Mortality, Morbidity, and Occupational Decline

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Abstract

Is the long-term economic stress from occupational decline linked to poor health or death? I use Swedish administrative data matched with US data on occupational trends to answer this, both in reduced form and with an instrumental variable approach. Workers who in 1985 worked in an occupation that subsequently, unexpectedly declined were more likely to die early, compared to similar workers in non-declining occupations. Death in cardiovascular disease increased for men, while women's risk of death by despair—alcohol, drugs or suicide—increased substantially. The mortality risk was especially pronounced for the lowest-paid workers in their respective occupations. Days hospitalized and use of prescription drugs for mental health, alcohol and drug abuse were elevated for workers in declining occupations. KEYWORDS: Technological change, Occupations, Health, Mortality. JEL CLASSIFICATION: O33, J24, I1.

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1 Introduction

Occupations decline or disappear as machines—and, more recently, AI technology—take over tasks that were previously performed by humans. Additionally, the last few decades have been marked by rapid globalization, both in terms of offshoring and international trade, which has further shifted demand for different occupations. As robots start assembling cars in factories, computers start calculating invoices to customers, and as some occupations are rendered abundant due to import competition, are workers losing more than just income opportunities? Against the backdrop of a well-documented socio-economic gradient in health and mortality—the well-off are healthier and live longer—I ask whether workers whose occupations decline suffer from increased risk of hospitalization or even death.

To answer this question, I use Swedish administrative data on the whole workforce in 1985, who, at the time, were sorted into 1,400 distinct occupations. I observe employment growth between 1985 and 2013 for each occupation, and I compare outcomes for workers who in 1985 were in an occupation that would subsequently decline, to outcomes for workers who were in occupations that did not decline. To overcome endogeneity problems created by the reclassification of Swedish occupations in the 1990s, I use US occupational decline as an instrument for Swedish occupational decline. By matching detailed US data from the Bureau of Labor Statistics (BLS) with the Swedish administrative data, I can leverage the granularity of the initial Swedish occupational classifications as well as constructing detailed control variables to mitigate selection bias, while using an exogenous source of variation in employment change over time. An additional benefit of using US data on occupations are the forecasts published by the BLS, which allows me to focus on unexpected declines.

I find that workers who in 1985 worked in occupations that would subsequently decline were more likely to die in the sample period than workers in non-declining occupations. The effect size is 6 percent of the mean mortality rate in the reduced form estimates, while the local average treatment effect (LATE) is 20 percent of the mean mortality. The oldest persons in my sample are 65 at the end of the sample period, so the results pertain to early deaths. Men in declining occupations are more likely to die from cardiovascular disease: The risk is 7 percent higher compared to mean male mortality in cardiovascular disease in reduced form, and 27 percent in the IV estimation, although these results are somewhat noisy. Women, on the other hand, face large and precise risk elevations for death of despair if they are in declining occupations: 38 percent of mean female mortality in despair in reduced form, and the LATE is 137 percent of the mean female mortality in despair.

Workers in declining occupations are no more likely to be hospitalized in the sample period, but spend more days hospitalized per year: The reduced form estimate shows an increased in the average annual number of days hospitalized of 5 percent, and the corresponding LATE is 19 percent of the sample mean.

There is ample evidence that sharp shocks, such as job loss, can lead to increased mortality. In the US context, Sullivan & von Wachter (2009) find that mortality is 50–100 percent higher in the year after job loss due to plant closures, and stays 10–15 percent elevated, compared to non-displaced peers, for 20 years. But even in more egalitarian countries with a safety net, job loss due to mass layoffs following plant closures may be detrimental to health and death risk. Eliason & Storrie (2009*a*) find a 44 percent higher risk of death in the first 4 years after plant closure induced job loss in Sweden. Using Danish data, Browning & Heinesen (2012) find that mortality increases by

almost 80 percent in the year of job loss due to plant closure, and 34 percent in the year after. Here, too, the increased death risk remains 20 years after displacement.

Job loss following plant closure also increases morbidity: It increases the risk of being hospitalized for mental illness and alcohol-related illness (Eliason & Storrie 2009*b*, Eliason & Storrie 2010 and Eliason 2015 for Sweden, Browning & Heinesen 2012 for Denmark).

But even in absence of sharp shocks to individuals, long-term decline of living conditions, social status, and economic opportunities may affect health and longevity negatively. In fact, such deterioration of social and economic life is what Case & Deaton (2020) focus on when attempting to explain the increase in "deaths of despair"—deaths due to alcohol, drugs or suicide—in the US over the last 20–30 years. In particular, if this negative development exacerbates inequality, the impact on health might be detrimental (Case & Deaton 2020), which echoes findings about a socio-economic gradient in health: The ones at the top are not only richer, but also healthier and live longer.[1] Furthermore, several models in health economics demonstrate how lower life-time earnings, or increased earnings instability, may reduce longevity.[2] To complicate matters, it is not simply material deprivation that is the culprit of worsening health (Marmot 2006). Instead, it is the lack of two "fundamental human needs: autonomy and full social participation" (Marmot 2006:1305). Although money might matter, the notion of "despair" goes beyond material deprivation. The lack of autonomy and feeling of meaning at work, together with increased differences in both financial and other aspects of life, contributes to the despair that may have detrimental consequences.

However, the issue of whether lack of financial resources or poor socio-economic conditions lead to worse health is not a settled debate. The socio-economic health gradient has a complex web of causal links, that may run in both directions, as discussed in Cutler et al. (2008). While there is some evidence that social status affects health (e.g. Eibner & Evans 2005), the causal link between financial resources and health seems to be more elusive. Cesarini et al. (2016), for instance, find that windfall wealth among lottery winners in Sweden did not reduce mortality. Circumventing the issue of reverse causality, Ruhm (2000, 2005) looks at *state-level* economic conditions, and actually finds that higher unemployment leads to better health and lower mortality. He hypothesizes that more free time enables healthier life style. I add evidence to this field of research, by showing that occupational decline—which may include both social and economic consequences—has detrimental effects on workers' health and longevity.

I thus complement this literature in several important dimensions: Firstly, instead of studying sharp shocks (such as job loss), I study the long-term deterioration of socio-economic conditions brought about by occupational decline. Secondly, I study a setting with a strong welfare system, as opposed to the studies in the US. And thirdly, I use a concrete, individual level marker of socio-economic decline, complementing studies on overall declining economic conditions.

In our previous research (Edin et al. 2023), we use the same data as I do in this project, to investigate the consequences of occupational decline for individuals' earnings and employment. Our reduced form estimates indicate relatively modest economic losses for the average worker: 2–5 percent of mean earnings are lost over 28 years, and even less employment. However, this does not necessarily imply that health consequences will be modest. First, the seemingly low earnings losses on average hide substantial heterogeneity: For those at the bottom tercile of an occupation's wage distribution, losses amount to around a tenth of earnings over 28 years. Exploring the health

[1] See for instance Marmot et al. (1991), Adler & Ostrove (1999), Marmot (2006), Mackenbach et al. (2008), Deaton (2016).

[2] See p.1267 in Sullivan & von Wachter (2009).

consequences of occupational decline for this group is an important contribution of this paper. Additionally, as described above, some health impact may go through channels other than the economic: Workers may have a strong identity as, for instance, assemblers in a car factory, and not feel as fulfilled or valued as, for instance, shop attendants or taxi drivers. Occupational switching may recuperate economic losses but still have mental and social consequences. Of this, we know little.

The rest of the paper is organized as follows: In Section 2, I provide descriptions of the Swedish economy and labor market (Section 2.1) as well as the health care system (Section 2.2) in the relevant time period. Thereafter, I explain the empirical strategy and describe my data in Section 3, which includes a detailed account of the treatment, outcome and control variables. In Section 4, I present my results, including robustness checks, pretrends and a descriptive look at mechanisms. Section 5 concludes.

2 Institutional setting

2.1 Structural change and labor markets in Sweden

Like in many other advanced economies (Autor et al. 2006, Goos & Manning 2007, Goos et al. 2014), jobs have polarized in Sweden since the 1980s, likely both due to globalization and technological change: Middle-paid jobs have become less prevalent, while high- and low-paid jobs have become more numerous (Adermon & Gustavsson 2015, Graetz 2020). The powerful labor unions have generally been positive to these structural changes, given government funded active labor market programs assisting workers in transitioning to new work (Holmlund & Edin 1993).

Along with this structural change, Sweden has undergone two large economic crises during the study period: one in the early 1990s and a smaller one following the global financial crisis in 2008 (Gottfries 2018).

Distinct features of the Swedish economy are high union membership—over 80 percent in 1991 (Holmlund & Edin 1993)—and a compressed wage structure (Graetz 2020). Wage inequality increased in the 1980s and 1990s (Skans et al. 2009), whereafter it has been stable at levels much below those of e.g. the UK, the US and France (Graetz 2020).

2.2 Healthcare in Sweden

Healthcare in Sweden is traditionally extensive and low-cost, and has been viewed as central for the *folkhem*, which was the Social Democratic Party's vision of an inclusive society that they attempted to realize during their long regime in Sweden from the 1930s to the 1970s: A healthy population was to provide a sound base for democracy and a productive workforce (Myrdal & Myrdal 1934, Strömberg 2004). In 1983, the new law for healthcare put increased focus on preventative care and a holistic view of health (Strömberg 2004). In the 1990s, organizational reform coupled with budget cuts due to the deep economic crisis early in the decade, led to large reductions in the number of employees in healthcare. In particular, lower-skilled and administrative staff were removed, which increased the administrative burden and the stress for nurses and doctors. There was large regional variation in accessibility, and the increased awareness among the public of waiting times might have led to the five-fold increase in private healthcare insurance between 1990 and 2000. Private healthcare insurance was still, however, not common: There were 115,000 private healthcare insurances in 2000, compared to the population of 8.9 million people. Private insurance

gives quicker access to care, but not higher quality than the public care (SOU 2001:79). The cost of healthcare as a share of GDP was roughly constant during the 1980s–2000s at 8 percent Gralén et al. (2019), which puts Sweden somewhat above the OECD average for the early years, but close to the average for later years (OECD 2001, 2013).

In 1981, the fee for seeing a doctor was 25 SEK (Government of Sweden 1979), which was around 60 percent of the 1985 median hourly wage.[3] This fee was raised from 70 SEK (in fixed 2014 prices) in 1981 to 70–170 SEK in the 1990s and 100–220 SEK in the 2000s (all expressed in fixed 2014 SEK), with a ceiling of annual payments of 1500 SEK (nominally) which has been stable over the time period (Landstingsförbundet 1991, 1995, 2000, 2006, Sveriges Kommuner och Landsting 2011).[4]

Occupational healthcare. Occupational health measures have a long history in Sweden. In the late 19th and early 20th century, laws on work environment, health and safety inspections of workplaces, and workplace doctors were introduced. Modern occupational healthcare began to expand in the 1960s, and by the 1980s, many industrial firms had established their own occupational health units. Notably, the construction industry launched the first industry-wide occupational health initiative, *Bygghälsan* ("Construction Health"), in the 1980s. From 1986 to 1992, occupational health units benefited from government subsidies.

However, occupational health measures experienced a decline in the early 1990s due to the economic crisis and the termination of the 1942 labor market agreement, which had required firms to provide occupational healthcare for workers. Although many industries and the entire public sector established collective bargaining agreements mandating occupational healthcare, coverage rates still fell. The share of workers in Sweden covered by occupational healthcare decreased from 86 percent in the late 1980s to 72 percent in the late 1990s, and further to 65 percent by 2009 (SOU 2011:63).

Since 2000, Swedish law has required firms to provide adequate occupational healthcare appropriate to the working conditions (Government of Sweden 1999). However, it is unclear how many firms fully comply with this mandate. Additionally, even when occupational healthcare is available, its quality can vary significantly. As a result, workers may not always lose access to meaningful healthcare services when they are not employed.[5]

Preventative healthcare. Workers[6] have the right to paid sick leave also for preventative care measures since 1992 (Government of Sweden 1991), but this is rarely used due to complicated application and lacking knowledge among both workers, employers and healthcare staff (National Audit Office 2021).

[3] The sample is 16–64 years old in 1985, and I compute the median nominal wage 43 SEK per hour by dividing the nominal annual earnings by 2080. The sample is conditioned on being employed and earning at least some baseline amount—more details on the exact sample restrictions follow in Section 3.2.

[4] The fee started varying at the regional level in 1991, why the prices after that varies (Landstingsförbundet 1991). The stability of the nominal value of the ceiling of course implies a reduction of the real ceiling over time. Before 1991, the ceiling was denominated in number of visits to health care professionals (15 visits) (Government of Sweden 1981, Landstingsförbundet 1991).

[5] I thank Marie Dahlgren at *Sveriges Företagshälsor* for her valuable insights.

[6] And others with the right to paid sick leave, e.g. unemployed with benefits.

3 Empirical strategy and data

3.1 Empirical strategy

My goal is to study the difference in health outcomes for workers who, in 1985, worked in an occupation that subsequently declined, compared to what would have happened, had their occupation not declined. The equation of interest is therefore:

$$y_i = \beta_0 + \beta_1 D_{k(i)} + \beta_2 X_{i,k(i)} + u_i$$

where y_i is the outcome: an indicator for whether or not person i died or was hospitalized (due to some specific cause), or the number of days the person was hospitalized (due to some cause), during the sample period (1986–2015 for deaths, 1987–2015 for hospitalizations). $D_{k(i)}$ is an indicator for whether or not the occupation of worker i in 1985, $k(i)$, subsequently declined. In the main specifications, I define decline as employment reductions of more than 25 percent. $X_{i,k(i)}$ is a vector of covariates at the individual and occupation level, and u_i is the error term.

There are two potential endogeneity problems: 1) Selection of workers into occupations and 2) classification changes in the Swedish occupational coding structure.

The first problem occurs since workers sort into occupations based on various characteristics and beliefs about future returns. Workers in declining and non-declining occupations might thus differ systematically in ways which affect their mortality. I add a rich palette of control variables to account for this, and I describe them in detail in Section 3.6. Furthermore, I run several demanding robustness checks, none of which threaten my main results.

But even in absence of selection bias because of occupational sorting, the second problem remains: The Swedish occupational classification system changed profoundly in the mid-nineties. The purpose was to modernize the classification system, to reflect that many occupations had declined while others had appeared, as a result of *inter alia* technological change. The new scheme was constructed to align with the international (and European Union) occupational classification system ISCO-88 (and ISCO-88(COM)) (Statistics Sweden 1998). In 1985, there were around 1,400 named occupational categories (NYK85), while the new SSYK96 classification scheme entailed 355 categories. When I create an occupational variable that is harmonized across this change I end up with 172 categories. Not only do I lose variation going from the 1,400 to the 172, but as the Swedish reclassification effort was explicitly justified based on occupational decline, the treatment assignment is endogenous: If an occupation is declining, it is more likely to be bundled together with other occupations, introducing non-classical measurement error.

To mitigate this problem, I use occupational decline in the US as an instrument for occupational decline in Sweden. The occupational classifications in the US have remained relatively constant over time, allowing me to better measure employment change over time. I manually match the occupational titles between the Swedish 1,396 categories (NYK85) and the 401 US categories (more details on this process in Section 3.4), to estimate a local average treatment effect of occupational decline on mortality and morbidity.

The first requirement on the instrument is that US occupational decline predict Swedish occupational decline (relevance). Naturally, I present evidence that the first stage is sufficiently strong to support this. Secondly, US occupational decline is not to affect Swedish workers' mortality or morbidity except through its correlation with Swedish occupational decline (exclusion). This seems credible: The shared factors that drive occupational trends in both countries—e.g. frontier

technologies, shifts in Western consumer demand, or global trade—explain the correlation between US and Swedish occupational trends without implying a direct (or indirect) link from US trends to Swedish workers' health. A third requirement on the instrument is that, conditional on covariates, the US occupational decline be as good as randomly assigned to Swedish workers. I argue that my detailed covariates, together with robustness checks, make this plausible.

The instrumental variable (IV) approach estimates a local average treatment effect—In this case, the effect of occupational decline, on the margin, for workers in occupations that decline *both in Sweden and the US*. The reduced form, on the other hand, estimates an intention-to-treat effect for all workers. In all tables, I present the reduced form and the IV results together, as well as the ordinary least squares (OLS) results.

As a final note, I want to mention the potential effects of treatment on the untreated. If occupational decline makes workers worse off because it worsens their relative status, it is possible that it improves outcomes on the treated, since their relative positions are strengthened. We might interpret the results as increased inequality between those whose occupation declines and those whose occupation does not.

3.2 Data sources

I measure outcomes and covariates using Swedish data: I obtain demographic and labor market variables from the administrative dataset Louise, which includes all residents in Sweden aged 16–64 for 1985–2014. The variables include gender, year of birth, county of residence, education as well as earnings and industry. All of these but industry are included in the demographic and earnings covariates, where I use earnings to determine a relative position in the earnings ranking.

I obtain data on occupations from censuses 1960, 1970, 1980, 1985 and 1990. Thereafter, I use the Wage Structure Statistics (1996–2014), which include all workers in public sector as well as a representative, 50 percent sample of the private sector.

I connect persons to their parents via the Multi-Generation Register (*Flergenerationsregistret*).

The outcome variables are related to health: morbidity and mortality. I obtain individual time and cause of death from the National Cause of Death Registry (*Dödsorsaksregistret*), covering deaths from 1961–2020. I use these data to compute the covariate pre-period mortality, too. Hospitalizations are retrieved from the National Patient Register (*Patientregistret*). It covers inpatient care from 1964–2019, but suffers from underreporting before 1987. For sick leave, I use data from the Swedish Social Insurance Agency (*Försäkringskassan*), which covers 1986–2017. The National Prescribed Drug Register (*Läkemedelsregistret*) is only available from 2005–2015.

3.3 Sample restriction

The full sample includes persons in Sweden aged 16–64 in 1985: 5,279,432 persons. Of these, 4,185,336 were employed (in November 1985), and 3,647,091 earned at least one base amount per year.[7]

I exclude the very youngest, who are unlikely to be strongly attached to the labor market, so I have 3,115,566 25–64 year olds who fulfill the above mentioned criteria. When I require observable

[7] A base amount (basbelopp) is an annually determined administrative measure upon which some benefits or fees are based. In 1985 it was 21,800 SEK. Since I do not have universal data on hours worked or wages, I use this measure to exclude persons with weak labor market attachment.

education level, occupation and industry code, around half a million observations disappear, and another couple of thousand observations have no pre-period mortality and hospitalization rates recorded. I am left with a sample of 2,631,509 persons, which I divide into three groups: young (25 to 36 years old in 1985), middle-aged (37 to 48) and old (49 to 64), for continuity with Edin et al. (2023). The first category is the one I use for the main results table, and the number of observations there is 875,101. The other two groups consist of 975,635 and 780,773 persons, respectively.

In Table 1, I show that the sample of 25–36 year olds who were employed at earned at least one base amount have similar characteristics to those remaining when I impose restrictions on observable education, occupation and industry variables.[8]

[8] A note on the composition of the dropped workers: Out of 1,070,818 persons in the 25–36 year old sample, around 75,000 do not have education level recorded—These are removed when moving to column (2). 74,000 of these 75,000 dropped individuals have an industrial code recorded, and almost half of them are in manufacturing. This means that the fraction in manufacturing drops from 28.9 percent (out of the ones with industry recorded in column (1): around 1,060,000 persons) to 27.5 percent (out of the ones with industry recorded in column (2): around 994,000). So although a large share of the dropped sample are in manufacturing, it only changes the composition of the sample by a few points. Similarly, almost half of the 75,000 workers with missing education variables are immigrants.

Table 1: Summary statistics for the 25–36 year old sample in 1985

	(1) Without restr.	(2) Non-missing education	(3) Non-missing occupation & industry	(4) Non-missing pre-period mortality & hospitalization
Female	0.46	0.47	0.48	0.48
	(0.50)	(0.50)	(0.50)	(0.50)
Age	30.71	30.78	30.81	30.81
	(3.46)	(3.47)	(3.46)	(3.46)
Earnings	181.75	182.99	184.26	184.31
	(78.57)	(79.06)	(77.57)	(77.62)
Immigrant	0.09	0.06	0.06	0.06
	(0.29)	(0.24)	(0.24)	(0.24)
Compulsory school		0.25	0.25	0.25
		(0.43)	(0.43)	(0.43)
High school		0.83	0.84	0.84
		(0.37)	(0.37)	(0.37)
College		0.12	0.12	0.12
		(0.33)	(0.32)	(0.32)
Manufacturing			0.28	0.28
			(0.45)	(0.45)
Hospital spells*				1.65
				(0.37)
Hospital days*				20.03
				(7.04)
Mortality*				0.07
				(0.03)
Observations	1,070,818	995,327	877,249	875,101

Notes: The columns add restrictions sequentially on the sample: In column (3), the restriction is as in column (2), *and* the restriction described in column (3). In column (4), the restrictions in columns (2) and (3) *and* in column (4) are applied. The rows show the fraction of females, average age, fraction born outside Sweden, annual earnings in thousands of 2014 SEK, the fraction with at most compulsory school, at most high school and then college, as well as the fraction in manufacturing. The variables with stars—hospital spells, hospital days, and mortality—are pre-period characteristics at the occupational level. They refer to the pre-period hospitalization rates and mortality rates in each person's occupation: the average number of spells and days in hospital, and the average mortality, during 1961–1985 for workers who were in the relevant occupation and 25–36 years old in 1960. These occupations are 229 occupational categories that I have harmonized across 1960–1985.

Lastly, the sample period is 1986—2015: The individuals are sampled in November 1985, and I record their deaths from 1986 onwards, and their hospitalizations from 1987 onwards.[9] I end the sample period in 2015, since later years' data do not admit as narrow classifications for causes of deaths and hospitalization. Data on prescription medicines are available 2005—2015, and I use data on sick days for 1986–2015.

[9] 10 persons out of the 3,773,775 persons in the 16–64 age sample die in 1985 (after being sampled). I classify them as having died in 1986, instead.

3.4 Treatment variable and instrument: Occupational decline in Sweden and the US

As explained in Section 3.1, I use a crosswalk—which we defined for this purpose in our previous research (Edin et al. 2023)—to bridge the classification scheme used in 1985 (NYK85) with the one used from 1996 (SSYK96). I then measure employment change in these harmonized 172 occupations, and I define occupational decline as employment reductions of more than 25 percent between 1985 and 2013. The reason I stop in 2013 is because there was another profound reclassification of the Swedish occupation codes that came into place in 2014.

I use the same definition of occupational decline in the US context, when constructing my instrument: Those occupations that declined in employment by more than 25 percent are classified as declining. The employment changes are measured between 1984 and 2016 since we use the *Occupational Outlook Handbook*s' data from these years (Bureau of Labor Statistics 1986, 2017).

I assign each Swedish worker a value of the instrument based on their 1985 occupation: The 1,396 occupations in the Swedish data are matched to 401 US occupations, adjusting for many-to-one matches using employment weights.[10] Each Swedish occupation is then assigned the (weighted) employment change of the corresponding US occupation(s). If this employment change is below minus 25 percent, I assign the instrument "Declining (US)" a value of one for the Swedish occupation.

3.5 Outcome variables

I study deaths and hospitalizations by cause. To identify cause of death, I use the International Classification of Disease (ICD), versions 9 and 10, coupled with information in the Swedish Cause of Death Registry and the Patient Registers. A detailed table on the classification codes I use can be found in Table B.1. Below, I outline some details related to deaths and hospitalizations of despair.

Causes of death and hospitalization: Despair I define deaths of (or hospitalization due to) despair as being caused by alcohol, drugs or suicide (or "self-inflicted injury", as the diagnosis code states). Furthermore, for deaths of despair, I can also use information from a note on the death certificate, which states whether or not alcohol was a cause of death, separate from the ICD codes.[11]

Causes of death The Swedish Cause of Death Registry records multiple causes of death when applicable, which is useful for avoiding issues with competing risks in estimation. In my sample, approximately 12 percent of individuals who died of cardiovascular disease also had alcohol, drugs, or suicide listed as a cause of death. Among those who died of despair-related causes, about 80

[10] More specifically, I succeed in mapping 379 US occupations from the 1986–87 Occupational Outlook Handbook to 1,094 Swedish occupations. This means I match information from the US to 91 percent of Swedish workers in 1985. Whenever there is a many-to-one match, I use US employment in 1984 as weights for the US occupations. The details of this procedure can be found in the appendix to Edin et al. (2023).

[11] Before 1987, the Cause of Death Registry gives unreliable information about some causes of death. Among others, the component parts of deaths of despair and deaths by cardiovascular disease are underreported. Therefore, for mortality from despair and cardiovascular disease in 1986, I use the mean mortality 1987–1991 for each gender, age group and education category (three-year college degree or not), conditional on death, to impute the mortality in 1986. So, rather than a one or zero response for each person in 1986, I put a percentage probability of death of despair or cardiovascular disease, given that the person died in that year.

percent had one of the three causes recorded, 15 percent had two causes, and 5 percent had all three—alcohol, drugs, and suicide—registered as contributing factors.

In contrast, I only use the primary diagnosis for each patient from the hospitalization data. However, this does not pose a problem when estimating regressions for hospitalizations *by any cause*, which is my main hospitalization outcome.

Other outcome variables I also investigate whether occupational decline is related to more sick days. These data cover sick days when the number of days in a spell exceeds 14 days.

Lastly, I ask whether workers who experience occupational decline tend to get more prescription medicines for mental health issues, pain, cardiovascular problems, and alcohol or drug abuse. Details on the ATC-codes used for defining these categories are in Table B.2.

3.6 Control variables

This section presents the covariates included in the result tables.

Demography & earnings Individual level variables, such as demographics and earnings are included to correct for sorting into declining occupations. Those in declining occupations are for instance lower educated, and more likely to be men, as evident from Table 1. Demography controls therefore include dummies for year of birth, county, education level, gender, and whether or not the individual is born in Sweden. Earnings refer to (dummies for) ventiles in the 1985 income distribution.

Pre-period mortality & hospitalization Occupations may differ in how detrimental to workers' health they are, or in that differently healthy individuals sort into different occupations. To control for this, I include measures of pre-period mortality and hospitalization per 3-digit occupation. Pre-period mortality refers to the mortality of workers, who were 25–36 years old in 1960, in each 3-digit occupation and of each gender from 1961 to 1985. Pre-period hospitalization includes measures for the number of spells and the number of days in hospital for the aforementioned group. I weight each 3-digit occupation by the square root of employment (in 1960) to avoid small occupations' more erratic mortality and hospitalization rates influencing results disproportionally.[12]

Life-cycle earnings Even in absence of decline, occupations offer different earnings trajectories over workers' careers, which in turn may affect health outcomes. Therefore, I control for the predicted life-cycle earnings of individuals per occupation. Life-cycle profiles are the predicted life-time earnings based on 1985 earnings in each 3-digit occupation. More specifically, they are constructed (as in Edin et al. (2023)) in the following way: Using all workers who earned at least one base amount (see explanation of base amount in Footnote 7) aged 16–64 in 1985, we regress log earnings on a quartic of age, gender, county and education in each 3-digit occupation. Thus, we obtain a predicted value of each person's earnings in 1985. We then bring this prediction forward over time, using the coefficients on the age variables as persons grow older, and adjusting for average annual wage growth 1986–2013. We interpret this as the best, ex-ante prediction of

[12]For instance, if there are only two workers in a gender×age cell in an occupation, and one of them happens to die in 1961–1985, this gives a mortality rate of 50 percent. But this is a more noisy measure of how dangerous the occupation is than if 50 percent of a very large occupation's workforce (in the specified cell) dies. The square root of employment weights are used in regressions, but not in the descriptive statistics in Tables 1 and 2.

what an individual's earnings would have been, had they stayed in their 1985 occupation, and had the occupation not declined.

Predictors of growth Workers may sort in anticipation of decline, or in response to already ongoing occupational decline. Therefore, I control for predictors of occupational growth. These include occupation level information on Swedish employment share in 1985, Swedish employment growth 1960–1985, and US employment forecasts by Bureau of Labor Statistics (1986). The Bureau of Labor Statistics (1986) classify occupations, according to their prediction of growth over the next decade, as likely to decline, stay approximately constant, increase slower than average, increase about as fast as average, and increase faster than average.

Occupation dummies I use 1-digit occupation indicators from the Standard for Swedish Occupational Classification (abbreviated SSYK in Swedish) from 1996, which builds on the International Standard Classification of Occupations (ISCO) from 1988.

Industry dummies I use the industry classifications from EUKLEMS, which divides economic activity into 28 industries.

In most tables, I only show two specifications per outcome variable, and these two specifications are labelled as follows:

Individual controls Individual controls include demography and earnings, as explained above.

Occupation & industry controls Occupation & industry controls include the remaining covariates, as outlined above.

In some specifications, I also control for one of the following:

Marriage Being married might shield individuals from economic or social consequences of occupational decline. Alternatively, it might be associated with having dependents, so that economic hardship is more stressful. In some specifications, I therefore control for whether or not an individual was married or cohabiting in the initial period (1985).

Household income If the household self-insures its members, household income—rather than individual income—matters for how protected a person is financially from economic deterioration. I therefore control for household income in the following way: Since I do not have information on family from the baseline year 1985, I take this from the 1990 data. I then sum real incomes from 1985 within each household. Since household formation in the first 5 years might be endogenous to decline, this control should be interpreted with caution.

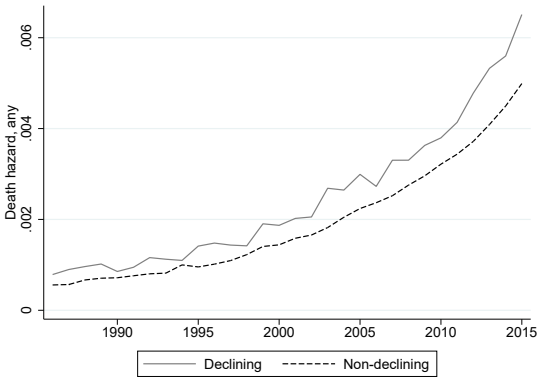
Parents' early death The genetic disposition to early death and disease may affect longevity and correlate with other unobservables. To control for this, in some specifications I control for having at least one parent dying early, which I define as dying before age 65.[13]

[13] I also take into account that some parents are still alive in 2015, when my data ends. These parents are counted as *not* dying early, since they are still alive and at least 65 years old (I drop less than one percent of mothers, and even fewer fathers, by conditioning on being born 1950 or earlier (unless they have died before 2015, in which case I record their age at death), meaning that they are 65 when my sample period ends).

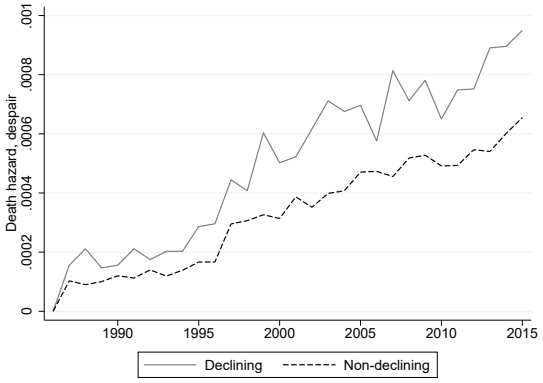
4 Results

4.1 Descriptive statistics

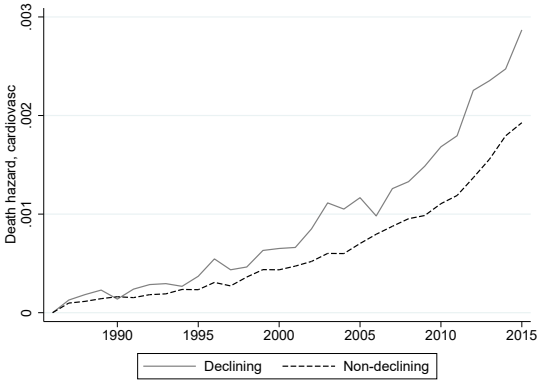
People in declining occupations have higher risk of death in every year of the sample period, as is evident from Figure 1. The graphs plot the hazard rates of death for the baseline sample for the overall death rate, and for deaths of despair and deaths from cardiovascular disease, separately for workers in occupations that decline (in the US) and that do not decline (in the US). [14]



(a) Hazard rate of death, any cause



(b) Hazard rate of death, despair



(c) Hazard rate of death, cardiovascular disease

Figure 1: Hazard rate of death for workers in declining and non-declining occupations, aged 25 to 36 years in 1985

Notes: The graphs show the probability of death in the indicated year, conditional on having survived up until that point, for people in declining and non-declining occupations (the "Decline (US)" indicator). The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on outcomes and the definition of Declining can be found in Sections 3.4 and 3.5 respectively. There are 109,215 persons in the declining occupations and 765,886 persons in the non-declining.

However, these observationally different patterns might depend on sorting across occupations. Table 2 describes some differences between occupations classified as non-declining and declining (using the US measure "Declining (US)"): Declining occupations are male-dominated, lower educated and more concentrated in manufacturing. Income, probability of being born outside Sweden and age, however, are similar across declining and non-declining. I also display three occupational characteristics in this table: the average number of hospital spells, hospital days and mortality, which are measured in the pre-period 1961–1985. Evidently, declining occupations seem to be slightly

[14] Figure A.1 exhibits the same statistics for men and women separately, where the same pattern emerges.

worse in terms of mortality rates, but there is no discernable difference in the occupations in terms of the risk of hospitalization. As explained in Section 3, I control for all these differences in the regressions.

Table 2: Descriptive statistics for the baseline sample in non-declining and declining occupations

	(1)	(2)	(3)	(4)	(5)	(6)
	Female	Age	Immigrant	Comp. school	High school	College
Intercept	0.51	30.8	0.059	0.23	0.83	0.13
	(0.078)	(0.078)	(0.0040)	(0.022)	(0.032)	(0.032)
Declining (US)	-0.26	-0.19	0.013	0.15	0.042	-0.082
	(0.085)	(0.091)	(0.0083)	(0.030)	(0.033)	(0.034)
	Earnings	Manuf.	Hosp. spells*	Hosp. days*	Mortality*	
Intercept	182.8	0.23	1.65	20.0	0.065	
	(9.28)	(0.050)	(0.048)	(0.80)	(0.0033)	
Declining (US)	12.0	0.38	-0.025	0.50	0.011	
	(9.40)	(0.084)	(0.051)	(0.88)	(0.0041)	

Notes: Each column displays the regression output with the variable in the column title as the dependent variable, and a constant and the "Declining (US)" indicator on the right-hand side. All characteristics are measured in 1985. The columns in the first panel thus show the fraction of females, the average age, fraction of workers born outside Sweden, the fraction of workers who completed at most compulsory school, at most high school, and college, among non-declining occupations (Intercept) and in declining occupations (adding the coefficient from the "Declining (US)" variable). In the second panel, earnings are in thousands of 2014 SEK, and manufacturing show the fraction of workers in manufacturing. The variables with stars—hospital spells, hospital days, and mortality—are pre-period characteristics at the occupational level. They refer to the pre-period hospitalization rates and mortality rates in each person's occupation: the average number of spells and days in hospital, and the average mortality, during 1961–1985 for workers who were in the relevant occupation and 25–36 years old in 1960. These occupations are 229 occupational categories that I have harmonized across 1960–1985. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985.

4.2 First stage

Next, I show that the "Declining (US)" indicator defined from US data as explained in Section 3.4 is a relevant instrument for being in a declining occupation in Sweden. Panel *B* in Table 3 demonstrates that workers who are in an occupation defined as "Declining (US)" are 53 percentage points more likely to be in a Swedish occupation that declines in the sample period, compared to a mean of 39 percent.[15] After controlling for all covariates, the "Declining (US)" indicator still predicts that a worker is 30 percentage points more likely to be in a declining occupation. The instrument is equally relevant in my main sample (panel *B*), and in the larger sample including older workers

[15]The high number of Swedish workers in occupations that decline by more than 25 percent is an artefact of the problems discussed with the Swedish measures of occupational decline in Section 3.4. A detailed table on the harmonized occupational titles in Sweden, their employment change in the sample period in Sweden and in the US, as well as their size and gender composition in the main sample in 1985, can be found in Appendix B. As an alternative measure of exposure to occupational decline, I also show in Table B.5 that workers in occupations defined as "Declining (US)" are in occupations that have 25 log points lower employment change on average, after controlling for all covariates. Furthermore, the same pattern holds for a different threshold than -25 percent: Workers in occupations defined as "Declining (US)" are 19 percentage points more likely to be in a Swedish occupation that declines at all (i.e. with threshold zero), after controlling for all covariates (see Table B.6).

(panel A).

Table 3: First stage: The probability of being in a declining occupation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Workers aged 16–64 in 1985 (3,060,565 observations, mean: 0.41)							
Declining (US)	0.52	0.47	0.48	0.48	0.48	0.38	0.31
	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)	(0.08)	(0.06)
B. Workers aged 25–36 in 1985 (877,249 observations, mean: 0.39)							
Declining (US)	0.53	0.46	0.46	0.46	0.46	0.38	0.30
	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)	(0.08)	(0.06)
Demography & earnings		✓	✓	✓	✓	✓	✓
Pre-period mort. & hosp.			✓	✓	✓	✓	✓
Life-cycle earnings				✓	✓	✓	✓
Predictors of growth					✓	✓	✓
Occupation dummies						✓	✓
Industry dummies							✓
F-stat, panel A	35.59	37.24	47.73	46.71	46.71	128.59	548.93
F-stat, panel B	36.23	21.67	27.73	27.29	27.29	28.39	131.56

Notes: On the left-hand side is an indicator for working in a Swedish 3-digit occupation that declines by more than 25 percent between 1986 and 2013. There are 172 such 3-digit occupations, that are harmonized across the whole sample period. The Swedish occupational change is computed using sampling weights from the Wage Structure Statistics. The harmonized occupations are attached to individuals based on their 5-digit occupation in 1985. On the right-hand side is the "Declining (US)" indicator. Both samples are conditioned on being employed and earning at least one base amount (see Footnote 7 in November 1985, and having information on occupation, education level and industry. Details on the treatment and control variables can be found in Sections 3.4 and 3.6.

Interestingly, while the US measure is a relevant instrument for occupational decline in Sweden, it is not a good proxy for occupational growth (see Figure A.2 and Tables B.7 and B.8). This means that the measure is indeed useful to study occupational decline (as in this paper, and in Edin et al. (2023)), but not for exploring the impact of occupational change across the whole distribution of growth. It is in line with our reasoning in Edin et al. (2023), that large occupational declines are more affected by labor demand factors—such as automation, outsourcing possibilites due to improved communication technology, and increased import competition—which are shared between developed economies. Smaller fluctuations or increases in employment are more likely driven by local labor supply factors.

4.3 Main results: Mortality

In Table 4, the outcome is the probability of death (in percent) by the cause specified at any point between 1986 and 2015.[16] In columns (1) and (2) I present the results for death by any cause. 5.8 percent of persons in the sample die in the 30 year period under study, and the reduced form results in panel C show that this mortality rate is 0.61 percentage points elevated among those who in 1985 were in an occupation that would subsequently decline—proxied by the decline in the corresponding US occupation—when comparing similar workers. This corresponds to an 11 percent increase in death risk compared to the sample mean. The coefficient is approximately

[16]The dependent variable for each individual is a binary indicator of 0 or 100 (rather than 0 or 1), in order to express coefficients in percent and avoid excessive use of zeroes and decimal points.

halved when controlling for all available covariates on the occupation and industry level, too (panel *C*, column (2)).[17]

Estimating the effect of occupational decline using an instrumental variable approach produces the coefficients in panel *B*. Columns (1)–(2) shows large and precise effects on overall mortality: The local average treatment effect is 1.14–1.34, corresponding to 20–23 percent larger mortality than the mean. This suggests that workers who, in 1985, worked in occupations that would subsequently decline both in Sweden and the US face increased mortality of around a fifth of the mean.

Columns (3) and (4) show small and imprecise effects on deaths of despair: The mean risk of death of despair is around 1 percent, and it is not statistically different between those in declining and non-declining occupations. The point estimates are around the same relative size (compared to the mean) as for overall mortality, but the confidence intervals are wide. Estimates on mortality in each subcategory of despair (alcohol, drugs and suicide) are also noisy (see Table B.11).

Almost 2 percent of the sample dies of cardiovascular disease, and this risk increases by 8–18 percent as estimated in the reduced form regression (panel *C*, columns (5) and (6)). The IV estimates are, again, higher: The estimated coefficients 0.51–0.75 percentage points correspond to 26–39 percent of the sample mean.

Table 4: Occupational decline and mortality 1986–2015

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.36	0.15	0.052	0.017	0.17	0.043
	(0.19)	(0.13)	(0.074)	(0.057)	(0.095)	(0.077)
B. IV						
Declining (Sweden)	1.33	1.08	0.32	0.23	0.75	0.51
	(0.49)	(0.47)	(0.21)	(0.22)	(0.24)	(0.24)
C. Reduced form						
Declining (US)	0.61	0.32	0.15	0.069	0.34	0.15
	(0.23)	(0.13)	(0.095)	(0.066)	(0.12)	(0.068)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	5.80		1.03		1.94	
F-stat., first stage, with individual controls: 21.67						
F-stat., first stage, with all controls: 131.56						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6. Standard errors are clustered at the 3-digit occupation level, and are shown in parentheses below the estimated coefficients.

I also run the reduced form estimation in a logistic regression in Table B.9. The results are similar to the ones presented in the linear probability model (LPM) in Table 4: In the LPM presented above, the percentage change (compared to the mean) for overall mortality are 11 and

[17] In Table B.10, I present the complete reduced form results with covariates added sequentially.

5 percent, estimated with individual and all controls, respectively (panel *C*, columns (1)–(2) in Table 4). Compare this to panel *A*, columns (2) and (7) in Table B.9 where estimates are 0.10 and 0.06, respectively. Similar exercises for cardiovascular deaths show 18 and 8 percent in the LPM, compared to 13 and 8 percent in the logistic model (panel *F*, columns (2) and (7)).

4.4 Main results: Hospitalization

Workers who in 1985 worked in occupations that subsequently declined both in Sweden and the US spent 0.13 days more in hospital per year, compared to an average hospitalization of 0.73 days per year, as evident from the instrumental variable regressions in panel *B* in Table 5. The reduced form results are smaller: a 0.04 day increase. The estimates on overall hospitalization are reasonably precise, while the estimates for hospitalization by despair and cardiovascular disease are small and noisy.

The hospitalization days per year are plausibly affected since there is also a higher risk of death, as shown in Table 4—If individuals die in the sample period, it is likely they spent some time in the hospital before death. The effect on the probability of ever being hospitalized, however, displayed in Table B.16, has a point estimate close to zero, and is estimated with large standard errors.

Table 5: Occupational decline and days of hospitalization 1986–2015

	Hosp., any cause		Hosp. by despair		Hosp., cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.024	0.014	-0.0013	-0.0012	0.00023	-0.0013
	(0.020)	(0.016)	(0.0016)	(0.0016)	(0.0015)	(0.0012)
B. IV						
Declining (Sweden)	0.11	0.13	0.0032	0.0053	0.0050	-0.0029
	(0.058)	(0.066)	(0.0048)	(0.0064)	(0.0039)	(0.0050)
C. Reduced form						
Declining (US)	0.050	0.039	0.0015	0.0016	0.0023	-0.00086
	(0.026)	(0.019)	(0.0022)	(0.0019)	(0.0018)	(0.0015)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean days hosp. per year	0.73		0.02		0.05	
F-stat., first stage, with individual controls: 21.67						
F-stat., first stage, with all controls: 131.56						

Notes: All outcomes refer to the number of days hospitalized (by cause specified in column head) per year alive in 1987–2015. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6. Standard errors are clustered at the 3-digit occupation level, and are shown in parentheses below the estimated coefficients.

4.5 Mortality: Heterogeneity between genders

In this section, I present the results on mortality separately for men and women. First, for men, columns (1)–(2) in Table 6 show noisy, positive estimates for the impact of occupational decline

on overall mortality. There is suggestive evidence that men in declining occupations have a higher risk of death by cardiovascular disease, than those in non-declining occupations: In column (6), the reduced form and the instrumental variable approach give positive estimates corresponding to around 7 and 27 percent of the sample mean, respectively, with p-values of 0.05 and 0.07, respectively.

Table 6: Occupational decline and mortality among men 1986–2015

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.34	-0.092	0.089	-0.056	0.21	-0.017
	(0.25)	(0.15)	(0.093)	(0.064)	(0.14)	(0.10)
B. IV						
Declining (Sweden)	1.12	0.93	0.20	0.12	0.83	0.72
	(0.60)	(0.66)	(0.26)	(0.32)	(0.33)	(0.39)
C. Reduced form						
Declining (US)	0.50	0.23	0.088	0.030	0.36	0.18
	(0.28)	(0.16)	(0.12)	(0.082)	(0.15)	(0.091)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	6.81		1.50		2.62	
F-stat., first stage, with individual controls: 27.30						
F-stat., first stage, with all controls: 131.53						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The first stage regression can be found in Table B.14. The sample consists of 454,008 men who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6. Standard errors are clustered at the 3-digit occupation level, and are shown in parentheses below the estimated coefficients.

For women, in Table 7, a different pattern emerges. There are large, positive but noisy estimates on overall mortality, and no significant results on cardiovascular disease. In contrast, in columns (2)–(3) estimates are large and precise: Women who in 1985 worked in occupations that would subsequently decline (in the US) were 0.2 percentage points more likely to die by despair, compared to the mean of 0.52 percent. The instrumental variable regression shows that women who worked in occupations that declined both in Sweden and the US more than doubled their risk of death of despair: The estimate of 0.71 corresponds to a 137 percent increase. In Table B.13, I present estimates of each sub-category of death of despair: alcohol, drugs and suicide, where I find all three causes drive the positive effect of occupational decline on deaths of despair.

Table 7: Occupational decline and mortality among women 1986–2015

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.47	0.21	0.036	0.036	0.19	0.069
	(0.15)	(0.14)	(0.047)	(0.046)	(0.069)	(0.056)
B. IV						
Declining (Sweden)	1.27	1.63	0.31	0.71	0.42	0.32
	(0.48)	(0.88)	(0.17)	(0.28)	(0.18)	(0.36)
C. Reduced form						
Declining (US)	0.63	0.46	0.16	0.20	0.21	0.090
	(0.26)	(0.23)	(0.072)	(0.062)	(0.11)	(0.11)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	4.70		0.52		1.21	
F-stat., first stage, with individual controls: 17.57						
F-stat., first stage, with all controls: 345.34						

Notes: All outcomes refer to the percentage probability of death (by cause specified in panel) at any point between 1986–2015. The first stage regression can be found in Table B.14. The sample consists of 421,093 women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Despite that the large and precise effects on deaths of despair for women are absent in the male sample, these differences are not statistically significant. In Table B.12, I display a fully interacted model, where the interaction term is imprecisely estimated for deaths of despair (columns (3) and (4)). In contrast, the LATE estimate for deaths by cardiovascular disease reveals a statistically significant difference: Women in declining occupations are significantly less affected by cardiovascular death than men.[18]

Notwithstanding that some of the gender differences are imprecisely estimated, women in declining occupations appear to face heightened risks of alcohol, drug, and suicide-related deaths. This aligns with findings from Eliason & Storrie (2010), who show that women—but not men—who lose their jobs due to plant closures are more likely to be hospitalized for alcohol and drug abuse. A potential explanation is that stress is a more significant risk factor for alcohol abuse among women. Moreover, women tend to experience more severe health consequences from alcohol abuse than men, as highlighted by Peltier et al. 2019.

In contrast, men in my study seem more affected by cardiovascular deaths, while the estimate for women is less precise—possibly because women are less likely to die prematurely from cardiovascular disease (Mankad & Best 2008, Walli-Attaei et al. 2020).[19] This pattern is evident in my data: 2.62 percent of men in the main sample die of cardiovascular disease, compared to only 1.21

[18]Note that the main effects in the IV regressions in panel *B* of Table B.12 are not the same as the estimated effects in Table 6, since the reduced form is scaled by a different first stage.

[19]Mankad & Best (2008) review literature demonstrating that while more women than men die of cardiovascular disease annually, these deaths typically occur later in life for women.

percent of women.

Other possible explanations for these gender disparities include differences in healthcare access and utilization, varying economic conditions for men and women in declining occupations, and gender-specific lifestyle responses to economic hardship. However, the epidemiological literature offers mixed evidence regarding gender differences in health outcomes following adverse labor market conditions.[20]

4.6 Mortality: Heterogeneity over the earnings distribution

The lowest ranked in the earnings distribution in their occupation face the harshest effects, consistent with our findings in Edin et al. (2023). I rank workers according to their earnings within their 1985 (3-digit) occupation, and in Table 8 I interact indicators for the top and bottom terciles with occupational decline to investigate the differential effect on mortality across the earnings distribution.

Although the reduced form results are somewhat imprecise, they are in line with the scaled IV results, which show that the bottom tercile face a more than double impact of decline, compared to the middle tercile. Those in the bottom tercile, who are hit by decline (instrumented by US decline), face a 1.96 percentage point elevated risk of death in the sample period, corresponding to 33 percent of the mean in the bottom tercile. The reduced form point estimates represent around a 16 percent increase in mortality for the bottom tercile workers in declining occupations. The linear interaction presented in Table B.15 provide consistent evidence: Workers further down in the earnings distribution suffer more from occupational decline.

Deaths of despair and cardiovascular deaths exhibit similar correlations with individuals' earnings rank. The reduced form results, in particular, however, indicate that the effects are driven by different parts of the earnings distribution: The increased risk of cardiovascular death is driven by the lower tercile, while deaths of despair are actually lower among workers who belong to the top earners in declining occupations.

[20] For example, Hammarström et al. 2011 review relevant literature and find no significant differences in a small but well-documented cohort of Swedes.

Table 8: Occupational decline and mortality 1986–2015: Heterogeneous effects

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.17	0.0066	0.042	0.020	0.11	-0.0016
	(0.18)	(0.17)	(0.054)	(0.065)	(0.11)	(0.094)
Declining (Sweden) × bottom tercile	0.60	0.56	0.17	0.17	0.23	0.23
	(0.36)	(0.34)	(0.15)	(0.15)	(0.16)	(0.15)
Declining (Sweden) × top tercile	-0.16	-0.19	-0.20	-0.21	-0.065	-0.096
	(0.21)	(0.21)	(0.081)	(0.079)	(0.079)	(0.085)
B. IV						
Declining (Sweden)	0.29	0.89	0.26	0.25	0.25	0.48
	(0.20)	(0.47)	(0.18)	(0.23)	(0.12)	(0.23)
Declining (Sweden) × bottom tercile	1.14	1.07	1.02	0.33	0.37	0.36
	(0.45)	(0.43)	(0.52)	(0.20)	(0.20)	(0.19)
Declining (Sweden) × top tercile	-0.42	-0.55	-0.79	-0.42	-0.20	-0.27
	(0.34)	(0.32)	(0.19)	(0.12)	(0.13)	(0.12)
C. Reduced form						
Declining (US)	0.50	0.21	0.20	0.13	0.25	0.053
	(0.19)	(0.16)	(0.086)	(0.082)	(0.12)	(0.093)
Declining (US) × bottom tercile	0.76	0.76	0.18	0.17	0.37	0.38
	(0.52)	(0.49)	(0.25)	(0.24)	(0.25)	(0.24)
Declining (US) × top tercile	-0.38	-0.41	-0.36	-0.36	-0.038	-0.067
	(0.23)	(0.23)	(0.097)	(0.093)	(0.13)	(0.12)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	5.80		1.03		1.94	
Mean mortality, bottom tercile	5.95		1.14		1.93	
F-stat., first stage, with individual controls: 21.67						
F-stat., first stage, with all controls: 131.56						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6. Standard errors are clustered at the 3-digit occupation level, and are shown in parentheses below the estimated coefficients.

4.7 Additional results

Year of death In Table B.17, the reduced form results show that workers in declining occupations tend to die around 7 months earlier than those in non-declining occupations. The local average treatment effect is larger: Occupational decline implies a more than 2 year earlier death.

Age heterogeneity Tables B.18 and B.19 show little evidence of impact of decline on death risk for middle-aged and older cohorts. Although both tables show reasonably precise estimates when only using individual-level controls, these estimates are substantially reduced in size and become imprecise when adding occupation and industry level controls. This is in line with Edin et al. (2023), where we hypothesize that these cohorts are less affected since they are not exposed to the treatment for a large enough share of their careers: Those aged 49 to 64 in 1985, for instance, may retire before most of the decline happens.

Tenured workers In Table B.21, I focus on individuals who remained in the same 3-digit occupation in both 1980 and 1985. This restricted sample likely reflects workers with a strong attachment to their occupation, despite their relatively young age (20 to 31 years old in 1980), since they stay in the same occupation for five years.[21] Larger estimated coefficients might be expected in these regressions: Workers who are attached to and invested in their occupations could experience greater harm if those occupations decline—both in terms of status, life satisfaction and financial outcomes, if they are less able to switch to another occupation. There is some sample selection here: As the youngest people in the sample are only 21, there will be a higher share of non-college educated workers in this tenured sample.

And indeed, both the reduced form point estimates and the LATE estimates are slightly larger than in the baseline sample. For death of any cause the estimated risk increases for those in declining occupations are 0.37 in reduced form and 1.33 in the IV approach, which corresponds to 6 and 23 percent, respectively, of the sample mean. Interestingly, the coefficients seem more stable when adding controls in this sample, than in the baseline sample, as is visible in the reduced form Table B.22 where I add control variables sequentially.

Sick leave Table B.23 shows no distinguishable difference between workers in declining and non-declining occupations in the total number of sick days over the sample period, nor the number of sick days per year.

Medication I investigate whether workers in declining occupations are more likely to get prescription medication for mental health issues, pain, cardiovascular conditions, or alcohol and drug abuse. While the two latter types of medication are directly related to the causes of death I study, the two former are included for the following reasons: Mental health problems are known consequences of job loss due to plant closures (Browning & Heinesen 2012), and also is plausibly linked to unemployment in the epidemiological literature (Paul & Moser 2009, Daly & Delaney 2013). Pain is tightly intertwined with stress (McFarlane 2007), and has been connected with unemployment (Brydsten et al. 2015). Medicating mental health or pain issues are thus two less severe and more common outcomes that are plausibly affected by occupational decline.

In Table B.24, the outcome is an indicator for having picked up a prescription in the relevant category, in 2005–2015. Since the medical registers are only available for these years, the sample is restricted to those who survived for the first 20 years of the main sample period. Almost 38 percent of this restricted sample used some type of mental health medication in the 10 years covered, and this probability is elevated by 1.07 percentage points for those in declining occupations, in the reduced form estimation, and 3.57 percentage points in the instrumental variable estimation. Both pain medication and cardiovascular medication are common—over half of the sample takes these

[21] I do not observe whether they left the occupation in the intermediate years and returned, but at least this is indicative of occupational stability.

medications at some point between 2005–2015. However, these medications are no more common among workers in declining occupations.

In Table B.25, there is evidence that individuals subject to occupational decline are more likely to be medicated for alcohol or drug abuse: The estimated effect in the reduced form regressions is 0.31 percentage points, which corresponds to 5 percent of the mean probability of 5.87 percent. The local average treatment effect in the IV estimation is large: 1.05 percentage points.

Geographic variation There is geographic variation in mortality rates: In counties with higher concentration of declining occupations—measured as share of the main sample working in occupations coded as "Declining (US)"—the county fixed effect in the baseline regression of mortality is higher (see Figure A.3). This is also true, but less strikingly so, for real income, where low income counties have higher mortality rates as measured by the county fixed effects from my main regressions. It thus is possible that deterioration of socio-economic conditions affect whole communities.

4.8 Robustness

Since the empirical strategy relies on conditioning on confounding factors, we might worry that there exist factors outside the regression model that influence mortality and covary with sorting into declining and non-declining occupations. In this section I discuss two important such factors—household and family background—and what I do to alleviate these concerns. Lastly, I discuss the definition of decline.

The household and family of the worker constitute self-insurance and a social support system. If people with weak households (either in financial terms, or if the household is a single household) systematically sort into declining occupations, and also face higher risks of death, this might bias my estimates upward. As it turns out, however, my main results are robust to including a household income variable. Low household income can reflect either two spouses earning low wages, or that the worker is a single (adult) household member, but including this covariate barely move the point estimates (Table B.26). However, it is worth cautioning regarding interpretation of this table, since the construction of the household income variable uses 1990 data to identify households.[22] Therefore, it is potentially a "bad control" as family formation might have occurred in the first few years of the sample period.

As another proxy of household resilience, in **??** I include marriage status in 1985 as a control, which does not change the point estimates significantly.[23]

Moreover, family *background* of the worker might influence occupational choice and health. Genetics and social influence from parents, siblings and friends might affect well-being and health during upbringing and later in life, as well as educational and occupational choices. To alleviate the concern that this perturbs my estimates, I run several robustness checks, outlined below.

First, I run my main regressions again, including an indicator for whether either of a worker's parents died early (defined as dying before age 65). This should control for some genetic predisposition to early death, but as Table B.28 shows, the point estimates are virtually unchanged when

[22] More details on the construction of this measure can be found in Section 3.6

[23] Eliason & Storrie (2010), who find some gender differences in the hospitalization response to job loss, find that marriage seems to shield women somewhat but not men. This does not seem to be the case in my sample. Regressions available upon request.

including the control. They are also very similar to the main results.[24]

I also check whether some parental characteristics are balanced across treatment and control groups in Table B.30: If these characteristics are balanced, they will not bias my estimates. Balance would also serve as an indication that family background in general is balanced across people who sort into declining and non-declining occupations. Note that while mothers' and fathers' high school graduation and earnings in 1985 are predetermined, whether or not they died early is not (necessarily). Yet, all three characteristics are balanced across treatment and control groups: Although workers in declining occupations are slightly negatively selected on parental education background when only controlling for individual level controls, the difference vanishes once I control for occupation and industry level controls.

Lastly, I run my main regressions with sibling fixed effects, as displayed in Table B.31. Since I must condition on having at least one sibling (defined on mothers' side) who works in a differently treated occupation, the sample is reduced greatly. I end up with 100,947 persons in 42,873 sibling groups—a reduction of my sample by almost 90 percent. Although the estimated coefficients in the regressions in Table B.31 differ from my main results, it is reassuring that the inclusion of the sibling fixed effects does not move the point estimates significantly. One cautionary note is that this sample is slightly more negatively selected on education, and slightly more likely to work in manufacturing than the main sample (see Table B.32).

Turning to the definition of decline, I have chosen (in line with Edin et al. (2023)) to define treated occupations as having occupational decline of more than 25 percent. As I vary this cutoff (in Table B.33), the estimated coefficients move in the expected manner. Larger declines are associated with larger mortality increases.[25]

4.9 Occupational decline and pre-period mortality: 1961–1985

In this section, I investigate pre-trends in mortality in different occupations in Sweden. I use the census (*Folk- och bostadsräkningen*) from 1960, and I sample employed people who were 25 to 36 years old in 1960—let us call this the "pre-trends sample". The census data records occupation, year of birth, place of residence, education, and civil status, and I use the National Cause of Death Registry for recording deaths. One large drawback of the census is that it did not record income.

Using a crosswalk, I record the employment-weighted "Declining (US)" indicator for each of the 228 occupations in the 1960 census.[26] Let us call this variable "Future decline (US)", since it refers to decline 1984–2016, while the outcome in the pre-trends exercises are measured in 1961–1985. It ranges from zero to one, but 133 out of 228 occupations have a value below 0.25 or above 0.75, suggesting that these 133 categories are mostly declining, or mostly non-declining, in 1985–2015.

[24] In Table B.29, I show that the sample composition in terms of observables is very similar to baseline when including the auxiliary covariates marriage, household income and parental death.

[25] I do not check for any more "upward variation" in growth rates, as I explained in Section 4.2 that the US proxy is good at measuring *declines* but not growth in Swedish occupations—see Figure A.2 and Tables B.7 and B.8. As a visual inspection of the data, I plot mortality against the log employment change in the Swedish data in Figure A.4. The occupations I define as declining (and that are, as I showed earlier in Table 3 and Figure A.2, more likely to decline also in the Swedish data) indeed have higher mortality rates.

[26] The crosswalk is from the census in 1985, which coded individuals' occupations with the older 3-digit classification, as well as the granular NYK85 at the 5-digit level, to enable comparisons over time. There are 268 occupations recorded, of which 229 are possible to match to a detailed NYK85 occupation from the 1985 census. I drop one of these categories: Unidentified (999), and am therefore left with 228 occupations.

I regress death in 1961–1985 on this "Future decline (US)" measure. My goal is to investigate whether decline in the main sample period predicts death in the pre-period. I control for the individual level variables described above. Since occupational decline is likely correlated over time, I control for *actual decline*: The change in employment in each occupation in Sweden between 1960 and 1985. I also control for the prediction that the OOH made in 1985, to capture declines that were surprising from the point of view of the mid-80s.[27] I also control for the size of the occupation in 1960, and lastly I add occupation dummies at the 1-digit level.

Pre-trend results On average, men and women who in 1960 worked in occupations that declined in the future (in 1985–2015) were no more and no less likely to die in 1961–1985 than those in non-declining occupations: Table B.34 exhibits a noisy, small negative coefficient in the first column overall, and for both genders. This result is plotted as hazard rates in Figure A.5. Adding individual level controls increases the magnitude, but estimates are still imprecise. However, adding occupation level controls increases the size of the negative coefficients further, and adding occupation fixed effects in column (6) makes the estimate large and precise. It seems like individuals who started out in an occupation in 1960, that would decline 25–55 years later, are *less* likely to die than others. This is mainly driven by men: Although women's coeffient is also negative, it is much smaller in magnitude and not statistically different from zero.[28]

Studying this result in detail, I conclude that agricultural, forestry related as well as manufacturing occupations drive this result.[29] Re-estimating the effects without these groups, I find much smaller estimates that are not statistically distinguishable from zero (see Tables B.35 and B.36). One reason for these non-zero effects might be that I cannot control for income in the pre-trends sample.[30]

I also conclude that although the pre-trends fail to deliver precise zeroes, the effect I find goes in the opposite direction to the main results in Section 4: It does not seem like the occupations that decline in 1985–2015 have consistently worse outcomes in terms of mortality for workers.

[27] I do not, however, control for employment share in 1985 (although doing so does not change results).

[28] For women, it seems like the large differences in column (5) are driven by between-1-digit-occupation differences, since it is heavily reduced when adding 1-digit occupation fixed effects.

[29] This is easiest spotted when reviewing the hazard rates of death at the one-digit occupation level in Figure A.6 for men, where panels (e) and (i) show consistently larger hazard rates for men in non-declining occupations within agricultural and forestry occupations (4) and manufacturing occupations (8). The same graphs for women are available in Figure A.7, and show little and erratic differences between declining and non-declining occupations within each 1-digit occupational group.

[30] Let us look in some more detail on manufacturing occupations and agriculture and forestry occupations, using Appendix B: Looking at the three largest occupations in 1960 in the manufacturing occupations (8), we immediately find occupations which are not classified as "Declining (US)" in the main sample period (1985–2015), but are heavy, unskilled and low-paid jobs: "Store and warehouse workers" (883) and "Workers in heavy, unskilled manual labor" (861). These occupations have higher mortality rates than the average among men in manufacturing jobs during the pre-period. At the same time, the third largest occupation in this group is "Typographers, litographers etc." (801), which declined in the sample period 1985–2015, but they had lower mortality than average in this group.

Inspecting the agricultural and forestry occupations (4) in detail, we find that the largest occupation is "Working proprietors in agriculture, forestry and horticulture" (401), which is recorded as "Declining (US)" in the sample period 1985–2015, but has lower mortality than the average of males in agricultural occupations. The third largest occupation is "Agricultural workers" (411)—not classified as "Declining (US)" in the 1985–2015 sample period–with very high mortality: 18 percent.

In summary, male workers who in 1960 worked in the the two occupational groups of manufacturing and agriculture exhibit a pattern of *reduced* mortality in 1960–1985 when faced with "Future decline (US)"—that is, decline that happened in 1985–2015. One of the reasons might be that I am unable to control for income at the individual or occupational level in this placebo check: Workers in heavy, low status occupations with low pay are potentially more likely to die early, but their occupations might still be growing in the sample period 1985–2015.

If anything, the contrary is true: Occupations that declined in 1985–2015 actually had better outcomes for male workers in the pre-period, perhaps strengthening the view that the structural change they suffered from the mid-80s resulted in worse mortality rates than they would have otherwise experienced.

4.10 Accounting for the difference: Who dies from decline?

Workers in declining occupations are more likely than others to be unemployed (or non-employed) (Edin et al. 2023), and we know that losing one's job greatly increases death risk (Eliason & Storrie 2009*a*, Sullivan & von Wachter 2009, Browning & Heinesen 2012). In this section, I look at whether differences in non-employment account for the differences in mortality between declining and non-declining occupations. Since non-employment is an outcome, preventing me from controlling for it, I present some descriptive analysis that might provide some insight into who dies from decline.

First, let us decompose the conditional probability of death for workers in declining occupations at time t into the mortality among those who are employed and those who are non-employed in $t-1$:

$$\begin{aligned}\mathbb{P}(\text{death}_t|\text{decline}) = \mathbb{P}(\text{death}_t|\text{empl.}_{t-1}, \text{decline}) \times \mathbb{P}(\text{empl.}_{t-1}|\text{decline}) \\ + \mathbb{P}(\text{death}_t|\text{non-empl.}_{t-1}, \text{decline}) \times \mathbb{P}(\text{non-empl.}_{t-1}|\text{decline})\end{aligned}$$

Comparing the above equation to the similar expression for workers in non-declining occupations, it is clear that differences in death risk might stem from differences in probabilities of death *given that you are* employed or non-employed, but also from differences in the *probability of being* non-employed. Subtracting $\mathbb{P}(\text{death}_t|\text{non-decline})$ from the above expression gives:

$$\begin{aligned}&\mathbb{P}(\text{death}_t|\text{decline}) - \mathbb{P}(\text{death}_t|\text{non-decline}) = \\ &\underbrace{\mathbb{P}(\text{death}_t|\text{empl.}_{t-1}, \text{decline}) - \mathbb{P}(\text{death}_t|\text{empl.}_{t-1}, \text{non-decline})}_{\text{Difference in death risk for employed}} \\ &\underbrace{\begin{aligned}&+ \mathbb{P}(\text{non-empl.}_{t-1}|\text{decline}) \times \Big(\mathbb{P}(\text{death}_t|\text{non-empl.}_{t-1}, \text{decline}) - \mathbb{P}(\text{death}_t|\text{empl.}_{t-1}, \text{decline})\Big) \\ &-\mathbb{P}(\text{non-empl.}_{t-1}|\text{non-decline}) \times \Big(\mathbb{P}(\text{death}_t|\text{non-empl.}_{t-1}, \text{non-decline}) - \mathbb{P}(\text{death}_t|\text{empl.}_{t-1}, \text{non-decline})\Big)\end{aligned}}_{\begin{array}{c}\text{Differences in death risk stemming from differences in i) probability of being non-employed} \\ \text{and ii) probability of dying given non-employment compared to the same for employment}\end{array}}\end{aligned} \tag{1}$$

The first line in Equation (1) represents the difference in death risk for employed workers in declining versus non-declining occupations. The second and third lines represent the difference in death risk between declining and non-declining occupations stemming from non-employed workers—including both the risk of being non-employed, and the additional risk of death *given that the worker is* non-employed, compared to an employed worker. I compute this for each year 1986–2015, and plot the resulting differences in probabilities, added cumulatively year by year, in Figure 2. The left-hand side of Equation (1) is displayed as a solid line, and the two constituent terms in dashed lines. The two dashed lines thus add up to the solid line in each year, and the 2015 value of the solid line, 0.0163, corresponds to the value displayed in the first column in panel *A* of Table B.10. The graph shows that around a third of the cumulative difference in death risk between workers in declining and non-declining occupations stems from non-employed workers: Both higher risk of unemployment and higher risk of death given unemployment.[31] The baseline probability of

[31] Figure A.8 shows that people who die are much more likely to be non-employed in the year before their death,

death, when employed, is higher in declining occupations, and this accounts for around 65 percent of the difference in mortality between workers in declining and non-declining occupations.

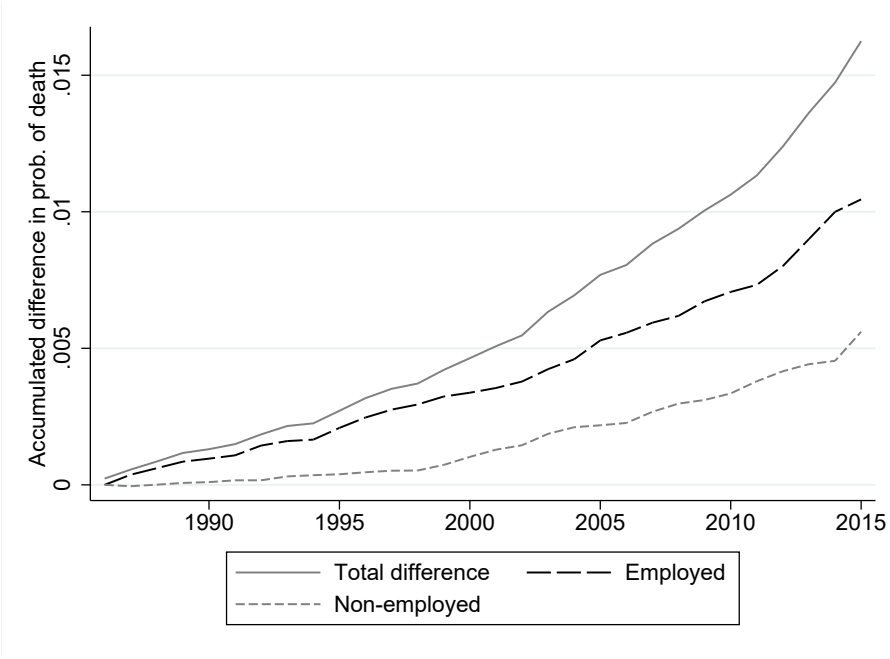


Figure 2: Cumulative difference in death probabilities between declining and non-declining, decomposed into differences stemming from employed and non-employed

Notes: The graph plots the difference between the conditional probabilities of death on the y-axis, according to Equation (1), accumulated year by year.I use the baseline sample, but people who die exit the sample after death. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985.

To further investigate the difference in mortality rates that stems from non-employed workers, I compute the counterfactual outcome of two separate experiments:

1. Give workers in declining occupations the *same probability of being non-employed* as those in non-declining occupations. In this case, I set $\mathbb{P}(\text{non-empl.}_{t-1}|\text{decline}) = \mathbb{P}(\text{non-empl.}_{t-1}|\text{non-decline})$.
2. Give workers in declining occupations the *same increased death risk when becoming non-employed* as those in non-declining occupations. In this case, I set $\mathbb{P}(\text{death}_t|\text{non-empl.}_{t-1}, \text{decline}) - \mathbb{P}(\text{death}_t|\text{empl.}_{t-1}, \text{decline}) = \mathbb{P}(\text{death}_t|\text{non-empl.}_{t-1}, \text{non-decline}) - \mathbb{P}(\text{death}_t|\text{empl.}_{t-1}, \text{non-decline})$.

I compute the difference in death probabilities $\mathbb{P}(\text{death}_t|\text{decline}) - \mathbb{P}(\text{death}_t|\text{non-decline})$ for both experiments, and I plot them in Figure 3. Changing the death risk does very little to the observed difference, while changing the risk of unemployment (according to experiment 1) reduces the difference by around a quarter.

I conclude that around 65 percent of the difference in mortality described in my main results can be accounted for by higher baseline risk of death (for employed workers), and that the increased probability of becoming non-employed in a declining occupation accounts for around 25 percent of the difference. The remainder (around 10 percent of the difference) is accounted for by higher increased death risk in the event of non-employment for workers in declining occupations.

than workers who do not die, but this is certainly at least partially driven by selection—bad health leading up to death might prevent workers from working in the year(s) before death.

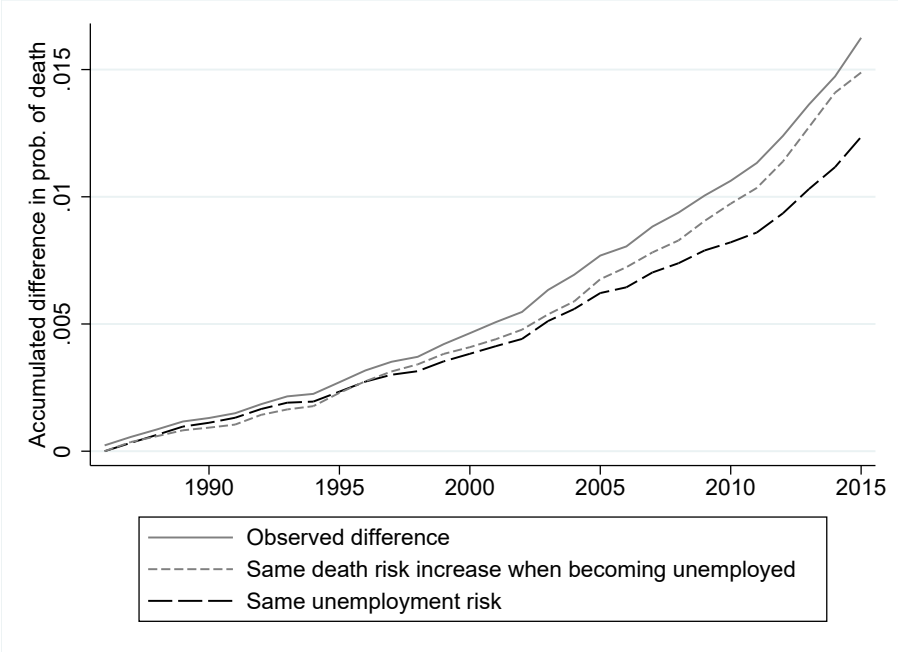


Figure 3: Cumulative difference in death probabilities between declining and non-declining: Observed and counterfactuals

Notes: The graph plots the difference between the conditional probabilities of death on the y-axis, according to Equation (1), accumulated year by year. The solid line represents the observed difference, and the two dashed lines represent the two counterfactual experiments (i) Give workers in declining occupations the same probability of being non-employed as those in non-declining occupations, i.e. $\mathbb{P}(\text{non-empl.}_{t-1}|\text{decline}) = \mathbb{P}(\text{non-empl.}_{t-1}|\text{non-decline})$ (black, long dashes) and (ii) Give workers in declining the same increased death risk when becoming non-employed as those in non-declining occupations. i.e. $\mathbb{P}(\text{death}_t|\text{non-empl.}_{t-1}, \text{decline}) - \mathbb{P}(\text{death}_t|\text{empl.}_{t-1}, \text{decline}) = \mathbb{P}(\text{death}_t|\text{non-empl.}_{t-1}, \text{non-decline}) - \mathbb{P}(\text{death}_t|\text{empl.}_{t-1}, \text{non-decline})$ (gray, short dashes). I use the baseline sample, but people who die exit the sample after death. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985.

5 Conclusion

In this paper, I study the consequences of occupational decline on mortality and morbidity. I investigate how workers who, in 1985, worked in occupations that would subsequently decline fare in terms of mortality, hospitalization, and also sick days and prescription drug use. To overcome the issues presented by reclassification of Swedish occupations in the mid-nineties, I use a measure of occupational decline derived from detailed, US data on occupations' size and nature (Bureau of Labor Statistics 1986, 2017) to estimate intention-to-treat and local average treatment effects. Using the US index allows measuring unanticipated, large declines in occupational employment that happened over 32 years, which we have previously shown reduces workers' earnings and employment in the declining occupations (Edin et al. 2023). Apart from the economic consequences, is this long-term, gradual reduction in the demand for workers' services also connected with worse health outcomes?

The answer provided in this paper is yes. Workers in declining occupations face a 6 percent larger risk of death over the 30 year sample period than similar workers in similar, non-declining occupations, as measured in the reduced form. The local average treatment effect is larger: a 20

percent increase compared to mean mortality. They spend more time in hospital: 5 percent in the reduced form estimation, and almost 20 percent measured by the LATE, compared to average number of days hospitalized per year.

While men in declining occupations face an increase in cardiovascular death, women have a large and precise risk elevation in death of despair. This risk increases by 37 percent of the (admittedly low) sample mean for women in declining occupations, in the reduced form estimation, and the LATE estimates are a remarkable 137 percent. Although the differences between genders are mostly imprecisely estimated, looking more closely and separately at women and men who face economic or social hardship as a consequence of structural change is an important branch of future research. Sweden may be particularly suitable for this research, since women's labor force participation started rising sharply already in the 1970s.[32] Although controlling for initial marriage status did little to explain the variations in responses among men and women, one might imagine couple formation and fertility as *consequences* of the adversity of occupational decline. This, together with existing evidence that financial resources affect children's health (more than adults') (Cutler et al. 2008), calls for investigating the effect of declining occupations on children and family related outcomes.

Furthermore, those in the bottom of each occupation's earnings distribution are more vulnerable to occupational decline, a finding that echoes our results on the economic consequences in Edin et al. (2023). The bottom tercile of earners in each occupation face a 16 (33) percent higher risk of death compared to those in non-declining occupations in the reduced form (IV) estimation, although the reduced form results are noisy. One possible explanation is that highly skilled (and thus highly paid) workers within each occupation have better outside options, so that they can mitigate the consequences of occupational decline more easily by switching occupation. Those who are low-skilled in their occupation are most likely low-skilled in other occupations too (otherwise, they would have worked there instead), and may have a harder time switching.[33]

Pain medication, and medication against cardiovascular conditions, were no more common among workers in declining occupations. However, mental health medications and medicines used to treat alcohol and drug abuse were more prevalent among these workers, even after controlling for all confounders.

The LATE estimates are consistently higher than the reduced form results, which seems reasonable: Workers who were in occupations that declined in both Sweden and the US were plausibly in a tougher situation than those whose occupation did not decline in the US.

My main results are robust to a variety of checks relating to family and family background, including checks with sibling fixed effects. The sample is balanced on three important parental characteristics, providing suggestive evidence that family background does not influence whether or not workers sort into declining occupations. According to a simple accounting exercise, around a quarter of the difference in mortality rates can be accounted for by an increased risk of becoming non-employed for those in declining occupations. Future research should be directed at exploring the reasons behind the varying mortality rates, both for those employed and those who become unemployed, and with particular focus on the aforementioned low-ranked workers who suffer most from decline.

[32] In 1985, when this study begins, 83 percent of males and 78 percent of females (aged 16–64) were in the labor force (Torstensson 2022).

[33] This is consistent with a simple Roy model with displacement, and switching costs that decline in worker ability, such as the one we present in Edin et al. (2023).

In all, the adverse health consequences of occupational decline should inspire action among policy makers. Apart from direct financial support for those suffering economic consequences, retraining and occupational switching could be helpful in mitigating negative socio-economic consequences of occupational decline. In a broader sense, health inequalities should be tackled in tandem with the economic inequality that might result from structural change.

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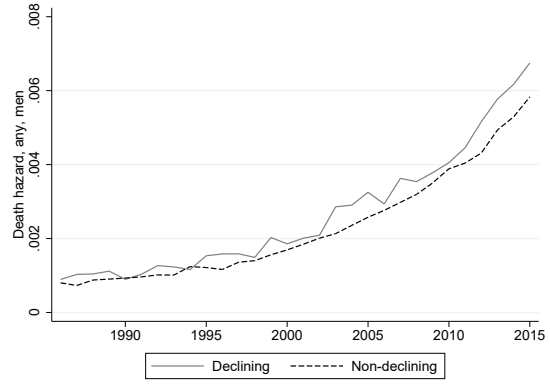
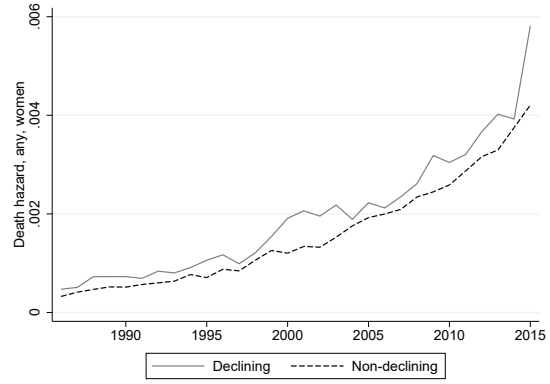
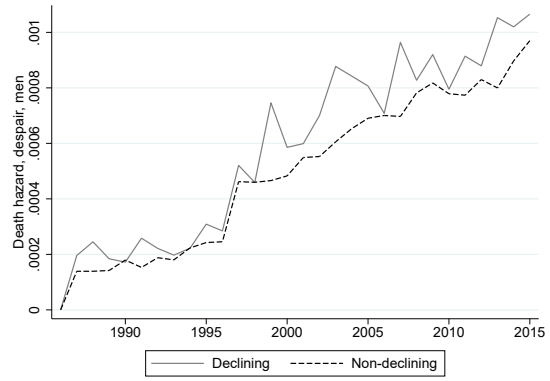
A Appendix figures



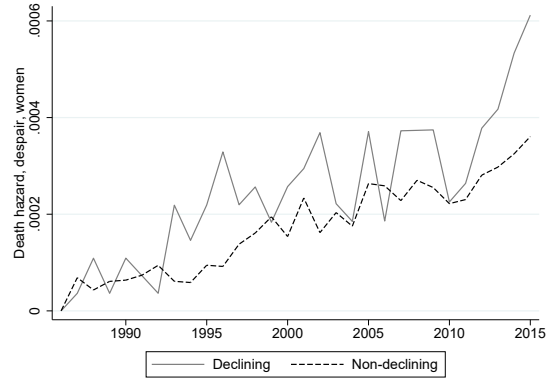
(a) Hazard rate of death, any cause, males



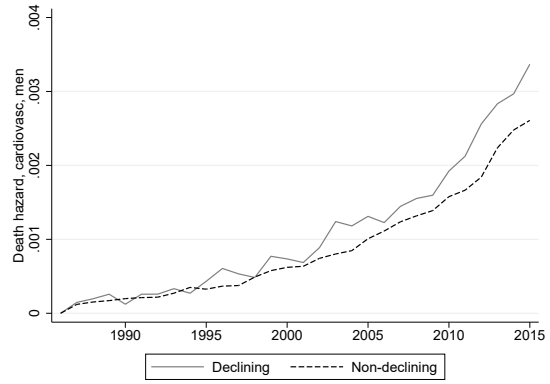
(b) Hazard rate of death, any cause, females



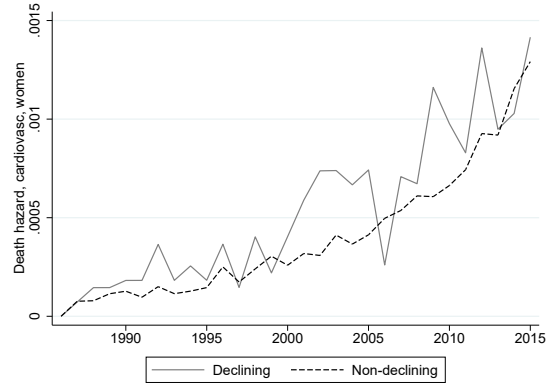
(c) Hazard rate of death, despair, males



(d) Hazard rate of death, despair, females



(e) Hazard rate of death, cardiovascular disease, males



(f) Hazard rate of death, cardiovascular disease, females

Figure A.1: Hazard rate of death for workers in declining and non-declining occupations, aged 25 to 36 years in 1985

Notes: The graphs show the probability of death in the indicated year, conditional on having survived up until that point, for people in declining and non-declining occupations. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on outcomes and the definition of Declining can be found in Sections 3.4 and 3.5 respectively. There are 109,215 persons in the declining occupations and 765,886 persons in the non-declining.

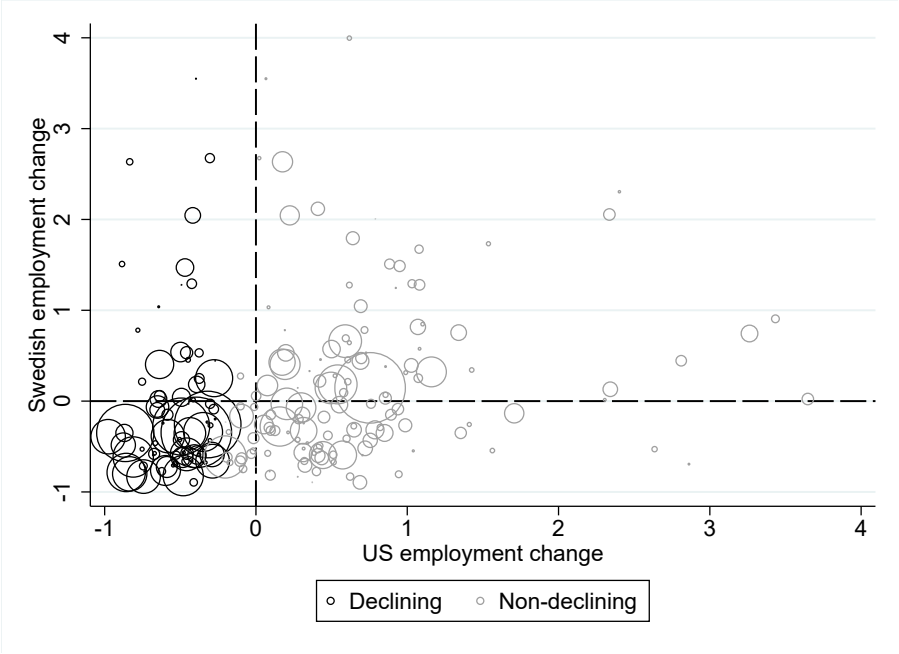
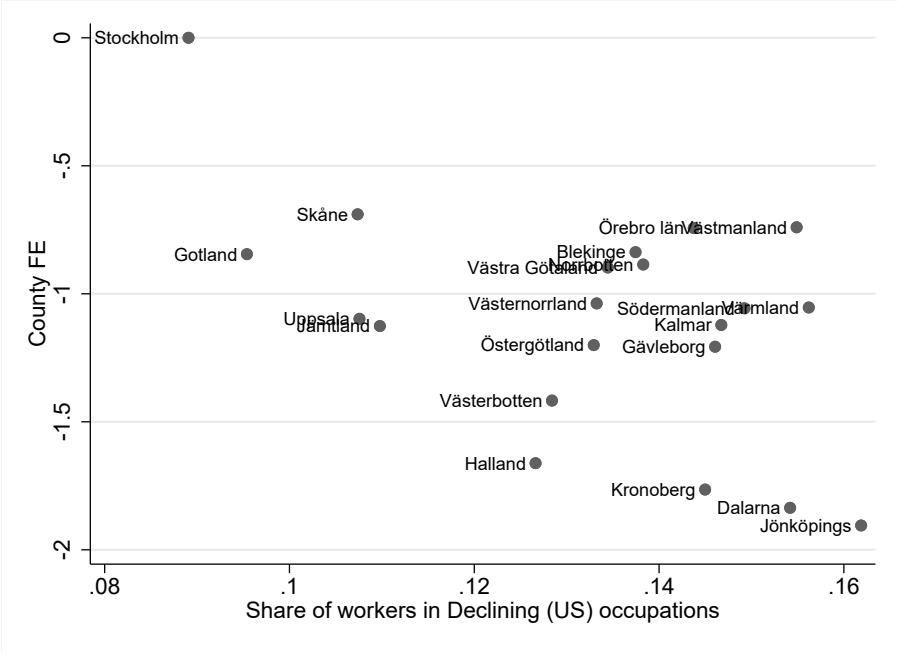
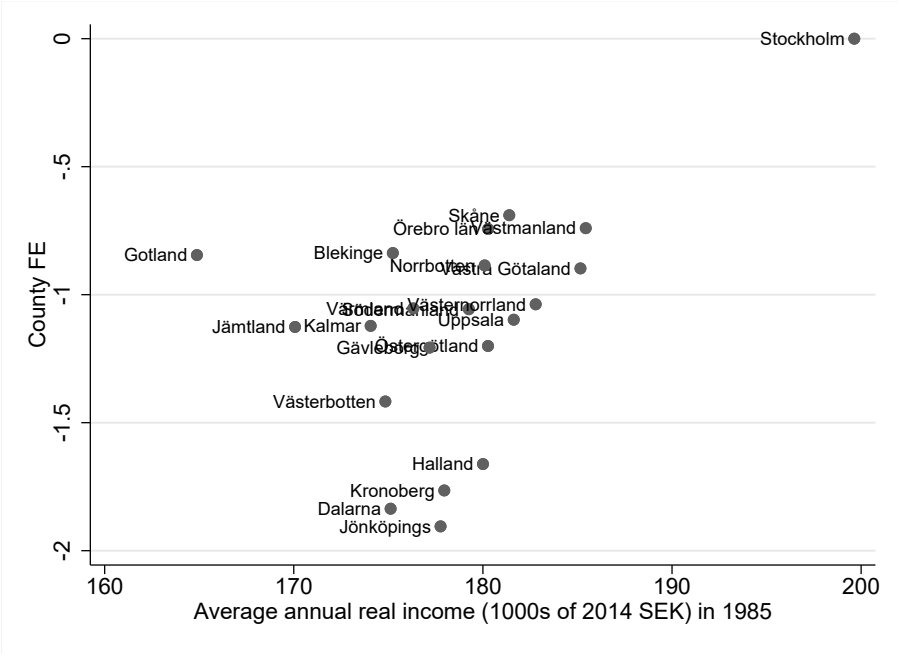


Figure A.2: Employment growth in the US and Sweden

Notes: The graph plots, on the y-axis, the change in employment in Swedish 3-digit occupations from 1985–2013. Each bubble represents one of the 172 3-digit Swedish occupations, and their size is proportional to their 1985 Swedish employment. On the x-axis, I plot the employment growth in the corresponding occupation(s) in the US 1984–2016. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985.



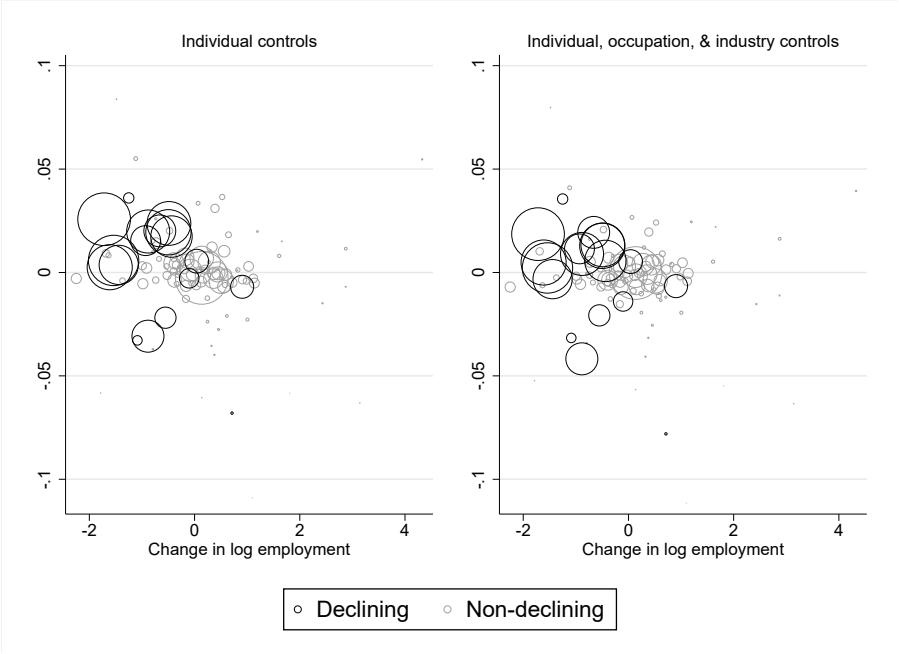
(a) Residual mortality per county and share of workers in declining occupations



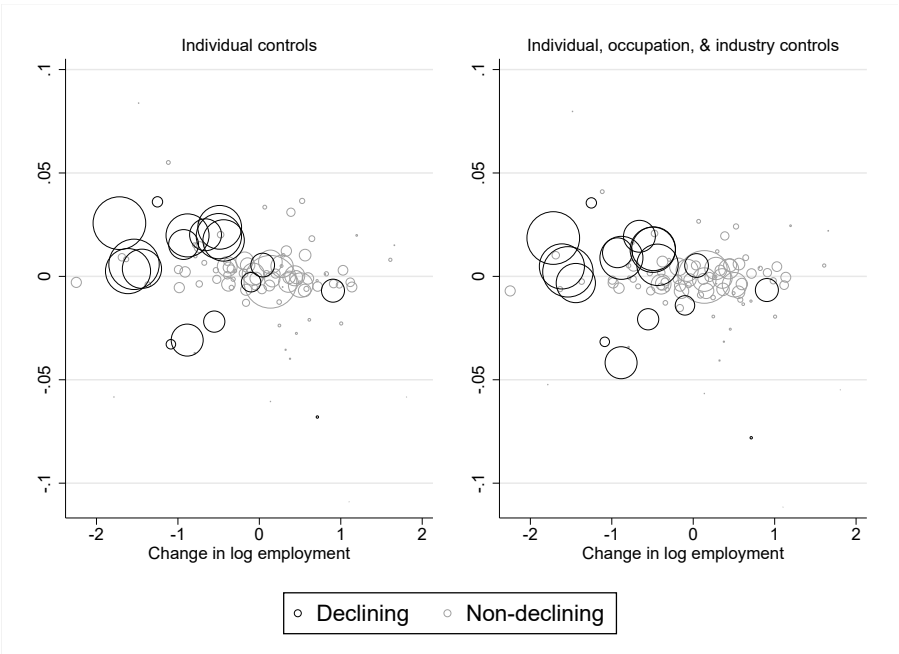
(b) Residual mortality per county and average real income

Figure A.3: Mortality and employment change

Notes: The graphs plot the county fixed effect coefficients from the main regressions, with all control variables on the vertical axis. Stockholm county is the omitted category. In panel (a), the horizontal axis plots the share of workers in the main sample who are in an occupation coded as "Declining (US)". In panel (b), the horizontal axis plots the average annual income in 1000s of 2014 SEK, for the main sample. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985.



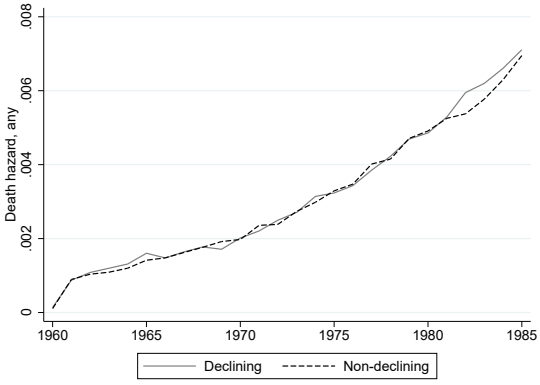
(a) Mortality, any cause, residualized



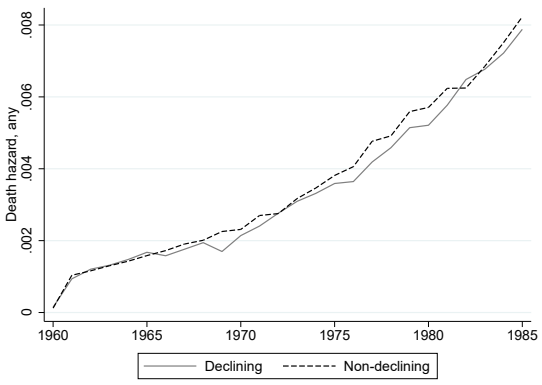
(b) Mortality, any cause, residualized and truncated

Figure A.4: Mortality and employment change

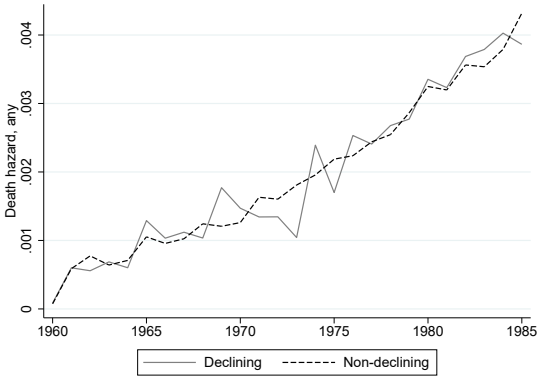
Notes: The graphs plot mortality for any cause on the log employment change in Swedish 3-digit occupations from 1985–2013. Each bubble represents one of the 172 3-digit Swedish occupations, and their size is proportional to their 1985 Swedish employment. Prior to aggregation, mortality was residualized in the following way: I regress mortality on log employment change, individual controls (left panel) and all controls (right panel). The value plotted on the vertical axis is then the coefficient on log employment change from this regression times log employment change, plus residuals from the above regression, i.e. $\hat{\beta} \times \ln \Delta \text{empl} + \hat{u}$. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985.



(a) Hazard rate of death, any cause



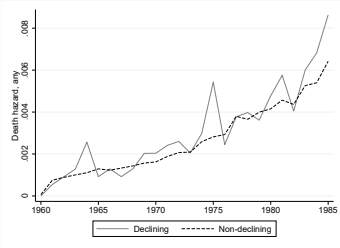
(b) Hazard rate of death, any cause, males



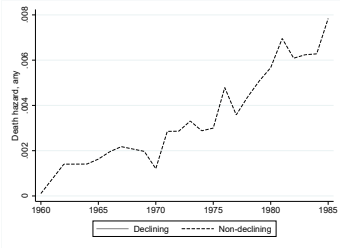
(c) Hazard rate of death, any cause, females

Figure A.5: Placebo: Hazard rate of death for workers in 1961–1985

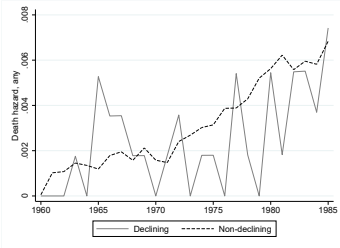
Notes: The graphs show the probability of death in the indicated year, conditional on having survived up until that point, for people in occupations that would later decline—i.e. where the "Decline (US)" indicator equals one. The sample consists of 558,394 men and women who were employed and aged 25–36 in 1960. Details on outcomes and the definition of "Declining (US)" can be found in Sections 3.4 and 3.5 respectively.



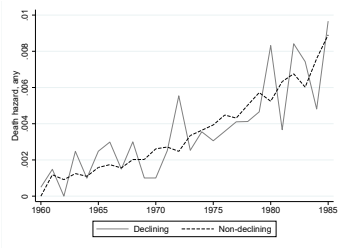
(a) Professionals and advanced occupations (0)



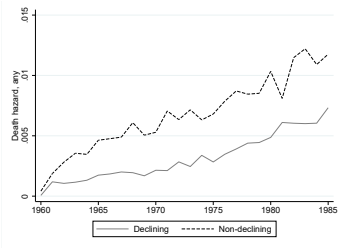
(b) Managers etc. (1)



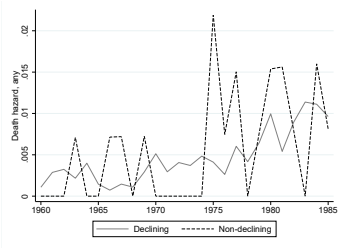
(c) Clerical occupations (2)



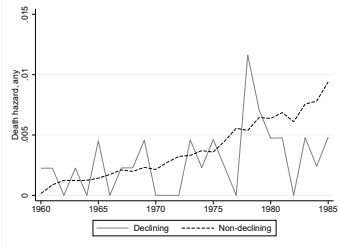
(d) Sales and retail occupations (3)



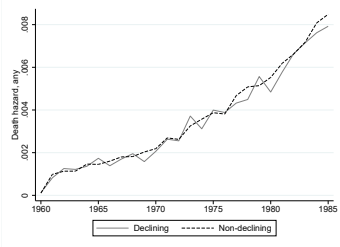
(e) Agricultural occupations (4)



(f) Mining occupations etc. (5)



(g) Transport and communications occupations (6)



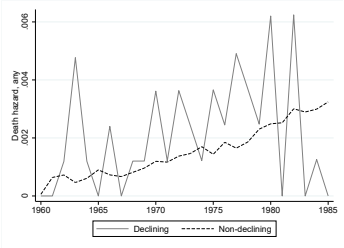
(h) Construction and craftsmen (7)

(i) Manufacturing occupations (8)

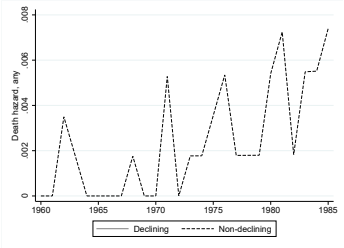
(j) Elementary occupations (9)

Figure A.6: Hazard rate of death for males aged 25 to 36 years in 1960, by 1-digit occupation group

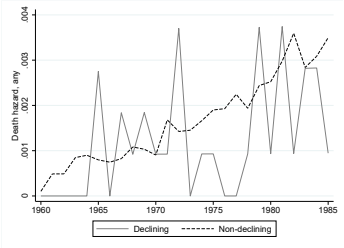
Notes: The graphs show the probability of death in the indicated year, conditional on having survived up until that point, for people in occupations that would later decline—i.e. where the "Decline (US)" indicator equals one. The sample consists of 400,028 men who were employed and aged 25–36 in 1960. Details on outcomes and the definition of "Declining (US)" can be found in Sections 3.4 and 3.5 respectively.



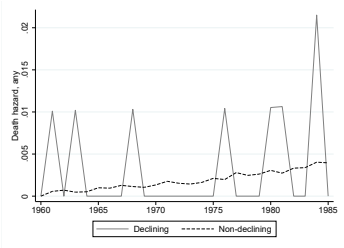
(a) Professionals and advanced occupations (0)



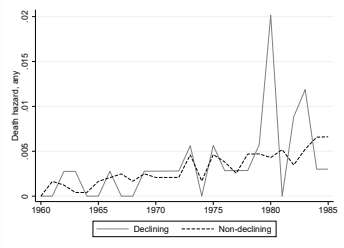
(b) Managers etc. (1)



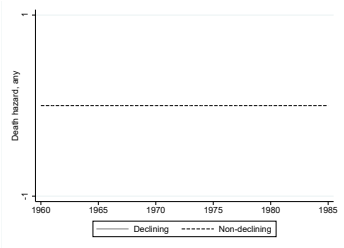
(c) Clerical occupations (2)



(d) Sales and retail occupations (3)



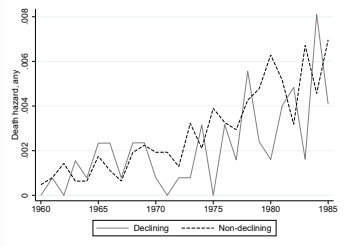
(e) Agricultural occupations (4)



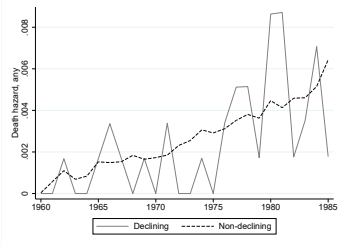
(f) Mining occupations etc. (5)

(g) Transport and communications occupations (6)

(h) Construction and craftsmen (7)



(i) Manufacturing occupations (8)



(j) Elementary occupations (9)

Figure A.7: Hazard rate of death for females aged 25 to 36 years in 1960, by 1-digit occupation group

Notes: The graphs show the probability of death in the indicated year, conditional on having survived up until that point, for people in occupations that would later decline—i.e. where the "Decline (US)" indicator equals one. The sample consists of 158,366 women who were employed and aged 25–36 in 1960. Details on outcomes and the definition of "Declining (US)" can be found in Sections 3.4 and 3.5 respectively.

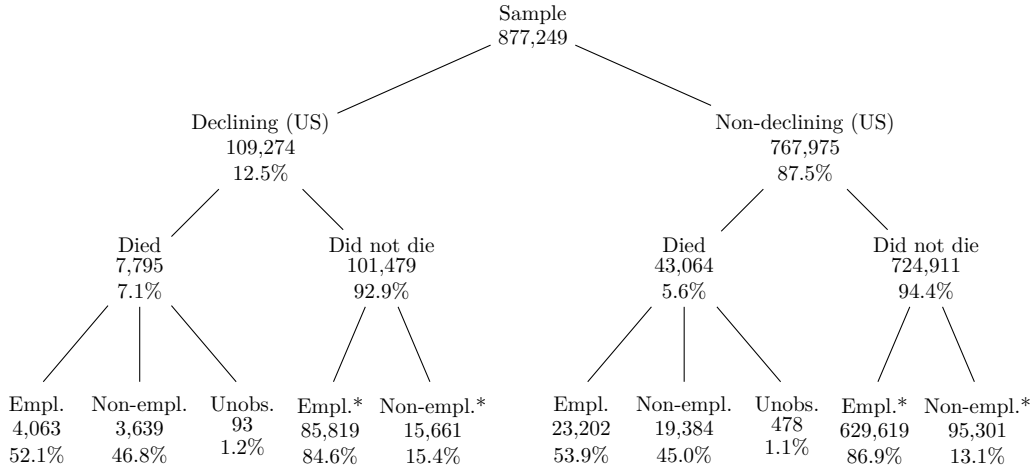


Figure A.8: Descriptive tree

Notes: The diagram shows the sample, partitioned first into the instrument (Declining (US) and Non-declining (US)), then into outcomes (Died and Did not die). Then, I further partition each outcome into groups based on employment status. The percentages are the percentages of the above group—for example, the bottom left-most node shows that 52.1 percent of those in Declining who Died were Employed, since 4,063 is 52.1 percent of 7,795. For those who died, employment is measured in the year before death. The Unobserved do not appear in the registers the year before their death. For those who did not die, employment figures is a weighted average employment over the sample period within each group. That is, the number of persons in each group (Declining & Did not die and Non-declining & Did not die) multiplied by the probability of employment over all years in the sample (1985–2014) within the relevant group, rounded to the nearest whole number. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985.

B Appendix tables

Table B.1: Diagnosis codes

Diagnosis descriptions	ICD-9 (used until 1996)	ICD-10 (used from 1997 onwards)
Alcohol related disease or condition*	291, 303, 305.0, 357.5, 425.5, 535.3, 571.0–571.3, 577.0–577.1, E980	Any below
Alcohol poisoning		T51, X45, X65, Y15
Alcohol use disorder		F10
Alcohol induced liver disease or pancreatis		K70, K85, K86.0–K86.1
Cardio-vascular disease	390–459	I
Drug related disease or condition*	Any below	Any below
Drug and other poisoning	965, 966–969	T38–T44
Drug abuse and addiction	304–305	F10–F16, F18–F20
External injuries		
Self-inflicted injuries*	E950–E959, E980–E989	X60–X84, Y10–Y34, T76

Notes: The entries in this table are taken directly from Eliason et al. (2010) and Eliason (2015) (for disaggregated alcohol related conditions), with the following additions: 1) Drug related diseases and condition codes and 2) T76 (suicide attempt) under Self-inflicted external injuries in the ICD-10 coding. * Alcohol, drugs and self-inflicated injuries are the three components of injuries of despair. Apart from the ICD codes, I also use two separate variables from the Cause of Death Registry to indicate whether a person died from despair: whether or not *alcohol* or *narcotics* is mentioned as a cause of death on the death certificate.

Table B.2: Prescription medication codes

Description	ATC codes
Mental health medication	
Antipsychotics	N05A
Sleep medication	N05B (anxiolytics) and N05C (hypnotives and sedatives)
Antidepressants	N06A
Psychostimulants	N06B
Pain medication	
Pain medication	N02
Cardiovascular medication	
Cardiovascular medication, except those to improve blood flow in small, peripheral vessels and those to treat hemorrhoids etc.	C, except for C04 (peripheral vasodilators) and C05 (agents for hemorrhoids and varicose veins)
Anticoagulants	B01
Medication for substance abuse	
Medication to treat alcohol abuse	N07BB
Medication to treat drug abuse	N07BC

Notes: I thank Anne Hammarström (Professor in public health, MD and practicing GP) and David Ottosson (MD and practicing psychiatrist) for assistance in determining which ATC codes are relevant in this paper.

Table B.3: Decline and employment change in Sweden and the US at the 1-digit level

SSYK		Decl. Swe	Decl. US	Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
1	Managers	0.00	0.01	1.13	0.36	17152	0.25
2	Professionals	0.08	0.06	0.91	1.45	113581	0.48
3	Technicians	0.33	0.09	0.26	0.66	184020	0.48
4	Clerks	0.74	0.08	-0.43	0.06	119149	0.74
5	Service workers and shop sales workers	0.01	0.01	0.20	0.65	162022	0.82
6	Skilled agricultural and fishery workers	0.82	0.51	-0.47	0.23	12272	0.16
7	Craft and related trades workers	0.64	0.20	-0.34	0.16	124421	0.06
8	Plant and machine operators and assemblers	0.62	0.39	-0.25	0.18	109407	0.18
9	Elementary occupations	0.62	0.02	0.10	0.86	35225	0.70
Total		0.39	0.12	0.09	0.54	877249	0.48

Notes: The table shows the share of people in each occupational category that are in a declining occupation (in Sweden and the US, respectively). In the two following columns, the average employment change in the occupation is displayed, weighted by the number of employees in the sample. The Swedish employment change is computed at the harmonized occupational code level (172 occupations), and the employment change in US occupations are computed using US data, and then matched to the 1,400 occupations from the 1985 occupational classification (NYK85). Thereafter, the number of employees in each occupational category from my main sample in 1985 is displayed. Lastly, the share of these employed workers that are female.

Table B.4: Harmonized occupational codes and their occupational decline in Sweden and the US

$Occ._{1985-2013}$	SSYK96		Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
1110	1110	Legislators and senior government officials	5.09	0.62	449	0.50
1210	1210	Directors and chief executives	-0.20	0.28	18,981	0.11
122	1221	Production and operations managers in agriculture, hunting, forestry and fishing	1.79	0.64	22,635	0.43
122	1222	Production and operations managers in manufacturing				
122	1224	Production and operations managers in wholesale and retail trade, hotels and restaurants, transport and communications				
122	1225	Production and operations managers in business services enterprises				
122	1226	Production and operations managers in public administration				
122	1227	Production and operations managers in education				
122	1228	Production and operations managers in health and social work				
122	1229	Production and operations managers not elsewhere classified				
123	1231	Finance and administration managers	2.12	0.41	21,410	0.17
123	1232	Personnel and industrial relations managers				
123	1233	Sales and marketing managers				
123	1235	Supply and distribution managers				
123	1236	Computing services managers				
123	1239	Specialist managers not elsewhere classified				
131	1311	Managers of small enterprises in agriculture, hunting, forestry and fishing	0.53	0.18	63,604	0.23
131	1312	Managers of small enterprises in manufacturing				
131	1314	Managers of small enterprises in wholesale and retail trade, hotels and restaurants, transport and kommunications				
131	1319	Managers of small enterprises not elsewhere classified				
211	2111	Physicists and astronomers	2.68	-0.13	944	0.21
211	2112	Meteorologists				
211	2114	Geologists, geophysicists and related professionals				
2121	2121	Mathematicians	4.25	1.23	124	0.25
2122	2122	Statisticians	0.58	1.08	737	0.40
2131	2131	Computer systems designers, analysts and programmers	2.63	0.16	21,583	0.21

$Occ._{1985-2013}$	SSYK96		Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
2139	2139	Computing professionals not elsewhere classified	1.49	0.95	7,942	0.17
214	2141	Architects, town and traffic planners	2.04	0.18	24,387	0.15
214	2142	Civil engineers				
214	2143	Electrical engineers				
214	2144	Electronics and telecommunications engineers				
214	2145	Mechanical engineers				
214	2146	Chemical engineers				
214	2147	Mining engineers, metallurgists and related professionals				
214	2148	Cartographers and surveyors				
214	2149	Engineers not elsewhere classified				
221	2211	Biologists and related professionals	0.45	0.54	2,278	0.37
221	2212	Pharmacologists and related professionals				
221	2213	Agronomists and horticulturists				
221	2214	Forestry professionals				
2221	2221	Medical doctors	0.57	0.50	21,886	0.36
2222	2222	Dentists	-0.41	-0.02	8,817	0.48
2223	2223	Veterinarians	0.31	0.99	1,227	0.53
2224	2224	Pharmacists	-0.26	1.41	1,861	0.72
2225	2225	Speech therapists	2.31	2.40	385	0.89
2229	2229	Health professionals not elsewhere classified	16.68	0.39	73	0.98
223	2231	Midwives	0.82	1.07	9,305	0.91
223	2233	Emergency room nurses				
223	2234	Paediatric nurses				
223	2236	Other nursing professionals				
2310	2310	College, university and higher education teaching professionals	1.05	0.69	16,103	0.27
2321	2321	Teaching professionals, academic subjects	16.71	0.58	1,412	0.24
2322	2322	Vocational teaching professionals	-0.32	0.13	13,562	0.44
2323	2323	Teaching professionals, artistic and practical subjects	-0.15	0.31	18,490	0.57
2330	2330	Primary education teaching professionals	0.43	0.17	52,141	0.79
2340	2340	Special education teaching professionals	-0.52	0.41	13,391	0.75
235	2351	Education methods specialists and related professionals	1.67	1.08	4,391	0.55
235	2359	Teaching professionals not elsewhere classified				
241	2411	Accountants	0.55	6.84	67,264	0.42
241	2412	Personnel and careers professionals				
241	2413	Market research analysts and related professionals				
241	2414	Organisational analysts				
241	2419	Business professionals not elsewhere classified				

$Occ._{1985-2013}$	SSYK96		Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
2421	2421	Lawyers	0.64	0.62	2,491	0.23
2422	2422	Judges	-0.41	0.60	2,688	0.41
2423	2423	Corporate legal officers	1.28	0.62	3,321	0.27
2429	2429	Legal professionals not elsewhere classified	4.00	0.62	1,124	0.28
2431	2431	Archivists and curators	0.34	1.43	2,193	0.50
2432	2432	Librarians and related information professionals	-0.06	-0.10	5,793	0.74
244	2441	Economists	0.25	3.69	2,302	0.34
244	2442	Sociologists, archaeologists and related professionals				
244	2444	Philologists, translators and interpreters				
2451	2451	Authors, journalists and related professionals	0.25	0.17	19,544	0.43
2452	2452	Sculptors, painters and related artists	-0.66	-0.47	1,370	0.50
2453	2453	Composers, musicians and singers	0.28	-0.10	3,236	0.45
2454	2454	Choreographers and dancers	-0.55	1.04	368	0.67
2455	2455	Film, stage and related actors and directors	-0.42	0.21	1,817	0.46
2456	2456	Designers	1.47	-0.47	3,456	0.54
2460	2460	Religious professionals	0.04	-0.49	3,338	0.23
2470	2470	Public service administrative professionals	2.05	2.34	14,301	0.53
2480	2480	Administrative professionals of special-interest organisations	0.46	0.43	5,168	0.48
2491	2491	Psychologists and related professionals	0.78	0.72	4,577	0.59
2492	2492	Social work professionals	0.75	1.34	15,096	0.78
311	3111	Chemical and physical science technicians	-0.28	0.03	168,709	0.16
311	3112	Civil engineering technicians				
311	3113	Electrical engineering technicians				
311	3114	Electronics and telecommunications engineering technicians				
311	3115	Mechanical engineering technicians				
311	3116	Chemical engineering technicians				
311	3117	Mining and metallurgical technicians				
311	3118	Draughtspersons				
311	3119	Physical and engineering science technicians not elsewhere classified				
3121	3121	Computer assistants	9.02	-0.52	3,954	0.07
3122	3122	Computer equipment operators	-0.80	-0.83	9,320	0.42
313	3131	Photographers	-0.35	0.90	14,115	0.31
313	3132	Image and sound recording equipment operators				
313	3133	Broadcasting and telecommunications equipment operators				
313	3134	Medical equipment operators and technicians				
314	3141	Ships' engineers	-0.38	0.48	6,857	0.04
314	3142	Ships' deck officers and pilots				

Occ.$_{1985-2013}$	SSYK96		Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
314	3143	Aircraft pilots and related associate professionals				
314	3144	Air traffic controllers				
314	3145	Air traffic safety technicians				
315	3152	Safety, health and quality inspectors	0.85	1.10	4,353	0.03
3211	3211	Agronomy and horticultural technicians	0.28	0.52	1,142	0.27
3212	3212	Forestry technicians	-0.57	-0.02	3,864	0.04
322	3221	Occupational therapists	0.74	3.26	20,078	0.82
322	3222	Hygienists, health and environmental officers				
322	3223	Dieticians				
322	3224	Optometrists and opticians				
322	3225	Dental hygienists				
322	3226	Physiotherapists and related associate professionals				
322	3227	Veterinary assistants				
322	3228	Pharmaceutical assistants				
322	3229	Health associate professionals not elsewhere classified				
323	3232	Operating theatre nurses	0.32	1.16	5,122	0.90
323	3235	Radiology nurses				
323	3239	Nursing associate professionals not elsewhere classified				
3240	3240	Life science technicians	0.22	0.42	7,400	0.93
3310	3310	Pre-primary education teaching associate professionals	0.66	0.59	50,177	0.89
3320	3320	Other teaching associate professionals	-0.63	0.43	18,061	0.53
341	3411	Securities and finance dealers and brokers	0.18	0.52	144,199	0.32
341	3412	Insurance representatives				
341	3413	Estate agents				
341	3414	Travel consultants and organisers				
341	3415	Technical and commercial sales representatives				
341	3416	Buyers				
341	3417	Appraisers, valuers and auctioneers				
341	3418	Banking associate professionals				
341	3419	Finance and sales associate professionals not elsewhere classified				
342	3421	Trade brokers	0.44	2.81	13,993	0.39
342	3422	Clearing and forwarding agents				
342	3423	Employment agents and labour contractors				
342	3429	Business services agents and trade brokers not elsewhere classified				
3431	3431	Administrative secretaries and related associate professionals	1.51	0.83	17,915	0.75

$Occ._{1985-2013}$	SSYK96		Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
3432	3432	Legal and related business associate professionals	22.12	0.62	151	0.33
3433	3433	Bookkeepers	7.23	0.09	3,058	0.70
3442	3442	Government tax and excise officials	10.38	3.04	382	0.67
3442	3449	Customs, tax and related government associate professionals not elsewhere classified				
3443	3443	Government social benefits officials	0.03	0.86	12,123	0.81
3450	3450	Police officers and detectives	-0.04	0.55	17,292	0.18
3461	3461	Social workers and related associate professionals	1.28	1.08	7,641	0.73
3462	3462	Recreation officers and related associate professionals	0.13	2.34	15,447	0.50
3471	3471	Decorators and commercial designers	0.54	1.79	5,377	0.59
3472	3472	Radio, television and other announcers	0.33	0.35	282	0.77
3473	3473	Street, nightclub and related musicians, singers and dancers	-0.75	-0.09	3,793	0.14
3474	3474	Clowns, magicians, acrobats and related associate professionals	-0.83	0.28	296	0.11
3475	3475	Athletes, sportspersons and related associate professionals	1.73	1.54	3,567	0.53
3476	3476	Property managers and related associate professionals	0.15	0.28	1,075	0.33
3480	3480	Religious associate professionals	-0.43	-0.49	2,523	0.19
4111	4111	Data entry operators	-0.76	-0.60	8,287	0.92
4112	4112	Office secretaries	-0.59	0.44	63,490	0.99
4120	4120	Numerical clerks	0.17	0.08	42,281	0.81
4131	4131	Stock clerks and storekeepers	-0.17	-0.10	65,133	0.14
4132	4132	Transport clerks	-0.60	0.41	16,586	0.24
4140	4140	Library and filing clerks	-0.59	0.49	7,794	0.77
4150	4150	Mail carriers and sorting clerks	-0.32	0.79	25,857	0.25
4190	4190	Other office clerks	-0.61	-0.26	208,617	0.89
4211	4211	Cashiers and ticket clerks	-0.18	0.45	20,992	0.96
4212	4212	Tellers and other counter clerks	-0.89	0.69	18,357	0.82
4215	4214	Pawnbrokers and moneylenders	-0.54	1.56	1,549	0.42
4215	4215	Debt-collectors and related workers				
4221	4221	Travel agency and related clerks	0.09	0.58	4,810	0.74
4222	4222	Receptionists	1.29	0.84	10,297	0.90
4223	4223	Telephone switchboard operators	-0.39	-0.98	17,674	0.96
4224	4224	Transport information clerks	1.03	0.08	1,652	0.44
5111	5111	Travel attendants and travel stewards	-0.29	0.82	1,724	0.80
5112	5112	Transport conductors	0.07	0.86	2,014	0.32
5113	5113	Travel guides	0.38	0.86	507	0.55
5121	5121	Housekeepers and related workers	-0.66	0.31	9,815	0.55
5122	5122	Cooks	0.39	1.03	23,796	0.64
5123	5123	Waiters, waitresses and bartenders	0.47	0.70	14,203	0.61
513	5131	Child-care workers	0.15	0.75	409,704	0.91

$Occ._{1985-2013}$	SSYK96		Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
513	5132	Assistant nurses and hospital ward assistants				
513	5133	Home-based personal care and related workers				
513	5134	Attendants, psychiatric care				
513	5135	Dental nurses				
513	5139	Personal care and related workers not elsewhere classified				
5141	5141	Hairdressers, barbers, beauticians and related workers	-0.15	0.10	22,353	0.93
515	5151	Fire-fighters	0.44	0.69	20,335	0.13
515	5152	Security guards and patrolmen				
515	5153	Prison guards				
515	5159	Protective services workers not elsewhere classified				
522	5221	Shop salespersons, food stores	0.40	0.12	18,628	0.64
522	5222	Shop salespersons, non-food stores				
522	5223	Café-keepers				
522	5224	Salespersons, stalls				
522	5225	Salespersons, petrol stations				
522	5227	Demonstrators and telephone salespersons				
611	6112	Horticultural and nursery growers	-0.27	0.97	17,447	0.16
611	6113	Gardeners, parks and grounds				
612	6121	Dairy and livestock producers	-0.03	0.65	9,360	0.50
612	6122	Poultry producers				
612	6129	Animal producers and related workers not elsewhere classified				
6130	6130	Crop and animal producers	-0.59	-0.29	86,706	0.10
6140	6140	Forestry and related workers	-0.82	-0.48	26,269	0.01
615	6151	Aquatic-life cultivation workers	-0.89	-0.39	4,270	0.05
615	6152	Fishery workers				
615	6153	Hunters and trappers				
7111	7111	Miners, shot firers and quarry workers	-0.61	-0.41	5,393	0.02
7112	7112	Stone splitters, cutters and carvers	0.78	-0.45	342	0.03
712	7121	Bricklayers, stonemasons and tile setters	-0.03	0.20	103,837	0.00
712	7122	Concrete placers, concrete finishers and related workers				
712	7123	Carpenters and joiners				
712	7124	Rail and road construction workers				
712	7129	Building frame and related trades workers not elsewhere classified				
713	7131	Roofers	-0.07	0.30	94,917	0.02
713	7132	Floor layers				
713	7133	Insulation workers				
713	7134	Glaziers				
713	7135	Plumbers				
713	7136	Building and related electricians				

$Occ._{1985-2013}$	SSYK96		Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
713	7137	Building caretakers				
713	7139	Building finishers and related trade workers not elsewhere classified				
7141	7141	Painters and related workers	-0.31	0.65	23,081	0.03
7142	7142	Varnishers and related painters	-0.48	-0.88	7,160	0.07
7143	7143	Building structure cleaners	1.25	0.92	3,247	0.00
7211	7211	Metal moulders	17.58	-0.44	74	0.50
7212	7212	Welders and flame cutters	-0.57	0.31	31,554	0.04
7213	7213	Sheet-metal workers	-0.71	0.32	19,907	0.03
7214	7214	Structural-metal preparers and erectors	-0.77	0.40	7,223	0.02
7215	7215	Riggers and cable splicers	1.04	-0.64	51	0.00
722	7221	Blacksmiths, hammer-smiths and forging-press workers	-0.66	-0.20	15,648	0.07
722	7222	Tool-makers and related workers				
722	7223	Machine-tool setters and setter-operators				
722	7224	Metal wheel-grinders, polishers and tool sharpeners				
723	7231	Motor vehicle mechanics and fitters	-0.26	-0.17	35,231	0.01
723	7232	Aircraft engine mechanics and fitters				
723	7233	Agricultural- or industrial-machinery mechanics and fitters				
724	7241	Electrical mechanics fitters and servicers	-0.59	0.53	29,393	0.10
724	7242	Electronics mechanics, fitters and servicers				
724	7243	Electrical line installers, repairers and cable jointers				
731	7311	Precision-instrument makers and repairers	-0.58	-0.12	11,134	0.13
731	7312	Musical-instrument makers and tuners				
731	7313	Jewellery and precious-metal workers				
732	7321	Abrasive wheel formers, potters and related workers	-0.46	0.07	2,109	0.67
732	7322	Glass-makers, cutters, grinders and finishers				
732	7323	Glass engravers and etchers				
732	7324	Glass, ceramics and related decorative painters				
7330	7330	Handicraft workers in wood, textile, leather and related materials	-0.77	0.09	2,780	0.29
734	7341	Compositors, desktop operators and related workers	-0.79	-0.86	15,623	0.37
734	7342	Printing engravers and etchers				
734	7343	Bookbinders and related workers				
734	7344	Silk-screen, block and craft textile printers				
7411	7411	Butchers, fishmongers and related food preparers	-0.82	0.10	11,779	0.18
7412	7412	Bakers, pastry-cooks and confectionery makers	-0.27	0.65	7,208	0.21
7413	7413	Food and beverage tasters and graders	2.01	0.79	95	0.00

$Occ._{1985-2013}$	SSYK96		Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
742	7421	Cabinet-makers and related workers	-0.57	0.05	5,423	0.06
743	7431	Tailors, dressmakers and hatters	-0.73	-0.58	6,245	0.64
743	7433	Textile, leather and related pattern-makers and cutters				
743	7434	Sewers and related workers				
743	7435	Upholsterers and related workers				
7442	7442	Shoe-makers and related workers	-0.71	-0.74	1,319	0.13
8111	8111	Mineral-ore- and stone-processing-plant operators	0.01	1.78	831	0.09
8112	8112	Well drillers and borers and related workers	-0.23	-0.31	851	0.00
812	8121	Ore and metal furnace operators	-0.34	-0.33	16,166	0.09
812	8122	Metal melters and rolling-mill operators				
812	8123	Metal-heat-treating-plant operators				
812	8124	Metal drawers and extruders				
812	8125	Casters and coremakers				
8130	8130	Glass, ceramics and related plant operators	-0.69	1.24	3,837	0.18
8141	8141	Wood-processing-plant operators	-0.63	-0.09	14,890	0.05
8142	8142	Veneer sheet and fibreboard plant operators	-0.77	-0.59	2,799	0.21
8143	8143	Paper-pulp plant operators	-0.10	-0.65	3,496	0.04
8144	8144	Papermaking-plant operators	-0.39	-0.58	11,721	0.13
8150	8150	Chemical-processing-plant operators	0.21	0.44	4,578	0.05
8160	8160	Power-production and related plant operators	0.06	-0.08	9,464	0.02
8211	8211	Machine-tool operators	-0.34	-0.39	64,622	0.15
8212	8212	Cement and other mineral products machine operators	-0.53	2.43	4,258	0.01
822	8221	Pharmaceutical- and toiletry-products machine operators	-0.06	-0.35	6,844	0.38
822	8222	Ammunition- and explosive-products machine operators				
822	8223	Metal finishing-, plating- and coating-machine operators				
822	8224	Photographic-products machine operators				
822	8229	Chemical-products machine operators not elsewhere classified				
8231	8231	Rubber-products machine operators	-0.60	-0.31	5,479	0.19
8232	8232	Plastic-products machine operators	-0.36	-0.44	13,487	0.28
8240	8240	Wood-products machine operators	-0.29	0.09	14,581	0.09
8251	8251	Printing-machine operators	-0.59	-0.46	12,636	0.11
8252	8252	Bookbinding-machine operators	-0.68	-0.18	5,103	0.49
8253	8253	Paper-products machine operators	-0.49	0.42	5,206	0.28
826	8261	Fibre-preparing-, spinning- and winding-machine operators	-0.83	-0.33	30,884	0.77
826	8262	Weaving- and knitting-machine operators				
826	8263	Sewing-machine operators				

$Occ._{1985-2013}$	SSYK96		Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
826	8264	Bleaching-, dyeing- and cleaning-machine operators				
826	8265	Shoemaking- and related machine operators				
826	8269	Textile-, fur- and leather-products machine operators not elsewhere classified				
827	8271	Meat- and fish-processing-machine operators	-0.15	0.74	13,803	0.37
827	8272	Dairy-products machine operators				
827	8273	Grain- and spice-milling-machine operators				
827	8274	Baked-goods, cereal and chocolate-products machine operators				
827	8275	Fruit-, vegetable- and nut-processing-machine operators				
827	8276	Sugar production machine operators				
827	8278	Brewers, wine and other beverage machine operators				
827	8279	Tobacco production machine operators				
828	8281	Mechanical-machinery assemblers	-0.35	-0.11	60,579	0.26
828	8282	Electrical- and electronic-equipment assemblers				
828	8283	Metal-, rubber- and plastic-products assemblers				
828	8284	Wood and related products assemblers				
8290	8290	Other machine operators and assemblers	0.02	2.83	28,485	0.54
8311	8311	Locomotive-engine drivers	-0.33	0.10	4,788	0.05
8312	8312	Railway brakers, signallers and shunters	-0.55	-0.02	2,696	0.05
832	8321	Car, taxi and van drivers	0.15	0.50	78,760	0.06
832	8322	Bus and tram drivers				
832	8323	Heavy truck and lorry drivers				
8331	8331	Motorised farm and forestry plant operators	-0.62	-0.28	16,877	0.05
8332	8332	Earth-moving- and related plant operators	-0.09	0.85	18,590	0.01
8333	8333	Crane, hoist and related plant operators	-0.80	0.94	5,895	0.22
8334	8334	Lifting-truck operators	-0.52	0.72	19,752	0.07
8340	8340	Ships' deck crews and related workers	-0.67	0.51	3,316	0.06
9121	9121	Domestic helpers and cleaners	-0.24	0.15	1,351	0.79
9122	9122	Helpers and cleaners in offices, hotels and other establishments	-0.33	0.32	119,315	0.89
9123	9123	Window cleaners	-0.52	0.32	1,140	0.04
9130	9130	Helpers in restaurants	-0.13	1.71	70,055	0.92
914	9141	Newspaper and package deliverers	-0.43	0.75	25,629	0.20
914	9142	Doorkeepers and related workers				
914	9143	Vending-machine money collectors, meter readers and related workers				
9150	9150	Garbage collectors and related labourers	0.91	3.43	5,732	0.02

$Occ._{1985-2013}$		SSYK96	Empl. change Swe	Empl. change US	Empl. 1985 sample	Female share
9190	9190	Other sales and services elementary occupations	4.60	0.26	5,296	0.11
9210	9210	Agricultural, fishery and related labourers	0.53	-0.35	2,693	0.33
9310	9310	Mining and construction labourers	3.55	0.05	504	0.14
9320	9320	Manufacturing labourers	74.72	-0.13	315	0.20
9330	9330	Transport labourers and freight handlers	0.69	0.59	7,479	0.03
Total			0.09	0.54	877,249	0.48

Notes: The table shows the harmonized occupational code $Occ._{1985-2013}$, and its attached occupational codes and titles from the SSYK96 classification scheme. Thereafter, the average employment change in the occupation is displayed, first for Sweden and then for the US, weighted by the number of employees in the sample. The Swedish employment change is computed at the harmonized occupational code level (172 occupations), and the employment change in US occupations are computed using US data, and then matched to the 1,400 occupations from the 1985 occupational classification (NYK85). Thereafter, the number of employees in each occupational category from my main sample in 1985 is displayed. Lastly, the share of these employed workers that are female.

Table B.5: Alternative first stage: Quantifying workers' exposure to occupational decline—log employment change

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Workers aged 16–64 in 1985 (3,060,565 observations, mean: -0.16)							
Declining (US)	-0.52	-0.45	-0.46	-0.46	-0.46	-0.32	-0.25
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.09)	(0.09)
B. Workers aged 25–36 in 1985 (877,249 observations, mean: -0.11)							
Declining (US)	-0.51	-0.42	-0.43	-0.42	-0.42	-0.31	-0.25
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.10)	(0.09)
Demography & earnings		✓	✓	✓	✓	✓	✓
Pre-period mort. & hosp.			✓	✓	✓	✓	✓
Life-cycle earnings				✓	✓	✓	✓
Predictors of growth					✓	✓	✓
Occupation dummies						✓	✓
Industry dummies							✓
F-stat, panel *A*	17.56	8.40	8.17	7.16	7.16	13.52	183.16
F-stat, panel *B*	18.37	6.86	7.50	6.23	6.23	15.08	37.09

Notes: On the left-hand side is the log employment change of the worker's Swedish 3-digit occupation. There are 172 such 3-digit occupations, that are harmonized across the whole sample period. The occupational change is computed using sampling weights from the Wage Structure Statistics. The harmonized occupations are attached to individuals based on their 5-digit occupation in 1985. On the right-hand side is the "Declining (US)" indicator. Both samples are conditioned on being employed and earning at least one base amount (see Footnote 7 in November 1985, and having information on occupation, education level and industry. Details on the treatment and control variables can be found in Sections 3.4 and 3.6.

Table B.6: Alternative first stage: Quantifying workers' exposure to occupational decline—any decline

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Workers aged 16–64 in 1985 (3,060,565 observations, mean: 0.55)							
Declining (US)	0.39	0.29	0.30	0.30	0.30	0.21	0.18
	(0.10)	(0.08)	(0.09)	(0.09)	(0.09)	(0.07)	(0.06)
B. Workers aged 25–36 in 1985 (877,249 observations, mean: 0.50)							
Declining (US)	0.42	0.31	0.31	0.31	0.31	0.23	0.19
	(0.10)	(0.09)	(0.10)	(0.10)	(0.10)	(0.07)	(0.05)
Demography & earnings		✓	✓	✓	✓	✓	✓
Pre-period mort. & hosp.			✓	✓	✓	✓	✓
Life-cycle earnings				✓	✓	✓	✓
Predictors of growth					✓	✓	✓
Occupation dummies						✓	✓
Industry dummies							✓
F-stat, panel *A*	16.12	44.58	52.52	54.27	54.27	412.49	1,148.09
F-stat, panel *B*	18.12	33.11	34.78	32.22	32.22	192.20	346.66

Notes: On the left-hand side is an indicator for working in a Swedish 3-digit occupation that declines between 1986 and 2013, where decline in this case is defined as negative employment change. There are 172 3-digit occupations, that are harmonized across the whole sample period. The occupational change is computed using sampling weights from the Wage Structure Statistics. The harmonized occupations are attached to individuals based on their 5-digit occupation in 1985. On the right-hand side is the "Declining (US)" indicator. Both samples are conditioned on being employed and earning at least one base amount (see Footnote 7 in November 1985, and having information on occupation, education level and industry. Details on the treatment and control variables can be found in Sections 3.4 and 3.6.

Table B.7: Alternative first stage: Does US occupational growth predict Swedish occupational growth?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Workers aged 16–64 in 1985 (3,060,565 observations, mean: 0.49)							
Growing (US)	0.25	0.20	0.22	0.22	0.22	0.15	0.09
	(0.12)	(0.12)	(0.11)	(0.11)	(0.11)	(0.07)	(0.05)
B. Workers aged 25–36 in 1985 (877,249 observations, mean: 0.54)							
Growing (US)	0.29	0.24	0.25	0.25	0.25	0.17	0.10
	(0.11)	(0.11)	(0.10)	(0.10)	(0.10)	(0.07)	(0.05)
Demography & earnings		✓	✓	✓	✓	✓	✓
Pre-period mort. & hosp.			✓	✓	✓	✓	✓
Life-cycle earnings				✓	✓	✓	✓
Predictors of growth					✓	✓	✓
Occupation dummies						✓	✓
Industry dummies							✓
F-stat, panel *A*	4.05	38.96	46.57	49.72	49.72	355.10	1,894.37
F-stat, panel *B*	6.75	27.57	33.81	32.45	32.45	80.53	347.99

Notes: On the left-hand side is an indicator for working in a Swedish 3-digit occupation that grew between 1986 and 2013. "Growing (Sweden)" is an indicator that takes the value one if the employment change in the occupation is larger than the median employment change (between 1986 and 2013). There are 172 3-digit occupations that are harmonized across the whole sample period. The occupational change is computed using sampling weights from the Wage Structure Statistics. The harmonized occupations are attached to individuals based on their 5-digit occupation in 1985. On the right-hand side is the "Growing (US)" indicator, which takes the value one if the employment change in the US is above the median employment change in the US over the sample period. Both samples are conditioned on being employed and earning at least one base amount (see Footnote 7 in November 1985, and having information on occupation, education level and industry. Details on the included covariates can be found in Section 3.6.

Table B.8: Alternative first stage: Do US indicators for occupational decline and growth predict Swedish occupational change?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Workers aged 16–64 in 1985 (3,060,565 observations, mean: -0.16)							
Declining (US)	-0.42	-0.35	-0.37	-0.37	-0.37	-0.27	-0.23
	(0.16)	(0.15)	(0.13)	(0.13)	(0.13)	(0.10)	(0.09)
Growing (US)	0.19	0.19	0.18	0.18	0.18	0.10	0.05
	(0.14)	(0.14)	(0.11)	(0.11)	(0.11)	(0.07)	(0.06)
B. Workers aged 25–36in 1985 (877,249 observations, mean: -0.11)							
Declining (US)	-0.40	-0.32	-0.33	-0.33	-0.33	-0.27	-0.24
	(0.15)	(0.14)	(0.13)	(0.13)	(0.13)	(0.10)	(0.09)
Growing (US)	0.19	0.19	0.18	0.18	0.18	0.08	0.03
	(0.14)	(0.13)	(0.11)	(0.11)	(0.11)	(0.07)	(0.06)
Demography & earnings		✓	✓	✓	✓	✓	✓
Pre-period mort. & hosp.			✓	✓	✓	✓	✓
Life-cycle earnings				✓	✓	✓	✓
Predictors of growth					✓	✓	✓
Occupation dummies						✓	✓
Industry dummies							✓
F-stat, panel *A*	11.86	9.54	8.82	7.61	7.61	14.81	185.28
F-stat, panel *B*	12.57	6.78	7.65	6.26	6.26	15.61	36.82

Notes: On the left-hand side is the log employment change of the worker's Swedish 3-digit occupation. There are 172 3-digit occupations, that are harmonized across the whole sample period. The occupational change is computed using sampling weights from the Wage Structure Statistics. The harmonized occupations are attached to individuals based on their 5-digit occupation in 1985. On the right-hand side is the "Declining (US)" indicator and the "Growing (US)" indicator. The latter takes the value one if the employment change in the US is above the median employment change in the US over the sample period . Both samples are conditioned on being employed and earning at least one base amount (see Footnote 7 in November 1985, and having information on occupation, education level and industry. Details on the included covariates can be found in Section 3.6.

Table B.9: Logistic regression: Occupational decline and mortality 1986–2015

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
Logistic regression						
main						
Declining (US)	0.096	0.061	0.095	0.091	0.13	0.082
	(0.036)	(0.021)	(0.063)	(0.045)	(0.046)	(0.029)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	0.06		0.01		0.02	

Notes: All outcomes refer to the log-odds of death (by cause specified in column head) at any point between 1986–2015. Note that the mean mortality rates are now in shares, not in percentages as in other tables. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.10: Occupational decline and mortality 1986–2015: Reduced form

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Death, any cause (percent) (mean: 5.80)							
Declining (US)	1.63	0.61	0.60	0.58	0.48	0.40	0.32
	(0.36)	(0.23)	(0.23)	(0.22)	(0.22)	(0.15)	(0.13)
B. Death of despair (percent) (mean: 1.03)							
Declining (US)	0.51	0.15	0.15	0.14	0.11	0.067	0.069
	(0.14)	(0.095)	(0.085)	(0.083)	(0.083)	(0.066)	(0.066)
C. Death due to alcohol (percent) (mean: 0.60)							
Declining (US)	0.32	0.083	0.086	0.083	0.056	0.035	0.033
	(0.091)	(0.068)	(0.059)	(0.059)	(0.056)	(0.048)	(0.048)
D. Death due to drugs (percent) (mean: 0.24)							
Declining (US)	0.082	0.040	0.049	0.047	0.051	0.041	0.040
	(0.037)	(0.033)	(0.030)	(0.030)	(0.031)	(0.025)	(0.025)
E. Suicide (percent) (mean: 0.39)							
Declining (US)	0.14	0.039	0.040	0.038	0.040	0.019	0.023
	(0.039)	(0.028)	(0.027)	(0.026)	(0.028)	(0.024)	(0.025)
F. Death due to cardiovascular disease (percent) (mean: 1.94)							
Declining (US)	0.94	0.34	0.32	0.31	0.27	0.23	0.15
	(0.19)	(0.12)	(0.12)	(0.12)	(0.12)	(0.079)	(0.068)
Demography & earnings		✓	✓	✓	✓	✓	✓
Pre-period mort. & hosp.			✓	✓	✓	✓	✓
Life-cycle earnings				✓	✓	✓	✓
Predictors of growth					✓	✓	✓
Occupation dummies						✓	✓
Industry dummies							✓

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.11: Occupational decline and mortality 1986–2015: Deaths of despair

	Death, alcohol		Death, drugs		Suicide	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.020	-0.024	0.0067	0.0065	0.011	0.027
	(0.045)	(0.040)	(0.026)	(0.020)	(0.030)	(0.021)
B. IV						
Declining (Sweden)	0.18	0.11	0.086	0.14	0.085	0.077
	(0.15)	(0.16)	(0.071)	(0.081)	(0.061)	(0.082)
C. Reduced form						
Declining (US)	0.083	0.033	0.040	0.040	0.039	0.023
	(0.068)	(0.048)	(0.033)	(0.025)	(0.028)	(0.025)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	0.60		0.24		0.39	
F-stat., first stage, with individual controls: 21.67						
F-stat., first stage, with all controls: 131.56						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.12: Occupational decline and mortality 1986–2015: Heterogeneity between genders

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.34	0.16	0.089	0.034	0.21	0.084
	(0.25)	(0.14)	(0.093)	(0.058)	(0.14)	(0.098)
Declining (Sweden) × female	0.13	0.0076	-0.053	-0.020	-0.020	-0.064
	(0.25)	(0.19)	(0.084)	(0.078)	(0.15)	(0.11)
B. IV						
Declining (Sweden)	0.97	1.25	0.19	0.32	0.60	0.65
	(0.34)	(0.46)	(0.25)	(0.22)	(0.17)	(0.25)
Declining (Sweden) × female	-0.45	-0.38	0.15	-0.13	-0.38	-0.33
	(0.32)	(0.24)	(0.28)	(0.14)	(0.18)	(0.12)
C. Reduced form						
Declining (US)	0.50	0.34	0.088	0.064	0.36	0.22
	(0.28)	(0.15)	(0.12)	(0.082)	(0.15)	(0.087)
Declining (US) × female	0.14	-0.0034	0.068	0.073	-0.15	-0.18
	(0.33)	(0.24)	(0.13)	(0.098)	(0.16)	(0.11)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	5.80		1.03		1.94	
Mean mortality, males	4.70		0.52		1.21	
Mean mortality, females	6.81		1.50		2.62	
F-stat., first stage, with individual controls: 21.67						
F-stat., first stage, with all controls: 131.56						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.13: Occupational decline and mortality 1986–2015: Death of despair for women

	Death, alcohol		Death, drugs		Suicide	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.040	0.0079	0.012	0.050	-0.020	0.0011
	(0.024)	(0.028)	(0.026)	(0.026)	(0.026)	(0.030)
B. IV						
Declining (Sweden)	0.22	0.38	0.10	0.40	0.045	0.22
	(0.11)	(0.19)	(0.081)	(0.17)	(0.070)	(0.12)
C. Reduced form						
Declining (US)	0.11	0.11	0.052	0.11	0.022	0.061
	(0.048)	(0.047)	(0.036)	(0.034)	(0.033)	(0.031)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	0.28		0.19		0.22	
F-stat., first stage, with individual controls: 17.57						
F-stat., first stage, with all controls: 345.34						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 421,093 women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.14: First stage for men and women: Does US occupational decline predict Swedish occupational decline?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Men aged 25–36 in 1985 (455,964 observations, mean: 0.47)							
Declining (US)	0.48	0.44	0.35	0.35	0.35	0.32	0.25
	(0.08)	(0.09)	(0.08)	(0.08)	(0.08)	(0.07)	(0.06)
B. Women aged 25–36 in 1985 (421,285 observations, mean: 0.30)							
Declining (US)	0.55	0.50	0.53	0.52	0.52	0.28	0.28
	(0.12)	(0.14)	(0.09)	(0.09)	(0.09)	(0.08)	(0.08)
Demography & earnings		✓	✓	✓	✓	✓	✓
Pre-period mort. & hosp.			✓	✓	✓	✓	✓
Life-cycle earnings				✓	✓	✓	✓
Predictors of growth					✓	✓	✓
Occupation dummies						✓	✓
Industry dummies							✓
F-stat, panel *A*	32.15	27.30	38.92	37.44	37.44	50.04	131.53
F-stat, panel *B*	20.89	17.57	25.34	24.07	24.07	50.69	345.34

Notes: On the left-hand side is an indicator for working in a Swedish 3-digit occupation that declines by more than 25 percent between 1986 and 2013. There are 172 such 3-digit occupations, that are harmonized across the whole sample period. The Swedish occupational change is computed using sampling weights from the Wage Structure Statistics. The harmonized occupations are attached to individuals based on their 5-digit occupation in 1985. On the right-hand side is the "Declining (US)" indicator. Both samples are conditioned on being employed and earning at least one base amount (see Footnote 7 in November 1985, and having information on occupation, education level and industry. Details on the treatment and control variables can be found in Sections 3.4 and 3.6.

Table B.15: Occupational decline and mortality 1986–2015: Heterogeneous effects along the earnings distribution

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.34	0.10	0.041	-0.0024	0.16	0.024
	(0.19)	(0.13)	(0.074)	(0.057)	(0.094)	(0.078)
Declining (Sweden) × rank	-0.35	-0.75	-0.20	-0.32	-0.13	-0.31
	(0.36)	(0.36)	(0.13)	(0.15)	(0.15)	(0.15)
B. IV						
Declining (Sweden)	0.63	1.13	0.33	0.25	0.34	0.53
	(0.22)	(0.47)	(0.22)	(0.23)	(0.10)	(0.24)
Declining (Sweden) × rank	-0.59	-1.36	-0.33	-0.57	-0.20	-0.54
	(0.44)	(0.46)	(0.21)	(0.20)	(0.19)	(0.20)
C. Reduced form						
Declining (US)	0.63	0.33	0.15	0.073	0.35	0.16
	(0.24)	(0.14)	(0.10)	(0.069)	(0.12)	(0.072)
Declining (US) × rank	-0.78	-1.09	-0.38	-0.47	-0.31	-0.46
	(0.48)	(0.43)	(0.20)	(0.20)	(0.21)	(0.19)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	5.80		1.03		1.94	
F-stat., first stage, with individual controls: 21.67						
F-stat., first stage, with all controls: 131.56						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The rank is the earnings rank in the initial occupation (1985). It is normalized to be in [-1,1]. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.16: Occupational decline and hospitalization 1987–2015

	Hosp., any cause		Hosp. of despair		Hosp., cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	-1.35	-0.84	-0.034	-0.050	-0.41	-0.39
	(0.65)	(0.31)	(0.15)	(0.13)	(0.24)	(0.17)
B. IV						
Declining (Sweden)	0.59	-0.54	0.29	0.39	0.37	0.096
	(0.97)	(1.10)	(0.34)	(0.43)	(0.52)	(0.58)
C. Reduced form						
Declining (US)	0.27	-0.16	0.13	0.12	0.17	0.029
	(0.43)	(0.34)	(0.15)	(0.13)	(0.23)	(0.17)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean pr. of ever hosp.	72.53		3.07		11.69	
F-stat., first stage, with individual controls: 21.67						
F-stat., first stage, with all controls: 131.56						

Notes: All outcomes refer to the percentage probability of ever being hospitalized (by cause specified in column head) between 1987–2015. Hospitalization due to self-inflicted harm is missing in the data. Hospitalization by despair is therefore comprised of hospitalization due to alcohol and drugs only. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.17: Occupational decline and year of death 1986–2015

	Year of death (any cause)		
	(1)	(2)	(3)
A. OLS			
Year of death (any cause)			
Declining (Sweden)	-2.23	-0.69	-0.32
	(0.10)	(0.11)	(0.14)
B. IV			
Year of death (any cause)			
Declining (Sweden)	-5.35	-2.32	-2.06
	(0.28)	(0.33)	(0.58)
C. Reduced form			
Year of death (any cause)			
Declining (US)	-2.80	-1.07	-0.61
	(0.15)	(0.15)	(0.17)
Individual controls		✓	✓
Occ. & industry controls			✓
F-stat., first stage, no controls: 36.23			
F-stat., first stage, with individual controls: 21.67			
F-stat., first stage, with all controls: 131.56			

Notes: The outcome is year of death, censored at the end year 2015. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the included covariates can be found in Section 3.6.

Table B.18: Occupational decline and mortality for middle-aged cohorts 1986–2015

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.67	0.20	0.12	0.054	0.48	0.20
	(0.43)	(0.29)	(0.10)	(0.080)	(0.24)	(0.16)
B. IV						
Declining (Sweden)	2.92	0.95	0.48	0.043	2.01	0.84
	(1.01)	(0.92)	(0.28)	(0.31)	(0.67)	(0.59)
C. Reduced form						
Declining (US)	1.35	0.30	0.22	0.013	0.93	0.26
	(0.46)	(0.29)	(0.13)	(0.096)	(0.30)	(0.18)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	16.80		1.52		7.11	
F-stat., first stage, with individual controls: 28.76						
F-stat., first stage, with all controls: 140.46						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The first stage regression is displayed in Table B.20. The sample consists of 975,635 men and women who were employed, aged 37–48 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.19: Occupational decline and mortality for older cohorts 1986–2015

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.90	0.33	0.14	0.052	0.66	0.20
	(0.52)	(0.42)	(0.071)	(0.075)	(0.43)	(0.33)
B. IV						
Declining (Sweden)	2.56	1.27	0.46	0.27	1.90	0.68
	(1.34)	(1.23)	(0.21)	(0.25)	(0.91)	(0.80)
C. Reduced form						
Declining (US)	1.24	0.41	0.22	0.087	0.92	0.22
	(0.65)	(0.38)	(0.10)	(0.078)	(0.45)	(0.25)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	49.11		1.37		27.82	
F-stat., first stage, with individual controls: 28.19						
F-stat., first stage, with all controls: 201.91						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The first stage regression is displayed in Table B.20. The sample consists of 780,773 men and women who were employed, aged 49–64 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.20: First stage for middle-aged and older samples: Does US occupational decline predict Swedish occupational decline?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Workers aged 37–48 in 1985 (976,552 observations, mean: 0.41)							
Declining (US)	0.51	0.46	0.48	0.47	0.47	0.38	0.31
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.07)	(0.06)
B. Workers aged 49–64 in 1985 (650,266 observations, mean: 0.43)							
Declining (US)	0.51	0.48	0.49	0.49	0.49	0.38	0.32
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.07)	(0.06)
Demography & earnings		✓	✓	✓	✓	✓	✓
Pre-period mort. & hosp.			✓	✓	✓	✓	✓
Life-cycle earnings				✓	✓	✓	✓
Predictors of growth					✓	✓	✓
Occupation dummies						✓	✓
Industry dummies							✓
F-stat, panel *A*	33.71	28.76	29.77	28.86	28.86	40.59	140.46
F-stat, panel *B*	33.08	28.19	33.75	29.79	29.79	59.44	201.91

Notes: On the left-hand side is an indicator for working in a Swedish 3-digit occupation that declines by more than 25 percent between 1986 and 2013. There are 172 such 3-digit occupations, that are harmonized across the whole sample period. The Swedish occupational change is computed using sampling weights from the Wage Structure Statistics. The harmonized occupations are attached to individuals based on their 5-digit occupation in 1985. On the right-hand side is the "Declining (US)" indicator. Both samples are conditioned on being employed and earning at least one base amount (see Footnote 7 in November 1985, and having information on occupation, education level and industry. Details on the treatment and control variables can be found in Sections 3.4 and 3.6.

Table B.21: Occupational decline and mortality 1986–2015 for tenured workers

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.33	0.19	0.031	0.040	0.17	0.077
	(0.18)	(0.14)	(0.064)	(0.058)	(0.10)	(0.086)
B. IV						
Declining (Sweden)	0.95	1.33	0.16	0.36	0.67	0.68
	(0.51)	(0.65)	(0.16)	(0.22)	(0.28)	(0.35)
C. Reduced form						
Declining (US)	0.44	0.37	0.073	0.10	0.31	0.19
	(0.24)	(0.16)	(0.072)	(0.063)	(0.13)	(0.087)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean mortality	5.80		0.94		1.93	
F-stat., first stage, with individual controls: 31.19						
F-stat., first stage, with all controls: 226.13						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 427,469 men and women who were employed, aged 25–36 years, who earned at least one base amount (see Footnote 7) in 1985, and who were in the same 3-digit occupation in 1980 as they were in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.22: Occupational decline and mortality 1986–2015 for tenured workers: Reduced form

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Death, any cause (percent) (mean: 5.80)							
Declining (US)	1.40	0.44	0.49	0.49	0.40	0.40	0.37
	(0.31)	(0.24)	(0.24)	(0.24)	(0.24)	(0.18)	(0.16)
B. Death of despair (percent) (mean: 0.94)							
Declining (US)	0.44	0.073	0.11	0.11	0.089	0.067	0.10
	(0.096)	(0.072)	(0.061)	(0.061)	(0.066)	(0.063)	(0.063)
C. Death due to alcohol (percent) (mean: 0.55)							
Declining (US)	0.28	0.033	0.069	0.069	0.045	0.043	0.066
	(0.072)	(0.059)	(0.051)	(0.052)	(0.053)	(0.052)	(0.047)
D. Death due to drugs (percent) (mean: 0.20)							
Declining (US)	0.062	0.034	0.047	0.047	0.054	0.048	0.058
	(0.037)	(0.038)	(0.035)	(0.035)	(0.036)	(0.032)	(0.032)
E. Suicide (percent) (mean: 0.36)							
Declining (US)	0.14	0.023	0.028	0.028	0.030	0.014	0.018
	(0.037)	(0.030)	(0.029)	(0.028)	(0.031)	(0.032)	(0.036)
F. Death due to cardiovascular disease (percent) (mean: 1.93)							
Declining (US)	0.92	0.31	0.30	0.30	0.27	0.25	0.19
	(0.18)	(0.13)	(0.13)	(0.13)	(0.13)	(0.092)	(0.087)
Demography & earnings		✓	✓	✓	✓	✓	✓
Pre-period mort. & hosp.			✓	✓	✓	✓	✓
Life-cycle earnings				✓	✓	✓	✓
Predictors of growth					✓	✓	✓
Occupation dummies						✓	✓
Industry dummies							✓

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 427,469 men and women who were employed, aged 25–36 years, who earned at least one base amount (see Footnote 7) in 1985, and who were in the same 3-digit occupation in 1980 as they were in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.23: Occupational decline and sick days 1986–2015

	Sick days		Sick days per year	
	(1)	(2)	(3)	(4)
A. OLS				
Declining (Sweden)	-24.4	-13.8	-0.73	-0.42
	(25.8)	(12.3)	(0.89)	(0.42)
B. IV				
Declining (Sweden)	-19.5	-0.99	-0.39	0.22
	(30.4)	(30.0)	(1.09)	(1.06)
C. Reduced form				
Declining (US)	-8.97	-0.30	-0.18	0.065
	(14.3)	(8.99)	(0.51)	(0.32)
Individual controls	✓	✓	✓	✓
Occ. & industry controls		✓		✓
Mean sick days	491.20		17.28	
F-stat., first stage, with individual controls: 21.67				
F-stat., first stage, with all controls: 131.56				

Notes: Outcomes are, for columns (1)–(2), the total number of sick days between 1986–2015 and, for columns (3)–(4) the number of sick days per year alive in the same time period. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.24: Occupational decline and prescription medication 2005–2015

	Meds, mental issues		Meds, pain		Meds, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	-1.00	-0.16	-2.07	-1.39	-0.62	-0.62
	(0.69)	(0.52)	(0.82)	(0.54)	(0.41)	(0.36)
B. IV						
Declining (Sweden)	-0.029	3.57	-1.69	-0.57	-0.87	-0.57
	(1.38)	(1.39)	(1.10)	(1.19)	(0.96)	(1.17)
C. Reduced form						
Declining (US)	-0.014	1.07	-0.78	-0.17	-0.40	-0.17
	(0.64)	(0.35)	(0.55)	(0.36)	(0.45)	(0.35)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean percent chance of ever using medication	37.90		53.67		52.69	
F-stat., first stage, with individual controls: 21.47						
F-stat., first stage, with all controls: 131.17						

Notes: All outcomes refer to the percentage probability of ever picking up prescription medication (of type specified in column head) between 2005–2015. The sample consists of 826,738 men and women who were employed, aged 25–36 years, who earned at least one base amount (see Footnote 7) in 1985, and who were alive at least up until (and including) 2005. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.25: Occupational decline and prescription medication 2005–2015

	Meds, alcohol or drugs		Meds, alcohol abuse		Meds, drug abuse	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.25	0.18	-0.079	-0.031	-0.022	-0.020
	(0.14)	(0.12)	(0.11)	(0.10)	(0.010)	(0.012)
B. IV						
Declining (Sweden)	0.68	1.05	0.20	0.41	-0.021	-0.057
	(0.37)	(0.47)	(0.24)	(0.33)	(0.035)	(0.050)
C. Reduced form						
Declining (US)	0.31	0.31	0.092	0.12	-0.0097	-0.017
	(0.17)	(0.13)	(0.11)	(0.096)	(0.016)	(0.015)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls		✓		✓		✓
Mean percent chance of ever using medication	5.87		2.26		0.18	
F-stat., first stage, with individual controls: 21.47						
F-stat., first stage, with all controls: 131.17						

Notes: All outcomes refer to the percentage probability of ever picking up prescription medication (of type specified in column head) between 2005–2015. The sample consists of 826,738 men and women who were employed, aged 25–36 years, who earned at least one base amount (see Footnote 7) in 1985, and who were alive at least up until (and including) 2005. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.26: Occupational decline and mortality 1986–2015, controlling for household income in 1985

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.13	0.11	0.010	0.0050	0.042	0.035
	(0.12)	(0.12)	(0.052)	(0.053)	(0.077)	(0.077)
Household real income 1985		-0.0080		-0.0022		-0.0032
		(0.00048)		(0.00019)		(0.00022)
B. IV						
Declining (Sweden)	0.96	0.86	0.21	0.18	0.55	0.51
	(0.44)	(0.43)	(0.19)	(0.19)	(0.24)	(0.24)
Household real income 1985		-0.0080		-0.0022		-0.0031
		(0.00048)		(0.00019)		(0.00022)
C. Reduced form						
Declining (US)	0.29	0.26	0.063	0.055	0.16	0.15
	(0.13)	(0.12)	(0.060)	(0.059)	(0.070)	(0.069)
Household real income 1985		-0.0080		-0.0022		-0.0032
		(0.00048)		(0.00019)		(0.00022)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls	✓	✓	✓	✓	✓	✓
Mean mortality	5.50		0.98		1.89	
F-stat., first stage, with all baseline controls: 138.35						
F-stat., first stage, with all baseline controls and household income control: 138.53						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. Household income is defined as the sum of the family's wage income in 1985 (in thousands of 2014 SEK), where family is defined in 1990. The sample consists of 869,105 men who were employed, aged 25–36 years, who earned at least one base amount (see Footnote 7) in 1985, and who have a family identifier in the 1990 data. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.27: Occupational decline and mortality 1986–2015, including marriage control

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.17	0.12	0.014	0.00013	0.062	0.044
	(0.12)	(0.12)	(0.057)	(0.056)	(0.074)	(0.072)
Married 1985		-2.79		-0.88		-1.12
		(0.13)		(0.064)		(0.084)
B. IV						
Declining (Sweden)	0.95	0.78	0.17	0.12	0.45	0.38
	(0.45)	(0.43)	(0.21)	(0.21)	(0.23)	(0.22)
Married 1985		-2.78		-0.88		-1.12
		(0.13)		(0.064)		(0.084)
C. Reduced form						
Declining (US)	0.28	0.23	0.051	0.035	0.14	0.11
	(0.13)	(0.13)	(0.065)	(0.064)	(0.068)	(0.066)
Married 1985		-2.78		-0.88		-1.12
		(0.13)		(0.064)		(0.084)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls	✓	✓	✓	✓	✓	✓
Mean	5.72		1.01		1.89	
F-stat., first stage, with all baseline controls: 134.79						
F-stat., first stage, with all baseline controls and marriage control: 132.11						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 842,418 men and women who were employed, aged 25–36 years, who earned at least one base amount (see Footnote 7) in 1985, and who have information on marriage or cohabitation status in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.28: Occupational decline and mortality 1986–2015, controlling for parents' early death

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.17	0.17	0.017	0.018	0.051	0.054
	(0.13)	(0.13)	(0.056)	(0.056)	(0.079)	(0.079)
Parent died early		1.11		0.24		0.70
		(0.076)		(0.030)		(0.056)
B. IV						
Declining (Sweden)	1.10	1.09	0.25	0.25	0.55	0.55
	(0.46)	(0.46)	(0.21)	(0.21)	(0.24)	(0.24)
Parent died early		1.11		0.24		0.70
		(0.076)		(0.030)		(0.056)
C. Reduced form						
Declining (US)	0.33	0.33	0.074	0.074	0.17	0.16
	(0.13)	(0.13)	(0.065)	(0.065)	(0.069)	(0.069)
Parent died early		1.10		0.24		0.70
		(0.076)		(0.030)		(0.056)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls	✓	✓	✓	✓	✓	✓
Mean mortality	5.73		1.02		1.92	
F-stat., first stage, with all baseline controls: 135.65						
F-stat., first stage, with all baseline controls and parent's early death control: 135.03						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 844,666 men and women who were employed, aged 25–36 years, who earned at least one base amount (see Footnote 7) in 1985, and who have information on at least one parent. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.29: Summary statistics for the 25–36 year old sample in 1985, conditioning on availability of some auxiliary covariates

	(1) Baseline sample	(2) Non-missing marriage contr.	(3) Non-missing household contr.	(4) Non-missing parental death control
Female	0.48	0.48	0.49	0.48
	(0.50)	(0.50)	(0.50)	(0.50)
Age	30.81	30.81	30.89	30.76
	(3.46)	(3.46)	(3.44)	(3.46)
Earnings	184.31	184.24	184.48	184.79
	(77.62)	(77.40)	(78.15)	(77.62)
Immigrant	0.06	0.06	0.06	0.03
	(0.24)	(0.23)	(0.24)	(0.17)
Compulsory school	0.25	0.25	0.25	0.25
	(0.43)	(0.43)	(0.43)	(0.43)
High school	0.84	0.84	0.84	0.84
	(0.37)	(0.37)	(0.37)	(0.37)
College	0.12	0.12	0.12	0.12
	(0.32)	(0.32)	(0.32)	(0.32)
Manufacturing	0.28	0.28	0.27	0.28
	(0.45)	(0.45)	(0.45)	(0.45)
Hospital spells*	1.65	1.65	1.65	1.65
	(0.37)	(0.37)	(0.37)	(0.36)
Hospital days*	20.03	20.03	20.00	19.97
	(7.04)	(7.03)	(7.03)	(6.97)
Mortality*	0.07	0.07	0.07	0.07
	(0.03)	(0.03)	(0.03)	(0.03)
Observations	875,101	866,971	842,418	844,666

Notes: The rows show the mean (and standard deviation) of the fraction females, age, and annual earnings in thousands of 2014 SEK (all in 1985). Then, the fraction born outside of Sweden, the fraction with at most compulsory school, high school and college, and the fraction in manufacturing are listed (all in 1985). The variables with stars—hospital spells, hospital days, and mortality—are pre-period characteristics at the occupational level. They refer to the pre-period hospitalization rates and mortality rates in each person's occupation: the average number of spells and days in hospital, and the average mortality, during 1961–1985 for workers who were in the relevant occupation and 25–36 years old in 1960. These occupations are 229 occupational categories that I have harmonized across 1960–1985. The first column includes all 25- to 36-year-olds who were employed in November 1985 and earned at least one base amount in 1985, where education, industry and occupation variables are observed. This is the baseline sample. In columns (2) to (4) I restrict the baseline sample to those who have information on marriage status in 1985, a household identifier in the 1990 data, and information on at least one parent, respectively.

Table B.30: Balance of parents' characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
A. Mother's characteristics						
	Finished high school		Earnings (1985)		Died early	
Constant	0.24	0.21	144.7	140.8	0.12	0.13
	(0.0083)	(0.043)	(1.29)	(8.08)	(0.0026)	(0.0053)
Declining (US)	-0.011	0.0037	0.070	0.55	0.0012	0.00056
	(0.0095)	(0.0056)	(1.02)	(0.72)	(0.0017)	(0.0013)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry		✓		✓		✓
Mean of dep. var.	0.35		150.3		0.09	
Observations	610,376		387,667		843,669	
A. Father's characteristics						
	Finished high school		Earnings (1985)		Died early	
Constant	0.30	0.23	210.0	177.5	0.18	0.20
	(0.0097)	(0.044)	(2.91)	(11.8)	(0.0033)	(0.0073)
Declining (US)	-0.0077	0.0084	0.88	1.52	0.00089	0.0021
	(0.011)	(0.0068)	(2.52)	(1.67)	(0.0021)	(0.0017)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry		✓		✓		✓
Mean of dep. var.	0.43		247.6		0.15	
Observations	451,605		313,812		821,327	

Notes: Results from regressions of parents' characteristics on an intercept and the "Declining (US)" indicator (as described in Section 3.4). The sample is the baseline sample as described in Section 3.3, with the added restriction in each panel that individuals should have the relevant information on the parent. Earnings in 1985 are in thousands of 2014 SEK. Died early is defined as dying before 65 years of age. Those with parents who are still alive at the end of the sample period are coded as zeroes (because the youngest parents are 65 years old at the end of the sample period).

Table B.31: Occupational decline and mortality 1986–2015—sibling fixed effects

	Death, any cause		Death of despair		Death, cardiovasc.	
	(1)	(2)	(3)	(4)	(5)	(6)
A. OLS						
Declining (Sweden)	0.31	0.046	0.017	0.060	0.043	0.21
	(0.22)	(0.29)	(0.099)	(0.13)	(0.13)	(0.18)
B. IV						
Declining (Sweden)	0.15	-0.24	-0.24	-0.41	0.36	0.78
	(0.69)	(0.79)	(0.31)	(0.35)	(0.43)	(0.48)
C. Reduced form						
Declining (US)	0.044	-0.068	-0.068	-0.12	0.10	0.22
	(0.20)	(0.22)	(0.088)	(0.10)	(0.12)	(0.14)
Individual controls	✓	✓	✓	✓	✓	✓
Occ. & industry controls	✓	✓	✓	✓	✓	✓
Sibling fixed effects		✓		✓		✓
Mean mortality	6.06		1.12		2.19	
F-stat., first stage, with all baseline controls: 4,123.19						
F-stat., first stage, with all baseline controls and sibling fixed effects: 1,552.17						

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. The sample consists of 100,947 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. I further condition on having at least one sibling in the data (identified by the mother) and where the Declining indicator differs between siblings. The number of sibling groups is 42,873. I use heteroskedasticity robust standard errors, but they are not clustered, since I cannot cluster on 3-digit occupation while absorbing sibling fixed effects. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.32: Descriptives—sibling fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
	Female	Age	Immigrant	Comp. school	High school	College
Intercept	0.52	30.8	0.038	0.29	0.86	0.082
	(0.086)	(0.061)	(0.0020)	(0.024)	(0.024)	(0.023)
Declining	-0.28	-0.26	-0.0010	0.095	0.021	-0.037
	(0.091)	(0.074)	(0.0041)	(0.031)	(0.025)	(0.026)
	Earnings	Manuf.	Hosp. spells*	Hosp. days*	Mortality*	
Intercept	176.9	0.28	1.69	20.7	0.067	
	(8.85)	(0.061)	(0.048)	(0.81)	(0.0038)	
Declining	18.6	0.33	-0.069	-0.26	0.010	
	(9.03)	(0.091)	(0.051)	(0.88)	(0.0044)	

Notes: Each column displays the regression output with the variable in the column title as the dependent variable, and a constant and the "Declining (US)" indicator on the right-hand side. All characteristics are measured in 1985. The columns in the first panel thus show the fraction of females, the average age, fraction of workers born outside Sweden, the fraction of workers who completed at most compulsory school, at most high school, and college, among non-declining occupations (Intercept) and in declining occupations (adding the coefficient from the "Declining (US)" variable). In the second panel, earnings are in thousands of 2014 SEK, and manufacturing show the fraction of workers in manufacturing. The variables with stars—hospital spells, hospital days, and mortality—are pre-period characteristics at the occupational level. They refer to the pre-period hospitalization rates and mortality rates in each person's occupation: the average number of spells and days in hospital, and the average mortality, during 1961–1985 for workers who were in the relevant occupation and 25–36 years old in 1960. These occupations are 229 occupational categories that I have harmonized across 1960–1985. The sample consists of 100,947 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. I further condition on having at least one sibling in the data (identified by the mother) and where the Declining indicator differs between siblings. The number of sibling groups is 42,873.

Table B.33: Occupational decline and mortality 1986–2015: Robustness to different cutoffs

	Death, any cause		Death of despair		Death, cardio-vascular	
	(1)	(2)	(3)	(4)	(5)	(6)
Percent change $\in [-100, -50)$	0.77	0.39	0.14	0.087	0.45	0.23
	(0.21)	(0.15)	(0.069)	(0.076)	(0.12)	(0.088)
Percent change $\in [-100, -25)$ (baseline)	0.61	0.32	0.15	0.069	0.34	0.15
	(0.23)	(0.13)	(0.095)	(0.066)	(0.12)	(0.068)
Percent change $\in [-100, 0)$	0.26	0.19	-0.014	-0.0066	0.18	0.11
	(0.17)	(0.12)	(0.064)	(0.050)	(0.085)	(0.063)
Individual controls	✓	✓	✓	✓	✓	✓
Occupation & industry controls		✓		✓		✓

Notes: All outcomes refer to the percentage probability of death (by cause specified in column head) at any point between 1986–2015. Each panel shows a different definition of the treatment variable "Declining (US)", and the regressions are reduced form. The sample consists of 875,101 men and women who were employed, aged 25–36 years, and earned at least one base amount (see Footnote 7) in 1985. Details on the outcome, treatment and control variables can be found in Sections 3.4 to 3.6.

Table B.34: Occupational decline and pre-period mortality 1960–1985

	(1)	(2)	(3)	(4)	(5)	(6)
A. Both genders (558,394 observations, mean: 7.67)						
Declining (US)	-0.071	-0.88	-1.52	-1.41	-1.55	-1.86
	(0.63)	(0.49)	(0.70)	(0.73)	(0.81)	(0.85)
B. Men only (400,028 observations, mean: 8.76)						
Declining (US)	-0.72	-1.12	-1.69	-1.68	-1.82	-2.15
	(0.65)	(0.62)	(0.84)	(0.93)	(1.04)	(1.23)
C. Women only (158,366 observations, mean: 4.93)						
Declining (US)	-0.17	-0.21	-0.88	-1.05	-1.24	-0.40
	(0.36)	(0.38)	(0.38)	(0.45)	(0.47)	(0.33)
Individual controls		✓	✓	✓	✓	✓
Actual decline 1960–1985			✓	✓	✓	✓
Prediction in 1985				✓	✓	✓
Empl. share in 1960					✓	✓
Occupation dummies						✓

Notes: All outcomes refer to the percentage probability of death (by cause specified in panel) at any point between 1960–1985, controlled for year of birth. The sample consists of men and women who were employed and 25–36 years old in 1960. Individual controls are gender, year of birth, education (compulsory, high school or university), and county of residence. Actual decline 1960–1985 is employment change in percent in Sweden, and, like Employment share in 1960, it is measured in the full sample (not just the 25–36 year olds). Prediction in 1985 is the OOH outlook index and Occupation dummies are at the 1-digit level.

Table B.35: Occupational decline and pre-period mortality 1960–1985–excluding agriculture and forestry

	(1)	(2)	(3)	(4)	(5)	(6)
A. Both genders (514,777 observations, mean: 7.50)						
Declining (US)	0.17	-0.33	-0.63	-0.58	-0.64	-0.83
	(0.64)	(0.30)	(0.32)	(0.36)	(0.37)	(0.35)
B. Men only (359,211 observations, mean: 8.63)						
Declining (US)	-0.11	-0.36	-0.52	-0.58	-0.62	-0.74
	(0.40)	(0.39)	(0.35)	(0.44)	(0.45)	(0.46)
C. Women only (155,566 observations, mean: 4.88)						
Declining (US)	-0.13	-0.23	-0.76	-0.94	-1.14	-0.49
	(0.37)	(0.37)	(0.39)	(0.46)	(0.49)	(0.33)
Individual controls		✓	✓	✓	✓	✓
Actual decline 1960–1985			✓	✓	✓	✓
Prediction in 1985				✓	✓	✓
Empl. share in 1960					✓	✓
Occupation dummies						✓

Notes: All outcomes refer to the percentage probability of death (by cause specified in panel) at any point between 1960–1985, controlled for year of birth. The sample consists of men and women who were employed and 25–36 years old in 1960, and who do not work in agricultural or forestry occupations. Individual controls are gender, year of birth, education (compulsory, high school or university), and county of residence. Actual decline 1960–1985 is employment change in percent in Sweden, and, like Employment share in 1960, it is measured in the full sample (not just the 25–36 year olds). Prediction in 1985 is the OOH outlook index and Occupation dummies are at the 1-digit level.

Table B.36: Occupational decline and pre-period mortality 1960–1985–excluding agriculture, forestry and manufacturing

	(1)	(2)	(3)	(4)	(5)	(6)
A. Both genders (457,420 observations, mean: 7.22)						
Declining (US)	0.37	-0.17	-0.43	-0.39	-0.36	-0.62
	(0.75)	(0.31)	(0.30)	(0.35)	(0.36)	(0.38)
B. Men only (310,066 observations, mean: 8.38)						
Declining (US)	0.15	-0.16	-0.31	-0.43	-0.38	-0.36
	(0.44)	(0.41)	(0.36)	(0.50)	(0.51)	(0.49)
C. Women only (147,354 observations, mean: 4.77)						
Declining (US)	-0.056	-0.15	-0.58	-0.72	-0.88	-0.14
	(0.38)	(0.38)	(0.39)	(0.49)	(0.56)	(0.38)
Individual controls		✓	✓	✓	✓	✓
Actual decline 1960–1985			✓	✓	✓	✓
Prediction in 1985				✓	✓	✓
Empl. share in 1960					✓	✓
Occupation dummies						✓

Notes: All outcomes refer to the percentage probability of death (by cause specified in panel) at any point between 1960–1985, controlled for year of birth. The sample consists of men and women who were employed and 25–36 years old in 1960, and who do not work in agricultural, forestry, or manufacturing occupations. Individual controls are gender, year of birth, education (compulsory, high school or university), and county of residence. Actual decline 1960–1985 is employment change in percent in Sweden, and, like Employment share in 1960, it is measured in the full sample (not just the 25–36 year olds). Prediction in 1985 is the OOH outlook index and Occupation dummies are at the 1-digit level.

Table B.37: Decline and pre-period employment and mortality

		Declining 1985–2015 US	Empl., males, 1960, census sample	Mortality, males, 1960–85 census sample	Declining 1960–85 Sweden
003	Mechanical engineers and technicians	0.17	13,300	0.06	0
001	Architects, civil engineers and civil engineering technicians	0.04	9,063	0.07	0
002	Electrical engineers and technicians	0.18	6,108	0.07	0
053	Primary education teachers	0.00	4,755	0.05	0
052	Secondary education teachers (theoretical subjects)	0.00	2,813	0.06	0
006	Engineers and technicians in other technical areas of activity	0.19	2,599	0.08	0
004	Chemical engineers and technicians	0.79	2,075	0.06	0
008	Technical assistants	0.03	1,969	0.09	0
055	vocational teachers	0.00	1,851	0.08	0
011	Chemists, physicists	0.00	1,799	0.05	0
031	Physicians and surgeons	0.00	1,500	0.06	0
085	Journalists, editors	0.82	1,205	0.12	0
054	Teachers of practical subjects	0.00	1,192	0.05	0
032	Dentist	0.00	1,162	0.05	0
095	Psychologists and personnel workers	0.00	1,070	0.10	0
081	Sculptors, painters and commercial artists	1.00	976	0.09	0
042	Attendants in psychiatric care	0.00	972	0.09	0
061	Ministers of religion	1.00	957	0.06	0
005	Metallurgists and mining engineers and technicians	0.00	945	0.08	0
051	University and higher education teachers	0.00	861	0.05	0
087	Composers and musicians	0.00	703	0.08	0
091	Audit and accounting experts	0.00	681	0.07	0
092	Social workers	0.00	626	0.08	0
083	Display artists	0.00	605	0.08	1
007	Surveyors and cartographical technicians	0.00	576	0.06	0
057	Educational methods advisors and others	0.00	488	0.07	0

		Declining 1985–2015 US	Empl., males, 1960, census sample	Mortality, males, 1960–85 census sample	Declining 1960–85 Sweden
071	Judges and lawyers in courts of justice	0.00	481	0.03	0
098	Programmers, system analysts etc	0.07	379	0.05	0
023	Agricultural and horticultural scientist / advisors	0.00	361	0.07	0
094	Economists, statisticians	0.00	338	0.03	0
050	Principals, headmasters	0.00	283	0.07	0
082	Designers	1.00	256	0.05	0
073	Other jurists (private practice)	0.00	245	0.12	0
013	Geologists, meteorologists and others	0.62	217	0.06	0
024	Forestry Researchers, Forestry Advisors	0.00	211	0.05	0
072	Prosecutors and senior police officers	0.00	203	0.05	0
074	Legal advisers (in enterprises or other organisations)	0.00	200	0.09	0
093	Librarians, archivists, museum officials	0.00	190	0.11	0
086	Performing artists	0.00	186	0.09	0
088	Other literary and artistic work	0.00	167	0.13	0
048	Health Inspectors and others	0.00	157	0.08	0
021	Veterinarians	0.00	155	0.07	0
009	Unspecifiable task in 00	0.00	116	0.08	0
043	Healthcare assistants	0.00	107	0.11	0
047	Physiotherapists, masseurs etc.	0.00	71	0.06	0
046	Pharmacists	0.00	70	0.11	0
084	Authors	0.00	67	0.21	0
022	Biologists	0.02	58	0.09	0
068	Other religious work	0.00	47	0.09	0
058	Other educational work	0.00	42	0.21	0
059	Not specificerbar task	0.00	13	0.08	0
078	Other legal work	0.00	10	0.00	0
040	Registered nurses	0.00	3	0.00	0
118	Other business administrators and administrators for special functions	0.01	4,188	0.08	0
111	Business leaders	0.00	3,776	0.10	1

		Declining 1985–2015 US	Empl., males, 1960, census sample	Mortality, males, 1960–85 census sample	Declining 1960–85 Sweden
101	General government legislative and administrative work	0.00	1,297	0.06	0
290	Secretaries, stenographers, typists; clerks nec	0.07	7,959	0.08	0
201	Bookkeepers and office clerks	0.01	4,577	0.08	0
295	Managers of movable and immovable property	0.00	2,703	0.09	0
292	Bank and finance clerks	0.00	1,107	0.05	0
294	Forwarders, shipping agents and others	0.00	1,033	0.07	0
296	Insurance clerks	0.00	701	0.07	0
291	Data machine operators	1.00	570	0.06	0
293	Travel agency clerks	0.00	266	0.07	0
203	Bank tellers	0.00	144	0.06	0
204	Retail and restaurant cashiers	0.00	53	0.09	0
208	Debt collectors etc	0.00	53	0.08	0
331	Travelling businessmen, purchasers, office vendors etc.	0.00	13,977	0.09	0
333	Other retail staff	0.02	8,082	0.08	0
302	Retailers	0.00	4,702	0.10	0
332	Shopkeepers	0.00	4,320	0.07	0
338	Petrol salesmen et al	0.98	2,025	0.09	1
313	Advertising salesmen	0.38	980	0.08	0
301	Wholesale distributors	0.00	899	0.16	0
311	Insurance salesmen	0.00	838	0.10	0
312	Property and securities brokers	0.00	137	0.10	0
401	Working proprierors in agriculture, forestry and horticulture	1.00	20,008	0.07	1
441	Forestry and timber floating workers	1.00	7,643	0.10	1
411	Agricultural workers	0.02	7,510	0.18	1
403	Forestry managers and supervisors	0.86	1,748	0.06	1
412	Horticultural workers	0.00	1,594	0.09	0
431	Fishermen	1.00	1,059	0.10	1
402	Farm managers and supervisors	0.98	387	0.08	1
404	Horticultural managers and supervisors	0.02	301	0.06	0

		Declining 1985–2015 US	Empl., males, 1960, census sample	Mortality, males, 1960–85 census sample	Declining 1960–85 Sweden
405	Breeders of livestock, dairy and poultry animals	1.00	113	0.15	0
418	Other agricultural and horticultural work etc.	0.01	109	0.07	0
406	Breeders of fur-bearing animals	1.00	90	0.08	1
414	Fur-bearing animal farm workers	0.00	89	0.07	1
407	Reindeer farmers	1.00	72	0.11	0
421	Game-keeper and hunters	1.00	46	0.07	0
432	Fish farmers	1.00	34	0.09	0
415	Reindeer herdsmen	0.00	12	0.17	1
409	Unspecifiable task in 40	1.00	2	0.00	1
501	Miners, quarrymen etc	1.00	1,931	0.12	1
504	Other mining and quarrying workers	0.82	589	0.11	0
502	Well drillers, diamond drillers	0.96	257	0.07	1
503	Enrichment Workers	0.01	141	0.13	1
509	Unspecifiable task in 50	1.00	10	0.00	0
633	Motor vehicle drivers, tram drivers	0.00	24,542	0.10	0
632	Railway conductors, traffic assistants	0.00	5,284	0.08	1
661	Mail sorting clerks and postmen	0.00	2,114	0.07	0
631	Railway engine drivers, railway drivers' assistants	0.00	1,585	0.09	1
611	Ships' deck and engine-room ratings	0.00	1,042	0.14	1
662	Messenges, office delivery men etc.	0.00	802	0.11	0
601	Ships' deck officers	0.00	734	0.10	1
643	Railway station amsters, train dispatchers	0.00	658	0.06	0
651	Post Assistants, postal dispatch clerks et al	0.00	591	0.06	0
635	Delivery men etc	0.00	502	0.09	1
603	Ships' engineers	0.00	475	0.13	0
644	Road transport supervisros	0.00	436	0.10	0
678	Railway assistants	0.00	406	0.10	0
621	Aircraft pilots, navigators and flight engineers	0.00	333	0.07	0
636	Bus and tram conductors, gatemen	0.00	304	0.06	1

		Declining 1985–2015 US	Empl., males, 1960, census sample	Mortality, males, 1960–85 census sample	Declining 1960–85 Sweden
655	Telegraphers, radio communication operators	1.00	291	0.08	0
642	Air-control officers, flight dispatchers etc.	0.00	165	0.07	0
671	Lighthouse and lock operators, harbour and ferry service assistants	0.00	146	0.10	1
652	Telecommunications Assistants etc	0.80	125	0.04	1
641	Harbour masters	0.00	57	0.07	0
653	Telephone Attendants	1.00	29	0.14	0
750	Toolmakers, machinetool setters and operators	0.79	38,087	0.08	0
761	Electricians (installation, Operation and machinery)	0.02	10,579	0.08	0
793	Concrete or construction workers etc	0.00	6,800	0.12	0
755	Welders, flame cutters	0.00	6,595	0.08	0
771	Woodworkers	0.00	5,768	0.09	0
753	Sheet-metal workers, structural metal preparers and erectors	0.00	5,516	0.09	0
781	Building and non-building painters	0.23	5,312	0.10	0
754	Plumber, pipe worker	0.00	5,280	0.09	0
772	Carpenters, cabinet makers and joiners	0.04	5,278	0.07	0
764	Telecommunications radio and television operators and repairmen	0.09	3,533	0.08	0
791	Bricklayers, divers, pipe assemblers etc.	0.00	3,522	0.10	1
766	Phone Repairers installers (State Authority for Telecom)	0.00	2,379	0.09	0
778	Other woodwork	0.00	2,355	0.10	1
736	Metal casters and moulders	0.44	1,873	0.10	1
701	Textile workers	1.00	1,847	0.09	1
731	Furnacemen	0.99	1,516	0.09	0
735	Blacksmiths, hammersmiths and forgers	1.00	1,423	0.09	1
714	Upholsterers	0.57	1,174	0.07	0
741	Precision-instrument makers	0.10	1,126	0.07	0
733	Rolling-mill workers	1.00	1,106	0.10	1

		Declining 1985–2015 US	Empl., males, 1960, census sample	Mortality, males, 1960–85 census sample	Declining 1960–85 Sweden
738	Other iron, metal, foundry work	0.85	959	0.09	1
774	Sawyers, planers etc	0.00	893	0.09	0
722	Shoe cutters, lasters and sewes	1.00	569	0.11	1
715	Patternmakers, cutters etc	1.00	566	0.06	1
745	Jewellery and precious metal workers	0.02	519	0.09	0
744	Dental technicians	0.00	502	0.08	0
795	Glaziers	0.00	487	0.11	0
742	Watchmakers	1.00	420	0.10	1
794	Insulation workers	0.00	397	0.13	0
757	Metal platers and coaters	1.00	380	0.09	0
737	Wire and tube drawers	1.00	358	0.05	0
711	Tailors, seamstresses etc	0.97	342	0.13	1
732	Metal annealers, temperers and case-hardeners	0.99	313	0.07	1
743	Opticians	0.00	247	0.09	0
726	Saddle and leather goods makers	1.00	227	0.11	1
721	Shoe makers and shoe repairers	1.00	208	0.15	1
759	Unspecifiable task in 75	1.00	138	0.14	1
718	Other sewing work	0.91	90	0.14	0
719	Unspecifiable task in 71	0.00	65	0.14	1
713	Milliners and hatmakers	1.00	44	0.11	1
739	unspecifiable task	1.00	30	0.07	1
769	Unspecifiable task in 76	0.00	28	0.11	0
883	Store and warehouse workers	0.02	6,750	0.11	0
861	Workers in heavy, unskilled manual labour	0.01	6,269	0.14	1
801	Typographers, litographers etc	1.00	4,513	0.08	0
822	Bakers and pastry cooks	0.00	3,720	0.08	1
875	Truck and conveyor operators	0.00	3,560	0.10	0
874	Earth-moving and related machinery operators	0.00	3,544	0.08	0
836	Paper, cardboard and fiberboard workers	1.00	2,212	0.09	0
826	Butchers and meath preparers	0.00	1,846	0.09	0
882	Stevedores and other loading and unloading workers	0.00	1,660	0.13	1

		Declining 1985–2015 US	Empl., males, 1960, census sample	Mortality, males, 1960–85 census sample	Declining 1960–85 Sweden
872	Crane and hoist operators	0.00	1,615	0.10	0
858	Other manufacturing work; unspecifiable task in 85	0.08	1,383	0.10	0
834	Wood pulp and cellulose worker	0.99	1,261	0.11	1
871	Land machine operators	0.04	1,231	0.10	0
851	Rubber Workers	0.33	1,205	0.09	0
881	Packers	0.00	1,079	0.10	0
827	Dairy Workers	0.00	936	0.08	0
831	Chemical process workers	0.03	897	0.11	0
852	Plastics products workers	1.00	717	0.10	0
839	Unspecifiable	0.00	500	0.13	0
876	Oilers	0.37	498	0.11	1
819	Unspecifiable task in 81	0.00	445	0.10	1
806	Bookbinders	0.02	414	0.12	0
857	Paper workers	0.00	374	0.06	0
811	Glassformers and cutters	0.75	309	0.08	1
812	Potters	0.04	272	0.11	1
856	Stone cutters and carvers	0.68	259	0.12	1
838	Other chemical and cellulose technical work	0.29	257	0.12	0
821	Grain mill and oil press workers	0.97	226	0.09	1
825	Canning workers	0.00	201	0.11	0
828	Other foods work	0.10	152	0.12	0
813	Glass and ceramics kilnmen	1.00	146	0.10	1
818	Other glass, porcelain, ceramic and tile work	1.00	145	0.09	0
855	Musical instrument makers and tuners	0.00	142	0.10	1
823	Chocolate and confectionary makers	0.58	104	0.17	0
854	Photo laboratory workers	1.00	85	0.09	0
814	Class and ceramics painters and decorators	0.86	62	0.05	1
808	Other printing work	1.00	53	0.21	0
888	Removalists etc	0.00	35	0.26	0
841	Tobacco Workers	0.00	32	0.06	1
873	Riggers	1.00	31	0.10	1
879	Unspecifiable task in 87	0.00	5	0.00	0
981	Military work	0.38	4,633	0.07	0
902	Policemen	0.00	3,634	0.06	0
931	Building caretakers	0.00	1,354	0.12	0
941	Hairdressers, beauticians etc.	0.00	1,022	0.10	0

		Declining 1985–2015 US	Empl., males, 1960, census sample	Mortality, males, 1960–85 census sample	Declining 1960–85 Sweden
901	Firefighters	0.00	899	0.08	0
946	Photographers	0.00	892	0.09	0
921	Head waiter, waiters	0.00	842	0.14	0
908	Other protective service work	0.00	753	0.12	0
912	Cooks	0.00	662	0.11	0
904	Carers etc (in corrections/criminal care/youth care)	0.00	521	0.08	0
944	Pressers	0.92	514	0.09	1
911	Housekeepers	0.08	461	0.12	0
943	Launderers and dry-cleaners	0.00	418	0.11	1
932	Cleaners	0.00	338	0.15	0
917	Pursers, stewards, stewardesses	0.11	236	0.13	0
948	Other service work	0.00	221	0.16	0
916	Porter	0.06	123	0.11	0
945	Sport leaders, horse trainer etc	0.00	120	0.09	0
913	Kitchen assistants, restaurant workers	0.00	82	0.26	0
942	Bath attendants	0.00	48	0.10	0
914	House maids and nannies	0.00	18	0.06	0
918	Other household work	0.14	4	0.50	0

Notes: This table reports figures for 3-digit occupational classifications used in the censuses from 1960–1985 (with some adjustments for classification changes over time). The first column after the occupational title reports the share of workers within the occupation in 1960 that works in an occupation that is defined as "Declining (US)". The "Declining (US)" indicator is defined as in Section 3.4, and thus pertains to changes in the US in 1985–2015. The next column reports the number of men employed in the occupation in 1960. The third column reports the mortality rate in 1960–1985 for the men in this occupation. Both these columns use the male sample from the census 1960: men that were employed and aged 25–36 in 1960. The last column reports an indicator (0 or 1) for whether or not the occupation declined in Sweden between 1960 and 1985. The indicator equals one if the occupation declined by more than 25 percent in 1960–1985, and zero otherwise. The table is sorted on (male) employment within each 1-digit occupational category, to simplify investigation of the largest occupations within each 1-digit category.