ABSTRACT
We present the first comprehensive, long run salary information on Swedish middle-class employees before the twentieth century. Our data include, for instance, school teachers, professors, clerks, policemen and janitors in Stockholm and Sweden, ca. 1830–1940. We use the new data to compare the annual earnings of these middle-class employees with the annual earnings of farm workers, unskilled construction workers and manufacturing workers. The results show that the income gap between the middle class and the working class widen drastically from the mid-nineteenth century to a historically high level during the 1880s and 1890s. The differentials then decreased during the first four decades of the twentieth century. The bulging earnings advantage of middle-class employees vis-à-vis unskilled workers chimes with Kocka’s depiction of the latter half of the nineteenth century as the era of the bourgeoisie.

1. Introduction
A great deal of the debate on historical wage inequality has focussed on evidence of pay differences between so-called skilled and unskilled manual workers – say, the difference between a carpenter and a labourer (Anderson, 2001; Williamson, 1995). This focus has stemmed from the empirical implications of some of the most influential economic theories of income distribution, such as the capital-skill complementarity hypothesis, which postulates that technological changes lead to increased demand for skills, thereby augmenting the skilled to unskilled wage ratio, or the simple supply and demand models, which forecast that emigration of unskilled workers will benefit unskilled workers who do not emigrate, but become more scarce as the result of their fellows’ emigration (Goldin & Katz, 2008; Williamson, 1996). In addition, wage evidence from historical building sites, such as castles and cathedrals, have provided opportunities to study skill ratios among construction workers. However, this focus on pay differentials across skills among construction workers has led to a neglect of other dimensions of wage inequality.

A classical polemic on nineteenth century Britain is illustrative. Williamson (1985) argued that income inequality first increased and then decreased in Britain in this period, and explained his inverted U-curve with changing demand for and supply of skilled workers. Feinstein (1988) showed that Williamson’s empirical findings could be attributed to the favourable wage development of five groups of well-educated salaried professionals: lawyers, doctors, engineers, clerks, and public officials. This implied that Williamson’s explanation, focusing on the interaction between technological development and the demand of various labour skills, was misleading, since pay differentials...
were actually not driven by differences between skilled and unskilled workers, but by differences between middle class white-collar employees and working-class wage labourers.

We propose that the discussion on historical pay inequality needs to direct more attention to differences between the working class and the middle class. This class perspective promises to yield new insights into historical labour markets, living standards and inequalities. Our focus is Sweden from about 1830 to 1940. During this period, the Swedish economy developed from being mostly agricultural and rural to being mostly industrial and urban (Schön, 2012). Whereas several studies into manufacturing wages have been published covering this period, most notably the epochal two volumes of *Wages in Sweden* (Bagge, Lundberg, & Svennilson, 1933, 1935), barring Ljungberg’s (2006) unpublished series for technicians from one shipyard, there is nothing offering earnings evidence of salaried employees. Moreover, in this period, the importance of human capital grew as production of goods became sophisticated and differentiated (Ljungberg & Nilsson, 2009). The ‘new middle class’ of salaried employees emerged as culturally and socially distinct from workers. At the foundation of this emergence lay high salaries in return to investments in education (Blumin, 1989; Kocka, 1980, 1981). In the 1890s, the share of white-collar workers – teachers, office workers and the like – constituted 9.8% of the work force outside of agriculture in Sweden (BiSOS A. Befolknings, 1891, Table 12).

We have compiled new evidence of the annual earnings of several different salaried employees, such as teachers, nurses, and clerks, and show that the earnings gap between salaried employees and workers increased dramatically up until the 1880s. At that time, a secondary school teacher was paid nine times more than an agricultural worker; pay gaps were unprecedented in the 1880s, but declined steadily throughout the twentieth century. The bulging earnings advantage of middle-class employees vis-à-vis unskilled workers in the late nineteenth century chimes in well with Kocka’s (1987, p. 7) depiction of the latter half of the nineteenth century as the era of the bourgeoisie. Moreover, our results also resonate with the mounting evidence showing that income inequality was very high in the late nineteenth and early twentieth century, in Sweden as in other developed countries (Bengtsson, Missiaia, Olsson, & Svensson, 2018; Piketty, 2014; Roine & Waldenström, 2008). In the final section of the paper, we discuss several factors that might have benefitted salaried employees relative to unskilled workers in the late nineteenth century, and place this discussion in the overall debate on historical inequality.

### 2. The standing of the middle class

We use the concept of class following Max Weber’s seminal contribution. Marx emphasised that the fundamental class divide runs between those who own the means of production and those who have to work for pay in order to survive. But as Weber pointed out, not all who work for pay are equally vulnerable; those with formal education or specific skills have a stronger position in the labour market than the proletarians. Middle class employees, the focus of our investigation, distinguish themselves from workers because of their superior, formal education, knowledge and professional status (Parkin, 1979; cf. Florin & Johansson, 1993, pp. 55–57, 71). Thus, while both middle class and working class people work for pay, in many ways their living conditions are different. As we will show, this was markedly so in Weber’s own time, around the turn of the twentieth century.

#### 2.1. The formation of the new middle class

Social historians distinguish between the ‘old’ and the ‘new’ middle class, where the ‘old middle class’ denotes artisans and tradesmen who had long been an important part of the economy
In the nineteenth century, the importance of educated professionals – teachers, lawyers, doctors and the like – grew, and these groups coalesced into a ‘new middle class’, typically with notions of themselves as quite cultivated and distinguished. They were also economically differentiated from the wage-earning working class in several ways: they were highly educated; they performed work tasks, which to a degree were independent and not controlled as tightly as labourers; and they were paid a salary every month in contrast to workers who were paid on hourly, daily or weekly basis. Salaried employees earned more and enjoyed more generous off-salary payment schemes, such as vacation (Kocka, 1980, 1981).

In Sweden, two categories of professionals now considered typically middle-class, namely nurses and teachers, provide good examples of the development of these groups over the nineteenth century. Emanuelsson (1990) shows that between 1840 and 1910 nursing evolved from being a characteristically female occupation, in which no specialised knowledge was required, to one in which a health care professional had to undertake two years of study as a basic requirement. Higher educational requirements entailed higher social status and a stronger sense of identity and professional pride. Teachers employed at the primary schools of the time, the so-called folkskolor, also experienced a radical change in their profession. When the folkskola was established in 1842, teachers’ social rank was low and the formal educational requirements of the profession were modest – a couple of months of study sufficed to prepare a primary school teacher (Erixon, 2002). Primary school teachers experienced a gradual improvement in their social standing as educational demands were raised: in 1860, they were required to attend so-called teaching seminars (lärarseminarier) for nine months and, in the beginning of the twentieth century, their education extended over three years (Evertsson, 2012; Spetze, 1992).

### 2.2. The earnings and life style of the middle class

A contradiction stands out in the claims of previous scholars: on the one hand, they argue that the social prestige of the professions were on the rise; on the other hand, they also claim that teachers were low-paid. As Florin (1987, p. 97, 276) puts it, for example, teachers were ‘remarkably successful’ in their efforts to earn professional respect, and yet were unhappy with their salaries. She quotes a primary school teacher in Västergötland in 1882 who was bitter about earning 600 kronor a year, when an agricultural worker (statare) ‘who has not invested a cent in education is paid more’ (Florin, 1987, p. 152). For Norwegian scholars, the lot of Norwegian teachers seems to have been the same. Myhre (2004, p. 239) argues that teachers in Norway ‘tried their best to hide how badly off they were’. To the detriment of Swedish and Norwegian teachers, their low wages prevented them from emulating the bourgeois lifestyle.³ Of course, all such accounts must be compared with the social aspirations of these middle-class people; as we will show, the complaints rather give us hints about their condescending attitudes towards people further down in the socio-economic hierarchy than revealing anything about true income differentials.

Teachers employed in Swedish secondary schools (läroverk) had a stronger and more stable position in bourgeois society. Secondary education was not available for the masses, and teaching at secondary schools was a much more prestigious occupation than teaching at primary schools. (Florin & Johansson, 1993, p. 157). But still, perhaps because of the higher expectations following their higher social status, they were dissatisfied with their economic situation. Florin and Johansson (1993, p. 144) quote, for instance, one teacher who complained that his meagre salary confined life to ‘asceticism and celibate’ as he could not afford the lifestyle a middle-class woman expected.

---

²Kocka (1981) argues that the difference between Privat-Beamte or Angestellte (functionaries in the private sector) and Arbeiter (workers) in Germany was consolidated over the nineteenth century. Blumin (1989) shows the equivalent for the distinction between ‘manual’ and ‘non-manual’ work in the United States.
³The general claim that the Norwegian teachers were badly paid is disputable: they did earn less than sailors in 1870, but their salaries doubled between 1876 and 1901 (Minde & Ramstad, 1986).
However, given the lack of salary data, accounts of the actual earnings situation of teachers are imprecise. The ‘new middle class’ was growing in the late nineteenth century, as is evident both from Florin’s (1987) study of primary school teachers and Emanuelsson’s (1990) study of nurses. Similarly, Boot (1999, p. 662) documents for Britain a ‘vigorous increase in the demand for people with the skills capable of dealing with the rising volume of complex commercial, financial, administrative, and professional tasks created by industrialization and commercial expansion’. Sweden experienced the same kind of increased demand for well-educated and specialised middle-class workers in the second half of the nineteenth century. The school enrolment of children between 7 and 14 years old increased from 21% in 1843 to 75% in 1910, and the role of human capital in the economy increased steeply (Ljungberg & Nilsson, 2009, p. 80). This makes it especially interesting to investigate the income differences between middle class and working-class employees over this period.

3. Sources and scope

3.1. Sources for salaried employees

Previously, Swedish historical wage data have covered manufacturing workers from 1860 onwards (Bagge et al., 1933), day workers in agriculture from 1732 (Jörberg, 1972), and daily wages of construction workers in Stockholm back to 1540 (Söderberg, 2010). The availability of historical salaries for salaried employees is limited to Stockholm’s public administration between 1622 and 1719 (Jansson & Söderberg, 1991); the official wage statistics include little information for such groups until 1956 (SOS Löner).

Our first data source is the five-year reports from the Stockholm administration (Överstätshållarbämbetet) to the central Swedish administration, Kongl. Maj:ts befallningshäfandes femårsberättelser. The reports for Stockholm in the period 1833–1905 contain information about the salaries paid in the public administration. Because these salaries originated from the public sector and were reported to the sector leadership, we may consider this source of information reliable. The salary information includes primary school teachers between 1860 and 1905 and their predecessors (barnskollärare). Other groups covered in the five-year reports are secondary school teachers and researchers at colleges in Stockholm. Furthermore, the reports include police clerks between 1860 and 1905, which is particularly relevant since clerks are prototypical white-collar workers (cf. Boot, 1999). Finally, the reports also contain wage data for police officers, a group who probably enjoyed a somewhat lower status (Nyzell, 2014), and janitors, who constitute a semi working-class group.

Our second data source is the wage records of the Social Board’s (Socialstyrelsen) annual bulletin of 1927, which contain information on cost of living and wages in Sweden since the 1860s (Sociala meddelanden, 1927, p. 402). The records begin in 1866–1870 and end in 1926, and contain wage data

---

4Florin and Johansson’s (1993, Table 10:1) comparison, for instance, of white-collar and blue-collar workers using data from Carlsson (1973) is problematic for two reasons. One, they compare unspecified years between 1870 and 1890 when a lot can change with wages and prices. Two, they overstate the wage of a typical manufacturing worker, stating 800 kronor when Bagge et al. (1933, p. 48) show that male manufacturing workers earned from 500 to 700 kronor in the 1870s and 1880s.

5See HILD (http://es.handels.gu.se/avdelningar/avdelningen-for-ekonomisk-historia/historiska-lonedatabasen-hild).

6It is very difficult to find data for salaried employees in the private sector (privatanställda tjänstemän) before 1870. As much previous research (Routh, 1954; Williamson, 1985), we present only public sector salaries. Of the groups of workers that we consider here, teachers and clerks were also employed in the private sector, but we have no reason to believe that their salaries differed significantly from the wages paid to employees of the Stockholm public administration (cf. Routh, 1954; Williamson, 1985, pp. 10–13).

7After 1842 primary school teachers refer to folkskola; before that, to allmänna barnskolor. See Spetze (1992) for the development of the school system in Stockholm in this period. The teachers received quite a considerable share of their salaries in grain up to 1860 and in free housing up to 1881. We therefore calculate full salaries considering the value of grain: we assume half barley half rye, which was the rule of teacher salaries (Klose, 2011, p. 53), taking grain prices from Jörberg (1972) for the Stockholm region. The value of free housing is calculated based on Myrdal and Bouvin’s (1933, table 19) Stockholm rent series. They state that housing accounted for 7.5% of household costs in the early nineteenth century, and it rose to 10% over the second half of the century.
for clerks (*notariet*) at the Swedish Postal Services (*Generalpoststyrelsen*), lecturers, doctors, and higher civil servants at The Legal, Financial and Administrative Services Agency (*Kammarkollegiet*). The data provided by the Social Board allow us to extend the time span beyond 1905. The Social Board compiled reports every five years; the last interval refers to the period 1921–1925. We combine data from the five-year reports and the Social Board to calculate long-run salaries for professors and lecturers.

Our third data source is a public investigation into the wage settings of public employees published in 1937 (SOU 1937:48, pp. 468–471). It contains information on the wages of six categories of public salaried employees, stretching from 1900 to 1935. The payments recorded refer to the agreed salary according to the number of years as public employee. The investigation lists the initial salary and the final salary, as well as the mean salary. In addition to these three data sources, we have added salaries of professors from the so-called Sveriges Statskalender between 1911 and 1940.8 Table 1 presents our annual earnings of salaried employees, gleaned from the various sources discussed.

What does it mean that the wage and salary data mostly pertain to Stockholm? This was a high wage area for middle-class employees as well as for workers, so in terms of estimating pay differentials (but not pay levels), it should be representative for Sweden as a whole (cf. Florin, 1987, p. 156). We do know that teachers’ wages were particularly high in Stockholm: the minimum wage paid to a primary school teacher in the 1860s was 400 riksdaler (Florin, 1987, p. 155), whereas teachers in Stockholm earned around 600 riksdaler (Table 1). We do not know what the average salary outside of Stockholm was; it was certainly above the minimum of 400 but probably not as high as the Stockholm level of 600. For blue-collar workers, the Stockholm pay advantage in relation to the country as a whole was 5 per cent for rural workers, but 25–30 per cent for unskilled municipal workers (Bagge, Lundberg, & Svennilson, 1935, p. 55, 66). Our conclusion from this comparison is that the Stockholm pay differentials should be fairly representative for the country as a whole. At least, the trends should be similar; if differences between middle class and working class grew (decreased) in Stockholm, it is likely that the same occurred in other parts of the country. Teaching, nursing and the like were professionalised all over the country and office work expanded not only in the capital.

Stockholm was rapidly gaining importance for the Swedish economy in the latter half of the nineteenth and first half of the twentieth century. The city population grew from 80,621 in 1830 to 246,454 in 1890 and 502,213 in 1930, meaning that its share of the Swedish population grew from 3% to 8% (SCB 1969, Tables 2, 4, 12, 13). This urbanisation is linked to the growing importance of the ‘new middle class’, as discussed above. Admittedly, the ideal study design would include salary evidence from all over the country but to our knowledge no such evidence has been at our disposal. To retrieve new salary evidence is a relevant task for future research.

### 3.2. Workers’ wages

In order to shed light on earnings inequality, we compare our middle-class salaries with wage series for typical working-class occupations drawing on previous research. The annual wages of workers are presented in Table 1. We divide the salaries paid to salaried employees by the wages paid to workers to establish earnings ratios: for example, a ratio of 2 indicates that a salaried employee earns twice as much as a worker. Those earnings ratios are presented in Table 2.

We have applied three guiding principles to the selection of working-class evidence: First, we have compared our middle-class earnings evidence of Stockholm that begins and ends early, 1830–1905, with both farm workers’ wages and unskilled construction workers’ wages of Stockholm. Second, for those middle-class earnings evidence of Stockholm that begins and ends later, 1860–1925, we have compared with unskilled construction workers, also of Stockholm. Our justification for excluding farm workers in comparisons that stretch across the interwar years is that contract workers in

---

8 Available online [http://runeberg.org/statskal/](http://runeberg.org/statskal/). We are indebted to Johan Söderberg who pointed us to this source and generously shared his salary data for professors.
| Profession | Swedish title | Sources | Location | 1833–1837 | 1838–1842 | 1843–1847 | 1848–1850 | 1851–1855 | 1856–1860 | 1861–1865 | 1866–1870 | 1871–1875 | 1876–1880 | 1881–1885 |
|------------|---------------|---------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Salaried employees | | | | | | | | | | | | | | | |
| 1 Primary school teacher | Barnskolor | Kungl. 5-årsberättelser | Stockholm | 500 | 500 | 500 | 569 | 455 | 627 | 603 | 935 | 1600 | 1200 | |
| 2 Primary school teacher | Folkskola | Kungl. 5-årsberättelser | Stockholm | 627 | 603 | 935 | |
| 3 – Male | – manlig | Kungl. 5-årsberättelser | Stockholm | |
| 4 – Female | – kvinnlig | Kungl. 5-årsberättelser | Stockholm | |
| 5 Secondary school teacher | Läroverk | Kungl. 5-årsberättelser | Stockholm | 804 | 900 | 1097 | 1014 | 1698 | 2014 | 2381 | 2767 | 3692 | |
| 6 Lecturer, higher education | Lärare på Karolinska inst. | Kungl. 5-årsberättelser | Stockholm | 2400 | 2400 | |
| 7 Lecturer, higher education | Lärare på Teknologiska inst. | Kungl. 5-årsberättelser | Stockholm | 1565 | 2250 | 2421 | 2415 | |
| 8 Lecturer, higher education | Lärare på Stockholms högskola | Kungl. 5-årsberättelser | Stockholm | |
| 9 Lecturer, higher education | Lektor | SM 1927 | Stockholm | 3000 | 3150 | 3500 | 3725 | |
| 10 Professor | | | | | | | | | | | | | | |
| 11 Clerk | Kanslist | Kungl. 5-årsberättelser | Stockholm | 940 | 1200 | 2060 | 2050 | 2050 | |
| 12 Clerk | Notarie (Generalpoststyrelsen) | Sveriges statskalender | Sweden | 2200 | 2376 | 3128 | 3500 | |
| 13 Clerk | Notarie | SOU 1937:48 | Sweden | 5000 | 5200 | 6140 | 6700 | |
| 14 Higher civil servant | Kammarråd | SM 1927 | Stockholm | 375 | 409 | 547 | 706 | 721 | 1131 | 1128 | 1129 | |
| 15 Police officer | Poliskonstapel | SM 1927 | Stockholm | 1332 | 1404 | 1692 | 1692 | |
| 16 Janitor | Vaktmästare | Kungl. 5-årsberättelser | Stockholm | 450 | 450 | 600 | 600 | | |
| 17 Law clerk | Rådstjänst | SOU 1937:48 | Sweden | 5000 | 5200 | 6140 | 6700 | |
| 18 Warrant officer | Fanjunkare | SOU 1937:48 | Sweden | |
| 19 Captain (military) | Kapten | SOU 1937:48 | Sweden | |
| 20 Railway clerk | Stationsskrivare | SM 1927; SOU 1937:48 | Sweden | |
| 21 Unskilled construction worker | Grovarbetare (byggnation) | Söderberg (2010); SM 1927 | Stockholm | 338 | 360 | 383 | 516 | 438 | 576 | 534 | 597 | |
| 22 Manufacturing worker | Industriarbeteare | Bagge et al. (1933); SOS Löner | Sweden | 440 | 477 | 599 | 628 | 666 | |
| 23 Day worker in agriculture | Daglönare i jordbruket | Jörberg (1972) | Stockholm | 248 | 251 | 236 | 241 | 284 | 405 | 387 | |
| 24 Contract worker in agriculture | Statare | BiSOS N | Stockholm | 305 | 329 | 373 | 429 | 410 | |

**Table 1.** Annual earnings of salaried employees and workers: 1833–1940.
| Profession                                    | Swedish title                        | 1886–90 | 1891–5 | 1896–00 | 1901–5 | 1906–10 | 1911–5 | 1921–2 | 1925–6 | 1932–5 | 1940 |
|----------------------------------------------|--------------------------------------|---------|--------|---------|--------|---------|--------|--------|--------|--------|------|
| **Salaried employees**                       |                                      |         |        |         |        |         |        |        |        |        |      |
| 1 Primary school teacher                     | Barnskolor                           | 1600    | 1600   | 1800    | 1900   | 5000    | 8100   | 9000   | 10,825 | 11,940 | 12,000 |
| 2 Primary school teacher                     | Folkskola                            | 1200    | 1200   | 1350    | 1450   | 5000    | 8100   | 9000   | 10,825 | 11,940 | 12,000 |
| 3 – Male                                      | – manlig                             | 2469    | 2484   |         |        |         |        |        |        |        |      |
| 4 – Female                                    | – kvinnlig                           | 3875    | 3875   | 3925    | 4520   | 5000    | 5000   | 11,673 | 9810   |        |      |
| 5 Secondary school teacher                   | Läroverk                            | 3500    | 3500   | 3500    | 3770   | 4850    | 8472   |        |        |        |      |
| 6 Lecturer. higher education                  | Lärare på Karolinska inst.          | 2050    | 2050   | 2200    | 2720   |         |        |        |        |        |      |
| 7 Lecturer. higher education                  | Lärare på Teknologiska inst.        | 4600    |        | 9600    | 7697   |         |        |        |        |        |      |
| 8 Lecturer. higher education                  | Lärare på Stockholms högskola       | 6700    | 6700   | 6700    | 7040   | 8400    | 15,000 |        |        |        |      |
| 9 Lecturer. higher education                  | Lektor                               | 1104    | 1123   | 1175    |        |         |        |        |        |        |      |
| 10 Professor                                 | Professor                            | 1000    | 1167   |         |        |         |        |        |        |        |      |
| 11 Clerk                                     | Kanslist                             |         |        |         |        | 10,750  | 13,394 | 11,541 |        |        |      |
| 12 Clerk                                     | Notarie (Generalpoststyrelsen)       |         |        |         | 3770   | 4850    | 8472   |        |        |        |      |
| 13 Clerk                                     | Notarie                              | 4600    | 9600   | 7697    | 7096   |         |        |        |        |        |      |
| 14 Higher civil servant                      | Kammarråd                            |         |        |         | 6700   | 7040    | 8400   |        |        |        |      |
| 15 Police officer                            | Polisconstapel                       | 1104    | 1123   | 1175    |        |         |        |        |        |        |      |
| 16 Janitor                                   | Vaktmästare                          | 1000    | 1167   |         |        |         |        |        |        |        |      |
| 17 Law clerk                                 | Rådstjänst                           | 1944    | 2450   | 2513    | 6043   | 4573    | 4305   |        |        |        |      |
| 18 Warrant officer                           | Fanjunkare                           |         | 4378   | 4810    | 4810   | 10,128  | 8,111  | 7,601  |        |        |      |
| 19 Captain (military)                        | Kapten                               | 1512    | 1750   | 1908    | 2527   | 2483    | 6982   | 5462   | 5136   |        |      |
| 20 Railway clerk                             | Stationsskrivare                     | 597     | 720    | 765     | 864    | 1113    | 1266   | 3756   | 2964   |        |      |
| 21 Unskilled construction worker             | Grovarbetare (byggnation)           | 696     | 758    | 875     | 968    | 1130    | 1287   | 2743   | 2555   | 2513   | 3279 |
| 22 Manufacturing worker                      | Industriarbetare                     | 1000    | 1167   |         |        |         |        |        |        |        |      |
| 23 Day worker in agriculture                 | Daglöpare i jordbruket               |         |        |         |        | 5462   | 5136   |        |        |        |      |
| 24 Contract worker in agriculture            | Statare                              | 409     | 419    | 461     | 532    |         |        |        |        |        |      |

Note: Before 1855, Sweden had two currencies: riksdaler banco and riksdaler riksgäld. Riksdaler banco was standard in public administration (Granholm 2013, p. 84). In 1855, riksdaler banco and riksdaler riksgäld were replaced by the riksdaler riksmint; and in 1873, the Swedish krona was introduced (Jörberg, 1972, s 81). For the wage sources between 1833 and 1855, we have transformed the value of riksdaler banco to riksdaler riksmint. The exchange rate was 1.5 riksdaler riksmint per 1 riksdaler banco. For construction workers, we have assumed 300 workdays a year to establish an annual wage. We have transformed the wages given in riksdaler banco to wages in riksdaler riksmint. Between 1838 and 1850, no wages were reported for Stockholm’s Gymnasium. This school had very high wages in 1832–1837 so we assume that the wage levels remained unchanged across the following years until 1843–1847. In 1848–1850, the report informs that the wage level of Stockholm’s Gymnasium is relative to the previous report yet the previous report does not contain any wage information. In 1851–1855, the report lacks information on salaries for Jakob’s school. For other years, this school had salaries close to the mean of all schools, which means that this lacuna will probably not affect our estimated trendline (Graph 1). In 1943–1947, we have excluded teachers’ salaries of Karolinska Institutet and Teknologiska Institutet because they were unreasonably low.

Sources: Male workers in manufacturing: Bagge et al. (1933, p. 220. 260); male construction workers (unskilled): Söderberg (2010) and Sociala meddelanden (1927, p. 402); Male farm workers: 1830–1865: Jörberg (1972); 1865–1910: BiSOS N.; 1911–1928: SOS. Arbetetillgång; 1929–1935: SOS. Lönestatistik årsbok. Salaried employees: Kongl. Majts befallningshafvandes femårsberättelser 1833–1905; Sociala meddelanden (1927, p. 402); Statens offentliga utredningar (SOU 1937:48); Sveriges statskalender. Annual earnings for secondary school teachers (Läroverkslärare row #5) for 1901–1905 originate from nation-wide figures at http://www.lararnashistoria.se/laroverken_och_gymnasieskolan_1900-talet.
| Row #. | Table 1 | 1833–1837 | 1838–1842 | 1843–1847 | 1848–1850 | 1851–1855 | 1856–1860 | 1861–1865 | 1866–1870 | 1871–1875 | 1876–1880 | 1881–1885 | 1886–1890 | 1891–1895 | 1896–1900 | 1901–1905 | 1906–1910 | 1911–1915 | 1912–1922 | 1921–1925 | 1926–1932 | 1933–1940 |
|-------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1     | Teacher/Farm worker | 1–4/23–4 | 2.0       | 2.0       | 2.1       | 2.4       | 1.6       | 2.1       | 1.8       | 2.5       | 3.8       | 3.7       | 3.6       | 3.6       | 3.6       | 3.3       | 3.3       | 3.3       | 3.3       | 3.3       | 3.3       | 3.3       |
| 2     | Teacher/Unskilled worker | 1–4/21 | 1.5       | 1.4       | 1.3       | 1.1       | 1.4       | 1.6       | 2.6       | 2.6       | 2.1       | 2.2       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       |
| 3     | Teacher (skilled)/Farm worker | 5/23–4 | 3.2       | 3.6       | 4.6       | 3.6       | 4.2       | 6.6       | 7.2       | 7.4       | 9.0       | 9.4       | 9.4       | 9.4       | 9.4       | 9.4       | 9.4       | 9.4       | 9.4       | 9.4       | 9.4       |
| 4     | Teacher (skilled)/Unskilled worker | 5/21 | 2.4       | 2.5       | 2.1       |           | 5.4       | 4.8       | 6.2       |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 5     | Teacher (very skilled)/Farm worker | 6–8/23–4 | 9.6       | 8.4       |           | 8.0       | 7.2       | 7.7       |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 6     | Teacher (very skilled)/Unskilled worker | 6–8/21 | 6.7       | 5.2       |           | 5.4       | 5.0       |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 7     | Lecturer/Unskilled worker | 9/21 |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 8     | Professor/Manufacturing worker | 10/22 |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 9     | Clerk/Farm worker | 11/23–4 | 2.4       | 3.6       | 5.5       | 4.8       | 5.0       | 5.0       | 4.9       | 4.8       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       |
| 10    | Clerk/Unskilled worker | 11/21 | 2.7       | 3.6       | 3.8       | 3.4       | 3.4       | 2.8       | 2.9       | 3.1       | 3.1       | 3.1       | 3.1       | 3.1       | 3.1       | 3.1       | 3.1       | 3.1       | 3.1       | 3.1       | 3.1       |
| 11    | Clerk/Unskilled worker | 12/21 | 5.0       | 4.1       | 5.9       | 5.9       | 5.9       | 4.9       | 4.6       | 4.1       | 3.2       | 3.8       | 2.9       | 2.9       | 2.9       | 2.9       | 2.9       | 2.9       | 2.9       | 2.9       | 2.9       |
| 12    | Clerk/Manufacturing worker | 13/22 |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 13    | Higher civil servant/Unskilled worker | 14/22 | 11.4      | 9.0       | 11.5      | 11.2      | 11.2      | 9.3       | 8.8       | 7.8       | 6.0       | 6.6       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       | 5.1       |
| 14    | Police offices/Farm worker | 15/23–4 | 1.6       | 1.4       | 1.4       | 2.3       | 2.2       | 2.0       | 2.6       | 2.8       | 2.7       | 2.7       | 2.5       | 2.5       | 2.5       | 2.5       | 2.5       | 2.5       | 2.5       | 2.5       | 2.5       |
| 15    | Police offices/Unskilled worker | 15/21 | 0.7       | 1.6       | 2.0       | 2.1       | 1.9       | 1.8       | 1.6       | 1.5       | 1.5       | 1.5       | 1.5       | 1.5       | 1.5       | 1.5       | 1.5       | 1.5       | 1.5       | 1.5       | 1.5       | 1.5       |
|   | Occupation       | Years   | 1881–1885 | 1886–1890 | 1891–1895 | 1896–1900 | 1901–1905 |
|---|------------------|---------|-----------|-----------|-----------|-----------|-----------|
| 16| Janitor/Farm worker | 16/23–4 | 1.9       | 1.6       | 1.5       | 2.0       | 1.8       |
| 17| Janitor/Unskilled worker | 16/21   | 0.9       | 1.4       |           |           | 1.7       |
| 18| Law clerk/Manufacturing worker | 17/22   |           |           |           |           | 6.3       |
| 19| Warrant officer/Manufacturing worker | 18/22   |           |           |           | 2.0       | 2.0       |
| 20| Captain/Manufacturing worker | 19/22   |           |           | 4.5       | 4.3       | 3.7       |
| 21| Railway clerk/Manufacturing worker | 20/22   | 2.8       | 2.3       | 2.7       | 2.5       | 2.2       |

Note: Earnings ratios based on the annual earnings figures from Table 1. In 1881–1885 to 1901–1905. Teachers (rows #1 and 2) is the weighted mean of male and female teachers from Table 1. rows 3 and 4. Florin (1987, s 57–59) shows that female workers made up on average 15% in 1880 and 33% in 1900. We have interpolated these shares to compute the weighted mean.
agriculture became increasingly rare in Stockholm county after the turn of the century. Third, we have compared our middle-class earnings evidence of Sweden as a whole with the country-wide average of annual wages of manufacturing workers from Bagge et al. (1933) and the official wage statistics, covering the years from 1860 to 1940.

With regard to the sources of our working-class earnings evidence, we have tapped from mostly well-known sources. Wage evidence of day workers in agriculture in Stockholm county originates from Jörberg (1972) and covers the years between 1830 and 1865. Wage evidence of contract workers (statare) in Stockholm county originates from the official statistics and covers the years from 1865 to 1905 (BiSOS N). Wages of unskilled workers in construction in the city of Stockholm cover the years from 1835 to 1926 and originate from Söderberg (2010) and Sociala Meddelanden (1927). The records for day workers in agriculture and unskilled construction workers in Stockholm display daily wages, which we recalculate to an annual basis assuming 300 workdays a year, in line with Huberman’s (2004) estimate of working time.9

4. Earnings differentials, ca. 1830–1940

4.1. Expanding pay gaps in the nineteenth century

Table 2 presents the new annual salary figures divided by annual wages of unskilled construction workers, manufacturing workers, and farm workers. The results show that the gap between secondary school teachers and workers widened between 1830 and 1880. The ratio of a teacher’s wage to a farm worker’s wage increases from 3.2 to 9.0 (row #3, Table 2), and the ratio of a teacher’s wage to an unskilled construction worker’s wage increases from 2.4 to 6.2 (#4). Lecturers earned on average about 5.5 times more than an unskilled worker between the mid-1860s and the end of the century (#7).

The records do not contain data on secondary school teachers after 1885, which is unfortunate, but it is possible to find a different kind of wage information in 1904, when the Swedish parliament introduced a new wage policy for secondary school teachers.10 The stipulated starting salary of an adjunct secondary school teacher was raised from 2200 to 3000 kronor; a lecturer earned 4000 kronor in the beginning of his career (only men taught at secondary schools) and 6000 kronor when he retired. If we assume that a lecturer earned 5000 kronor halfway through his career, in 1901–1905 his wage was 9.4 times higher than a rural worker’s wage (#3) and 5.8 times higher than the wage paid to an unskilled construction worker (#4). In other words, the wage difference in the early twentieth century was still substantial.

As for primary school teachers, these were, in reality, not as badly paid as rural workers. A teacher in primary school earned about twice as much as a rural worker (#1), and 10%–50% more than an unskilled construction worker between the 1830s and the 1850s (#2). This advantage in favour of teachers remained after the school reform between the 1860s and 1880s: teachers earned about twice that of unskilled workers in the end of the nineteenth century (#2). In 1848–1850, a teacher in primary school earned 10% more than the average rural worker did, the lowest ratio in our entire sample (#2). Thereafter, teachers had a considerable pay rise in the 1880s. Workers did not experience a similar favourable wage development, which means that the distance increased significantly.

It is difficult to say to what extent these large wage gaps can be attributed to the professionalisation of primary school teaching, as we have pointed out in section 2.1, or to other factors. We know that the formal educational requirements for primary school teachers in Stockholm were raised significantly between the 1860s and 1880s, under the aegis of the legendary school inspector Meijerberg.

---

9 We are aware that this assumption of 300 days might hover in the upper range, as recent research on Sweden for the pre-industrial era has shown (Gary, 2018). We may consider the use of 300 days a conservative approach because it implies that we probably underestimate the distance between the working class and the middle class.

10 http://www.lararhistoria.se/laroverken_och_gymnasieskolan_1900-talet.
Hence, it is not surprising that we can see an increase in the wage ratio between a typical primary school teacher (weighted average of wages paid to male and female professionals) and a male rural worker, from 2.1 in the early 1860s to 3.8 in the early 1880s (#1). The growth of the wage gap becomes even more visible when we adopt a wider perspective and include in the comparison the teachers employed at barnskolor, the predecessors of the primary school teachers. Wages paid to teachers working in barnskolor were from 1.6 to 2.4 times higher than rural workers’ wages from the 1830s to the end of the 1850s (#1). Of course, the upgrading of the barnskolor into folkskolor (the primary schools) entailed an upgrading of the teaching profession too. Regardless of which particular mechanism played the decisive role in this context, it is clear that the wage gap between teachers employed in the barnskolor and then in the folkskolor and workers widened between 1830 and 1890, as it did in the case of the secondary school teachers. The earnings difference has probably never been greater than in the 1880s. Jansson and Söderberg’s (1991) salary data for Stockholm between 1625 and 1720 show that notaries then earned between 1.6 and 4.7 times more than unskilled construction workers. This is a much smaller middle-class to working-class difference than that we find for the 1870s and 1880s. The difference during our period is also much larger than that today, when a high school teacher earns about 1.4 times more than an agricultural worker.11

Our results are less conclusive in relation to teachers and researchers employed at research institutes and colleges (högskolor). The salary records are more fragmentary, which makes it difficult to identify trends over time. We have data for Karolinska institutet between 1830 and 1870, for Teknologiska institutet/högskolan between 1840 and 1870, and for Stockholms högskola between 1880 and 1890. Yet we can see that the wage difference was considerable as early as in the 1830s, when a teacher employed at Karolinska earned more than nine times more than a rural worker (2400/251 = 9.6, see row #6 and #23, Table 1). The gap remains considerable if declining slightly until the mid-1870s (3333/373 = 8.9, see row #6 and #24, Table 1), which is the point at which the statistical records for Karolinska ceased to be compiled. Teachers at Teknologiska institutet did not earn as much, but their wages were nevertheless 6.6 times higher than the wages of rural workers between 1838 and 1842 (see row #7 and #23, Table 1). In the 1860s and 1870s, they still earned about 6–7 times more than a rural worker. A teacher at the newly created Stockholms högskola earned about 6 times more than a rural worker between 1885 and 1995, and 3.5–4.1 times more than an unskilled construction worker (row #8 and 21, Table 1). If we disregard the differences among the three research institutes, we cannot see a growing wage gap between researchers and the working class.

We also have wage data for two groups which, unlike the ones mentioned above, are not typically salaried employees or ‘new middle class’: police officers and janitors. We may refer to them as semi middle-class occupations. To be sure, police officers did have a wage advantage in relation to rural workers of about 50% in the 1850s, and this advantage increased to between 150% and 200% towards the end of the century (#14). For janitors, the tendency is similar. The pay distance is smaller but it increases gradually across the 1880s relative to the 1850s. In 1850, when the

11Our source is SCB’s Wage Structure Statistics (Lönestrukturstatistik), available at http://www.statistikdatabasen.scb.se. We have referred to the group #232, ‘high school teachers’ and to #921, ‘aides within agriculture, gardening, forestry, and fishing’.
comparison begins, a janitor earns on average 1.9 times more than a rural worker; in the early 1890s, the ratio is 2.8 (#16).

4.2. Contracting pay gaps in the twentieth century

In the 1910s and 1920s, pay differentials between middle class and working class decreased. In the 1880s, a higher civil servant (kammarråd) earned 11 times more than an unskilled construction worker, a pay gap that may be unprecedented (#13). The gap diminished considerably between the 1890s and 1910s. In the mid-1920s, the remaining gap had been reduced to 400% (ratio 5.1). The ratio of a lecturer to an unskilled constructions worker decreased from about 6 in the 1880s to about 3 in the mid-1920s (#7). Since we are looking into annual wages, we do not take into consideration the benign effect of the working hours reduction accruing to manufacturing workers as the 8-hour workday was introduced in 1919 (Bengtsson & Molinder, 2017). Not much is known about the effects of the 8-hour workday reform on middle-class occupations, but since their working hours were not regulated in the same way as for blue-collar workers, it is likely that our estimates underestimate the decrease in pay differentials in the 1910s and 1920s.

We have complemented the investigation of clerks from our usual sources with some pieces of information on earnings of clerks between 1929 and 1940 from the official wage statistics, hence offering evidence of private sector earnings. Beginning in 1929, they report the average, country-wide annual wage of clerks for all private sectors. In Table 3, we have computed the ratio of these clerk earnings figures to the annual earnings figures of manufacturing workers, also country-wide. The ratios indicate that clerks earned more than workers throughout, but the pay gap began declining in the early 1930s. In 1932, clerks earn double that of workers but in 1940 the pay advantage had declined to 60%. This result hints that workers continued to catch up with the pay advantage clerks had enjoyed since the nineteenth century.

The wage data for public salaried employees also indicate that the distance to manual workers contracted during the first quarter of the twentieth century. A law clerk earned 6.3 times more than a manufacturing worker in the early 1910s, a ratio that declined to 4.6 in the 1930s (#18). A captain in the Swedish military earned 4.5 times more than a manufacturing worker in the early 1900s, but only 3 times more in the 1930s (#20). The gap between a professor’s salary and a manufacturing worker’s annual earnings also declined (#8). In the 1910s, the professor earned 6.3 times more than a manufacturing worker. In 1940, that factor was reduced to 3.7.

The declining earnings ratios in the first and second quarters of the twentieth century did not slip below contemporaries’ radar. The 1937 public investigation, which aimed at designing new salary scales for public employees, expresses concern about the diminishing earnings gap between public salaried employees and workers in industry and agriculture (SOU 1937:48, pp. 446–460). It also mentions that salaried workers who received the lowest salaries caught up with those who received

| Table 3. Ratio of clerks to manufacturing workers’ annual earnings: 1929–1940. |
|------------------------------------------|-----------------|-----------------|
| Clerks. private sector (kr.) | Manufacturing (kr.) | Earnings ratio |
| 1929 | 4810 | 2742 | 1.75 |
| 1930 | 4774 | 2714 | 1.76 |
| 1931 | 4771 | | |
| 1932 | 4682 | 2377 | 1.97 |
| 1933 | 4628 | 2429 | 1.91 |
| 1934 | 4628 | 2578 | 1.80 |
| 1935 | 4604 | 2667 | 1.73 |
| 1936 | 4581 | 2742 | 1.67 |
| 1937 | 4667 | 2866 | 1.63 |
| 1938 | 4838 | 2960 | 1.63 |
| 1939 | 4924 | 3056 | 1.61 |
| 1940 | 5231 | 3279 | 1.60 |

Sources: Bagge et al. (1933, p. 220) and SOS. Lönestatistik årsbok för Sverige. Retrieved at Historiska lönedatabasen (HILD).
the highest salaries. The new payment scales that the investigation presented aimed to stop the contraction of the pay gaps between the highest paid salaried employees, on the one hand, and the lowest paid salaried employees and manual workers, on the other.

4.3. The rise-and-fall pattern of pay gaps

Graph 1 summarises the rise-and-fall pattern of pay differentials. The time span captures the period between 1850 and 1935, those years for which Table 1 displays at least four examples of salary employees. The graph shows all of Table 2’s earnings ratios except those comparing both farm workers and unskilled construction workers; in order to avoid overlaps, we have included only ratios comparing farm workers (because our evidence on unskilled construction workers is fragmentary). The graph also contains a trend line computed on the basis of each time-span’s average ratio. The trend rises until the 1880s, and declines gradually until the 1940s, thus bolstering our narrative that pay differentials increased in the latter half of the nineteenth century and then declined in the first half of the twentieth century.

One may suspect, however, that the computed trend line of Graph 1 rises and falls as a corollary to the shifting compositions of white-collar employees; the sample of white-collar employees suffer indeed from inter-temporal heterogeneity (Table 1). In particular, the upturn in the estimated trend line stems to some extent from the inclusion of the highly paid civil servant. A possible solution to this variety across time is to examine earnings of the various highly qualified teaching professions (rows #5–10, Table 1), which constitute our most homogenous and consistent evidence. To render this possibility feasible, we have transformed the various series of teachers’ salaries to series of relatives (dividing each year by the initial year), and then spliced the different series of relatives with 1833–1837 set to unity (reference year). We have divided this series of relatives by a similarly transformed series of relatives comprising farm workers from Stockholm (1833–1893), unskilled construction workers from Stockholm (1893–1913) and manufacturing workers for Sweden as a whole (1913–1940). Hence, we have disregarded the actual earnings levels of the different teacher professions, as well as the actual earnings levels of working-class professions, in order to examine only the percentage rates of change from one year to another. The resulting ratios illustrate the movement of earnings for teachers relative to the movement of earnings for workers.

Graph 2 displays the ratio of these two series of relatives, teaching professions divided by workers. Nota bene, the graph does not convey information on the actual size of the pay gap; it shows the movement of earnings relative to the reference year of 1833 for teachers and workers. The result of this computational exercise reinforces the bulging pay gap of the late nineteenth century as displayed in Graph 1. The shape of the curve is almost symmetric: after increasing first, and then declining, in the 1930s, the gap has reverted to a similar position as in the 1830s.

4.4. Robustness check

A drawback of the data we have at our disposal is the focus on public-sector employees. A possible robustness check is to examine Olsson’s (2018) small taxation-based sample from Stockholm covering three benchmark years. In 1870, the sample includes 27 white collar employees (23 in the private sector); in 1870, it includes 35; and in 1914 it includes 115. In Table 4, we have compared the annual earnings of these salaried employees with the earnings figures of typical manufacturing workers, also found in Olsson’s taxation-based sample. The wage ratio of white collar to blue collar employees in this sample is 3.5 in 1870, 4.4 in 1893, and 3.0 in 1914. This result hence corroborates our previously established rise and fall pattern of income differentials. It should be stressed, however, that this tax-based sample under-estimates the white-collar pay advantage because it excludes blue-collar workers.

12The exception is the year 1856–1860, which happens to include only 3 observations. We have included it to avoid a missing value in the middle of the investigated era.
that did not have earnings above the tax threshold.\textsuperscript{13} This upward bias in the estimated mean of blue collar workers affects above all the benchmarks of 1870 and 1890, when as much as half of the working class may not have earned enough to pay taxes (the threshold was 400 kr. per year in 1870 and 600 kr. in 1893), while all white-collar workers certainly earned above the threshold. The real income differences in Stockholm in 1870 and 1893 probably were twice as high as those in Table 4.

5. The bourgeois century in Sweden

5.1. The social meaning of pay differentials

The large pay gap between working class and middle-class in the final third of the nineteenth century that we have documented so far squares with evidence from other industrialising economies.

\textsuperscript{13} Shop assistants in 1893 earn about 800 kr., while for book keepers the income varies between 900 and 4000. An accountant earns 3515 kr, a clerk 3482, a lower-level judge 4420, a professor 7650, and a military doctor 12,200 kr.
Williamson and Lindert (1980) show that public teachers’ salaries in the United States were indeed lower than the wages paid to male industry workers in the 1840s, but they surpassed male industry workers’ wages in 1867 and then raced ahead, to an advantage of 40%–60% at the beginning of the twentieth century. A similar development of wage relatives took place in Norway: Minde and Ramstad (1986) show that primary school teachers overtook skilled sailors in the 1870s and increased the distance until 1900; and Hodne and Grytten (1999, p. 286) testify to the large pay gaps in the 1870s, when a university lecturer earned 6–8 times more than a road worker. Boot (1999, pp. 660–661) shows that a British clerk earned about 6 times more than a manual worker in 1760 and about 12 times more in the mid-nineteenth century. In light of our quantitative findings, and those of other countries, the nineteenth century does emerge, as Kocka (1987) put it, as ‘the bourgeois century’.

**Table 4.** Income differentials between workers and middle class in Stockholm taxation data: 1870–1914.

|           | 1870  | 1893  | 1914  |
|-----------|-------|-------|-------|
| White collar | Annual earnings (kr.) | 1617  | 3587  | 3886  |
|           | Sample size (#)      | 27    | 35    | 115   |
| Blue collar | Annual earnings (kr.) | 464   | 816   | 1304  |
|           | Sample size (#)      | 42    | 119   | 120   |
| White/blue earnings ratio | 3.5   | 4.4   | 3.0   |

Note: Calculated from the original data of Olsson (2018). All artisan masters/ ‘old middle class’ excluded. All unclear titles – ‘wife’, ‘child’, ‘daughter’ – and retired people removed. They are classified as private sector employees unless they obviously belong to a sector dominated by the public sector, such as the police, the army, railroads, schools or government.
When the earnings gap peaked in the 1880s, the pay advantage of the middle class was much wider than previous researchers have assumed (Florin, 1987; Florin & Johansson, 1993; Sörensen, 1942). Historians of middle class groups have uncritically taken teachers’ complaints about their relatively low salaries at face value. Thus one historian of Swedish schooling quotes an indignant teacher: ‘the family of a primary school teacher must dress better than the family of contract worker’ (Sörensen, 1942, p. 291). Such quotes filled with indignation should be seen against the backdrop of hierarchy, status and power. The indignation felt by the teacher is symptomatic of the distinction that the middle class wished to establish between itself and the working class in terms of social standing. In reality, middle-class salaries were high and wages for unskilled workers were low; the educated ‘new middle class’ at the turn of the twentieth century could, for instance, afford to hire a maid (Nordlund Edvinsson & Söderberg, 2010).

Wages and salaries are not only numbers and facts, they are also deeply embedded in assumptions about the proper social hierarchy. The growing earnings distance between salary employees and workers during the second half of the nineteenth century served to cultivate a new form of middle-class consciousness, as mapped by historians such as Kocka (1980, 1981) for Germany, Blumin (1989) for the US, and Florin and Johansson (1993) for Sweden. A public investigation into bureaucrats’ salaries from the mid-nineteenth century tellingly designed to a bureaucrat a ‘normal household budget’ that included wages for two full-time maids (Hirdman, 1983). Ordinary blue-collar workers could obviously not expect to afford this high standard. Because middle-class employees had high aspirations to conspicuous consumption, there was great scope for disappointment when their earnings did not meet these high expectations.

5.2. Why did pay differentials grow so much?

Two economy-wide factors that affected the demand for skilled salaried employees help explain the rise of the middle class in Sweden. The first is the growth of the Swedish economy, which started in the 1830s and accelerated after the 1870s. In its initial stage, the Swedish economic growth can be attributed to the export of non-processed natural resources to Western Europe. Gradually, Swedish exports came to be dominated by processed products, in particular by high value-added products from the manufacturing industry (Schön, 2012). As Chandler (1977) has shown, the mechanisation of production and the emergence of long-distance communications also paved the way for the growth of what he calls the modern business enterprise. The hierarchical organisation of modern industries and large communication enterprises generated an increasing demand for clerks with specialised administrative and personnel skills. In particular, skills to handle the growing flow of information and the required economic and juridical documentation were in great demand.

The second factor is the modernisation of the Swedish public administration in the second half of the nineteenth century, which increased the demand for well-educated bureaucrats. Rothstein (1998) shows a marked increase in the demand for specialisation among Swedish public administrators in this period. Along with the modernisation of the Swedish public administration, the modernisation of occupations such as teaching and health care is a significant indicator of the rapidly rising demand for an educated workforce within a number of classic middle-class professions (Emanuelsson, 1990; Florin, 1987). The lagging supply of well-educated salaried employees is probably one of the factors that can help explain the considerable wage advantage. Florin’s (1987) conclusions about the professionalisation of primary school teaching in the second half of the nineteenth century chime in well with the conclusions drawn by Boot (1999) in his study of clerks’ wages. Wage inequality increased for two reasons: first, the supply of well-educated clerks and teachers did not match the demand; second, the tasks performed by salaried employees in general became much more specialised.

Historical evidence does not, however, always support explanations that lean towards supply-side economics. Mass emigration, for instance, is said to have brought significant changes to the supply of
unskilled workers. O’Rourke and Williamson (1995) have argued that Swedish emigrants were mainly unskilled workers. As a consequence, the supply of such workers decreased in relation to skilled workers and in relation to other factors of production, such as land and capital. The outflow of unskilled workers benefited those who stayed, they conclude. Williamson’s (1995) wage data show that unskilled workers’ wages increased enormously. Schön (2012), one of the most authoritative voices on Swedish economic history, adopts the same reasoning and argues that the years between 1870 and 1913 comprise a workers’ golden age because of mass emigration. Prado (2010a), on the other hand, casts doubt on this assumption; the wage data available for skilled and unskilled workers in manufacturing based on Bagge et al. (1933), he shows, do not substantiate the claim that unskilled workers’ wages catch up with skilled workers. Manufacturing workers might indeed have benefitted from a real wage development, but this development is not extraordinary against the backdrop of rapid industrialisation and economic growth.¹⁴

The gap between middle-class and working-class wages narrows gradually after the peak in the 1880s. One potential explanation for this diminishing gap is the last big emigration wave that took place in the first decade of the twentieth century. Whereas the early emigration wave was a rural phenomenon, the late wave comprised mostly urban dwellers, and particularly those who worked in manufacturing industries. Another, and probably more important, explanatory factor is the expansion of education. Historical research on the American context has often called attention to the changing supply of workers who had the required skills as an important element to understand the development of relative wages. The early expansion of secondary education in the US prevented the growth of the gap between skilled and unskilled workers in the first decades of the twentieth century (Goldin & Katz, 2008). In the UK, clerks employed in the public sector lagged behind the working class between 1875 and 1950 (Routh, 1954, p. 210). The expansion of education after 1870, Routh argues, caused clerks to lose their uniqueness and, thereby, their prestige.

Another important element that contributed to the improvement of workers’ conditions after the turn of the century was the growth of trade unions, which empowered workers in negotiations with employers. Salaried employees, in contrast, formed trade unions much later (Lundh, 2010). Trade unions made little difference for Swedish wages in the 1880s and 1890s, but the 1910s was a turning point (Bengtsson, 2017). In this decade, the labour movement progressed, the socialist revolution was a real possibility, trade unions attracted great numbers of workers, and strikes were recurrent: in this context, workers’ wages rose rapidly in countries such as Sweden, the US, and Germany (Bengtsson, 2014). The most expressive manifestation of the success of the workers’ struggle in Sweden were the two reforms of 1919: the imposition of universal suffrage, and the introduction of the 8-hour workday, which resulted in an unparalleled raise in the hourly wages paid to manufacturing workers (Bengtsson & Molinder, 2017; Prado, 2010b). The middle class, in contrast, did not experience a similarly rapid wage development, which caused the gap in relation to the working class to diminish gradually (cf. Kocka, 1980, p. 28, 155–157).

5.3. Implications for economic inequality?

Previous research on Swedish inequality in the late nineteenth and early twentieth century has focused on top income earners, capital gains and wealth. In their seminal study of Swedish income inequality, Roine and Waldenström (2008) found very high levels of inequality in the early twentieth century. They examine top income earners and attribute most of the ups- and downs in inequality to capital incomes among the upper 1%. Since their investigation begins in 1903, we know little about the origins of this high level of inequality. Bengtsson et al. (2018) offer some clues about inequality in the earlier history. They study the distribution of wealth from 1750 to

¹⁴Ericsson and Molinder (2018), though, provide some support to the idea that unskilled workers’ wages grew faster than skilled workers’ wages between 1885 and 1890 based on new wage evidence on construction workers.
1900 and pay particular attention to the nobility, the economic bourgeoisie and farmers. In the late nineteenth century, wealth inequality was high. Since salary employees are lumped together with company owners and labelled ‘bourgeoisie’, we cannot infer from their study what particular role ‘the new middle class’ played in the distribution of wealth.

Our study indicates that forces serving to augment wage inequality were at play in the late nineteenth century. As we have discussed, large cities and the growing middle class gained importance to the Swedish economy during the latter half of the nineteenth and the first half of the twentieth century. By 1890, white-collar employees made up 9.4% of the Swedish work force outside of agriculture. It is likely that the vast pay advantage of salary employees vis-à-vis workers pushed up overall wage inequality by the final third of the nineteenth century.\(^{15}\) Our evidence of high wage inequality complements the previous evidence of large top income shares and a skewed wealth distribution in the Late Nineteenth and Early Twentieth Century Sweden. Wage inequality also appear to play a part in the levelling of incomes that took place in the interwar years (Gärtner & Prado, 2016). As we have illustrated, the pay gap gradually declined in the first half of the twentieth century, owing most probably to mass education and labour mobilisation. The size and movement of earnings gaps across classes or similar lines of demarcation deserve a prominent position in future economic history research on income distribution.

6. Conclusion

Economic-historical research on wage inequality has focussed too much on differences among blue-collar workers. We have thereby neglected socially and economically important differences between the middle class and the working-class. Middle-class occupations such as primary school teachers and nurses developed rapidly in the nineteenth century. At the same time, the supply of skilled employees remained relatively low, and it is likely that it did not increase to match the demand. Concomitant to this mismatch between supply and demand, the earnings gap, as we have seen, increased hugely. This finding corroborates what we already know about the distribution of incomes and wealth in the end of nineteenth century, namely, that it was very unequal. Kocka’s (1987) description of the nineteenth century as ‘the bourgeois century’ seems accurate in light of our results.

We believe that our results have several implications for further research. The increased importance of the ‘new middle class’ across the nineteenth century could be examined in light of such aspects as class consciousness, values, and social and political attitudes. Blumin (1989), Kocka (1981) and others have called attention to the conscious efforts of the middle class to differentiate itself from the working class in the industrialised society; given the rise and decline of middle class advantage found here over the period from the 1830s to the 1930s, it would be interesting to further investigate the social and ideological implications of this development. Further, the impact of income gaps on the attitudes of the Swedish middle class in relation to democracy and the working class could be examined, as it has been in other countries (Burris, 1986).

The connection between income distribution and consumer demand in the nineteenth century is another area that warrants attention. Boot (1999, p. 663) discusses the role of the British middle class as a source of demand for finer products such as china or handicrafts, but the Swedish debate about demand in this period focuses almost solely on farmers (Schön, 1979). Ahlberger (1996, p. 117, 150) also attaches some importance to the role played by proletarian and semi-proletarian groups in the consumption of manufactured products. Given that a specialised and highly educated salaried employee earned 7–8 times more than the average rural worker did, it is clear that salaried employees enjoyed a considerable purchasing power. Although numerically insignificant, at least in relation to farm workers, high earning salaried employees probably affected the demand for luxury goods as well as labour for household services. Nordlund Edvinsson and Söderberg’s (2010) study of the so-called

\(^{15}\)Ericsson and Molinder’s (2018) evidence of declining pay distance within construction, between helpers on the one hand and carpenters, masons and teamsters on the other, indicates that within class inequality might have gone in the opposite direction.
servant crises exemplifies how wage inequality affects consumption patterns. They show that the favourable development of wages for servants in the 1910s and 1920s, outgrowing the salaries of the middle-class, implied that wide swathes of the middle class could no longer afford to hire servants.

Acknowledgements

Previous versions of this paper was presented at the Scottish Economic Society Annual Conference, Perth 2014 and the higher seminar at the Department of Economic History, Gothenburg University. We thank the participants for useful suggestions. In addition, the authors would like to acknowledge Evelyn Prado for language services, Johan Söderberg for sharing his data with us, and Yoshihiro Sato. Svante Prado has received financial support from Vetenskapsrådet (2016-02148), Riksbanken (P09-0500:1-E) and Jan Wallander and Tom Hedelius Foundation (W2009-0161:1). Erik Bengtsson’s has received support from Riksbanken (P09-0500:1-E) and Jan Wallander and Tom Hedelius Foundation (P2014-0070:1).

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by Jan Wallanders och Tom Hedelius Stiftelse samt Tore Browalhs Stiftelse: [grant number P2014-0070:1, W2009-0161:1]; Riksbankens Jubileumsfond: [grant number P09-0500:1-E]; Vetenskapsrådet: [grant number 2016-02148].

References

Official publications
BiSOS A Befolkning. Folkräkningen 1891.
BiSOS N. Hushållnings-sällskapens berättelser för året 1865–1911. (Stockholm: SCB, 1867–1912).
Kongl. Maj:ts befallningshavandes femårserättelser, 1833–1905. The five-year reports have been digitised and are presently available at the SCB’s webpage: https://www.scb.se/sv_/Hitta-statistik/Historisk-statistik/Digitaliserat—Statistik-efter-serie/Officiell-statistik-1811-1860/Femarsberättelser-1817-1855/
Sociala meddelanden 1927. Stockholm: Socialstyrelsen.
SOS. Arbetareutbildning. arbetstid och arbetslösh inom Sveriges jordbruk år 1911–1928. Stockholm: Socialstyrelsen.
SOS. Lönestatistisk årsbok för Sverige. 1929–1951. Stockholm: Socialstyrelsen.
Statens offentliga utredningar. SOU 1937-48, Betänkande med förslag till civilt avlöningsreglemente. Stockholm: Finansdepartementet.
Internet:
Sveriges statskalender. Utgifven efter Kongl. Maj:ts nådigste förordnande af dess Vetenskaps-akademi. Stockholm.
Kongl. boktryckeriet, P. A. Norstedt & söner. http://runeberg.org/statskal/
Historiska lønedatabasen (HILD): https://es.handels.gu.se/avdelningar/avdelningen-for-ekonomisk-historia/historiska-lonedatabasen-hild
Books and articles
Ahlberger, C. (1996). Konsumtionsrevolutionen. Göteborg: Humanistiska fakulteten vid Göteborgs universitet.
Anderson, E. (2001). Globalisation and wage inequalities, 1870–1970. European Review of Economic History, 5, 91–118.
Archer, M., & Blau, J. R. (1993). Class formation in nineteenth-century America: The case of the middle class. Annual Review of Sociology, 19, 17–41.
Bagge, G., Lundberg, E., & Svennilson, I. (1933). Wages in Sweden 1860–1930. Part one: Manufacturing and mining. London: P.S. King.
Bagge, G., Lundberg, E., & Svennilson, I. (1935). Wages in Sweden 1860–1930. Part two. Stockholm: Stockholm Economic Studies.
Bengtsson, E. (2014). Labour’s share in twentieth-century Sweden: A reinterpretation. Scandinavian Economic History Review, 62(3), 290–314.
Bengtsson, E. (2017). Inequality and the working class in Scandinavia 1800–1910: Workers’ share of growing incomes. Investigaciones de Historia Económica – Economic History Research, 13, 180–189.
Minde, K. B., & Ramstad, J. (1986). The development of real wages in Norway about 1730–1910. *Scandinavian Economic History Review, 34*, 90–121.

Myhre, J. E. (2004). Uncertain status: Norwegian teachers between professions and middle classes. In T. Ericsson, J. Fink, & J. E. Myhre (Eds.), *The Scandinavian middle classes 1840–1940* (pp. 237–259). Oslo: Unipub forlag.

Myrdal, G., & Bouvin, S. (1933). *The cost of living in Sweden, 1830–1933*. London: P. S. King & Son.

Nordlund Edvinsson, T., & Söderberg, J. (2010). Servants and bourgeois life in urban Sweden in the early 20th century. *Scandinavian Journal of History, 35*(4), 427–450.

Nyzell, S. (2014). The policeman as a worker – or not? – International impulses and national developments within the Swedish police, ca. 1850–1940. *Nordisk politiforskning, 1*, 149–165.

Olsson, E. (2018). *Inkomstfördelning i Stockholm 1870–1914* (Bachelor’s thesis in Economic History). Uppsala University.

O’Rourke, K. H., & Williamson, J. G. (1995). Open economy forces and late nineteenth century Swedish catch-up: A quantitative accounting. *Scandinavian Economic History Review, 43*(2), 171–203.

Parkin, F. (1979). *Marxism and class theory: A bourgeois critique*. London: Tavistock.

Piketty, T. (2014). *Capital in the twenty-first century*. Cambridge, MA: Belknap Press of Harvard University Press.

Prado, S. (2010a). Fallacious convergence? Williamson’s real wage comparisons under scrutiny. *Cliometrica, 4*, 171–205.

Prado, S. (2010b). Nominal and real wages of manufacturing workers, 1860–2007. In R. Edvinsson, T. Jacobsson, & D. Waldenström (Eds.), *Historical monetary and financial statistics for Sweden: Exchange rates, prices and wages, 1277–2008* (pp. 479–527). Stockholm: Ekerlids.

Roine, J., & Waldenström, D. (2008). The evolution of top incomes in an egalitarian society: Sweden, 1903–2004. *Journal of Public Economics, 92*(1–2), 366–387.

Rothstein, B. (1998). State building and capitalism: The rise of the Swedish bureaucracy. *Scandinavian Political Studies, 21*(4), 287–306.

Routh, G. (1954). Civil service pay, 1875 to 1950. *Economica, 21*, 201–223.

SCB (1969). *Historisk statistik för Sverige. Del 1. Befolkning 1720–1967*. Stockholm: Statistiska Centralbyrån.

Schön, L. (1979). Från handverk till fabriksindustri: Svensk textilindustrin 1820–1870. Lund: Arkiv.

Schön, L. (2012). *En modern svensk ekonomisk historia: Tillväxt och omvandling under två sekel*. Stockholm: SNS.

Söderberg, J. (2010). Long-term trends in real wages of labourers. In R. Edvinsson, T. Jacobsson, & D. Waldenström (Eds.), *Exchange rates, prices, and wages, 1277–2008* (Vol. 1, pp. 453–478). Stockholm: Ekerlids förlag.

Sörensen, A. (1942). *Den svenska folkskolans historia, tredje delen: Det svenska folkundervisningsväsendet 1860–1900*. Stockholm: Bonniers.

Spetze, G. (1992). *Stockholms folkskolor 1842–1882: Ambition och verklighet*. Uppsala: Föreningen för svensk undervisningshistoria.

Williamson, J. G. (1985). *Did British capitalism breed inequality?* Winchester, MA: Allen and Unwin.

Williamson, J. G. (1995). The evolution of global labor markets since 1830: Background evidence and hypotheses. *Explorations in Economic History, 32*, 141–196.

Williamson, J. G. (1996). Globalization, convergence and history. *The Journal of Economic History, 56*(2), 277–306.

Williamson, J. G., & Lindert, P. H. (1980). *American inequality: A macroeconomic history*. New York: Academic Press.

Wright, E. O. (2005). Foundations of a neo-Marxist class analysis. In E. O. Wright (Ed.), *Approaches to class analysis* (pp. 4–30). Cambridge: Cambridge University Press.