# Regional inequalities in nineteenth-century female wages: Evidence from Belgium†

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## Abstract

Little is known about regional female wage inequalities in industrial labour markets of the nineteenth century. This is striking because several recent studies on the geography of the female labour force have highlighted the strong spatial variation in women's labour market participation decisions. Without information on labour prices, however, our knowledge of the female labour market experience is incomplete. This paper adds a new perspective by analysing female regional wage inequality for an early industrializer, late-nineteenth-century Belgium. We find a positive correlation between female industrial employment and wage levels, underlining the importance of industrial labour demand in shaping the female labour market experience. To explain this finding, a correlational analysis of various market drivers is presented.

**Keywords**: Female wages, nineteenth-century Belgium, regional wage inequality, geographical labour markets

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## Introduction

Little is known about regional female wage inequalities in industrial labour markets of the nineteenth century. This is striking because several historical case studies have investigated in detail the geography of female employment. They conclude that female labour force participation rates varied widely from region to region depending on the occupational structure of the area concerned. An accurate assessment of the role of regional labour markets in shaping female labour decisions, however, has to take wages into consideration as well. But quantifying the monetary rewards for female labour has proved to be a challenging endeavour. In the past decade, several path-breaking contributions have reconstructed the long-term evolution of female wages at the national level. Unfortunately, the historical sources used in such exercises typically do not allow for an analysis of the within-country regional variation in female wages. As a consequence, we are still in the dark regarding the history and origins of regional inequalities in female labour remuneration. In this paper, we shed a new light on this issue by turning to a new source to analyse female regional wage inequality in late-nineteenth-century Belgium.[1]

The Belgian industrial census (IC) of 1896 allows us to analyse in detail both the quantity and the price of paid labour for almost all fulltime female and male workers in factories and workshops across 41 districts (NUTS level 3) facing diverging development paths. A unique feature of the IC 1896 is that it provides individual-level wage and employment data at the highly disaggregated level of the occupation covering the whole country. This enables us to present a first comprehensive analysis of both quantities and prices of female labour across regions, as well as to analyse the role of occupational sorting and of skill premia in explaining regional wage inequality. Firm-level and district-level information provides the material to investigate the effects of firm size and mechanization on female wages as well. We also include various other variables, such as district-level demographic characteristics, to obtain a deeper understanding of the drivers of regional labour market equilibria in terms of wage levels.

Although the results of the IC 1896 are highly regarded by both economists and historians, it is clear that nineteenth-century census material on female labour should be met with scrutiny. After examining the problem of under-registration due to contemporaries' male oriented views on labour we conclude, however, that such concerns should not be allowed to discard the unique information in the source at hand.[2]

Our findings are threefold. First, this paper highlights that regional inequalities played a key role in the shaping of both female and male wage inequality in the Belgian industry. We demonstrate that the regional wage disparities were not mainly caused by differences in sectoral or occupational composition. Second, we examine the market mechanism behind these regional inequalities. We observe a positive relationship between quantities and prices of female labour. High wages for women in certain districts often coincided with high female employment in industry and vice versa. This finding provides the first comprehensive evidence on previous claims in the literature regarding the importance of local employment opportunities for female labour market decisions. Third, a correlational analysis is presented to consider various drivers of this demand-oriented market mechanism, considering the role of regional variation in population density, firm size, mechanization (horsepower per worker) and skills. Importantly, a positive correlation between steam-based mechanization and female labour opportunities is documented, highlighting how regional industrialization opened up earning opportunities for female full-time workers in industrial labour markets.[3]

## I. Quantifying female labour in late-nineteenth-century Belgium

The under-registration of women's work is a problem that notoriously obstructs historical research. Historians have questioned the guidelines followed by census takers, prescribing the omission of typically female activities, such as casual, informal and part-time employment, and nonmarket oriented household work. Also to blame was the presumptions of the census takers themselves, who might not have deemed women's work worthy to be included in their counts.[4]

**Table 1: Structure of the labor force in Belgium by gender, 1846-1910 (in percent)**

| | Male | | | Female | | |
|---|---|---|---|---|---|---|
| | **1846** | **1890** | **1910** | **1846** | **1890** | **1910** |
| Primary | 44.5 | 30.9 | 23.5 | 35.4 | 32.4 | 19.7 |
| Secondary | 38.5 | 44.0 | 50.0 | 47.4 | 32.8 | 36.8 |
| Tertiary | 17.0 | 25.1 | 26.5 | 17.2 | 34.8 | 43.5 |

Source: Population censuses.

Despite these obstacles, the decadal population censuses remain an important tool to provide a general picture of the changes in the Belgian female and male labour force during the second half of the nineteenth century. Table 1 shows that the labour force structures of men and women deviated substantially not only in levels but through time as well. In the 1846 to 1910 period, the male labour force follows the familiar pattern of rising secondary and tertiary shares at the expense of agriculture. The share of women working in the secondary sector, however, fell dramatically between 1846 and 1890. The collapse of the rural linen industry between the mid-1840s and the 1860s hit the female labour force particularly hard as mechanized production brutally replaced traditional hand spinning. Consequently, women had to look for alternative employment in other sectors, especially in wholesale and retail trade, and in domestic service. By 1890, the secondary sector's share had fallen to 33 percent of the female labour force. Despite this setback, the share of Belgian women working in industry in the late nineteenth century was still larger than in most other north-western European countries. After 1890, the Belgian secondary sector share went up again, as the mechanized textile industry grew fast enough to create additional employment opportunities for women.[5]

The population censuses also tell us that Belgian women were involved in a wide range of work. In 1890, for instance, only 7 percent of the about 300 listed occupations were exclusively male, usually in the fields of the armed forces, clergy, judiciary, law enforcement and engineering. Nevertheless, as in other Western countries, registered female employment

remained highly concentrated in a few sectors, including agriculture, clothing, textiles and domestic service.

Population censuses are useful to trace structural changes in the labour market, but they do not contain wage data. Therefore, we turn to the Belgian industrial censuses (IC) which were organized in 1846, 1880, 1896 and 1910. Unfortunately, the IC 1880 does not meet our criteria: it only focuses on certain sectors and fails to provide separate wage data for female and male workers. The IC 1910 also drops out as it does not contain any information on wages at all. Hence, we focus on the IC 1896, as it was far more detailed than the IC 1846. ICs typically focus on employment, firm size, mechanization, etc. in mining, manufacturing and the construction industry. As a consequence, the primary and tertiary sectors are largely ignored in the remainder of this paper.

Who was registered in the IC of 31 October 1896? First, only paid employment was taken into consideration. Moreover, an investigation of the number of hours worked reveals that usually only fulltime workers were counted. This approach was certainly not conducive to a comprehensive registration of female labour. As in many western countries, the late-nineteenth-century Belgian industrial labour market was highly segregated by gender. Female jobs were strongly concentrated in just two sectors, clothing and textiles. For males, the sectoral distribution was much wider with coal mining, construction and food processing being the main employers.[6]

The concept ‘manual worker’ included two separate categories: on the one hand workers in factories and workshops, and on the other hand workers in domestic industry. In total, cottage workers represented 14 percent of the total number of manual labourers in the secondary sector. But such an average hides very large variations across sectors and by gender. As expected, most domestic workers were found in the textile and clothing industries. Surprisingly, even in an advanced economy such as Belgium at the end of the nineteenth century, cottage industry counted for almost 40 percent of the total number of registered female production workers, against only 7 percent for males. As the Belgian ICs never collected wage data on

domestic industry, a substantial number of women escape our field of observation. Unfortunately, other sources cannot close the gap since they only provide anecdotal evidence on cottage wages. The omission of domestic industry wages in official statistics is an often neglected problem in the historiography of many countries.[7]

How does the issue of missing cottage earnings affect our wage database? The high shares of female employment in domestic industry were concentrated in the north-western part of Belgium, being the remnants of the once flourishing rural linen industry of the eighteenth and early nineteenth centuries mentioned earlier. By 1896 the focus had shifted towards domestic lace production, a sector notorious for its low wages. Hence, a selection bias is introduced into our wage dataset for this particular region. It is important to keep in mind, however, that most of Belgium remained unaffected by this issue both from a geographical and an industrial perspective.[8]

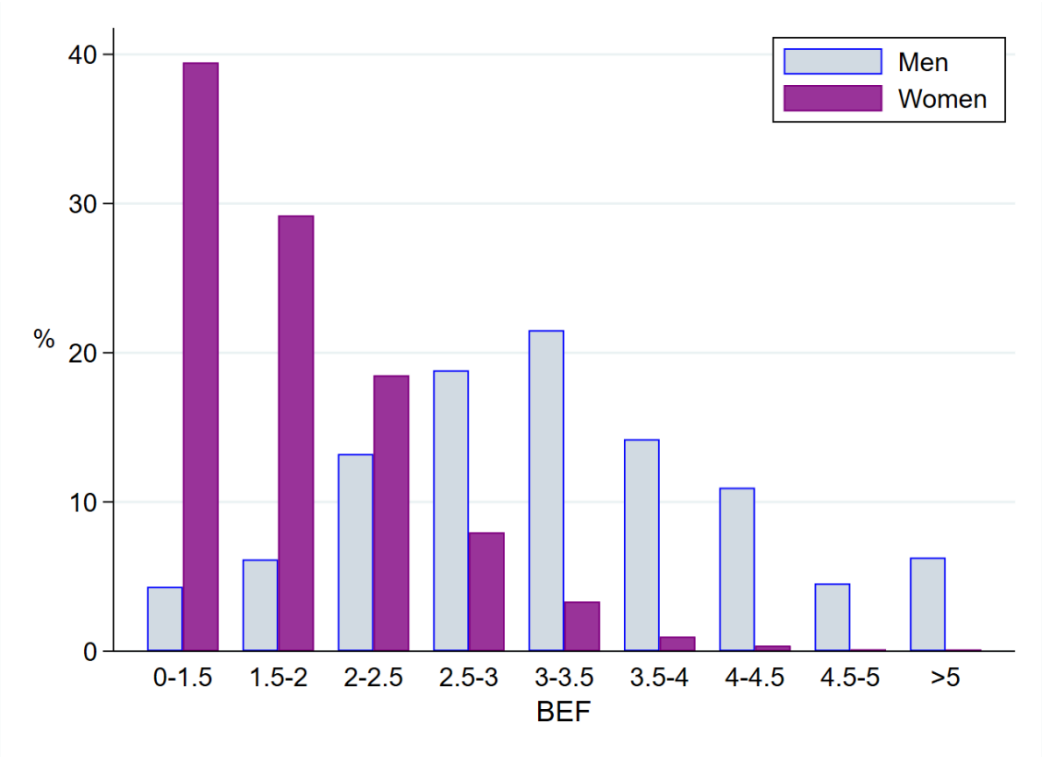
As indicated earlier, the wages at our disposal refer to fulltime manual workers in factories or workshops. White-collar workers, foremen, supervisors and other people of authority in a firm were not included, nor were unpaid apprentices. The wage data were collected from the firms' pay books and refer to the last payday before 31 October 1896. They reflect the individual wage paid out to every female and male labourer aged 16 and over for a normal working day. If applicable, the census processors converted piece rate wages into day rates to fit this definition. Extra pay for overtime was excluded, while fines and contributions to mutual aid societies were not deducted from the wage. Some employers refused to show their pay books, so in practice it proved impossible for the census takers to retrieve all individual wages: 9 percent of the male and 12 percent of the female wages remained undetermined. Although the share of missing wages varied from sector to sector, all branches of industry are represented for both women and men. In total we have about 73,700 individual-level female and 453,000 male wages at our disposal.[9]

For a long time, the very detailed nature of the 1896 wage data was more a curse than a blessing for historical research. Belgian historians have analysed the summary tables from an

industry perspective, but the thousands of pages of individual-level wage information have remained largely untouched. Recently, however, this wealth of data has been made machine-readable.[10]

The individual-level wage data, each worker is one observation, were published as the number of female or male workers per wage bracket at firm level, for instance earning between 2 and 2.50 Belgian francs (BEF) per day. To ensure anonymity for firms, the census results were aggregated in groups of multiple entities of a similar firm size, making it so that the only available firm-level information is the number of employees per firm. The publication format does allow us to look at the wage distribution by gender in almost all Belgian factories and workshops. Figure 1 shows that although both ranges overlap each other, the female wages were compressed in the lowest brackets. By contrast, the male wages were more evenly distributed, with a long tail into the higher brackets. Assigning every worker in a bracket a wage equal to the median of the bracket, male workers earned on average about 85 percent more per day than their female colleagues. A female-to-male wage ratio of 0.54 is very much in line with the findings in other Western countries for the late nineteenth century.[11]

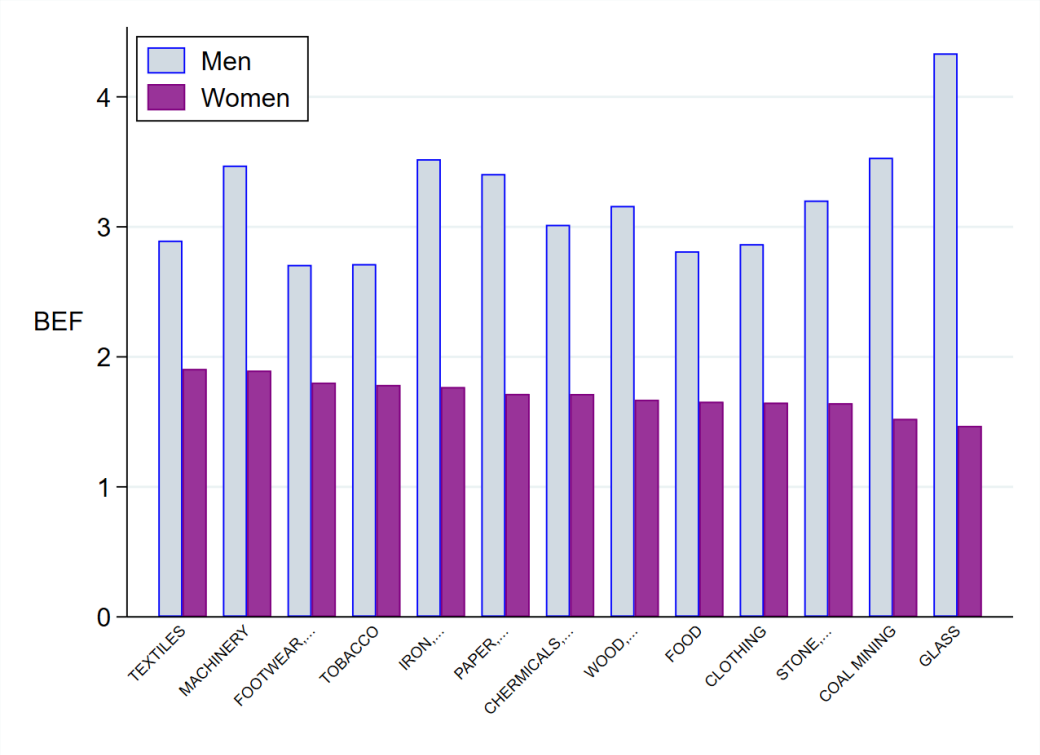
**Figure 1: Distribution of daily wages in 1896 by gender (in percent)**




Source: IC 1896, Volumes IX-XIV, authors' database.

National averages tell only a small part of the story. Before highlighting the need for a regional perspective, we look at the sectoral wage differences. To ensure comparability with other research, we transformed the original sectoral classification of the IC 1896 into the PSTI system pioneered by Tony Wrigley. In general, the gap between PSTI sectors that paid the highest and lowest wages was substantially larger for men than for women. Male wages in the glass industry were on average 80 percent higher than those in tobacco processing. Women earned 45 percent more in 'precious metals and jewellery' than in the worst paying sector. Moreover, Figure 2 shows that branches of industry that paid relatively high wages to males did not necessary pay high wages to females, and vice versa.[12]

**Figure 2: Distribution per sector of average female and male wages in 1896 in BEF**




Note: Only PSTI sectors counting more than 500 individual-level female wages are shown. Sectors are classified according to average female wages from high to low.

Source: IC 1896, Volumes IX-XIV, authors' database.

A case in point are glassmaking and mining: both sectors paid on average very high wages to men, but very low ones to women. Not by coincidence these were branches of industry with highly segmented internal labour markets. Late-nineteenth-century Belgium was a world exporter of glass: the success story was based on cheap coal and, more importantly even, on a long tradition of investment in human capital. At the top of the social pyramid stood the glassblowers. It took seven years of intensive on-the-job training to develop the necessary skills and many candidates failed the tests. Moreover, this exclusively male labour aristocracy often benefited from lucrative job offers from abroad, which gave them extra leverage to push up wages. At the other end of the social ladder we find the unskilled workers, often women, who handled the finished glass. These specific circumstances gave rise to an enormous gender gap: male workers earned on average more than three times as much as female ones.

The mining industry was characterized by a similar process of occupational sorting. Men focused on digging the mine shafts and cutting the coal veins, both being heavy, dirty and dangerous jobs, and therefore relatively well paid. Women were usually active on the surface and involved in unskilled activities, such as transporting the coal away from the pit mouth.[13]

But Figure 2 shows that the opposite also occurred. Sectors such as footwear, textiles and tobacco paid relatively high wages to women but low wages to men. Nevertheless, even there a considerable gender gap remained: male workers earned on average about 50 percent more than women. In textiles the relatively high female wages can to a certain extent be explained by the division of labour between factories/workshops, on the one hand, and domestic industry, on the other. In the cottage industry large numbers of poorly paid unskilled female labourers produced mainly semi-finished goods. The women active in workshops focused on finalizing these intermediary products, which required a least some skills, and therefore paid better wages. As indicated earlier, the IC 1896 registered only wages in workshops/factories and not those in domestic industry.[14]

## II. Do regions matter?

Before turning to an analysis of regional wage inequalities in late-nineteenth-century Belgium, it is worth questioning whether regional differences in wages are not merely representing the aforementioned sectoral wage premia. With the IC 1896, we are able to examine this empirically. To do so, we regress individual-level daily wages on district, occupation and industry dummies. Such Ordinary Least Squares (OLS) regressions allow us to look into what share of the variance is explained by regional and by other effects. Unexplained variation, in other words the variation due to the error term, is then accounted for by undetermined individual effects. Given that IC 1896 presents no information on individual characteristics such as age and tenure, it is expected that this individual component accounts for a significant share of the decomposed variance.[15]

In specification a) of Table 2, we account for district as well as industry effects. The results reveal that regional effects are much more important than industrial differences in explaining the variation in nineteenth-century wages, especially for women. Regional variation makes up for about 20 percent of the total wage variation, while for industrial variation that is only 3 percent. In addition to the regression-based analysis in Table 2, we also identify the role of regional inequalities by decomposing the wage variance into between-district and within-district components. Doing so for men and women respectively, we find that the share of between-district variation was about one third higher for female than for male workers. In conclusion, these observations make the lack of scholarly attention to regional inequalities in female wages even more striking.[16]

**Table 2: Variance decomposition: the role of district effects versus industry, occupation and individual effects (OLS)**

| a) | DISTRICT | INDUSTRY | INDIVIDUAL | N | $R^2$ |
|---|---|---|---|---|---|
| **Female** | 20,09% | 3,03% | 76,65% | 63.869 | 0,234 |
| **Male** | 11,44% | 3,87% | 80,66% | 423.981 | 0,193 |

| b) | DISTRICT | INDUSTRY & OCCUPATION | INDIVIDUAL | N | $R^2$ |
|---|---|---|---|---|---|
| **Female** | 19,76% | 4,25% | 75,50% | 63.869 | 0,245 |
| **Male** | 10,62% | 9,45% | 74,91% | 390.462 | 0,251 |

Note: Wage variables are expressed in natural logarithms. The decompositions do not sum up to one because the very small covariances between the different components are omitted from this table.

One might argue that specification a) foregoes an important dimension of wage heterogeneity by not accounting for occupational differences, leading to substantial omitted variable bias. To alleviate such concerns, we ameliorated the specification with occupation fixed effect. A unique feature of the Belgian IC 1896 is that it contains individual-level wage data on almost every manual worker in factories and workshops at the highly disaggregated level of the occupation. The census takers registered the occupational titles as they were provided by the firm's managers to keep the description as close as possible to the real nature of the workers' daily

activities. This allows us to code all female occupations within the Historical International Standard Classification of Occupations (HISCO) and to include dummy variables for all so-called “minor groups” within the HISCO system.[17]

The results can be found in panel b) of Table 2. Unsurprisingly, including controls for occupation lowers the contribution of the individual component somewhat. More striking is that even in specification b) with occupation dummies, little changes regarding the large share of wage variation being explained by district effects. A second takeaway from this exercise is that occupational and industrial composition explains a higher share of the male than the female variation. This can be explained by the prevalence of occupational segregation and sorting across gender on nineteenth-century labour markets. Women had access to a much more limited range of occupations, and consequently occupational differences played a small role in the determination of female wage inequality.[18]

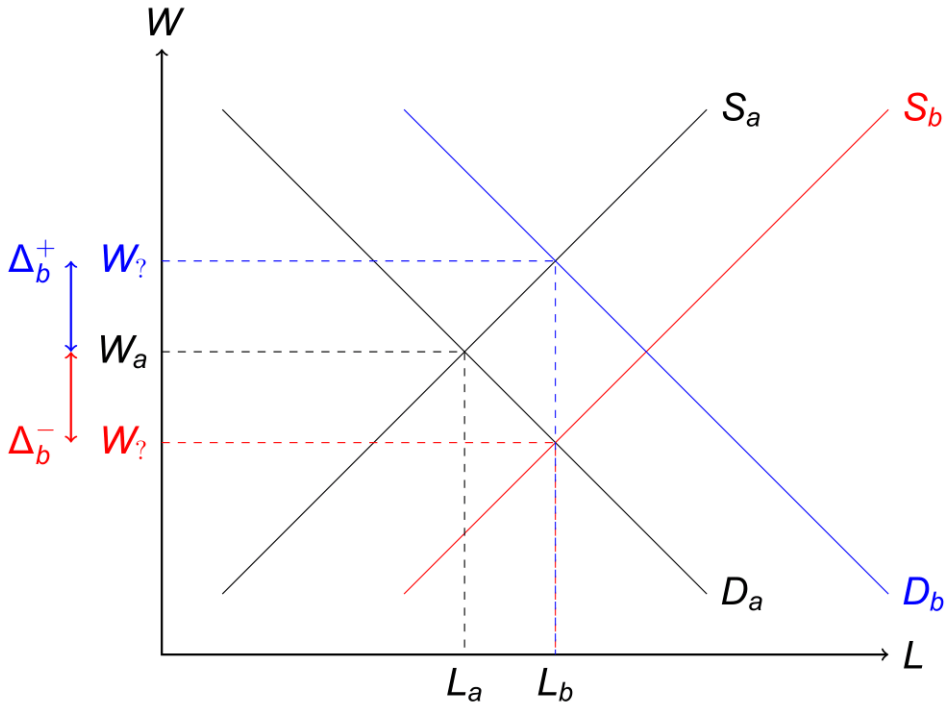
One possible explanation of the observed importance of spatial effects in wage inequality is regional differences in the cost of living. The prominent role of regions would then be explained as an artefact of looking at nominal, rather than real wages at the local level. To assess this possibility, we were able to reconstruct a local median retail price for the year 1896 for 15 districts. With a few exceptions, living costs proved to be very similar across Belgium (see Appendix IV), revealing that real regional wage inequalities were very close to the nominal regional wage inequalities as analysed in Table 2. Belgium was indeed a small country, known for its high levels of integration both within and across its borders. Not only were all its major urban centres connected through the rapid expansion of a railway network, rural communities were also well integrated in the national transport system since the state-supported conception of a dense light railway network in the 1860s. As a result, regional product markets were well integrated by 1896. In conclusion, the apparent spatial dimension of female (and male) wage inequality cannot be explained by regional differences in living costs. So we have to take a look at the underlying market mechanisms to pinpoint the nature of these inequalities in labour remuneration.[19]

## III. Labour market outcomes across regions

To determine these market mechanisms, we need to disentangle the respective role of labour supply and demand. Indeed, the introduction highlighted that without information on wages any statements on the regional dimension of the female experience in industrial labour markets remain incomplete and hypothetical at best. The literature has hypothesized the importance of regional demand in determining the outcome of women on industrial labour markets. In this section, we substantiate this hypothesis using information on both employment and wages.

Figure 3 illustrates how information on wages is indispensable to disentangle between the role of demand and supply forces in the determination of female employment in industry. In this simplified example, we consider two regions a and b, which are characterized by diverging quantities of female labour $L_a$ and $L_b$. Without knowing the wage levels of the respective regions, it is impossible to determine whether the higher level of $L_b$ is caused by a more outward position of female labour demand ($D_b$) or supply ($S_b$) in region b. In other words, region b might have higher female employment levels because either local industries have a specific need for female workers, or because local cultural and demographic institutions allow women to engage more with the labour market respectively. Determining whether wages were actually lower ($\Delta_b^-$) or higher ($\Delta_b^+$) in region b, however, we can pinpoint the predominance of supply or demand shifts respectively in shaping regional inequalities. Thus, we need information on both employment (the horizontal axis) and wages (the vertical axis).

**Figure 3: Illustration of the need for both wages (W, vertical axis) and employment (L, horizontal axis) data**




Taking this relationship to the data, Figure 4 illustrates the relationship between the female employment rates and the average daily wage per district and industry. To do so, we created a new measure of employment using the IC 1896 and the population censuses. Not surprisingly, high employment rates were heavily intertwined with the presence of clothing and textile industries in areas such as East Flanders and the Verviers district. But the centres of heavy manufacturing, including Mons-Charleroi and Liège, boasted high numbers of female workers as well (see Appendix II, Figure A3). Looking at the employment figures in the mining areas, these densely populated, high male-income districts generated a lively demand for female clothing makers. The same applies to Brussels with its specific demand for haute couture and related fashion products. Peripheral areas by contrast offered very few secondary-sector employment opportunities to women. These observations align with findings for mid-nineteenth-century England and Wales, where regions with high female labour force participation rates typically coincided with centres of cotton, lace and wool production. But again, spatial research on England and Wales examined only one side of the market equilibrium, the quantity of female labour.[20]

Our analysis adds a new dimension by incorporating regional wages as well. Figure 4 shows a positive correlation between regional quantities and prices of female labour. Districts that paid out relatively high wages to female workers in workshops and factories were usually characterized by high employment rates. This finding thus corroborates previous claims in the literature on the importance of local demand for female labour in shaping women's labour market decisions. Theoretically it is possible that high employment rates reflect a low reserve of female labour, implying that the observed correlation between wage levels and employment rates indicates supply shortages. Such concerns are, however, mitigated by the fact that the districts boasting high employment rates are also high population density areas (see Figure A4 in Appendix II).[21]

**Figure 4: Relationship between industrial female employment rates and average daily wages per district in BEF**


Note: Variables are expressed in natural logarithms. Each observation indicates an *arrondissement* at urban or rural level. The dashed line presents the unweighted linear fit. The size of the scatter points represents total female employment. An employment-weighted OLS regression leads to $\beta=1.95^{***}$ (0.01) with $R^2=0.24$.

Source: IC 1896, Volumes IX-XIV, authors' database.

## IV. Drivers of regional inequalities in female industrial wages

Having established the importance of regional wage variation for women, as well as the relative importance of the demand side in its formation, we can now provide some descriptive evidence on the determinants of the diverse regional labour market outcomes. Economists have identified several causal determinants of regional wage equilibria and inequality, but typically these studies require large databases containing many economic, social and other characteristics at the level of the individual worker, job and firm to disentangle endogenous forces such as local worker productivity, regional endowments and worker migration. In a historical setting, however, such highly detailed datasets are extremely rare. Therefore, we rely in the remainder of our analysis on the available information at the firm and district level from the IC 1896 and the late nineteenth-century population censuses. The observed regional wage differentials in Belgian industry reflect the diverse spatial equilibria of labour supply and demand. In what follows, we question which variables could affect the labour price outcome of that interaction.[22]

Table 3 presents the relationship between micro-level female or male daily wages in industry and local characteristics at the level of the firm, industry, or district, estimated through OLS. The regression is estimated at the level of the individual to exploit the available variation to the fullest extent. In other words, the coefficients from Table 3 answer the following question: how do changes in the worker's firm, industry and district characteristics translate into her or his daily remuneration? We present two alternative types of specifications. Compared to specifications (1) & (3), specifications (2) & (4) include district-level dummies. As a consequence, the former consider variation across districts, while the latter analyse within-district variation.

A prime candidate to consider in the context of nineteenth-century labor markets is, of course, mechanization and the impact of steam-based production methods. The impact of industrialization on living standards and labor remuneration is a core debate within economic and social history. Some studies have found firm-level evidence that capital-intensive

establishments paid higher average wages. The IC 1896 provides us with two interesting new perspectives on this debate. First, we know how much steam-based horsepower was employed per industry at district level. Second, we know the approximate size of the firm at which the worker was employed. The latter is likely to have been a good proxy for capital use, as larger firms were undoubtedly more likely to employ machine-intensive production methods. Both measures are significantly and positively related to an individual's wage level, regardless of gender. For instance, specification (2) indicates that women working in firms with more than 20 employees earned about 7 percent more than those who did not. In this way, the Belgian case provides ammunition for those who claim that nineteenth-century technological change had beneficial effects on the rewards for labour for both men and women. Nevertheless, we have to keep in mind that such a claim is only supported by our data for fulltime workers.[23] As indicated earlier, the wages of casual, informal or part-time workers remained outside the scope of the IC 1896.

Second, looking at the demographic covariates, we find a consistently positive correlation between district-level population densities and female labour rewards. This correlation seems to reveal that increasing demographic pressure in high-wage districts did not fully offset the high demand for industrial labour. Furthermore, while on aggregate women earned less in urban centres, the within-district effect of specification (2) shows us that female workers had more earning opportunities in cities. This can be explained by the division of labour in textiles. At the countryside poorly paid unskilled women produced mainly semi-finished goods. In cities female workers focused on better rewarded activities such as haute couture and other fashion products.[24]

Last but not least, an analysis of the determinants of wages should, of course, also take into account the level of human capital of the individual concerned. Quantifying human capital in the context of nineteenth-century labor markets is not straightforward, and the IC 1896 is silent on measures such as education level. We can, however, use the HISCO/HISCLASS system to assess the skill level of the female occupations and differentiate between low-, medium- and

high-skilled jobs (see Appendix I). First, it is worth noting that this exercise shows that there was limited diversification in female human capital across districts. Restricting our attention to only unskilled or medium-skilled jobs changes the observed levels of wage inequality very little. This aligns with our findings from Section II. Second, all specifications in Table 3 highlight that high-skilled women were rewarded for their skills with wage premia of roughly 4 to 8 percent of low- and medium-skilled workers. For male workers, this skill premium seems to be less pronounced.[25]

To conclude, we again point our attention to the role of the regional dummy variables. Comparing the amount of variation explained by the $R^2$ of specifications (1) & (3) and (2) & (4), it is clear that the regional dummies still add considerable explanative power to this correlational OLS framework. In other words, we still have a way to go to comprehensively dissect this fixed effect of regions on individual labor remuneration; going beyond the explanatory variables considered in this section. Be that as it may, this also drives home our case in favour of integrating a spatial perspective into the investigation of nineteenth-century wages.

**Table 3: Relationship between individual daily wages (in logs) and district/industry characteristics (OLS)**

| | | Female | | Male | |
|---|---|---|---|---|---|
| **VARIABLES** | | **(1)** | **(2)** | **(3)** | **(4)** |
| Horsepower/capita | at industry & district | 0.0669*** | 0.0362*** | 0.0145*** | 0.0160*** |
| | | (0.0022) | (0.0024) | (0.0008) | (0.0008) |
| Firm size (workers/firm) (0-20=ref.) | 21-250 | 0.0601*** | 0.0691*** | 0.0998*** | 0.0901*** |
| | | (0.0056) | (0.0054) | (0.0016) | (0.0015) |
| | >250 | 0.0270*** | 0.0705*** | 0.0895*** | 0.0859*** |
| | | (0.0060) | (0.0058) | (0.0022) | (0.0021) |
| Skill level (high=ref.) | Medium | -0.0858*** | -0.0418*** | 0.0524*** | 0.0423*** |
| | | (0.0095) | (0.0093) | (0.0023) | (0.0022) |
| | Low | -0.0808*** | -0.0398*** | -0.0340*** | -0.0684*** |
| | | (0.0107) | (0.0103) | (0.0045) | (0.0044) |
| Urban dummy | | -0.0992*** | 0.0193*** | -0.0947*** | -0.0273*** |
| | | (0.0056) | (0.0062) | (0.0020) | (0.0023) |
| Population density | at district | 0.0770*** | 0.0257*** | 0.0607*** | 0.0452*** |
| | | (0.0018) | (0.0023) | (0.0006) | (0.0009) |
| Constant | | 0.8745*** | 0.5434*** | 0.2019*** | 0.2861*** |
| | | (0.0601) | (0.0620) | (0.0197) | (0.0202) |
| Industry dummy | | X | X | X | X |
| District dummy | | | X | | X |
| Observations | | 51,248 | 51,248 | 279,901 | 279,901 |
| $R^2$ | | 0.1178 | 0.2488 | 0.1959 | 0.2517 |

Note: ***: p<0.01, **: p<0.05, *: p<0.1. Robust standard errors are between parentheses. Non-categorical variables are expressed in natural logarithms.

## V. Conclusion

Studies on nineteenth-century female earnings are typically limited to national aggregates or industry-specific case studies. The regional perspective on the female labour experience is largely defined through reconstructions of the female labour force. We expand on this by presenting a regionally disaggregated analysis of not only female labour quantities, but also prices. The industrial census (IC) of 1896 provides individual-level wage data on almost every female and male fulltime manual worker in Belgian factories and workshops at the highly disaggregated level of the occupation. This allows us to shed new light on several characteristics of regional labour markets that shaped the socio-economic experiences of women.

First, we demonstrate that the stark regional inequalities in female (and male) industrial wages were not mainly the result of differences in sectoral structure. This finding drives home our case in favour of integrating a spatial perspective into the investigation of nineteenth-century wages. Moreover, we observe that the regional wage gap was somewhat larger for women than for men despite the much wider spread of male wages compared to female wages on a national scale. Second, we observe a positive relationship between quantities and prices of female labour. High wages for women in certain districts often coincided with high female employment rates in industry, and vice versa. This finding confirms from a wage perspective previous claims in the literature on the importance of local labour demand on female employment opportunities. Third, we assess the drivers of regional inequalities in female (and male) wages, such as population density, firm size, mechanization and skills. Our regression analysis suggests that areas with higher population densities created more employment opportunities for women and therefore higher wages. In addition, districts characterized by the presence of large and mechanized firms provided better rewards for female labour. In line with recent research, it confirms for the Belgian case that technological change paved the way for higher wages for workers that were able to work fulltime.

Adding a wage-based perspective on nineteenth-century regional labour markets highlights the strong geographic diversification in the female labour experience. Further research with a broad regional scope is necessary to disentangle the complex interactions between labour demand and supply. Specifically, our analysis was limited to the secondary sector, not accounting for the large share of women being active in agriculture and services. Investigating the relationship between the various regional equilibria across sectors, and the possibility of spill-over effects between primary, secondary and tertiary labour markets, is a promising line for further research.

## Appendix I: Coding the occupations in the IC 1896

In the IC 1896 census takers assigned the firms to 858 sectoral units, consisting of 18 groups and 59 subgroups, according to the nature of their economic activities. To ensure comparability with other research, we adapted the sectoral classification system of the IC 1896 to the international version of the Primary, Secondary and Tertiary (PSTI) system pioneered by Tony Wrigley.[i]

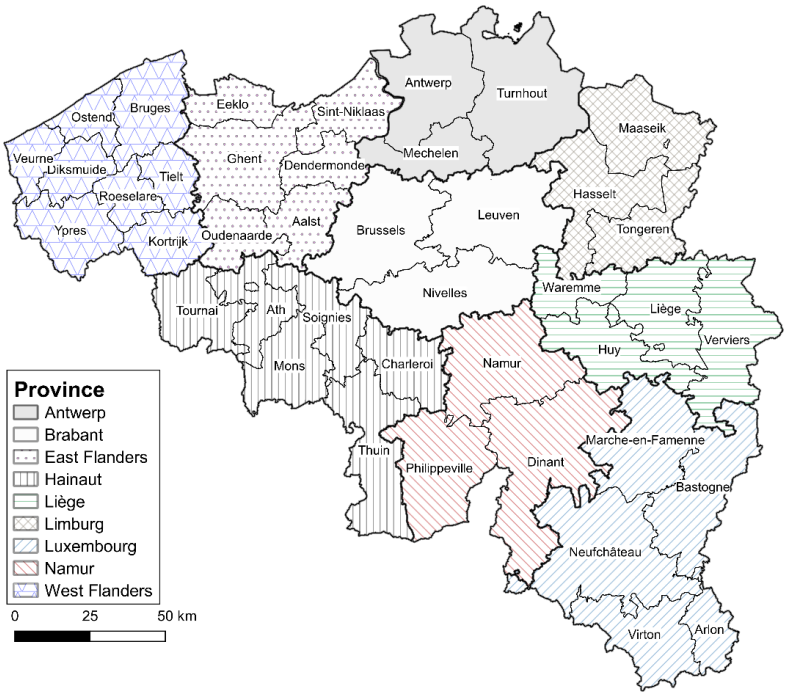
The wage data of the IC 1896 was published at the disaggregated level of the occupation. This information was provided by the entrepreneurs themselves *"… in order not to affect in any way the authenticity of the information collected, the occupational categories were, after a careful revision, published for the most part as they had been named by the operators*".[ii] To ensure consistency among occupational titles of different entrepreneurs, these were standardized and coded into the Historical International Standard Classification of Occupations (HISCO).[iii] It is of great importance that HISCO's occupational descriptions are matched as closely as possible to the actual economic activities at that time. For the metal, mining and textile industries, detailed occupational descriptions in separately published volumes were of great help. Sometimes we were obliged to take information on the industry into account, given that some occupational titles likely comprised different activities depending on the context. For example, a "polisher" was coded according to the nature of the good being produced: we made a distinction between stone (8-20.20), metal (8-35.20), precious metal (8-80.30), glass (8-91.48) and wood (8-12.75) polishers.

In a final step, we inferred human capital measures from the occupational titles. This is typically achieved using the *Dictionary of Occupation Titles (DOT)* of the *U.S. Department of Labor* which determines a variety of intellectual and physical abilities required to perform a specific occupation. To avoid issues of anachronism or geographical disparities in the content of occupations, we apply a generalization of the DOT in the form of the Historical International Social Class Scheme (HISCLASS).[iv] This system links the occupational descriptions in HISCO

to DOT and builds on the General Educational Development (GED) and Specific Vocational Preparation (SVP) scores to examine the skill content of an occupation. Human-capital levels are thus defined by the required intellectual capacities, for instance reasoning skills and the abilities to follow instructions, linguistic and mathematical skills, and the time investment needed to perform the occupational tasks respectively. HISCLASS provides four categories: unskilled, low-skilled, medium-skilled and high-skilled occupations. The latter, however, does not exist for manual labour. Since the industrial census contains almost only wage information on manual workers, we rescale the three lower HISCLASS groups to low-skilled, medium-skilled and high-skilled labourers.

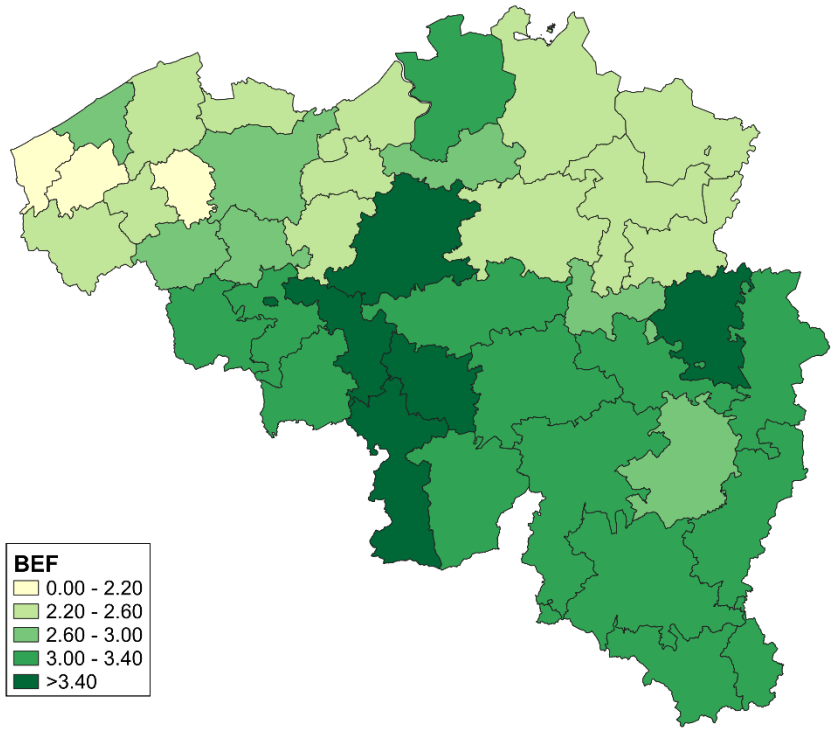
## Appendix II: Additional maps of context variables

### Figure A1: Districts (arrondissements) and provinces in Belgium in 1896

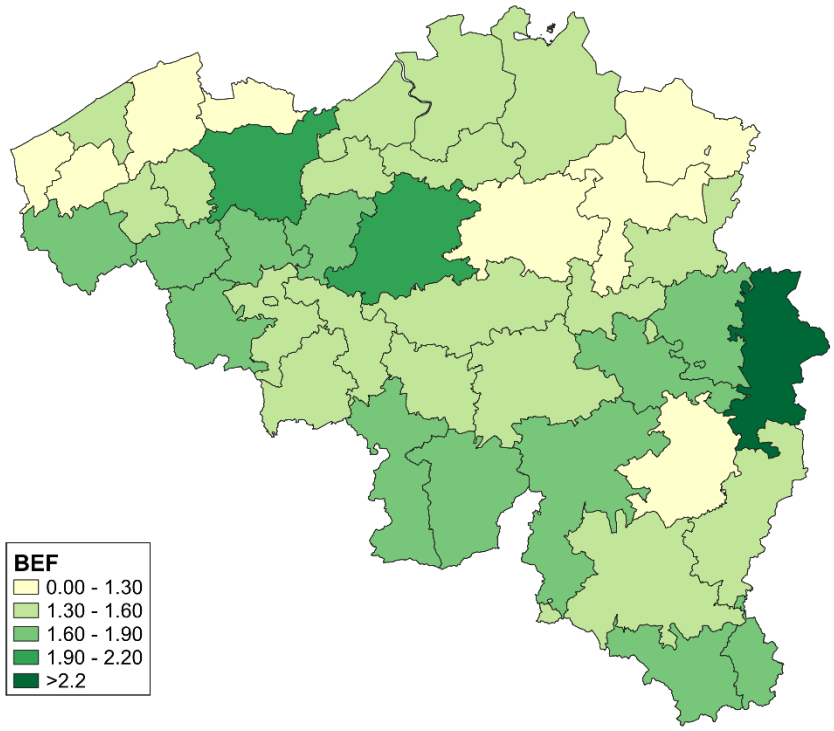



Source: Quetelet Centre, Ghent University.

**Figure A2: Regional variation of average daily wages by gender in 1896 in BEF**



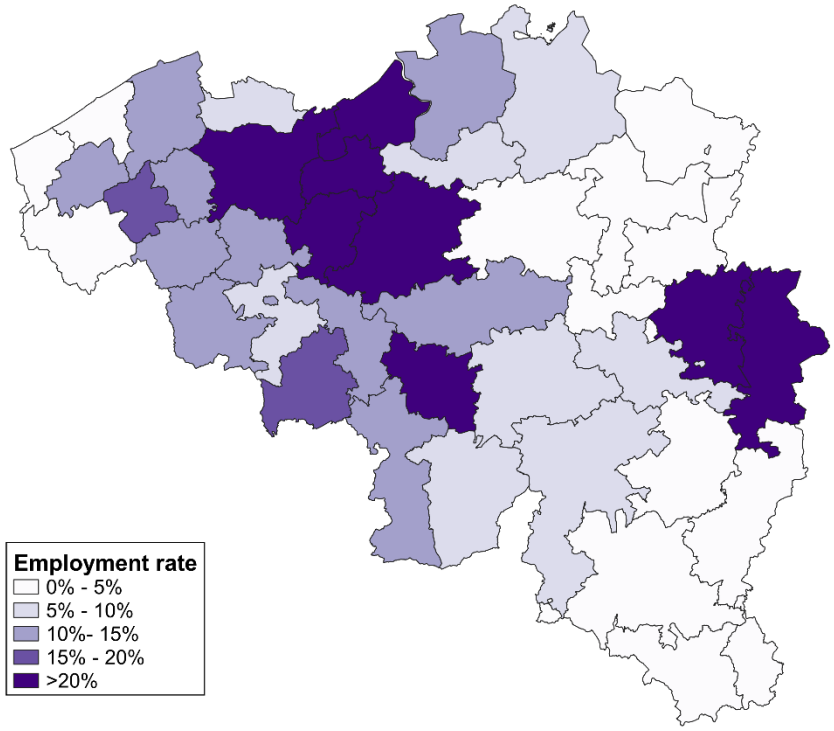

(a) Male workers




(b) Female workers

Source: IC 1896, volumes IX-XIV, authors' database.

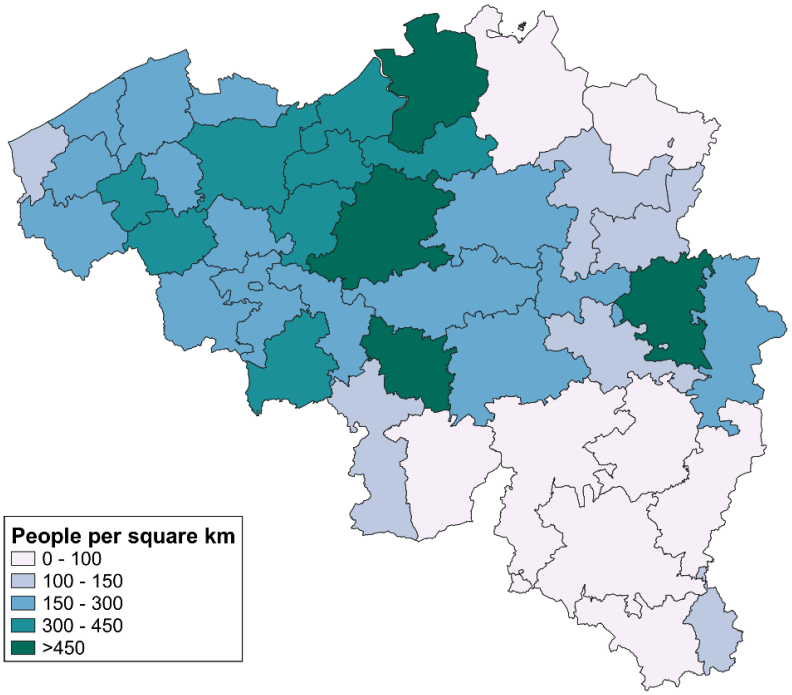
**Figure A3: Regional variation of the female industrial employment rate in 1896 (in percent)**




Note: Employment in secondary sector workshops and factories only.

Sources: IC 1896, volumes I-II (secondary employment), population census of 1890 (adult population in 1890), Mouvement de la population et de l'état civil 1890-1900 (growth rates of population), digitized by Quetelet Centre, Ghent University.

**Figure A4: Population density in Belgian districts in 1896**




Source: Mouvement de la population et de l'état civil 1890-1900, digitized by Quetelet Centre, Ghent University.

## Appendix III: Additional correlations

### Table A1: Pairwise correlations between district characteristics

| VARIABLE | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| **(1)** Average female district wage | 1 | | | | | |
| **(2)** FILFP | 0.576*** | 1 | | | | |
| **(3)** Horsepower/capita | 0.3 | 0.376* | 1 | | | |
| **(4)** Population density | 0.309* | 0.652*** | 0.358* | 1 | | |
| **(5)** Share employment small firms | -0.416** | -0.666*** | -0.532*** | -0.502*** | 1 | |
| **(6)** Share employment skilled labour | -0.0686 | -0.0855 | 0.0448 | -0.0257 | 0.00952 | 1 |

Note: ***: p<0.01, **: p<0.05, *: p<0.1

## Appendix IV: The role of cost of living

Historians are typically interested in the variation in real wages, rather than the mere changes in nominal values. Researchers have spent a lot of effort on reconstructing nationally representative cost of living indices. This is also the case for Belgium.[v] The focus of these studies is, however, restricted to the national level. Expensive transport and limited means of communication in the nineteenth century, however, could suggest the existence of important spatial variation in prices. Therefore we examine the possible effect this might have on regional wage inequality by constructing a regional Consumer Price Index (CPI) for nineteenth-century Belgium.

Information on price levels of various food and fuel products in 22 urban centres are taken from the *Revue du Travail*, a monthly publication by the Belgian Ministry of Labour. We use the information on these cities to construct a CPI for 15 districts (*arrondissements*). To minimize the impact of seasonal variation, we digitized and calculated the median of retail prices for all months of the year 1896. Unfortunately, price information is not available for communities other than urban centres. In other words, just like other researchers,[vi] we must assume that urban-rural differences in prices, which were probably especially large for food products, are constant across districts.

A second limitation of our CPI is that we are restricted to goods for which local prices are available. It presents a fairly comprehensive overview of food consumption, including prices on a variety of goods such as bread, meat and dairy consumption, as well as fuel consumption, including prices of coal. Regrettably, we do not have information on the regional prices of alcoholic beverages or clothing.[vii] The importance of these goods in the expenditure pattern of an average nineteenth-century Belgian labourer should, however, not be overemphasized. To weight the consumption basket, we used Segers' national estimates of yearly consumption per capita.[viii]

A comprehensive cost-of-living index should also include housing costs. Historical sources on the exact level of these expenditures are, however, hard to come by. As a consequence, a lot

of studies have neglected housing costs.[ix] We are partially able to overcome this problem by including the rental costs in seven cities.[x] These figures are retrieved from earlier research on the archives of social institutions, which rented out houses at market prices.[xi] We use these rents to create a housing-cost-index per city. Segers, however, criticized the representativeness of the rent data in terms of the social composition using the buildings' type, location and/or homeowners' occupation.[xii] The sample of Bruges and Leuven consisted of a large share of low-quality houses. The exceptionally low mean and median rents in these cities confirm the concern that we might underestimate housing costs for Bruges and Leuven. As a consequence, we employ a second source by using the rent index constructed in 1910 by the British Board of Trade in their inquiry into living conditions in principal industrial towns in Belgium.[xiii] We construct growth rates based on the public welfare data to calculate 1896 values of the Board of Trade's rent data. More specifically, we assume that a comparative housing unit such as in the Board of Trade data underwent similar price dynamics as the median rent in each city.

Table A2 presents the CPI for the available cities and districts. We make a distinction between $CPI_1^{1896}$, which includes only housing and fuel costs, and $CPI_2^{1896}$, which also accounts for regional differences in housing costs $Rent^{1896}$. Due to historical data constrains, the latter is only available for six major cities. Regional variation in $CPI_2^{1896}$ shows that our $CPI_1^{1896}$ index underestimates regional variation in cost of living somewhat, however very limited.

In Table A3, we reran the same regression as in Table 3, but this time with $CPI_1^{1896}$-adjusted wages as an independent variable. These regressions omit the urban dummy, as this subsample for which we have access to cost of living data contains urban centres only. It is apparent that this influences our estimates very little from a qualitative perspective, with the exception for the coefficient of the population density variable. We conclude that regional cost of living differences were no structural driver of wage inequalities across region and gender.

**Table A2: Cost of living indices for Belgian cities in 1896 (Brussels = 100)**

| City | District | $CPI_1^{1896}$ | $Rent^{1896}$ | $CPI_2^{1896}$ |
|---|---|---|---|---|
| Antwerp | Antwerp | 89.57 | 85.80 | 89.00 |
| Bruges | Bruges | 91.11 | 53.97 | 85.54 |
| Brussels | Brussels | 100.00 | 100.00 | 100.00 |
| Charleroi | Charleroi | 98.07 | | |
| Gosselies | Charleroi | 85.03 | | |
| Dinant | Dinant | 96.56 | | |
| Eeklo | Eeklo | 78.58 | | |
| Ghent | Ghent | 98.78 | 54.60 | 92.15 |
| Kortrijk | Kortrijk | 89.70 | 58.64 | 85.04 |
| Leuven | Leuven | | 59.30 | |
| Liège | Liège | 91.66 | 78.45 | 89.68 |
| Mechelen | Mechelen | 84.68 | | |
| Mons | Mons | 96.12 | | |
| Andenne | Namur | 90.62 | | |
| Gembloers | Namur | 90.37 | | |
| Namur | Namur | 86.95 | | |
| La Louvière | Soignies | 93.97 | | |
| Soignies | Soignies | 91.92 | | |
| Verviers | Verviers | 93.63 | | |

Note: $CPI_1^{1896}$ is based on a consumption basket with food and fuel products. $Rent^{1896}$ is a 1896 version of the Board of Trade's rent index. $CPI_2^{1896}$ includes both expenditures on food, fuel and housing. Housing is weighted for 15%.

**Table A3: Relationship between individual daily wages adjusted for cost of living (in logs) and district/industry characteristics (OLS)**

| | | Female | | Male | |
|---|---|---|---|---|---|
| **VARIABLES** | | **(1)** | **(2)** | **(3)** | **(4)** |
| Horsepower/capita | at industry & district | 0.0706*** | 0.0491*** | -0.0004 | 0.0192*** |
| | | (0.0033) | (0.0037) | (0.0019) | (0.0020) |
| Firm size (workers/firm) (0-20=ref.) | 21-250 | 0.0824*** | 0.0782*** | 0.0624*** | 0.0582*** |
| | | (0.0076) | (0.0077) | (0.0025) | (0.0024) |
| | >250 | 0.0542*** | 0.0688*** | 0.0832*** | 0.0593*** |
| | | (0.0085) | (0.0085) | (0.0039) | (0.0040) |
| Skill level (high=ref.) | Medium | -0.1249*** | -0.0778*** | 0.0525*** | 0.0436*** |
| | | (0.0126) | (0.0128) | (0.0036) | (0.0036) |
| | Low | -0.0555*** | -0.0006 | -0.0332*** | -0.0541*** |
| | | (0.0142) | (0.0143) | (0.0071) | (0.0068) |
| Population density | at district | 0.0735*** | -0.0620*** | 0.0277*** | -0.0175*** |
| | | (0.0037) | (0.0144) | (0.0014) | (0.0049) |
| Constant | | -4.0241*** | -2.8116*** | -4.0882*** | -3.5117*** |
| | | (0.0756) | (0.1522) | (0.0477) | (0.0720) |
| Industry dummy | | X | X | X | X |
| District dummy | | | X | | X |
| Observations | | 27,686 | 27,686 | 100,658 | 100,658 |
| $R^2$ | | 0.1001 | 0.1515 | 0.1434 | 0.1811 |

Note: ***: p<0.01, **: p<0.05, *: p<0.1
Non-categorical variables are expressed in natural logarithms.

## Endnotes

[1] Sara Horrell and Jane Humphries, "Women's Labour Force Participation and the Transition to the Male-Breadwinner Family, 1790-1865," *Economic History Review,* LII (1995), 89-117; Leigh Shaw-Taylor, "Diverse Experiences: The Geography of Adult Female Employment in England and the 1851 Census," in Nigel Goose (ed.), *Women's Work in Industrial England: Regional and Local Perspectives* (Hatfield, 2007), 29-50; Xuesheng You, "Women's Labour Force Participation in Nineteenth-Century England and Wales: Evidence from the 1881 Census Enumerators' Books," *Economic History Review,* LXXIII (2020), 106-133; Corinne Boter and Pieter Woltjer, "The Impact of Sectoral Shifts on Dutch Unmarried Women's Labor Force Participation, 1812–1929," *European Review of Economic History*, XXIV (2020), 783-817; Jane Humphries and Jacob Weisdorf, "The Wages of Women in England, 1260–1850," *Journal of Economic History,* LIIV (2015), 405-447; Alexandra de Pleijt and Jan Luiten van Zanden, "Two Worlds of Female Labour: Gender Wage Inequality in Western Europe, 1300–1800," *Economic History Review*, LXXIV (2021), 611-638. The geography of male wages did receive some attention in the literature, for example, E.H. Hunt, "Industrialization and Regional Inequality: Wages in Britain, 1760–1914," *Journal of Economic History,* XLVI (1986), 935-966.

[2] Michel Neirynck, *De loonen in België sedert 1846* (Leuven, 1944), 72-79; Guido De Brabander, *De regionaal-sectoriële verdeling van de economische activiteit in België (1846-1979): Een kritische studie van het bronnenmateriaal* (Leuven-Brussels, 1984), 51-59; Jean Gadisseur, *Le produit physique de la Belgique 1830-1913. Présentation critique des données statistiques* (Brussels, 1990), 124-127; Nele Bracke, "De vrouwenarbeid in de industrie in België omstreeks 1900. Een "vrouwelijke" analyse van de industrietelling van 1896 en de industrie- en handelstelling van 1910," *Belgisch Tijdschrift voor Nieuwste Geschiedenis*, XXVI (1996), 166-68; Jane Humphries and Carmen Sarasua, "Off the Record: Reconstructing Women's Labor Force Participation in the European Past," *Feminist Economics,* XVIII (2012), 43-50.

[3] You, "Women's Labour Force Participation," 131.

[4] Joyce Burnette, "Gender in Economic History," in Claude Diebolt and Michael Haupert (eds), *Handbook of Cliometrics*, Volume 1 (Cham, 2019), 2-3; Shaw-Taylor, "Diverse Experiences", 33-36; Humphries and Sarasua, "Off the Record", 44-45.

[5] Etienne Sabbe, *De Belgische vlasnijverheid* (Kortrijk, 1975), Volume 2, 630; Osamu Saito and Leigh Shaw-Taylor (eds), *Occupational Structures, Industrialisation and Economic Growth in a Comparative Perspective*, (Cambridge, forthcoming).

François-Xavier Van Houtte, *L'évolution de l'industrie textile en Belgique et dans le monde de 1800 à 1939* (Louvain, 1949), 135.

[6] Ministère de l'Industrie et du Travail, *Recensement général des industries et des métiers (31 octobre 1896)*, Volumes IX-XIV and Volume XVIII, 12.

[7] Jurgen Mestdagh, "Zweetarbeid en zweetlonen. De thuisarbeid in de Izegemse schoenmakerij, 1840-1940," *Belgisch Tijdschrift voor Nieuwste Geschiedenis*, XXXIII (2003) 71-76; Jane Humphries and Benjamin Schneider, "Spinning the Industrial Revolution," *Economic History Review,* LXXII (2019), 126.

[8] Pierre Verhaegen, "La dentelle et la broderie sur tulle," in Ministère de l'Industrie et du Travail (ed.), *Les industries à domicile en Belgique*, Volume 5 (Brussels, 1902), 39.

[9] Ministère de l'Industrie et du Travail, *Recensement général*, XVIII, 78-80 and 266-267.

[10] For example, Bracke, "Vrouwenarbeid."; Peter Scholliers, "Industrial Wage Differentials in Nineteenth-Century Belgium," in Y.S. Brenner, Hartmut Kaelble and Mark Thomas (eds), *Income Distribution in Historical Perspective* (Cambridge, 1991), 96-116.

[11] The original census forms were lost, so we can only rely on the published data; Ministère de l'Industrie et du Travail, *Recensement général*, XVIII, 229, 255, 257, 300; Burnette, "Paradox of Progress," 136.

[12] See Appendix 1 for more details.

[13] Virgile Lefèbvre, *La verrerie à vitres et les verriers de Belgique depuis le XVe siècle* (Brussels, 1938), 91; Yves Douxchamps, "L'évolution séculaire de l'industrie du verre à vitres et de la glacerie en Belgique de 1823 à 1913," *Bulletin de l'Institut de Recherches Economiques et Sociales*, XVII (1951), 483; Ministère de l'Industrie et du Travail, *Recensement général*, IX, 2-190 and X, 416-470.

[14] Verhaegen, "La dentelle," V, 125.

[15] We refer to Figures A1 and A2 in Appendix II for cartographic visualization of the data used in this analysis. Variance decompositions are not uncommon in research on the determinants of wage inequality, such as more recently the role of firm effects. For example, Erling Barth, Alex Bryson, James C. Davis and Richard Freeman, "It's where you work: Increases in the dispersion of earnings across establishments and individuals in the United States," *Journal of Labor Economics*, XXXIV (2016), S67-S97.

[16] Formally, we thus have that $Var(w_{i,d})=Var(\bar{w}_d)+Var(w_{i,d}-\bar{w}_d)$, where $w_{i,d}$ is the wage of an individual i in district d in natural logarithms. A core difference with this approach and the one in Table 2 is that we do not impose a structural OLS model.

[17] Marco H. van Leeuwen, Ineke Maas and Andrew Miles, *HISCO: Historical International Standard Classification of Occupations* (Leuven, 2002). We refer to Appendix I for more information on the coding process.

[18] Burnette, "Paradox of Progress," 136.

[19] Greet De Block and Janet Polasky. "Light Railways and the Rural–Urban Continuum: Technology, Space and Society in Late Nineteenth-Century Belgium," *Journal of Historical Geography*, XXXVII (2011), 317.

[20] The 1896 employment rate is calculated as the ratio of the number of female workers divided by the female population count. We took the employment figures from the IC 1896 and female adult population (ages 15 to 55) from the 1890 population census and interpolated these values, using gender-specific, community-level population growth rates. Domestic industry is again excluded from these figures; Shaw-Taylor, "Divers Experiences," 45.

[21] You, "Women's Labour," 111-123.

[22] For example, Pierre-Philippe Combes, Gilles Duranton and Laurent Gobillon, "Spatial Wage Disparities: Sorting Matters," *Journal of Urban Economics*, LXIII (2008), 723-742.

[23] Jeremy Atack, Fred Bateman and Robert A. Margo, "Skill Intensity and Rising Wage Dispersion in Nineteenth-century American Manufacturing," *Journal of Economic History*, LXIV (2004), 182; James Bessen, *Learning by Doing: The Real Connection between Innovation, Wages, and Wealth* (New Haven, 2015), chapter 5; Vincent Delabastita and Maarten Goos, *Does Technological Progress Equal Wage Progress? Nineteenth-Century Technological Change, Real Wage Growth and Wage Inequality* (Leuven, 2022), Mimeo; Humphries and Weisdorf, "Wages of women," 429.

[24] Here, we point to the employment-weighted nature of the regression specification and the aforementioned under-sampling of low wages in high-population districts with a large presence of domestic industry, such as the province of West Flanders (cf. Section II). The negative effect of district-level population density does support our earlier mitigation of concerns on the use of employment rates (cf. Section III); Verhaegen, "La dentelle," V, 125.

[25] Marco H. van Leeuwen and Ineke Maas, *HISCLASS: A Historical International Social Class Scheme* (Leuven, 2011). Specifically, HISCLASS considers high-skilled, medium-skilled, low-skilled and unskilled jobs. We recode the latter three categories from high- to low-skilled, as virtually no female occupations in IC 1896 fall under HISCLASS' high-skilled criterion.

[i] Edward Anthony Wrigley, *The PST System of Classifying Occupations'* (Technical Report, Cambridge Group for the History of Population and Social Structure), (Cambridge, 2010).

[ii] Ministère de l'Industrie et du Travail, *Recensement général*, XVIII, 107 (our translation).

[iii] Van Leeuwen, Maas and Miles, *HISCO: Historical International*.

[iv] Van Leeuwen and Maas, *HISCLASS: A Historical International*.

[v] Peter Scholliers, "A Century of Real Industrial Wages in Belgium, 1840–1939," in Peter Scholliers and Vera Zamagni (eds), *Labour's Reward: Real Wages and Economic Change in 19th- and 20th-Century Europe,* (Aldershot, 1995), 106–137; Yves Segers, *Economische groei en levensstandaard. De ontwikkeling van de particuliere consumptie en het voedselverbruik in België, 1800-1913* (Leuven, 2003), 225-228.

[vi] For instance, Haines' CPI at state level for the USA in 1890 follows an identical assumption (Michael Robert Haines, "A state and local consumer price index for the United States in 1890," *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, XXII (1989) 97-105.

[vii] No regional information on the price of buttermilk is available either. Here we follow Vandenbroeke and assume that buttermilk was priced at approximately one-third of the value of milk (Chris Vandenbroeke, "Voedingstoestanden te Gent tijdens de eerste helft van de 19de eeuw," *Belgisch Tijdschrift voor Nieuwste Geschiedenis*, IV (1973), 138-139).

[viii] Segers, *Economische groei*, 253.

[ix] For example, Robert C. Allen, "The Great Divergence in European Wages and Prices from the Middle Ages to the First World War," *Explorations in Economic History*, XXXVIII (2001), 411-447.

[x] The cities are Antwerp, Bruges, Brussels, Ghent, Kortrijk, Leuven and Liège.

[xi] Greta Avondts and Peter Scholliers, *Gentse prijzen, huishuren en budgetonderzoeken in de 19e en 20e eeuw* (Brussels, 1977), 325-332; Patricia Van den Eeckhout and Peter Scholliers, *De Brusselse huishuren: 1800–1940* (Brussels, 1979), 9-107; Yves Segers, "Huishuren in België, 1800-1920. Reconstructie en analyse van een nationale huurprijsindex," *Tijdschrift voor Sociale Geschiedenis*, XXV (1999), Appendix 1 and 2. We thank Matthijs Korevaar, who created a database with historical rents to

investigate their long run relationship with wage and price levels for supplying us with a digitized version of his data (Piet Eichholtz, Matthijs Korevaar and Thies Lindenthal, *500 Years of Urban Rents, Housing Quality and Affordability in Europe* (mimeo, Department of Land Economy), (Cambridge, 2019).

[xii] Segers, “Huishuren in België,” 212.

[xiii] Board of Trade, *Cost of living in Belgian towns. Report of an enquiry by the Board of trade into working class rents, housing and retail prices, together with the rates of wages in certain occupations in the principal industrial towns of Belgium* (London, 1910), IX-XI.