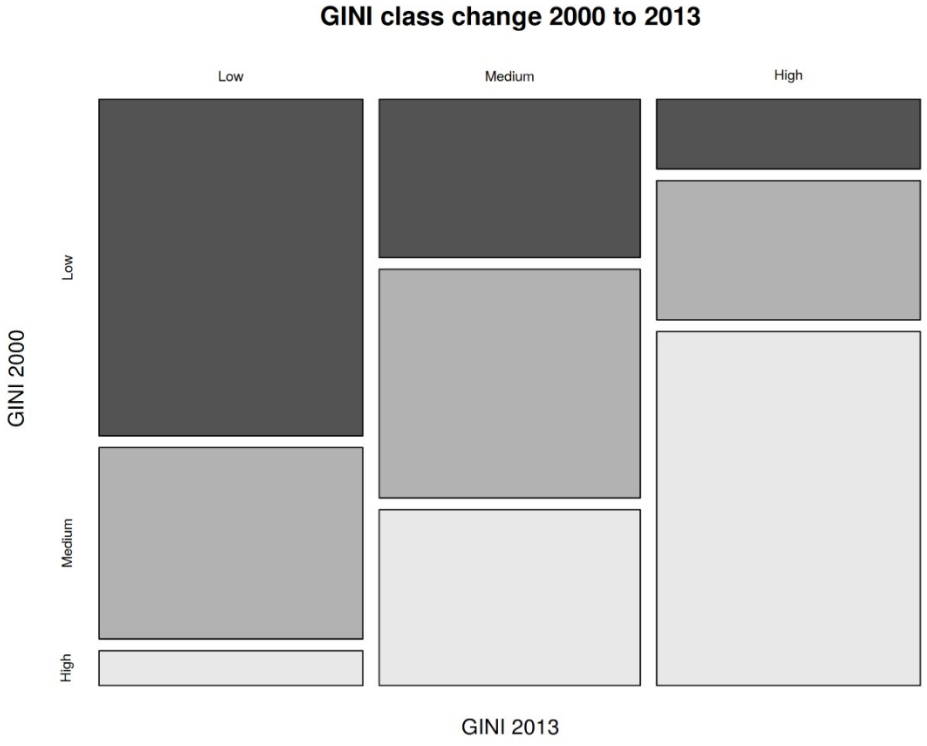


Figure 7b. Gini class change 2000-2013, Swedish municipalities.



Discussion

To conclude the previous analyses, we find that there has been a general increase in incomes in all parts of Sweden, but that the differences in incomes between municipalities have increased. As a result, large parts of Sweden have become poorer in a relative, although not in a nominative sense. At the same time, inequality levels have increased substantially within and increased differences between municipalities. The pattern has in the last decades changed from a society with solid income equality within municipalities and relatively small differences in income levels and Gini levels between municipalities to one with significant income inequality within and between municipalities. During recent years, Swedes are now living in environments characterized by substantially higher levels of inequality, and the geographical differences have changed. The large city areas, or at least part of them, have had a much more advantageous economic development, but at the same time with more significant increases in economic differences within municipalities than the rest of Sweden and extensive parts of northern Sweden and the inlands. Another interesting finding is that the relation between mean income and income inequality has changed from the 1980s to the present. This association was, in fact, negative a couple of decades ago, meaning that inequality was somewhat higher in the poorer municipalities. From the 1990s onwards, the association is instead positive – more affluent municipalities are more unequal. We must, however, be aware of the circumstance that the differences at municipality level of both income and inequality were minor in the 1980s.

How come that this association has changed? This is not the place to resolve this question. But we can point at some essential mechanisms brought forward by research. One is the changing economy, less dominated by industrial production. Many work opportunities have disappeared in remote parts due to mechanization, for example, in forestry and forest industry, and many parts of Sweden have been de-industrialized. The public sector has increased and is increasingly becoming more and more centralized. Development towards a knowledge-based economy is concentrated in large city areas and university cities. The ambition to support less developed parts of Sweden is now also lower, but how much this has contributed to the process can be discussed. Another critical factor is the increasing share of disposable income that comes from capital. We have already referred to the studies showing this at the national level in Sweden and other countries (Piketty 2014; Björklund and Jäntti 2011). This is probably an essential part of the change. Income from the capital has been most prominent in the most populated areas of Sweden, for example, by highly rapid increases in the value of houses and apartments, following an increased marketization of housing.

Concluding remarks

Our results show that there has been a significant change in the environments people live in from the 1980s to the 1990s and the period after that. Following a development from the early 20th century, Swedes around 1980 resided in a country characterized by significant economic equality, which also characterised their local environments, the municipalities they resided in. But this also marked a turn in the development. Starting in the 1980s but more rapidly from the 1990s onwards, income inequality increased. Present-day Swedes live in much more unequal environments, both at the national level and in the municipalities. This process coincides with an increased economic standard. The increase has not favoured all parts of Sweden equally. The areas around the three metropoles gained the most, and they also became more unequal. We see a division between parts of Sweden; there are clear differentiation tendencies between urban and rural parts, centre and periphery. Inequality has, however, increased in most parts of Sweden but not to the same extent. The dispersion has

increased within and between municipalities when it comes to economic standards and income inequality.

In our analyses presented above, we find that income inequality in municipalities has increased during the last decades, both within and between municipalities. This has also coincided with an increased economic standard in these areas, but the pace of the development differed substantially between them. Thus, Swedish society has changed from economically equal to a much higher degree of inequality and a more considerable differentiation between municipalities. A clear spatial pattern has developed. A crucial question is what consequences this will have for society.

The interest in increasing income inequalities is motivated by its possible consequences. In the introduction, we have already referred to potential adverse effects on economic development. But are there also direct effects leading to social problems in society?

More significant inequality may lead to different kinds of social problems due to less social cohesion and/or significant differences in living conditions and opportunities in life. Another aspect of this is the possibility that inequality in itself, and not only as direct consequences of the material conditions, leads to increasing social problems in society. When it comes to health, the increasing differences in Sweden do not seem to have resulted in higher mortality. It can, however, be the case that health would have improved even more if incomes had been distributed more evenly. We do, however, see indications of other problems in society. In Sweden and many other countries, we also see signs of conflicting interests between the largest city centres, Stockholm in particular, on the one hand, and the countryside and remote parts of Sweden on the other.

The consequences of the increasing levels of inequality during the last decades are still not clear. We cannot establish that it has led to new and increasing problems. We must also be aware of the circumstance that there might be a possible time lag between exposure and outcome. It might take some time for the effects of increasing inequality to become apparent.

Finally, in this report, we have found increasing differences between municipalities and increasing differences between individuals within municipalities. We have, however, not considered possible spatial differences within municipalities. Neighbourhoods may have become more homogeneous over time, with high-income and low-income groups living in separate parts of the municipality, thus leading to less interaction between people from different backgrounds and with different living conditions. The spatial patterns of inequality have many different dimensions that need to be considered.

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Definitions

Person income (used for construction of other variables) For 1986 - 2004= disposable income individualized from the family composition. For 1970 = persons net income.

Relink = person's income divided by the mean person's income for a person borne the same year, with the same sex in the same municipality.

Gini"year" = Gini first calculated from a person's income at the municipality level. They were then divided into "low", "medium", "high" with low denoting the 33 % of the municipalities with lowest Gini and high the 33 % highest Gini and medium in-between.

Mean = mean personal income in municipality ordered in categories as Gini.

Municipalities = Municipality borders can change over time, so to construct pseudo-municipalities that are consistent over time, municipalities with a large percentage of people in common between 2 consecutive periods are merged. Years used are 1970, 1980, 1986, 1992, 1998, 2004 and the percentage used are 25% except 1970-1980 where 35% is used. The result is 268 municipalities.