Social class and sex-specific adult mortality during 200 years in Sweden[1]

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Abstract

This version uses *median remaining years of life at 40* for comparisons between social class groups.

Recent regional studies on adult mortality and socio-economic status in Sweden are merged and also completed with analyses from country-wide censuses in strategic time periods, with the purpose to find out whether the locally drawn conclusions about a changing social gradient in mortality still holds.

The answer is firmly positive: While the upper classes have definite advantage in modern time (after, say, the 1960s), the reverse situation holds during the nineteenth and early twentieth century for men. Women, on the other hand, seem to follow the expected pattern of a positive social gradient through the last 200 years.

Keywords: Adult mortality; Gender differences; Social gradient; Survival analysis; Sweden; 19th to 21th century.

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1 Introduction

A major theme in demographic and epidemiological studies is the seemingly persistent effect of social class on mortality, where wealthier and more powerful classes have a survival advantage. In recent studies, common notions of this are challenged by taking long-term perspectives on the development of social class inequalities in mortality in the adult population. One example is an investigation from Umeå University of the Skellefteå and Umeå regions in northern Sweden for the last 200 years (Edvinsson and Broström, 2019, 2012), and another is studies from Lund University of five small rural parishes and the town Landskrona in the very south of Sweden (Bengtsson et al., 2018; Debiasi and Dribe, 2017).

In 2018 the research teams from the Lund and Umeå Universities decided to join forces, by sharing and merging existing small area data and also to utilise census and register data for the whole country in years where available. This involves censuses the years 1880(10)1910 and 1960, 1975(5)1985 and register data from the years 2001–2014 (the *Longitudinal integrated database for health insurance and labour market studies*, *LISA*).

This is a first report from this cooperative project. Focus is on the analysis of census and LISA data, and an early attempt with the four censuses 1880(10)1910 was made by Dribe and Eriksson (2018). By data restrictions, they were forced to apply an accelerated failure time model in the analysis, focusing on expected remaining life at age sixty. Now data are completed with migration information and it is possible to use the same modelling approach as in the other studies.

The main conclusion is that the earlier general results still hold: The socioeconomic gradient of mortality in adult ages emerges only in the later part of the twentieth century, and in the twenty-first century it gets more and more accentuated.

1.1 Social class and mortality

One of the central aspects of survival is social class and access to economic and other resources. In present-day welfare societies, social position, either according to social class, education or income, is a strong determinant when it comes to health and mortality and its impact are even increasing (Kunst

et al., 2004; Mackenbach et al., 2016; Fritzell and Lundberg, 2007; Brønnum-Hansen and Baadsgaard, 2012; Strand et al., 2010). Link and Phelan (2002) suggest that "... social conditions have been, are and will continue to be irreducible determinants of health outcomes and therefore deserve their appellation of 'fundamental causes' of disease and death". The persistence of social inequality in mortality to the disadvantage of the lower classes is one of the main assumptions in their theory (Link and Phelan, 1995; Link et al., 1998). The idea that socio-economic health inequalities were probably larger in historical societies is a reasonable assumption since these societies were often characterised by enormous class differences. Knowing that access to different kinds of resources, such as economic, social and cultural capital, provides advantages in all aspects of life, the health advantage of higher classes ought to be obvious.

However, recent studies investigating social inequality in health and mortality with micro-data have questioned the generality of the assumed pattern [Bengtsson and van Poppel (2011); Bengtsson and Dribe (2011); edli11]. Solid empirical evidence about the process is lacking however and studies focusing on the issue are still few. There is a need for additional reliable studies from different geographical and historical settings in order to better understand the role of class and socio-economic conditions in health and survival over time.

Social position affects health and mortality differently during the life course and from adulthood into old age. Diminishing differences may be a consequence of the circumstance that biological factors become increasingly important during the ageing process and in old age, leaving less impact for social factors. This scenario is in fact what is suggested for Sweden by the results of this report.

2 Data from local regions

During the studied period, Sweden developed from a poor agricultural society with low urbanisation to a rich welfare state. The regions studied here were for a long time remote from the central parts of the country.

2.1 The Westrobothnian regions

The Westrobothnian data come from two large population databases at the Demographic Data Base (DDB), Umeå University (http://www.cedar.umu.se), which provide us with micro-data for the Skellefteå and Umeå regions in northern Sweden (U15014, 2015). The period 1801–1950 is covered by the database Poplink (Westberg et al., 2016). Poplink is based on linked parish records, allowing us to reconstruct life biographies on people as long as they remained in the region. The records are linked within, but not between, the regions.

[Figure 1 about here.]

The Skellefteå and Umeå regions (Figure 1) are part of the county of Westrobothnia in northern of Sweden along the coast of the Gulf of Bothnia, where communication with the rest of Sweden was difficult until the late 19th century. The economy was dominated by agriculture, making it vulnerable to harvest failures; several severe famines occurred in the regions during the 1800s, for example after the harvest failure of 1867 (Edvinsson and Broström, 2014). During the long winters, sea communication was hindered due to the Gulf of Bothnia being frozen, in some cases as late as June (Fahlgren, 1956). Towards the end of the 19th century, the Swedish railway system reached this part of Sweden, facilitating contact with the rest of Sweden, improving the economy and making it possible to mitigate the effects of harvest failures.

Before 1950, the Skellefteå region consisted of a selection of parishes surrounding the town of Skellefteå, founded in 1845 but with a very small population during the 19th century. The data from the period after 1975 cover the Skellefteå, Norsjö and Malå municipalities, the same area as for the earlier period but with the addition of two more parishes. The majority of the 19th century population lived in rural villages and hamlets, making its livelihood from agricultural production. During the 20th century, industrialisation took place. This also led to a population increase both in the town and the rural parts, resulting in a more diversified economy. The Skellefteå population size as defined in our data sets (all ages) was 6,142 on January 1, 1801, 43,212 on January 1, 1901, and 76,723 at the end of the 20th century.

The Umeå region in the data set consists of Umeå urban and rural parishes 1901–1950. Umeå town had for a long time a small population, and was the

administrative, educational and military centre of the county of Västerbotten. During the later part of the 20th century, the establishment of Umeå University led to a rapid population increase. Agriculture dominated the rural part. Consequently the economy was more diversified than that of Skellefteå. The population size as defined in our data sets (all ages) was 19,138 on January 1, 1901 and 103,970 when the 20th century ended.

2.2 The Scanian regions

These data consist of individual-level longitudinal information from five rural and semi-urban parishes and a port town, Landskrona, after 1922, in Southern Sweden (Bengtsson et al., 2018). The five parishes had a combined population of 4,500 in 1830, 5,500 in 1900 and, together with Landskrona, 37,500 in 2000 (Bengtsson et al., 2018). For further details, see Bengtsson et al. (2018).

3 The census and register data sources

3.1 The censuses 1880(10)1910

Each census gives a snapshot of the population at the end of the actual year. The interesting variables are *sex*, *age*, *civil status*, *county*, and *occupation*. This information is then linked to the *Swedish death index*, which includes name, sex, and place and date of birth and death for all deceased in Sweden between 1901 and 2013. A method named *probabilistic linking* was used. It is mainly using birth dates and names in the linking process. For details, see Dribe and Eriksson (2018).

3.2 The censuses 1960, 1970(5)1985

These late censuses are similar in content to the earlier ones, but one important difference is that now there are links to national death registers through *personal identification numbers*. They can also be linked to the *LISA database*, see the next section.

3.3 The LISA (2002–2014) register data

The LISA register presently holds annual registers since 1990 and includes all individuals 16 years of age and older that were registered in Sweden as of December 31 for each year. Statistics Sweden (https://www.scb.se/) is the register holder. Unfortunately there is no information on occupation before 2001 in LISA, so our followup starts on January 1, 2002, and ends on December 31, 2014.

The censuses and the LISA register are linked to the national death register through personal identification numbers. These data sets are extracted from the Linnaeus database (Malmberg et al., 2010) at CEDAR, Umeå University.

4 Variables

4.1 Presence periods

In the census and register data after 1960 all individuals can be followed year by year as long as they are present. It is therefore possible to find a "date last seen" for an individual that is not found in the death register. This is not the case with the earlier censuses 1880–1910, which may create a problem with the follow-up times for persons who do not appear in a death or migration register. However, they are expected to be few.

4.2 Social class

Mortality differences are analysed according to social class, based on a modified form of the classification scheme Hisclass (Van Leeuwen and Maas, 2011). Social position during working age is defined at around age 40 but defined from the last occupation in working age for the elderly and retired population; i.e. from age 65 until death or last observation.

The availability of information on occupations varies over time and between sources. In Poplink, occupations are coded according to the original DDB coding system that has then been adapted to Hisclass. For the Linnaeus data, the occupations are available in the coding scheme HISCO (Van Leeuwen et al., 2002) which then are re-coded into Hisclass.

The data sets show different ways of reporting occupations. Poplink and Sedd usually only provides the occupation of the head of household, thus underestimating female labour force participation as well as that of adult children residing with their parents (Vikström, 2010). Therefore, we have chosen to categorise wives according to the position of the head of household, usually the husband/father, assuming that the family shares the same socio-economic position.

Female labour is much better covered in the Linnaeus database, and it is difficult to define households in the same way as in Poplink and Sedd. Extramarital cohabitation became common and female labour force participation developed as the norm in Sweden during this period. The husband's occupation as signifier of social class became, if not obsolete, at least less relevant. All included persons are signified by their individual occupation for these period. Although the results for the different periods are not completely comparable, the difference in approach reflects an actual change in how social class is structured.

Hisclass, the classification system used as a basis for our categorisation, is a "...HISCO-based historical international social class scheme" (Van Leeuwen and Maas, 2011; Van Leeuwen et al., 2002). The different classes in Hisclass represent distinct categories, based on whether the work is manual or non–manual, skill level, supervision, and sector. Implicitly it reflects large differences in access to economic resources, status, social power, etc. We have chosen to work with a broad definition of classes, merging the original 12 social classes in Hisclass into five representing different levels of control and access to resources vital for life chances, and an additional fifth category of unknown class:

1. `elite`, Hisclass 1 and 2. Higher managers and higher professionals.
2. `middle`, Hisclass 3, 4, 5, and 6. Lower managers, lower professionals, clerical and sales personell.
3. `worker`, Hisclass 7, 9, 10, 11 and 12. Workers including farm workers.
4. `farmer`, Hisclass 8. Farmers.
5. `none`, not given, unknown, or unemployed.

4.3 Marital status

Marital status is classified into three levels, unmarried, married, and dissolved marriage (without distinguishing between widowed and divorced). If no explicit status is given in the sources and the partner is missing, the status has been set to unmarried. Note that it has not been possible to identify cohabitation.

The proportion married varies between 60 and 70 percent over time, never married between 15 and 25 percent, and previously married between 10 and 15 per cent.

4.4 Urban vs rural residence

In 19th and early 20th century Sweden (as in other countries), mortality was much higher in urban environments (Nilsson, 1994; Edvinsson, 1992). The unsanitary and overcrowded living conditions, as well as the risk of importing infections, made the health risks higher in towns and cities. In the present paper, the variable **urban** (values *TRUE* or *FALSE*) controls for this aspect by distinguishing between urban and rural residence for the periods after 1900, based on parish or place of residence. In the censuses and registers covering Sweden, *urban* is defined as living in one of the three largest cities, Stockholm, Göteborg, and Malmö, and there are also information on *county* (there were 24 counties around 1900 and 21 nowadays).

4.5 Periods of analysis for the Scanian and Westrobothnian data

Separate analyses are performed for different time periods. The period 1801–1950 is divided into six sub periods of 25 years each. The 19th century periods represent a mainly pre-industrial society dominated by agriculture and with only basic welfare provisions in our regions. During the years 1901–1950, industrialisation started and the urban environments increased in population size. The modern Swedish welfare state began to develop. Sweden had developed into a wealthy welfare society with low income inequality.

5 Models and methods

The comparison of mortality in the five social classes, period by period, is done by estimating the median remaining years of life at age 40, adjusting for marital status and, in the case of census and register data, county of residence. The reason for using median remaining life instead of expected remaining life is that the latter approach is relying on good data in very high ages, which we may be lacking.

The results are presented graphically. The comments on the results are based on the figures and focus on the central variable in our study, social class. The models are fitted separately for sex and cohort/period, from 1801 to 2014.

The analyses are performed in the **R** environment for statistical computing and graphics (R Core Team, 2018), especially using the package **eha** (Broström, 2012, 2019).

6 Results

6.1 Westrobothnia, 1801–2014

[Figure 2 about here.]

The Skellefteå and Umeå areas, parts of *Westrobothnia*, were studied by Edvinsson and Broström (2019). Their main results (period analyses) are shown in Figure 2. The first observation is the rapid decline in mortality and the smaller absolute differences between social classes. The second is that the relative differences and the order of classes have changed. There is a huge difference between the developments for women and men (ages 40–64, but similar, weaker, results hold in the ages 65–89), respectively: The elite women have, following common expectations, a lower mortality throughout all times, while elite men are worst off during the whole nineteenth century and the first half of the twentieth. Only after the 1970s is "order restored", with the elite on top in the health league among men. The results from 1960 onwards are based on data from censuses and register data for the corresponding regions.

[Figure 3 about here.]

The results shown in Figure 3 are different in nature in that they show median remaining years of life after age 40, but the main message remains: For men, the elite had bad prospects terms of mortality, while elite women had a more solid upper hand in this respect.

6.2 Scania, 1813–2011

The parishes in the western part of Scania were studied by Bengtsson et al. (2018).

[Figure 4 about here.]

The Scanian parishes show a similar development as the Westrobothnian ones, only slightly more irregular. But it is still clear that also here is the elite advantage among men a relatively late phenomenon, see Figure 4. A systematic class gradient appeared not until the 1970s among men. A difference compared to the Westrobothnian results is that higher class women did not have any survival advantage in the early 20th century. For women, the gradient appeared in 1950s.

[Figure 5 about here.]

6.3 Scania and Westrobothnia, a joint analysis

The northern and southern teams joined forces and data sets (on the parish level) and a joint analysis was performed. Ordinary Cox regressions, separately for women and men, for the time period 1901–1950 in the ages 40–65 show that the effects of *social class* for women were quite the opposite to the corresponding effects for men. During the first half of the 20th century, there is a clear social gradient with the highest mortality in the elite group, followed by the middle class and lowest among workers and farmers among men, while thw opposite was the case among women. It is also obvious that mortality was higher in Westrobothnia than in Scania.

[Table 1 about here.]

[Table 2 about here.]

Tables 1 and 2 show that (i) all involved covariates are highly *statistically* significant. Are there also a (ii) *subject matter* significance in the results? Yes, all *relative risks* are substantial in size, with few exceptions.

6.4 Sweden, censuses 1880, 1890, 1900, and 1910

Digitised censuses from 1880 to 1910 allows us to study social differences in survival on a national level as well as on county level. Do we find similar results a national and county levels as in the previous regional analyses?

These data were analysed by Dribe and Eriksson (2018), and here we repeat the analysis with a slightly different focus, moving from differences in expected life length to differences in median remaining years of life at age 40. These data are collected in a way that allows for cohort analyses (only) of cohorts aged 30-39 or 55-64 on the census date the given year. This means that covariate information is gathered just before the cohorts are followed over age from ages 40 and 65, respectively. Covariates are thus *time-fixed*. The only follow-up events in this case are presence in the death register and presence in the migration register. Dribe and Eriksson (2018) give a detailed description of the process of linking censuses to the follow-up events.

6.4.1 Exposures of socioeconomic status by sex and year and by county

[Table 3 about here.]

Table 3 shows the relative exposures of socioeconomic status by year. As expected, the elite and middle classes expand steadily over the time period.

[Table 4 about here.]

Table 4 shows the relative exposures of socioeconomic status by county. County No. 1 includes Stockholm, and it has the highest proportions of the elite and middle classes.

6.4.2 Median remaining years of life at age 40

[Figure 6 about here.]

Figure 6 shows clearly how the upper classes are worst off regarding mortality among men. It should be noted that this is the results of cohort analyses, based on age 40 in one of four time intervals starting at 1880-11-01 and ending at 1920-10-31. The pattern is clear: Elite men are worst off regarding remaining life at age 40, while the opposite holds true for women.

However, the bad case for elite is not constant by geographical area. As an example, we investigated the relative risks for men living in one of the three big cities in Sweden, Stockholm, Göteborg, and Malmö.

[Figure 7 about here.]

As Figure 7 shows, the elite men have significantly lower mortality for the first three cohorts, while the differences vanish for the last.

6.5 Sweden, 1960 and 1970(5)1985

These data differ from the census data 1880(10)1910 in that links between censuses and between censuses and death registers now exist for all. Here we look at data from a period point of view, because cohorts of forty-year-old's in 1960-1990 will still be around at the end of our follow-up period(December 31, 2014). Another thing to notice is that now the *farmer* group is very small: It has been merged with the *worker* group.

6.5.1 Exposures of socioeconomic status by year and by county

[Table 5 about here.]

Table 5 shows the relative exposures of socioeconomic status by year, and, as usual, the *elite* and *middle* classes continue to grow over time. Notice the high proportion of women without social position particularly in the censuses 1960 and 1970. This is explained by the fact that we only use information on own occupation at these censuses. Female occupations are underreported and many women are still outside the labour force at this time.

[Table 6 about here.]

Table 6 shows the relative exposures of socioeconomic status by county. Stockholm has the largest proportion of the *elite* and *middle* classes.

6.5.2 Median remaining years of life at age 40

[Figure 8 about here.]

This period represent the time when the social and economic differences were at the lowest in Sweden. Figure **?**(fig:medianfobmen) shows that the picture is dramatically changing: The upper classes are catching up and leaving only the lowest class behind. Especially evident is the poor performance of the persons out of the work force. In recent decades, those without occupation are also those most marginalised, probably clearer than before. It is also obvious that the sex differences are large, but the social differences within the sexes are very similar. Notice however the problem of the high proportion of women with unknown social class, which complicates the interpretation of differences among women.

6.6 Sweden, 2002–2014

The LISA register data is a nation-wide register hosted by Statistics Sweden (https://www.scb.se). The name is an acronym, which in English is interpreted as the *Longitudinal integrated database for health insurance and and labour market studies*. It "includes all individuals 16 years of age and older that were registered in Sweden as of December 31 for each year." We link these data to the national mortality register, which ends (our retrieval) on December 31, 2014.

The time span 2002–2014 is too short for meaningful cohort studies (but with certain reservations), so in this study period analyses are performed. This has as a consequence that our covariates, *socioeconomic status*, *civil status*, *county*, and *sex*, necessarily will be time-varying in the sense that they are measured at different ages for different individuals.

6.6.1 Exposures of socioeconomic status by year and by county

[Table 7 about here.]

Table 7 shows the relative exposures of socioeconomic status by year. As in previous analyses, the elite and middle classes are growing while the farmer group has become marginal.

[Table 8 about here.]

Table 8 shows the relative exposures of socioeconomic status by county. And Stockholm still stands out.

6.6.2 Median remaining years of life at age 40

[Figure 9 about here.]

Figure 9 shows that in the twentyfirst century, class inequalities in the sense that lower social position leads to higher mortality are worse than ever before.

6.7 Summary: Median remaining life at age 40

To sum up our results, we present a couple of figures where we have included the different analyses in the same figures. Even if the different analyses are not completely comparable, they provide us with an indication of the long-term development of socio-economic differences in mortality. For the partly missing period in the first half of the 20th century we have included the results from the Westrobothnia and Scania data.

6.7.1 Men, 1880–2014

[Figure 10 about here.]

Subtracting the values for *worker*:

[Figure 11 about here.]

Figures 10 and 11 are good illustrations of the fundamental change in social differences in mortality. In the 19th and first half of the 20th century, survival was lowest for the elite, while the working class manage comparatively well. There is a social gradient of better survival connected to lower social position. The lower levels of the lines 1910-1950 in Figure 10 is explained by them being based only on the Westrobothnia and Scania regions. In the second half of the 20th century, the old pattern changed and the differences first diminished and later (towards the end of the century) changed to the modern pattern of a consistent survival advantage of belonging to a higher social class.

6.7.2 Women, 1880–2014

[Figure 12 about here.]

And relative to *worker*:

[Figure 13 about here.]

The pattern of social differences in survival among women differed substantially from that of men. The expected social gradient with better survival for higher social classes has been the dominant condition in the history studied here.

6.8 Interactions between socioeconomic status and county in the effect on mortality

We have "adjusted for" *county* in the analyses so far, but this means only that *county* has been included as a covariate in the analyses of mortality by socioeconomic status, but the question of whether the effect of social class varies with county is not answered, except for an example in the connection with the censuses 1880–1910. This is an important extension that we will return to in forthcoming research.

7 Conclusion

Social determinants of mortality has interested many historical demographers studying the mortality decline. Despite this interest, there are not many studies taking a long-term perspective on the historical development of social differences in health and mortality. Antonovsky (1967) suggested a process with first divergence and later convergence during the mortality transition. Many have assumed that mortality struck lower social classes to a larger extent than higher. However, in recent decades several studies on different Swedish regions have shown a much more complex picture. The mortality pattern in the adult population has not always followed the expected social gradient, instead the opposite associations have often been found (Edvinsson, 1992; Edvinsson and Lindkvist, 2011; Edvinsson and Broström, 2019; Bengtsson and Dribe, 2011; Bengtsson et al., 2018; Debiasi and Dribe, 2017). Doubts can be raised on results from micro-studies due to them being too specific or/and sometimes based on small populations. The addition of similar results from other regions have however made it more difficult to ignore this more complex story. In the present paper we add further substantive results on social class and mortality in history by analysing the development at national and county level. The results at national level basically confirm the results from local studies, thereby giving strength to the new interpretation of social differences in the Swedish mortality decline.

The consistent advantage of belonging to the elite has not always existed, and the modern pattern of social divide in health appeared late in Sweden. Apparently high social class was not always beneficial for survival, with the exception of those living in an urban environment. The modern pattern with large socio-economic differences in mortality might be a consequence of the rising economic inequality process, that has been ongoing and accelerating during the last decades in Sweden, but this seems to be a recent phenomenon.

However, there were large differences in the pattern between men and women. Class as well as gender must be considered. The social pattern of female mortality is in line with what was expected, but a social gradient in male adult mortality is a recent phenomenon. It is an interesting paradox that both the class and gender aspects in the analysis show that those with more power and resources were in fact less successful when it came to survival. Furthermore, inequality in mortality appears clearer for the working-age population, while the differences are smaller among the elderly. The declining relative effect

sizes points towards an alternative survival model than the dominating with *proportional hazards*: We will give the *accelerated failure time* model proper attention in future research.

A question, that sometimes is asked, is whether our results can be generalised to other historical contexts. The short answer is *No*: This is about Sweden.

It is difficult to explain the observed differences, and we can only offer tentative hypotheses. We do not argue that high social class, high social status and access to economic resources did not give people advantages when it comes to health and mortality. However, the results remind us that we need to understand the belonging to a social class from all aspects. Access to different resources is one thing, but it also include expected ideas, attitudes and behaviour. The fact that the pattern differs between men and women further indicates this. A possible way to proceed is to analyse the development of causes of death, and how they are distributed in different social classes. In particular, we should focus on causes that indicate risk behaviours. However, it is not a wild guess that upper class men in nineteenth and early twentieth century were enjoying their wealth by unsound living, while their wives were their supporters. In late twentieth and early twenty-first centuries individual health trends gave rich males other and healthier ways of showing their wealth, and private health care was almost exclusively open for them.

We have analysed social inequality in health from the perspective of social class. However, there are alternative ways to analyse social inequality, representing other dimensions, and we cannot exclude the possibility that such analyses might give other results or modify the conclusions suggested here. In many modern studies categorisations based on income, wealth or education are common when examining inequality. It would be interesting to compare the results from this study with alternative measures, but reliable data on income and education are unfortunately rarely available in historical population databases stretching back as far as in this article. We have however no reason to believe that we would find very different social patterns when analysing other aspects of social differentiation. Income, wealth and education have been fairly strongly associated with occupation and social classes. However, the Lisa register data allow us to perform such studies in the twenty-first century, and we will return to that.

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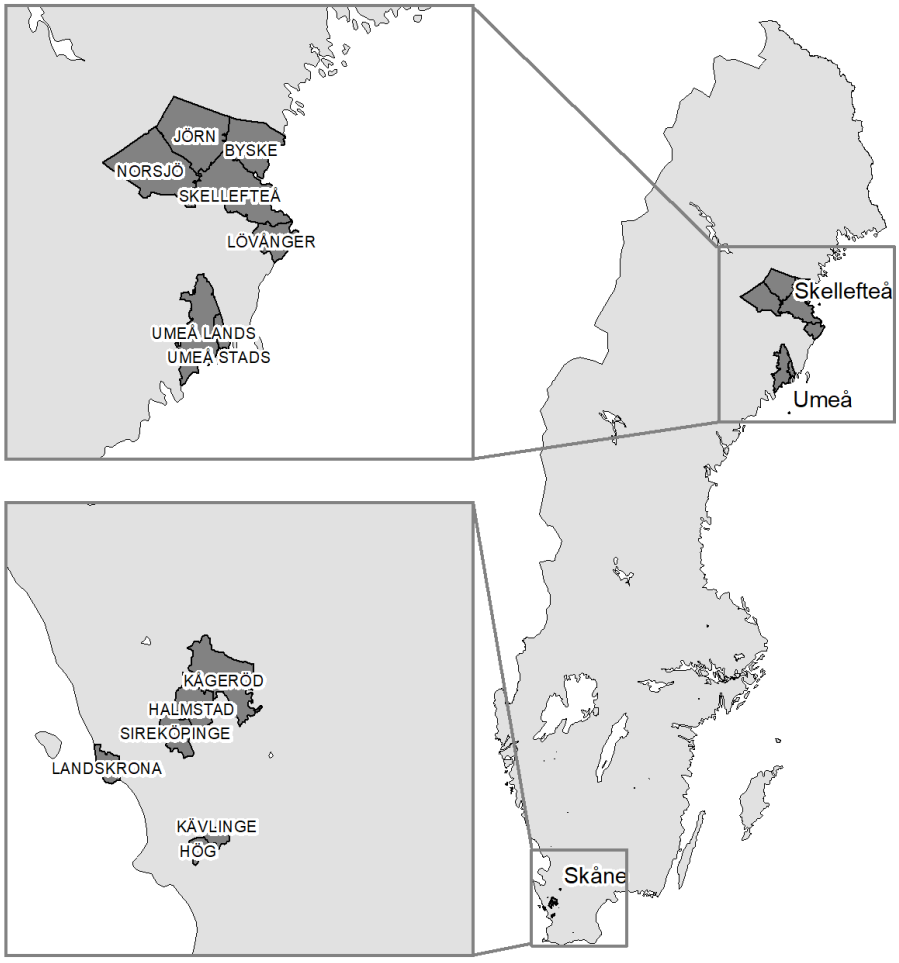

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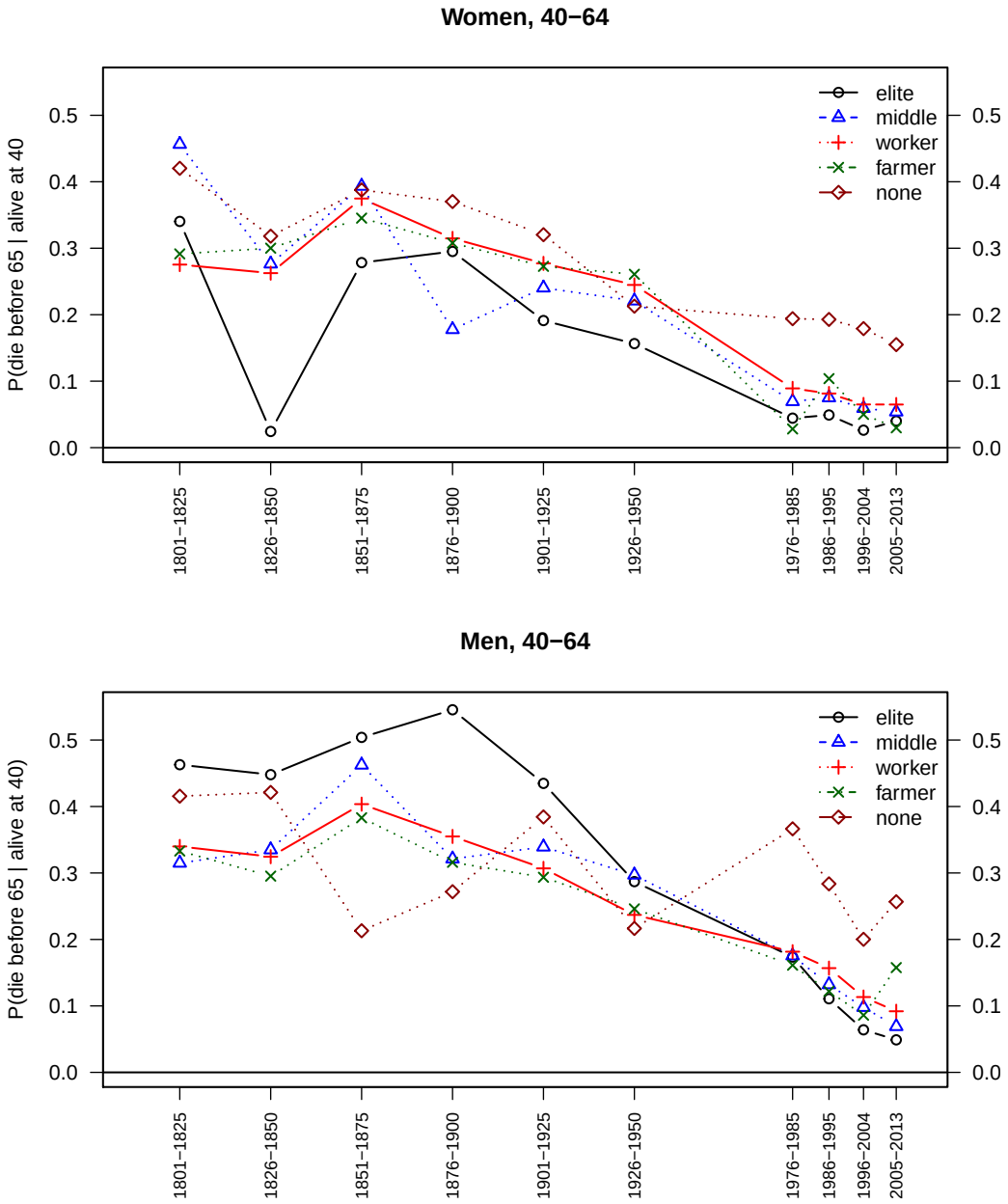

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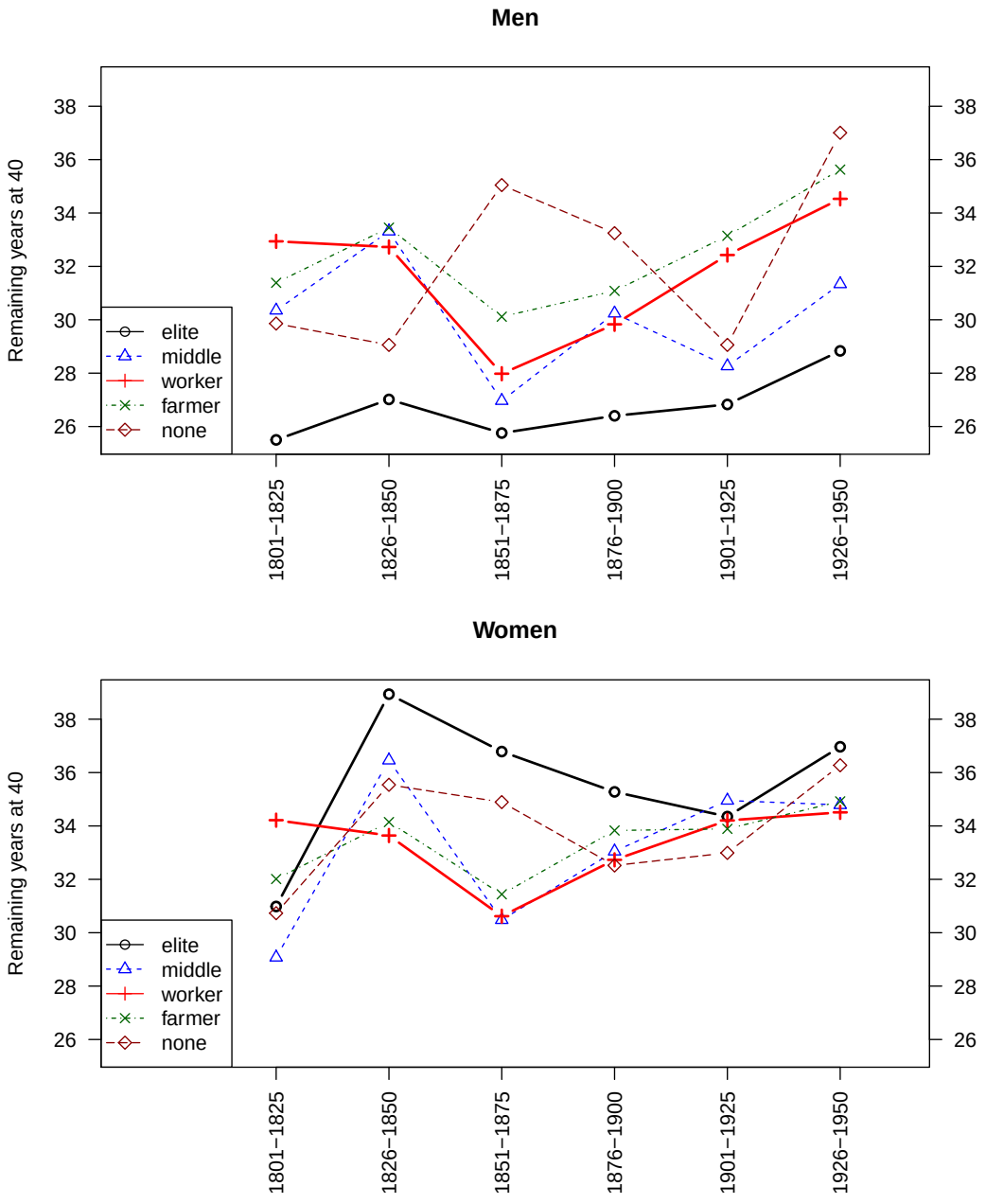

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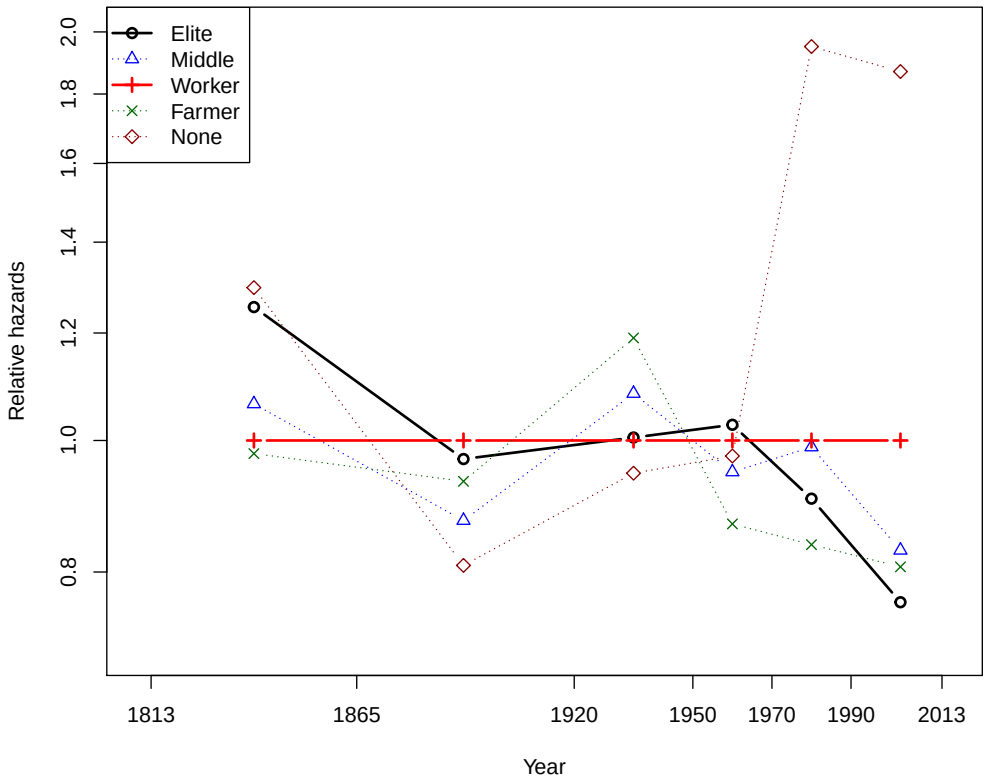

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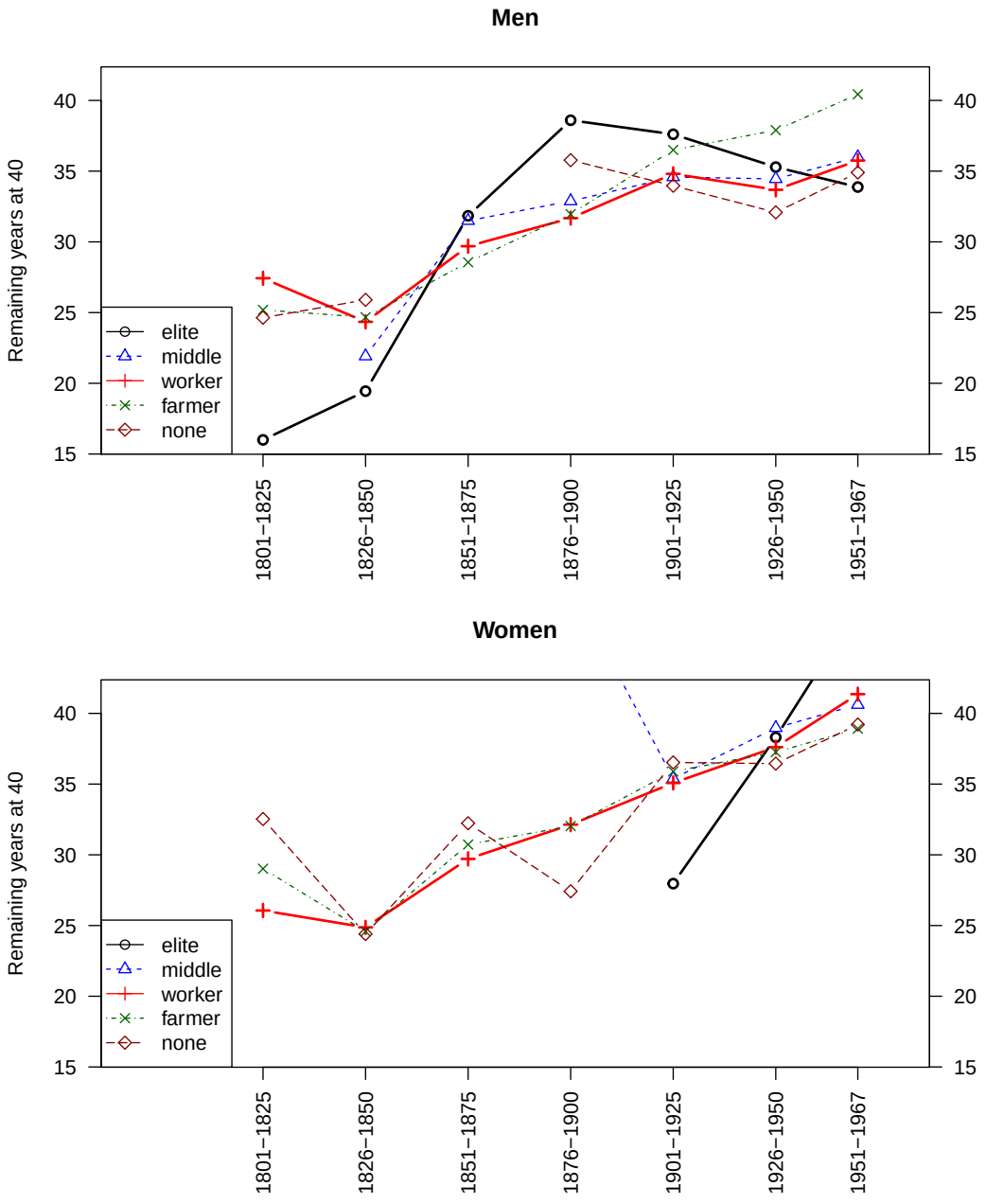

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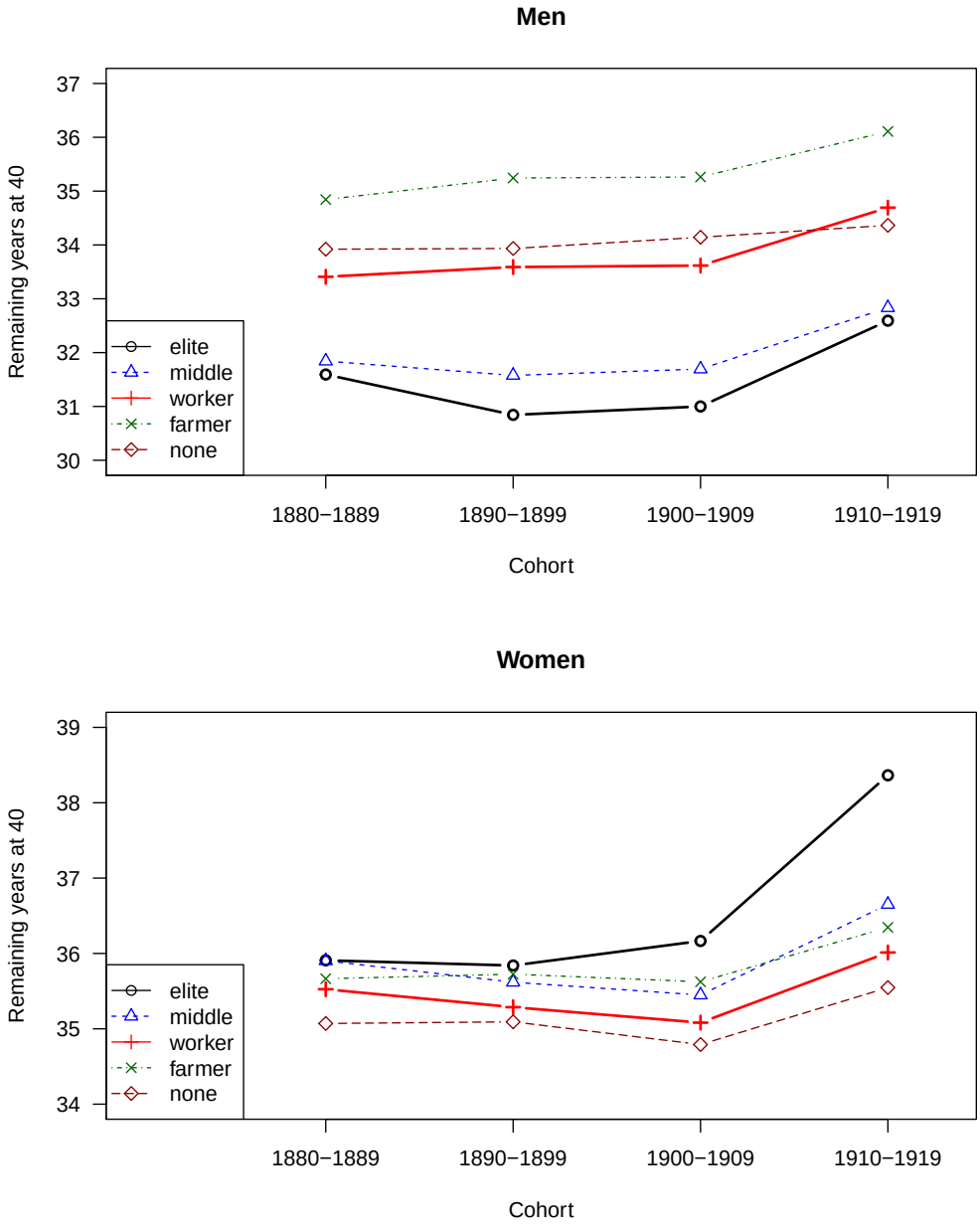

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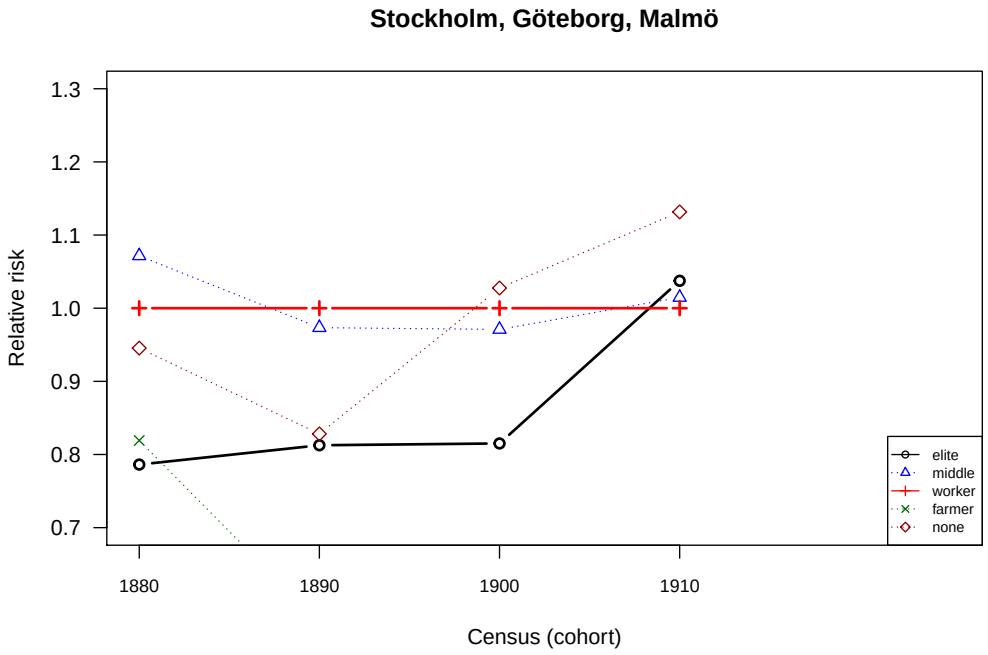

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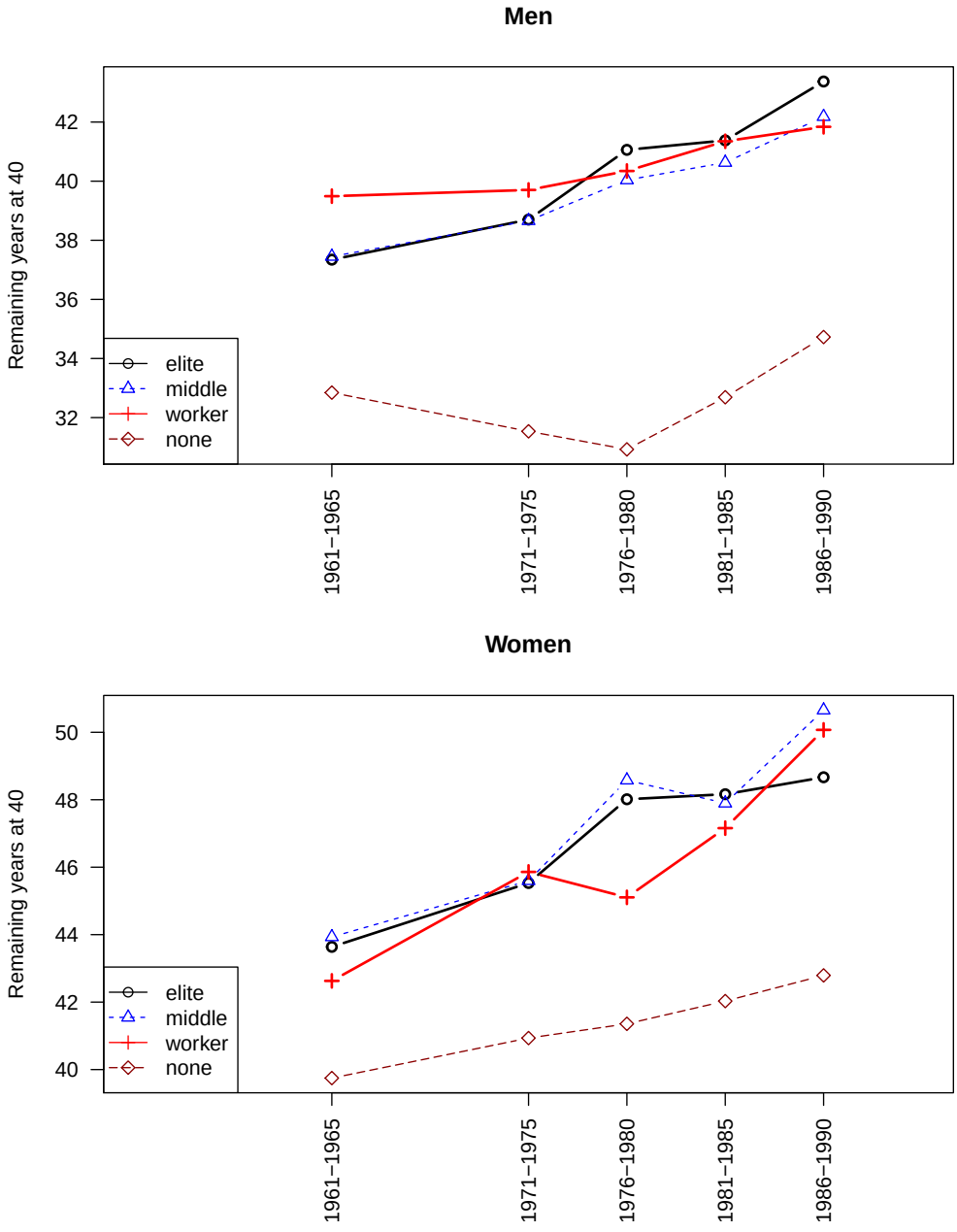

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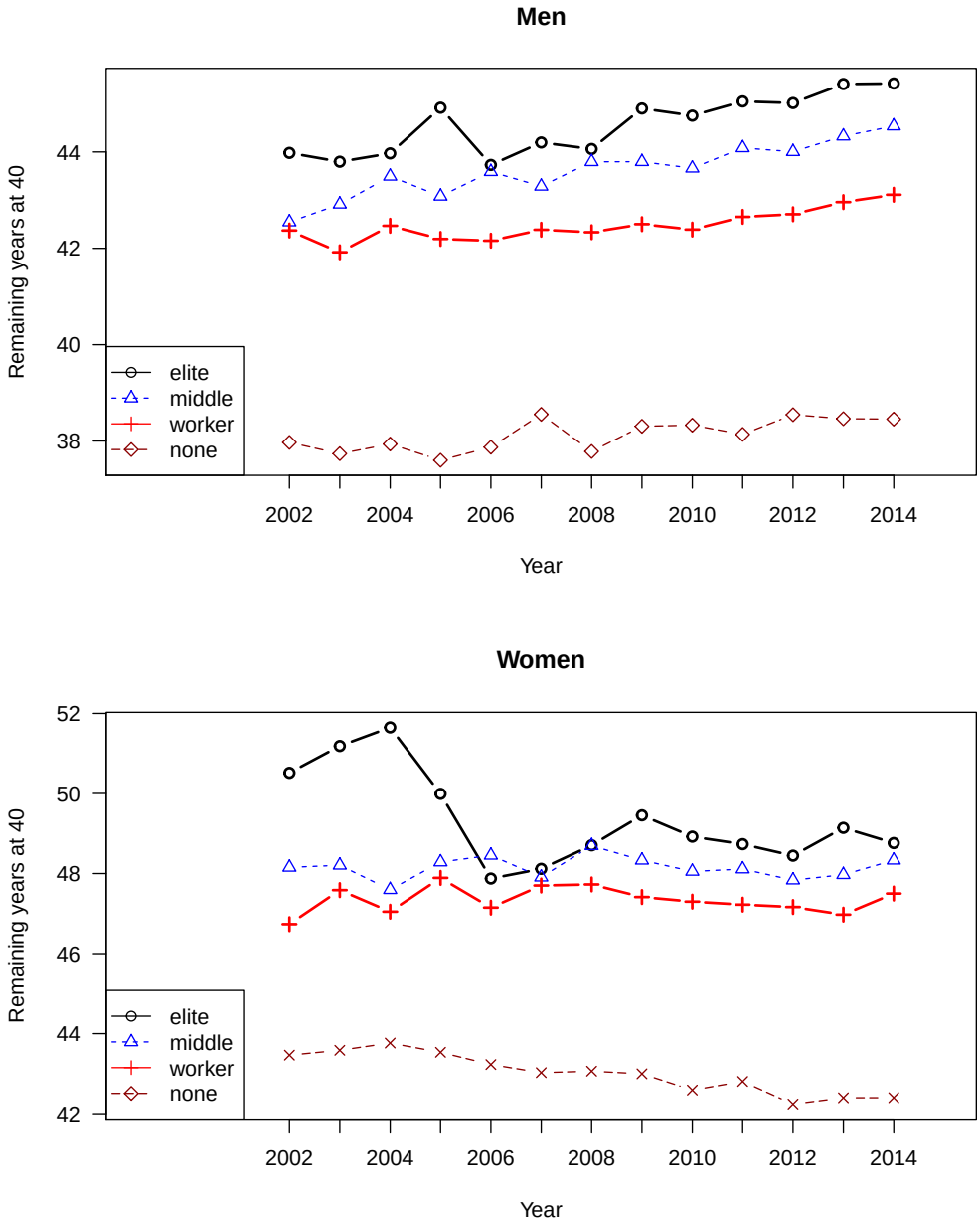

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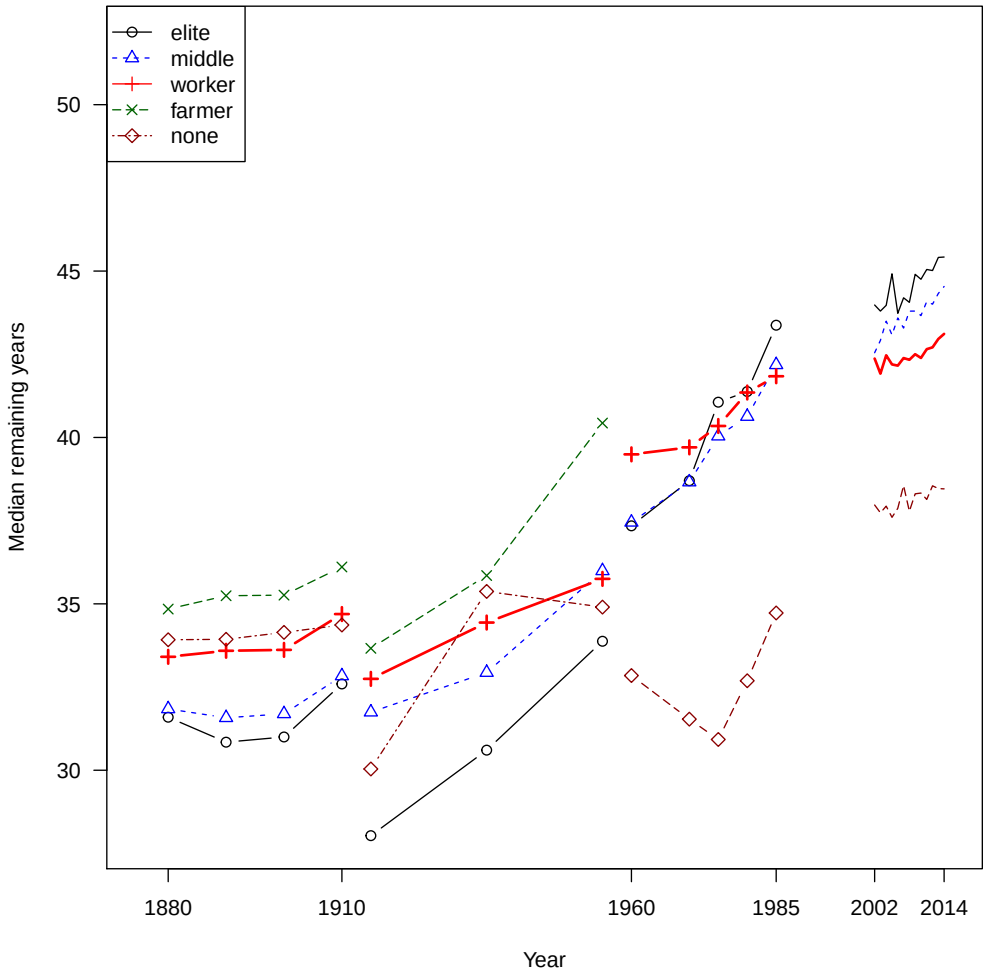

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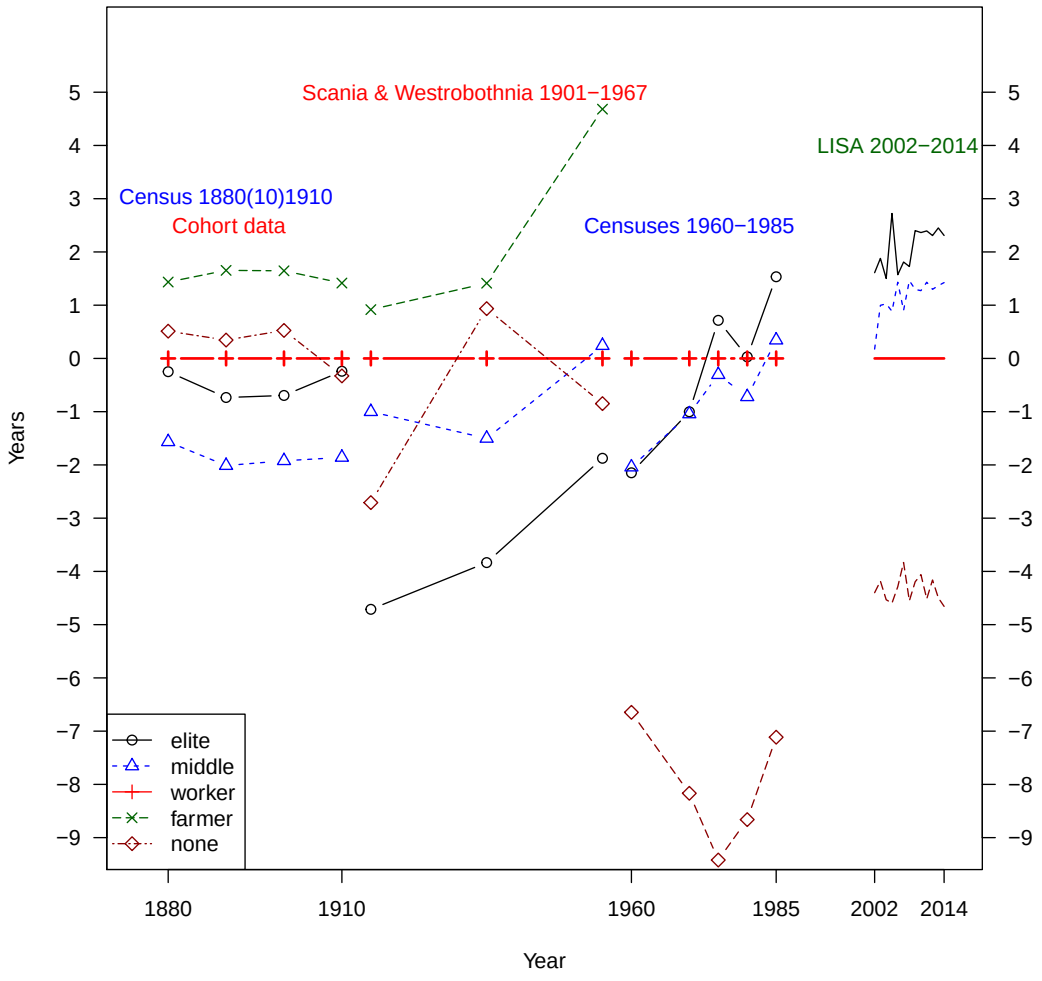

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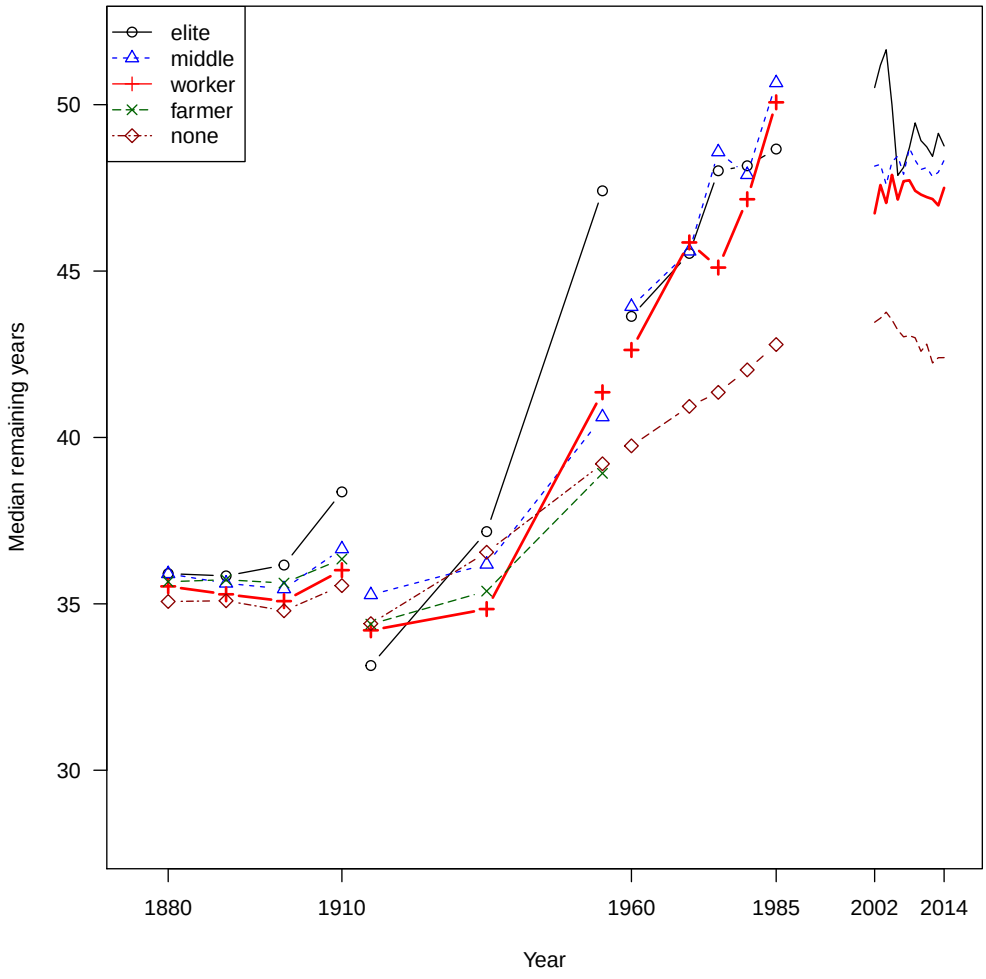

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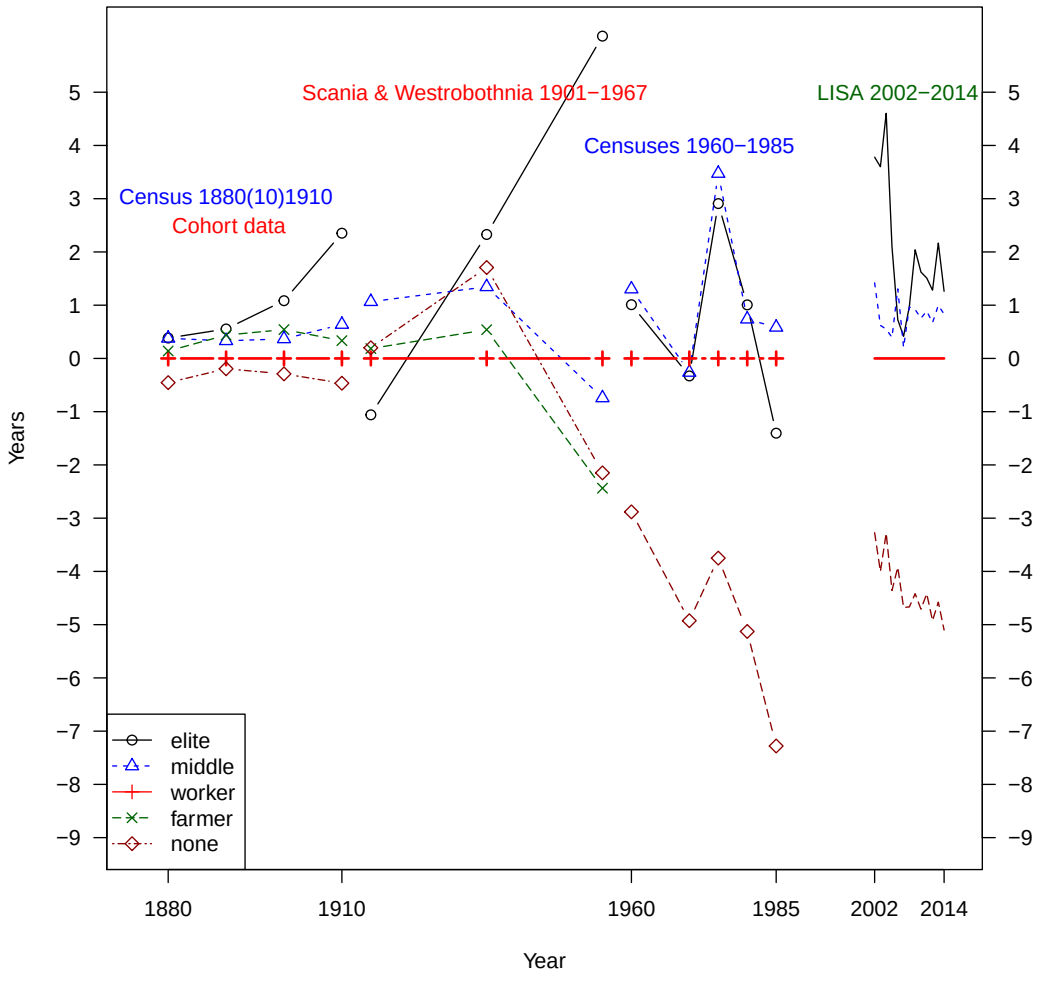

Figure 13: Differences in median remaining years of life at age 40, Swedish women. Reference worker.

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Covariate		Mean	Coef	Rel.Risk	S.E.	L-R p
ses						0.000
	elite	0.044	0	1	(reference)	
	middle	0.160	-0.143	0.866	0.063	
	worker	0.427	-0.374	0.688	0.058	
	farmer	0.359	-0.508	0.602	0.059	
	none	0.011	-0.289	0.749	0.121	
civst						0.000
	unmarried	0.160	0	1	(reference)	
	married	0.779	-0.288	0.749	0.034	
	prev.married	0.062	-0.061	0.941	0.053	
period						0.001
	1901-1925	0.364	0	1	(reference)	
	1926-1950	0.636	-0.139	0.870	0.041	
cohort						0.000
	(1836,1861]	0.149	0	1	(reference)	
	(1861,1886]	0.461	-0.025	0.976	0.043	
	(1886,1911]	0.390	-0.264	0.768	0.063	
db						0.000
	Westrobothnia	0.796	0	1	(reference)	
	Scania	0.204	-0.200	0.819	0.036	
Events		6027	TTR	561749		
Max. Log Likelihood		-59690				

Table 1: Cox regression, Scanian and Westrobothnian data, men 40-65. People aged 40 at 1901-1950, period data.

Covariate		Mean	Coef	Rel.Risk	S.E.	L-R p
ses						0.000
	elite	0.030	0	1	(reference)	
	middle	0.121	0.210	1.234	0.103	
	worker	0.397	0.323	1.382	0.096	
	farmer	0.338	0.354	1.424	0.096	
	none	0.114	0.388	1.474	0.106	
civst						0.000
	unmarried	0.198	0	1	(reference)	
	married	0.693	-0.219	0.803	0.035	
	prev.married	0.109	-0.106	0.900	0.047	
period						0.098
	1901-1925	0.368	0	1	(reference)	
	1926-1950	0.632	-0.070	0.932	0.042	
cohort						0.000
	(1836,1861]	0.154	0	1	(reference)	
	(1861,1886]	0.463	0.076	1.079	0.046	
	(1886,1911]	0.382	-0.206	0.814	0.067	
db						0.000
	Westrobothnia	0.777	0	1	(reference)	
	Scania	0.223	-0.328	0.721	0.042	
Events		5573	TTR	554240		
Max. Log Likelihood		-55216				

Table 2: Cox regression, Scanian and Westrobothnian data, women 40-65. People aged 40 at 1901-1950, period data.

year	sex	elite	middle	worker	farmer	none
1880	Women	1.00	5.80	40.60	32.60	20.10
	Men	1.50	7.00	40.20	39.00	12.30
1890	Women	1.10	7.30	41.00	29.40	21.10
	Men	1.50	8.30	42.50	35.50	12.30
1900	Women	1.50	10.00	42.00	25.30	21.20
	Men	1.90	10.10	45.00	31.20	11.90
1910	Women	1.80	14.50	42.10	22.50	19.10
	Men	2.00	13.10	48.80	28.20	7.80

Table 3: Relative frequencies of socioeconomic status by sex and year 1880–1910.

county	elite	middle	worker	farmer	none
1	3.70	19.20	55.30	8.60	13.20
3	1.90	9.70	46.90	25.60	15.90
4	1.50	10.70	49.50	23.50	14.70
5	1.50	10.10	50.20	24.50	13.70
6	1.40	7.40	35.40	39.70	16.20
7	1.00	5.90	28.70	46.20	18.20
8	1.10	8.90	43.40	32.30	14.30
9	1.60	8.00	37.10	37.00	16.30
10	1.20	10.60	40.80	30.40	16.90
11	1.20	7.60	35.90	41.30	14.00
12	1.90	11.80	49.20	22.50	14.50
13	1.10	6.80	32.30	40.80	19.00
14	1.60	12.60	48.50	19.10	18.20
15	1.00	6.00	33.70	39.10	20.30
16	1.30	6.70	34.40	37.10	20.60
17	1.20	6.80	37.30	32.40	22.30
18	1.30	8.30	44.60	29.50	16.20
19	1.50	9.90	49.10	24.20	15.30
20	1.40	8.10	41.10	34.50	15.00
21	1.40	11.70	45.90	24.90	16.10
22	1.10	9.10	44.50	35.40	9.90
23	1.10	7.10	37.30	43.90	10.60
24	1.00	5.30	32.30	49.70	11.70
25	1.30	6.70	39.80	37.60	14.60

Table 4: Relative frequencies of socioeconomic status by year 1880–1910.

year	sex	elite	middle	worker	none
1960	Women	1.10	12.90	17.10	68.90
	Men	5.40	27.10	58.80	8.70
1970	Women	2.30	19.70	27.90	50.10
	Men	6.60	31.20	51.60	10.60
1975	Women	3.30	30.10	32.00	34.70
	Men	7.70	34.50	47.30	10.50
1980	Women	4.40	36.10	33.00	26.50
	Men	9.30	36.00	43.70	10.90
1985	Women	5.20	39.00	32.60	23.20
	Men	10.70	34.40	41.60	13.20

Table 5: Relative frequencies of socioeconomic status by sex and year 1960-1985.

	elite	middle	worker	none
Stockholm	8.80	40.10	26.60	24.40
Uppsala	8.00	28.50	37.60	25.80
Södermanland	4.70	28.50	39.60	27.30
Östergötland	4.60	28.40	39.90	27.20
Jönköping	4.40	25.90	42.70	27.10
Kronoberg	4.20	24.80	44.20	26.80
Kalmar	3.80	23.30	44.30	28.70
Gotland	3.90	22.20	48.00	25.90
Blekinge	3.90	24.00	44.60	27.50
Skåne	6.20	31.90	37.20	24.70
Halland	4.60	27.20	42.30	25.90
VästraGötaland	4.90	29.10	39.30	26.70
Värmland	3.80	25.10	41.70	29.30
Örebro	4.50	28.10	40.30	27.10
Västmanland	4.60	30.90	37.80	26.70
Dalarna	4.00	25.60	40.70	29.80
Gävleborg	3.70	25.50	40.80	30.00
Västernorrland	4.10	26.40	39.30	30.20
Jämtland	3.80	23.40	42.50	30.30
Västerbotten	5.10	24.60	40.30	30.00
Norrbotten	4.40	25.30	40.10	30.20

Table 6: Relative frequencies of socioeconomic status by county 1960-1985.

year	sex	elite	middle	worker	farmer	none
2002	Women	6.80	31.30	25.40	0.30	36.20
	Men	11.00	23.90	30.00	0.90	34.20
2003	Women	7.30	32.70	26.50	0.30	33.20
	Men	11.70	25.10	31.60	0.90	30.70
2004	Women	7.60	34.00	27.40	0.30	30.60
	Men	12.10	26.10	33.10	0.90	27.80
2005	Women	8.10	34.90	28.50	0.40	28.10
	Men	12.40	27.30	34.50	0.90	24.90
2006	Women	8.40	36.10	29.10	0.40	26.10
	Men	12.80	28.10	35.20	0.90	23.00
2007	Women	8.80	37.10	29.80	0.40	24.00
	Men	13.20	28.80	36.10	0.80	21.10
2008	Women	9.10	38.10	30.40	0.40	22.00
	Men	13.50	29.50	37.10	1.20	18.70
2009	Women	9.90	38.60	31.20	0.50	19.90
	Men	14.10	29.90	37.90	1.20	16.90
2010	Women	10.30	39.40	31.80	0.50	18.10
	Men	14.50	30.60	38.40	1.20	15.30
2011	Women	10.60	40.40	32.20	0.50	16.30
	Men	14.80	31.20	38.90	1.30	13.90
2012	Women	11.00	41.20	32.60	0.50	14.70
	Men	15.10	31.80	39.30	1.20	12.60
2013	Women	11.30	41.90	33.30	0.50	12.90
	Men	15.40	32.10	40.20	1.20	11.00
2014	Women	11.70	42.40	33.60	0.60	11.80
	Men	15.80	32.40	40.30	1.20	10.20

Table 7: Relative frequencies of socioeconomic status by sex and year 2002–2014.

	elite	middle	worker	farmer	none
Stockholm	19.10	40.20	22.00	0.10	18.70
Uppsala	14.30	33.10	32.80	1.00	18.80
Södermanland	9.30	32.40	35.70	0.70	21.90
Östergötland	10.40	32.00	34.60	0.90	22.10
Jönköping	8.00	31.90	39.00	1.00	20.10
Kronoberg	8.40	31.60	38.70	1.20	20.10
Kalmar	7.30	28.10	40.80	1.40	22.40
Gotland	8.80	28.10	38.90	2.90	21.30
Blekinge	7.70	29.00	38.70	0.70	23.90
Skåne	11.30	33.90	31.80	0.90	22.10
Halland	9.90	34.50	34.80	1.40	19.50
VästraGötaland	10.80	33.50	33.70	0.80	21.10
Värmland	8.00	29.30	38.50	0.90	23.30
Örebro	8.90	31.40	36.80	0.70	22.20
Västmanland	10.10	33.30	34.10	0.70	21.70
Dalarna	8.20	29.40	38.70	0.60	23.10
Gävleborg	7.60	29.30	39.30	0.60	23.20
Västernorrland	8.40	31.40	37.10	0.70	22.40
Jämtland	8.10	29.30	38.30	1.10	23.10
Västerbotten	10.00	30.40	37.60	0.90	21.00
Norrbotten	8.10	29.80	38.30	0.40	23.30

Table 8: Relative frequencies of socioeconomic status by county 2002–2014.