



Contents lists available at ScienceDirect

## Explorations in Economic History

journal homepage: [www.elsevier.com/locate/eeh](http://www.elsevier.com/locate/eeh)

## Death at work? Mortality and industrial employment in Belgian cities at the turn of the twentieth century

Tina Van Rossem<sup>a,b,c,\*</sup>, Patrick Deboosere<sup>b</sup>, Isabelle Devos<sup>c</sup>

<sup>a</sup> Research Foundation – Flanders (FWO), Brussels, Belgium

<sup>b</sup> Interface Demography, Vrije Universiteit Brussel, Pleinlaan 5, 1050 Brussels, Belgium

<sup>c</sup> History Department, Ghent University, Sint-Pietersnieuwstraat 35, 9000 Ghent, Belgium

### ARTICLE INFO

#### Keywords:

Mortality differences  
Urban health  
Industrial employment  
Cottage industry

### ABSTRACT

In this article, we reconstruct the sex- and age-specific mortality rates for the 25 largest Belgian cities at the turn of the twentieth century, and we explore their relationship with industrialization. Whereas previous research has focused mainly on the general level of industrial employment, we make a distinction between two production systems: cottage work (i.e., employment at home) and regular industrial production (i.e., centralized employment). Our linear regression models suggest that cities oriented toward cottage industry were more lethal than those oriented toward regular industry. Cities where a substantial percentage of the labor force was engaged in cottage work suffered high mortality rates, which confirms contemporary claims that in Belgium the cottage industry was “the most murderous of all industries.” Regular industrial employment, on the other hand, appears to have been less harmful for men and women alike, both young and old. We do observe, however, a detrimental effect from female regular industrial employment on infant and child mortality. Using contemporary government reports and sociological works, we were able to gain insights into the possible pathways that created these large health discrepancies between production systems. We argue that the health hazards encountered by cottage workers were due to the absence of labor and wage regulations and to the lack of health and safety standards in cottage work. In many sectors of the regular industry—and in heavy industry in particular—numerous regulations of this type had already been enforced by emerging labor union organizations, resulting in improvements in working conditions and higher wages. Furthermore, regular heavy industry seems to have attracted the healthiest workers.

© 2017 Elsevier Inc. All rights reserved.

### 1. Introduction

Regional and geographical differences in mortality rates have been widely studied for decades. Most of the historical literature on this topic has focused on urban–rural differences, and, more recently, also on differences between city centers and their suburbs (Eggerickx, 2013; Harris and Mercier, 2005; Woods, 2003). Researchers have observed that, during the nineteenth and early twentieth centuries, there were urban health penalties in England and Wales and in many countries on the European continent, including Belgium (Drukker and Tassenaar, 1997; Eggerickx and Debuissou, 1990; Kesztenbaum and Rosenthal, 2011; Neven, 1997; Oris, 1998; Reher, 2001; Vögele, 1998; Williamson, 1990). Nevertheless, few studies have tackled the variations in mortality between cities, and we still do not know what the determinants of these differences were. To date, urban variation in mortality is generally explained by the degree of urbanization or industrialization. Many researchers claim that nineteenth-century mortality rates increased

\* Corresponding author at: Interface Demography, Vrije Universiteit Brussel, Pleinlaan 5, 1050 Brussels, Belgium.

E-mail addresses: [Tina.VanRossem@vub.ac.be](mailto:Tina.VanRossem@vub.ac.be), [Tina.VanRossem@UGent.be](mailto:Tina.VanRossem@UGent.be) (T. Van Rossem), [Patrick.Deboosere@vub.ac.be](mailto:Patrick.Deboosere@vub.ac.be) (P. Deboosere), [Isabelle.Devos@UGent.be](mailto:Isabelle.Devos@UGent.be) (I. Devos).

<http://dx.doi.org/10.1016/j.eeh.2017.08.006>

Received 12 March 2016; Received in revised form 30 June 2017; Accepted 10 August 2017

Available online xxx

0014-4983/© 2017 Elsevier Inc. All rights reserved.

with the size of cities because of higher population densities and large influxes of migrants, leading to more rapid spreading of infectious diseases (Kesztenbaum and Rosenthal, 2011; Vögele, 1998; Williamson, 1990). Others have assigned a larger role to industrialization. Simon Szreter (2005), for example, has pointed out that industrial cities in nineteenth-century England experienced the largest and lengthiest penalty and acquired a health advantage only in the early twentieth century. Since the mortality conditions of provincial towns were quite distinct from those of industrial centers, he argues, industrial development had a prime effect on urban mortality.

In a recent study on Belgium, we demonstrated that the urban health penalty was a definite reality during the second half of the nineteenth century. Between 1846 and 1910, life expectancies in large, medium, and small cities were all far lower than the Belgian average. Brussels, the Belgian capital, consistently exhibited the largest penalty, with life expectancy at birth ranging from 30 years in 1856 to 41 in 1910, by which time the national average was 10 years higher. However, the relation between urban growth, industrialization, and mortality change was not as straightforward as was generally assumed. Our comparative approach revealed similarities but also distinct mortality differences between cities. We suggested that differences in the economic characteristics of the cities, rather than population numbers, were largely responsible for variations in mortality rates (Devos and Van Rossem, 2015). In contrast to our earlier work, in which we looked at differences in mortality over time, in this article we restrict our analysis to the period between 1890 and 1910 and to the 25 largest Belgian cities. Our goal is to examine whether differences in industrial employment affected mortality in these places, and if so, how. The mortality data are from the Belgian national register of vital events, and we use Belgian population and industrial censuses for the population numbers and industrial features of the 25 cities under consideration.

We distinguish between cottage employment and regular industrial employment to examine whether these production systems had implications for the working and living conditions that could affect health. Cottage workers manufactured or assembled products in their own homes, after which the products were either delivered to subcontractors who owned machinery or sold directly to merchants (Van den Eeckhout, 1994; Vermoesen, 2011). Cottage industry is often associated with rural areas, but in late nineteenth-century Belgium, it was also widespread in towns and cities (Vanhaute, 1994). Research has already indicated that, at the end of the nineteenth century, Belgian cottage workers fared very badly with respect to working hours, wages, safety in the workplace, and possibilities for union coalition (see, for instance, Van den Eeckhout, 1994; Vanhaute, 1994). In fact, at the time, the cottage industry was considered “the most murderous of all industries” (De Winne, 1904: 137). Cottage workers in Belgium were registered for the first time in a separate category in the industrial census of 1896. This categorization allows us to analyze the specific health consequences of cottage industry compared to regular industrial employment. By the term “regular industrial employment” we mean centralized labor and production systems in which paid work was performed by industrial workers for entrepreneurs. These systems included textile workers in large factories, employees of small printing ateliers, mine workers, and construction workers, among others. Thus, in contrast to more isolated cottage workers, regular industrial workers worked in a central workplace. Moreover, their employment was subject in general to labor regulations.

In this article we focus on the mortality of adolescents and adults aged 10–59 because people in this age range were exposed to the many consequences of industrial employment. Men and women are analyzed separately because of their distinct work spheres: some types of industrial employment (whether regular industrial or cottage employment) relied extensively on female labor, while others employed mostly (or exclusively) men. Even within the same industrial sector, men and women were often assigned different tasks. We also include infants, children, and the elderly in our analyses since these groups allow us to gain insight into possible differential effects from employment over the course of people’s lifetimes. Including the elderly allows us to study later life effects of regular industrial employment and cottage work, and studying young children can inform us about the health effects of parental employment in each of the production systems. Moreover, because of the large number of deaths at young ages and the sensitivity of the life expectancy indicator to infant and child mortality, differences in infant and child mortality resulted in large urban and regional disparities in life expectancy.

There are a number of factors that might have an influence on urban mortality and its correlation with industrial employment. In this article, we look at three categories in particular: direct, indirect, and selection-related effects. First, the most obvious explanation for why industrial activities were detrimental to health is the nature of the activities themselves. Dangerous and unhealthy conditions existed in many factories and mines. Engines with hot surfaces and machines with moving parts and sharp edges added to the dangers of the workplace and could result in deadly injuries. Still, many domestic workplaces also had hazardous working circumstances and suffered from poor hygiene (see, for instance, Verhaegen, 1912). Bad ventilation, lack of daylight, and exposure to noxious chemicals, heavy metals, and dust particles had the potential to harm workers and lead to a wide range of respiratory and infectious diseases, which could be fatal in the short or the long term (see, for instance, Backs, 2003; Ross and Murray, 2004). Second, increased mortality might also have been the indirect result of a lower income, since nutrition, housing, and medical access all depend on workers’ financial situations. Living in overcrowded, poorly ventilated, damp, and unclean houses can foster a range of respiratory diseases (Shaw, 2004), while malnourishment increases vulnerability to diseases such as tuberculosis, measles, whooping cough, and diarrhea (Rabb and Rotberg, 1985). Such indirect health effects could have harmed the workers and their families. Third, the so-called healthy worker effect may also have been in play: people need to be in good health to be able to work, so workers, especially those in occupations requiring physical strength (e.g., the mining, metals, and glass industries), may have had better health to begin with than the rest of the population (Eisen and Robins, 2006).

By investigating the relationship between industrial employment and mortality, this article connects to studies that have examined whether economic growth has a negative impact on health and well-being. Over the years, the effects of industrialization on standards of living have been widely discussed. Whereas some authors have emphasized economic benefits (such as an expanding labor force and lower prices), others have pointed out the costs (such as bad working conditions) (Allen, 2007; Clark, 2005; Crafts,

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات