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## The rise of the middle class

### The income gap between salaried employees and workers in Sweden, 1830–1935

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# Lund Papers in Economic History



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Erik Bengtsson & Svante Prado

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# The rise of the middle class

The income gap between salaried employees and workers in Sweden, 1830–1935\*

*Erik Bengtsson<sup>♠</sup> and Svante Prado<sup>♣</sup>*

## Abstract

We present the first comprehensive, long run salary information on Swedish middle-class employees before the twentieth century. Our data include school teachers, professors, clerks, policemen and janitors in Stockholm 1830–1935. We use the new data to compare the annual earnings of these middle-class employees with the annual earnings of farm 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.

**Keywords:** wages, salaries, income inequality, middle class, Sweden

**JEL codes:** J31, N13, N33

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## 1. Introduction

A great deal of the debate on wage inequality in the late nineteenth and early twentieth century has focussed on evidence of so-called skilled and unskilled wage ratios for manual workers. To a great extent, this focus has stemmed from the empirical implications of some of the most influential economic theories of income distribution: the capital-skill Complementarity hypothesis, for instance, postulates that technological changes lead to increased demand for skills, thereby augmenting the skilled to unskilled wage ratio; the Factor Price Equalisation theorem predicts that international trade will compress skill differentials (Anderton et al. 2002); and models of supply-side economics 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 (Williamson 1996). Yet most of the empirical studies of wage inequality in the late nineteenth and early twentieth century have failed to identify significant changes in the skilled to unskilled wage ratio, which is remarkable in light of the findings of the historical literature on wealth inequality and top income shares. This literature has documented wide swings and great levels of inequality in the late nineteenth and early twentieth century (Piketty 2014).

It is unclear how changes in the skilled to unskilled wage ratio should be interpreted, and research on wage inequality would benefit from placing explicit focus on class issues. In a famous and fierce exchange of views in the latter half of the 1980s, Feinstein (1988) raised a number of objections to refute Williamson's (1985) thesis that income inequality first increased and then decreased in the UK in the 19<sup>th</sup> century. While Williamson explained his inverted U-curve with reference to changing demand for and supply of skilled workers, Feinstein showed that Williamson's empirical findings can be attributed to the favourable wage development of five groups of well-educated salaried professionals: lawyers, doctors, engineers, clerks, and public officials. He thereby cast doubt on Williamson's claim to have established a connection between the wage development of his sample of professions and economic factors, such as productivity and technological development, both of which, in Williamson's account, have impacted on the demand of various labour skills. Feinstein's take-away point from this debate is that all one can say about the wage structure during the nineteenth century is that it was relatively stable. Ours, meanwhile, is that while Williamson purports to portray the development of inequality at large, and attribute to its changing magnitude some powerful economic factors, in fact the evidence he presents speaks to the issue of the relative standings of workers versus salaried employees. In other words, the

earnings of typically middle-class occupations increased faster than typically working-class occupations in the latter half of the nineteenth century.

We propose to steer the discussion about wage inequality away from pay ratios distinguished by skills towards pay ratios distinguished by class. The preoccupation with the usual economic theories of inequality and their empirical implications has neglected class-related issues, such as changes in terms of power and status. Therefore, we have followed Boot (1999) in comparing evidence of annual earnings for two groups that are distinct in terms of formal qualifications and duties: salaried employees, who are typical representatives of the middle class, and unskilled workers. Research into the development of wages for manufacturing workers in the latter half of the nineteenth century in Sweden has a long pedigree, but we know little about the earnings of salary employees. Hitherto, scholarship on wage development in Sweden has relied on fragmentary or scarce evidence of earnings for salaried employees. Scheve and Stasavage (2009), for instance, have resorted to an unpublished series of technicians, seemingly stemming from Kockum shipyard (Ljungberg 2006), to investigate the institutional determinants of income inequality for Sweden. In addition, the influential and bulky two volumes of *Wages in Sweden* (Bagge et al. 1933, 1935) lack information on earnings of salaried employees. To address this paucity of information, we have compiled novel evidence of the annual earnings of several different salaried employees, such as teachers, nurses, and clerks – the prototypes of the middle class. We contrast evidence of the annual earnings of salaried employees with evidence of the annual earnings of unskilled workers in agriculture, construction, and manufacturing between 1833 and 1935.

Our evidence bears witness to dramatic swings in the relative earnings of salaried employees and workers. The earnings gap between salaried employees and workers increased dramatically up until the 1880s; at that time a secondary school teacher (*läroverkslärare*) was paid nine times more than an agricultural worker. The data we present to document this significant pay advantage stand in sharp contrast to previous claims, sustained by anecdotal evidence, that teachers were “paid as much as a contract worker” (*statäre*), and forced to live in “asceticism and celibate” (Florin and Johansson 1993, p. 144). We also provide long-run evidence of these earnings differences, the earliest from the seventeenth century and the most recent one from today. This long-run evidence confirms that 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) depiction of the latter half of the nineteenth century as the era of the bourgeoisie. The emergence of a middle class strong both in economic and political terms prompted him to characterize the period between the Napoleonic wars and the beginning of the First World War as "the bourgeois century" (Kocka 1987, p. 7). Moreover, our results also resonate with the mounting evidence showing that income inequality was very high in the late nineteenth and early twentieth century both in Sweden and other developed countries (Piketty 2014; Bengtsson et al. 2018; Roine and 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.

## 2. The standing of the middle class: previous views

### *2.1 The formation of the middle class*

Some features of the job market gradually distinguished the middle class relative to the working class during the nineteenth century. One of them was the form of payment contract. Salaried white-collar workers were paid every month or every three months, in contrast to workers that were paid on an hourly, daily or weekly basis, or by piece rates; in addition, salaried employees earned more and enjoyed more generous off-salary payment schemes (such as vacation). Another distinguishing feature was the tasks that salaried employees were set to perform. In general, their tasks could not be controlled or measured in the same way as the tasks performed by workers (and so they were never paid by piece rates). Yet another one is the level of formal education. It was necessary to provide salaried employees with longer education (Kocka 1980, 1981). We may also distinguish, as social historical researchers sometimes do, between the "old" and the "new" middle class. The "old middle class" consisted of craftsmen and tradesmen from the early modern and the early industrial society (Archer and Blau 1993; Ericsson 2004). As the groups of well-educated white-collar workers gained prominence in the nineteenth century, the "new middle class" arose.<sup>1</sup>

In Sweden, two categories of professionals now considered typically middle-class, namely nurses and teachers, provide good examples of the gradual improvement in their social standing. Emanuelsson (1990) shows how health care, between 1840 and 1910, evolved from being a characteristically female occupation, in which no specialised knowledge was

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<sup>1</sup> Kocka (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.

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 (Spetze 1992; Evertsson 2012).

## ***2.2 The claimed earnings 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 profession was on the rise; on the other hand, they also claim that teachers were paid miserable salaries. As Florin (1987, pp. 97, 276) puts it, for example, teachers were “remarkably successful” in their efforts to earn professional respect, and yet she also acknowledges that teachers 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) 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. The claim that the Norwegian teachers were badly paid is disputable, though: they did earn less than sailors in 1870, but their salaries doubled between 1876 and 1901 (Minde and Ramstad 1986).

Teachers employed in 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 clearly a much more prestigious occupation than teaching at primary schools. Secondary school teachers were exclusively men and often held a doctoral degree; the boundaries between them and university teachers were unclear (Florin and Johansson 1993, p. 157). But still, perhaps because of the higher expectations following their higher social status, secondary school teachers 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”: he could not afford the lifestyle a middle-class woman expected.

Given the lack of salary data, accounts of the actual earnings situation of teachers are imprecise. Florin and Johansson (1993, Table 10:1), for instance, use data from Carlsson (1973) to discuss the white-collar pay advantage versus a manufacturing worker in an unspecified year between 1870 and 1890. Their comparison has two problems: first, considerable changes might occur over two decades; second, the manufacturing worker that serves as a counterpart to the teacher is in fact quite well paid, misleading us to believe that the teacher was badly paid. The annual wage of the manufacturing worker in Florin and Johansson’s study was 800 *kronor*; in contrast, Bagge et al. (1933, p. 48) show that male manufacturing workers earned from 500 to 700 *kronor* in the 1870s and 1880s (see Table 1).

Further, research on the wage relatives in other countries also casts doubt on this account of the state of affairs in Sweden. 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. In the 1870s, the advantage was about 20 to 30 percent; from the beginning of the twentieth century up until the end of the First World War, it varied between 40 and 60 percent. Minde and Ramstad (1986) show something similar in Norway. Primary school teachers overtake skilled sailors in the 1870s and increase the distance until 1900. Hodne and Grytten (1999, p. 286) present wage data for the Norwegian economy in the nineteenth century showing that a university lecturer earned 6 to 8 times more than a road worker in the 1870s. Boot (1999, pp. 660–1) 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.

Increasing polarisation of the work force between manual workers and salaried employees is a distinguishing characteristic of the late nineteenth century. Both Florin’s (1987) study of primary school teachers and Emanuelsson’s (1990) study of nurses put a finger on the formation of the “new” salaried middle class. Similarly, in his study of the salaries of British clerks, Boot (1999, p. 662) documents 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 percent in 1843 to 65 percent in 1868 and 75 percent in 1910, and the role of human capital in the economy increased steeply (Ljungberg and Nilsson 2009, p. 80). Put differently, the second half of the nineteenth century can be described as a genuinely bourgeois era in Sweden, with high income inequality in favour of the middle class and the bourgeoisie.

### 3. Earnings of workers and salaried employees

#### *3.1 Tapping from several sources*

Our study is the first one to present systematic evidence of annual earnings for salaried employees over the nineteenth century. Previously, Swedish wage data have covered only 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 annual salaries for salaried employees before 1800 is limited to Stockholm's public administration between 1622 and 1719 (Jansson and Söderberg 1991). The official wage statistics display little information for salaried employees until 1956 (SOS Löner).<sup>2</sup>

Our main data source of middle-class wages is *Kongl. Maj:ts befallningshafvandes femårsberättelser*. Between 1634 and 1967, the most important public administration office in the city of Stockholm was the *Överståthållarämbetet* (ÖÄ). The highest public official in the ÖÄ had the authority of a governor. The 24 Swedish county governors, entitled *Kongl. Maj:ts befallningshafvande*, sent reports every five years about various social, political, and economic issues in the 24 counties and the city of Stockholm to the Swedish central administration. The five-year reports for Stockholm in the period 1833–1905 contain detailed information about the salaries paid in the public administration, and they serve as basis for the annual earnings figures that we have compiled for different middle-class groups.<sup>3</sup> The five-year reports have been digitised and are presently available at the SCB's webpage.<sup>4</sup>

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<sup>2</sup> See HILD (<http://es.handels.gu.se/avdelningar/avdelningen-for-ekonomisk-historia/historiska-lonedatabasen-hild>)

<sup>3</sup> It 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. 10–3).

<sup>4</sup> <https://www.scb.se/sv/Hitta-statistik/Historisk-statistik/Digitaliserat---Statistik-efter-serie/Officiell-statistik-1811-1860/Femarsberattelser-1817-1855/>

The reports provide detailed information about primary school teachers' wages between 1860 and 1905 and about the wages paid to their predecessors, the teachers of the so-called children schools (*barnskollärare*). This is an excellent example of a profession that has been upgraded: first, the children school was replaced by the more ambitious primary school; then, as we pointed out previously, the formal educational requirements for primary school teachers were gradually increased, which in turn had a positive impact on their social standing (Spetze 1992). The five-year reports also contain wage data for secondary school teachers and teachers and researchers at *Karolinska Institutet* (the flagship of medical research in Sweden), *Teknologiska Institutet* (nowadays the Royal Institute of Technology), and *Stockholms högskola* (the predecessor of Stockholm University). These three groups represent the professionals who have the highest level of education. We also have wage data for police clerks between 1860 and 1905, which is particularly relevant for two reasons: first, clerks are prototypical white-collar workers; second, they are the focus of Boot's (1999) study in the British context. Finally, the reports also contain wage data for policemen, a group who probably enjoyed a somewhat lower status (Nyzell 2014), and janitors, who constitute a working-class group. These two occupations provide us with yet another reference category, since they have not experienced the upgrading effect noticed among teachers and clerks.

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, are another source of data (Sociala meddelanden 1927, p. 402). The records begin in 1866–1870 and end in 1926, and contain wage data for clerks (*notarier*) 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.

Our final source of wages is a public investigation into the wage settings of public employees published in 1937 (SOU 1937:48, p. 468–71). It contains information on the wages of six 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. We do not know if these agreed salaries correspond to actual annual earnings, but they give an indication of how the annual earnings of salaried employees developed over time and relative to manufacturing workers.

**Table 1. Annual earnings of salaried employees and workers, 1833–1935**

Profession		Swedish title	Sources	1833-37	1838-42	1843-47	1848-50	1851-55	1856-60	1861-65	1866-70	1871-75	1876-80	1881-85
Salaried employees														
1	Secondary school teacher	Läroverk	Kungl. 5-årsberättelser	804	900		1 097	1 014	1 698	2 014	2 381	2 767		3 692
2	Primary school teacher	Barnskolor	Kungl. 5-årsberättelser	500	500	500	569	455						
3	Primary school teacher	Folkskola	Kungl. 5-årsberättelser							627	603	935		
4	– male	– manlig	Kungl. 5-årsberättelser											1 600
5	– female	– kvinnlig	Kungl. 5-årsberättelser											1 200
6	Lecturer, higher education	Lärare på Karolinska inst.	Kungl. 5-årsberättelser		2 400	2 400				2 656	2 290	3 333		
7	Lecturer, higher education	Lärare på Teknologiska inst.	Kungl. 5-årsberättelser			1 565				2 250	2 421	2 415		
8	Lecturer, higher education	Lärare på Stockholms högskola	Kungl. 5-årsberättelser											
9	Lecturer, higher education	Lektor	Sociala meddelanden 1927								3 000	3 150	3 500	3 725
10	Clerk	Kanslist	Kungl. 5-årsberättelser							940	1 200	2 060	2 050	2 050
11	Clerk	Notarie (generalpoststyrelsen)	Sociala meddelanden 1927								2 200	2 376	3 128	3 500
12	Higher Civil Servant	Kammarråd	Sociala meddelanden 1927								5 000	5 200	6 140	6 700
13	Police officer	Poliskonstapel	Sociala meddelanden 1927				375	409	547	706	721	1 131	1 128	1 129
14	Janitor	Vaktmästare	Kungl. 5-årsberättelser				450	450	600	600	600			
15	Clerk	Notarie	SOU 1937:48											
16	Law clerk	Rådstjänst	SOU 1937:48											
17	Warrant officer	Fanjunkare	SOU 1937:48											
18	Captain (military)	Kapten i svenska försvaret	SOU 1937:48											
19	Railway clerk	Stationsskrivare	SOU 1937:48								1 332	1 404	1 692	1 692
Workers														
20	Unskilled construction worker	Grovarbetare (byggnation)		338	360	383	516				438	576	534	597
21	Manufacturing worker	Industriarbetare	Bagge (1933)							440	477	599	628	666
22	Female textile worker	Kvinnlig textilarbetare	Bagge (1933)							364	344	487	464	523
23	Day worker in agriculture	Daglönare i jordbruket	Jörberg (1972)	248	251	236	241	284	405	387	288			
24	Contract worker in agriculture	Statare	BiSOS/SOS							305	329	373	429	410

**Table 1 cont. Annual earnings of salaried employees and workers, 1833–1935**

Profession		Swedish title	1886– 90	1891– 95	1896 –00	1901 –05	1906 –10	1911– 15	1921– 22	1925– 26	1932– 35
Salaried employees											
1	Secondary school teacher	Läroverk	5 000								
2	Primary school teacher	Barnskolor									
3	Primary school teacher	Folkskola									
4	– male	– manlig	1 600	1 600	1 800	1 900					
5	– female	– kvinnlig	1 200	1 200	1 350	1 450					
6	Lecturer, higher education	Lärare på Karolinska inst.									
7	Lecturer, higher education	Lärare på Teknologiska inst.									
8	Lecturer, higher education	Lärare på Stockholms högskola	2 469	2 484							
9	Lecturer, higher education	Lektor	3 875	3 875	3 925	4 520	5 000	5000	11 672	9 809	
10	Clerk	Kanslist	2 050	2 050	2 200	2 720					
11	Clerk	Notarie (generalpoststyrelsen)	3 500	3 500	3 500	3 500	3 770	4 850	8 472		
12	Higher Civil Servant	Kammarråd	6700	6 700	6 700	6 700	7 040	8 400	15 000		
13	Police officer	Poliskonstapel	1 104	1 123	1 175						
14	Janitor	Vaktmästare	1 000	1 167							
15	Clerk	Notarie						4 600	9 600	7 697	7 096
16	Law clerk	Rådstjänst						8 100	15 425	12 394	11 541
17	Warrant officer	Fanjunkare				1 944	2 450	2 513	6 043	4 573	4 305
18	Captain (military)	Kapten i svenska försvaret				4 378	4 810	4 810	10 128	8 111	7 601
19	Railway clerk	Stationsskrivare	1 512	1 512	1 750	1 908	2 527	2 483	6 982	5 462	5 136
Workers											
20	Unskilled construction worker	Grovarbetare (byggnation)	597	720	765	864					
21	Manufacturing worker	Industriarbetare	696	758	875	968	1 130	1 287	2 743	2 555	2 513
22	Female textile worker	Kvinnlig textilarbetare	534	592	651	759					
23	Day worker in agriculture	Daglönare i jordbruket									
24	Contract worker in agriculture	Statäre	409	419	461	532	643	794	1 511	1 372	1 276

*Note:* Before 1855, Sweden had two currencies, riksdaler banco and riksdaler riksgäld. Riksdaler banco was standard in public administration (Granhölm 2013, p. 84). In 1855, riksdaler banco and riksdaler riksmünt were replaced by the riksdaler riksmünt; 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 and riksdaler riksgäld to riksdaler riksmünt. The exchange rate was 1.5 riksdaler riksmünt 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 riksmünt. Between 1838 and 1850, no wages were reported for Stockholm's Gymnasium. This school had very high wages in 1832–37 so we assume that the wage levels remained unchanged across the following years until 1843–7. In 1848–50, 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 1851–5, 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 1943–7, we have excluded teachers' salaries of *Karolinska Institutet* and *Teknologiska Institutet* because they were unreasonably low.

*Sources:* Male workers in manufacturing and female workers in textile: Bagge et al. (1933, p. 220, 260); male construction workers (unskilled): Söderberg (2010); Male farm workers: 1830–1865: Jörberg (1972); 1865–1910: BiSOS N.; 1911–1928: SOS. Arbetartillgång; 1929–1935: SOS. Lönestatistik årsbok. Salaried employees: Kongl. Maj:ts befallningshafvandes femårsberättelser, 1833–1905; Sociala meddelanden 1927; Statens offentliga utredningar (SOU 1937:48). Annual earnings for secondary school teachers (Läroverkslärare row #1) for 1901–05 originate from nation-wide figures at [http://www.lararnashistoria.se/laroverken\\_och\\_gymnasieskolan\\_1900-talet](http://www.lararnashistoria.se/laroverken_och_gymnasieskolan_1900-talet).

It is important to bear in mind that the wage data refer only to Stockholm. Teachers who have pursued their education in Stockholm seemed to have earned higher wages than teachers who studied in other parts of the country (cf. Florin 1987, p. 156). Since their wages are compared with wages paid to workers in Stockholm, the negative effect of actual wage differentials across space should be cancelled out.

### 3.2 *Earnings of salaried employees*

Table 1 presents our annual earnings of salaried employees. We focus on the earnings of primary and secondary school teachers, our most consistent evidence. After 1819 secondary education in Stockholm (regulated by the “*Directionen för Stadens Undervisnings-Verk*”) could be pursued in the following institutions: the *apologistskolor*, the *lärdomsskolor*, and the Stockholm’s Gymnasium (Spetze 1992). The so-called *apologistskolor* trained students to become clerks and tradesmen; *lärdomsskolor* prepared students for higher studies, and the Stockholm’s Gymnasium provided the highest level of education before university studies. These schools underwent a comprehensive reform in the 1870s and the *apologistskolor* became secondary schools.<sup>5</sup> The teachers received quite a considerable share of their salaries in grain up to 1860 and in free housing up to 1881. These benefits must be taken into account in the comparison with other groups. The value of grain is relatively easy to estimate because the quantities are given in barrels: we assume that one barrel held 165 liters; half of it was barley and the other half was rye (Klose 2011, p. 53). We use Jörberg’s (1972) prices for barley and rye in the region of Stockholm to estimate the monetary value of grain. Calculating the value of free housing is more complicated; the Stockholm rent series only begins in 1883 (Myrdal’s (1933, table 19). According to his evidence, housing accounted for 7.5 percent of household costs in the early nineteenth century, and it rose to 10 percent over the second half of the century. With basis on these figures, we estimate the value of the teachers’ free housing.

The period we examine begins before the creation of the primary schools in 1842. For the period between 1833 and 1855 we have salary data from four state-run schools (*almänna*

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<sup>5</sup> The schools referred to (1833–1837) are: Stockholms Kongl. Gymnasium (previously Storskolan), Clarae högre Lärdoms-Skola, Mariae högre Lärdoms-Skola, Jacobi högre Apologist-Skola, Catharinae högre Apologist-Skola, Stadens lägre Apologist-Skola, Ulricae Eleonora lägre Apologist-Skola, Hedvig Eleonarae lägre Apologist-Skola, Adolph Fredrics lägre Apologist-Skola. Substantial changes took place in the educational system in Stockholm in the 1870s, but it is fairly easy to trace the new schools (with new names) to the previous *apologistskolorna* and the Stockholm’s Gymnasium. The wages for secondary school teachers in the period 1881–1885 refer to the following institutions: Norra latin, Södra latin, Real, Jakobs, Katarina, and Ladugårdslands.



*barnskolor*) established during the 1820s to attend poor children.<sup>6</sup> The instruction offered was rudimentary; apart from learning to read and write, the children received Christian instruction and were taught the basics of mathematics, Swedish grammar, and Swedish history and geography (Linge 1914, p. 1914, p. 14; Spetze 1992). We have used the salaries paid to teachers who taught in these state-run schools for poor children in order to prolong the series of salaries of primary school teachers that begins in 1842.

In the mid-1880s a change occurred in the way salaries of primary school teachers were reported. The 1881–1885 report was the first to present the wages stipulated for regular and substitute teachers both with and without seniority bonus, rather than the salaries that were actually paid. Three different wage levels for men and two for women are specified in the 1881–1885 report. Teachers were given a pay rise after five and ten years of work; the rise was higher for male employees. We calculate the salary for a male and for a female teacher from the lowest salary group with a five-year pay rise as a reference category.

Salaries paid to professors and researchers at the higher education institutions *Karolinska Institutet* and *Teknologiska Institutet* (which later had its name changed to *Tekniska Högskolan*) appear in the reports for 1838–1842 and 1871–1875. The salaries of these professionals ceased to be reported in the years that followed, but the 1886–1890 and 1891–1895 reports display data for teachers at the *Stockholms Högskola*, created in 1878. These series are very short and cannot be used to reveal longer tendencies in salaries differences, yet they do allow us to see levels of income differences in specific occasions. We add salary data for lecturers collected from the records of the Social Board (Socialstyrelsen 1927) to the data provided in the five-year reports. The salaries correspond to the average of commencing and final salary. This series begins in the period 1866–1870 and ends in 1926.

Table 1 also includes the earnings of police officers. The sources consulted display salaries for a number of different occupations within the police, and we have estimated the average wages of police officers from all the divisions of the Stockholm police. We have not included sergeants, who had higher salaries, and substitutes, who were paid lower salaries. Since detailed wage data for police employees are presented for the first time in the 1848–50 report, the salary series for police officers begins at that point.

Unfortunately, salary data for clerks, the prototype of middle-class workers in industrial society, can only be found from 1861–65 onwards. Clerks employed at the Stockholm police shared their offices with other groups of white-collar workers: a secretary and four notaries

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<sup>6</sup> The schools are: Stadens barnskola, Norra barnskolan, Södra barnskolan, and the Kongl. Djurgårdens skola.

are mentioned in the 1865 report, and a registrar appears in 1870. Seniority bonuses paid to police employees are recorded for the first time in the 1896–1900 report; clerks employed at the police were paid seniority bonuses from 1901–1905 onwards. These bonuses are an indication of the greater career opportunities that gradually emerged for salaried employees. We have also included janitors employed at the police, but the data available do not cover all the years: the series begins in 1848–1850, ends in 1871–1875, and is resumed in 1896–1900.

### **3.3 Workers' wages**

In order to shed light on earnings inequality, we compare our middle-class salaries with four wage series for typical working-class occupations, all of which appear in Table 1. The working-class occupations in question are: male day workers in agriculture in Stockholm county before 1865 (Jörberg 1972) and male contract workers (*statare*) in Stockholm county after 1865 (official statistics); the average of manufacturing workers (Bagge 1933); the average of female workers employed in the textile industry (Bagge 1933); and unskilled construction workers in the city of Stockholm (Söderberg 2010). 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. The records for the other groups show annual wages. 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.

## **4. Estimated earnings gaps**

Our analysis shows that, in contrast with the view held by a number of previous Swedish scholars, the middle class increased its earnings advantage in the period considered. Table 2 presents the new annual salary figures divided by annual earnings paid to unskilled construction workers in Stockholm, manufacturing workers, and agricultural 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 rural worker's wage increases from 3.2 to 9.0, and the ratio of a teacher's wage to an unskilled construction worker's wage increases from 2.4 to 6.2. Lecturers earned on average about 5.5 times more than a manufacturing worker between mid-1860s and late 1800s. In other words, the wage gap between the educated bourgeoisie and the working class was large in the final quarter of the nineteenth century. Graph 1 makes this pattern even more distinct by showing some of the wage ratios.

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 mid-1930s.

The earnings difference has probably never been greater than in the 1880s. We do not have records of teachers' earnings that begin in the 1600s, but we have as reference the ratio of notaries to unskilled construction workers between 1625 and 1720 in Stockholm: this ratio varies between 4.7 and 1.6.<sup>7</sup> The wage gap between a salaried employee and a manual worker in this early period was not even close to the size of the gap between a secondary school teacher and a worker, which yielded a ratio of about 8, in the 1870s and 1880s. We can make yet another comparison. A Swedish high school teacher earned on average 30 100 *kronor* a month in 2013, whereas the monthly wage of a rural worker was 20 800 *kronor*. Accordingly, the ratio of teachers to rural workers is 1.4.<sup>8</sup> Granted, a difference of 40 percent is significant, but it is much less pronounced in comparison with the levels of the nineteenth century.

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.<sup>9</sup> The starting salary of an adjunct secondary school teacher was raised from 2 200 to 3 000 *kronor*; a lecturer earned 4 000 *kronor* in the beginning of his career (only men taught at secondary schools) and 6 000 *kronor* when he retired. If we assume that a lecturer earned 5 000 *kronor* halfway through his career, his wage in 1905 was 5.8 times higher than the wage paid to an unskilled construction worker, and 8.9 times higher than a rural worker's wage. An adjunct secondary school teacher in the same phase of his career earned 3 times more than an unskilled construction worker, and 4.7 times more than a rural worker. In other words, the wage difference in 1904–1905 was still substantial.

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<sup>7</sup> Calculated with basis on data presented by Jansson and Söderberg (1991), assuming 300 workdays a year for construction workers.

<sup>8</sup> Our source is SCB's Wage Structure Statistics (*Lönestrukturst statistik*), available at <http://www.statistikdatabasen.scb.se>. We have referred to "232 high school teachers" and to "921 aides within agriculture, gardening, forestry, and fishing".

<sup>9</sup> [http://www.lararnashistoria.se/laroverken\\_och\\_gymnasieskolan\\_1900-talet](http://www.lararnashistoria.se/laroverken_och_gymnasieskolan_1900-talet)

**Table 2. Earnings ratios between salaried employees and workers, 1833–1935**

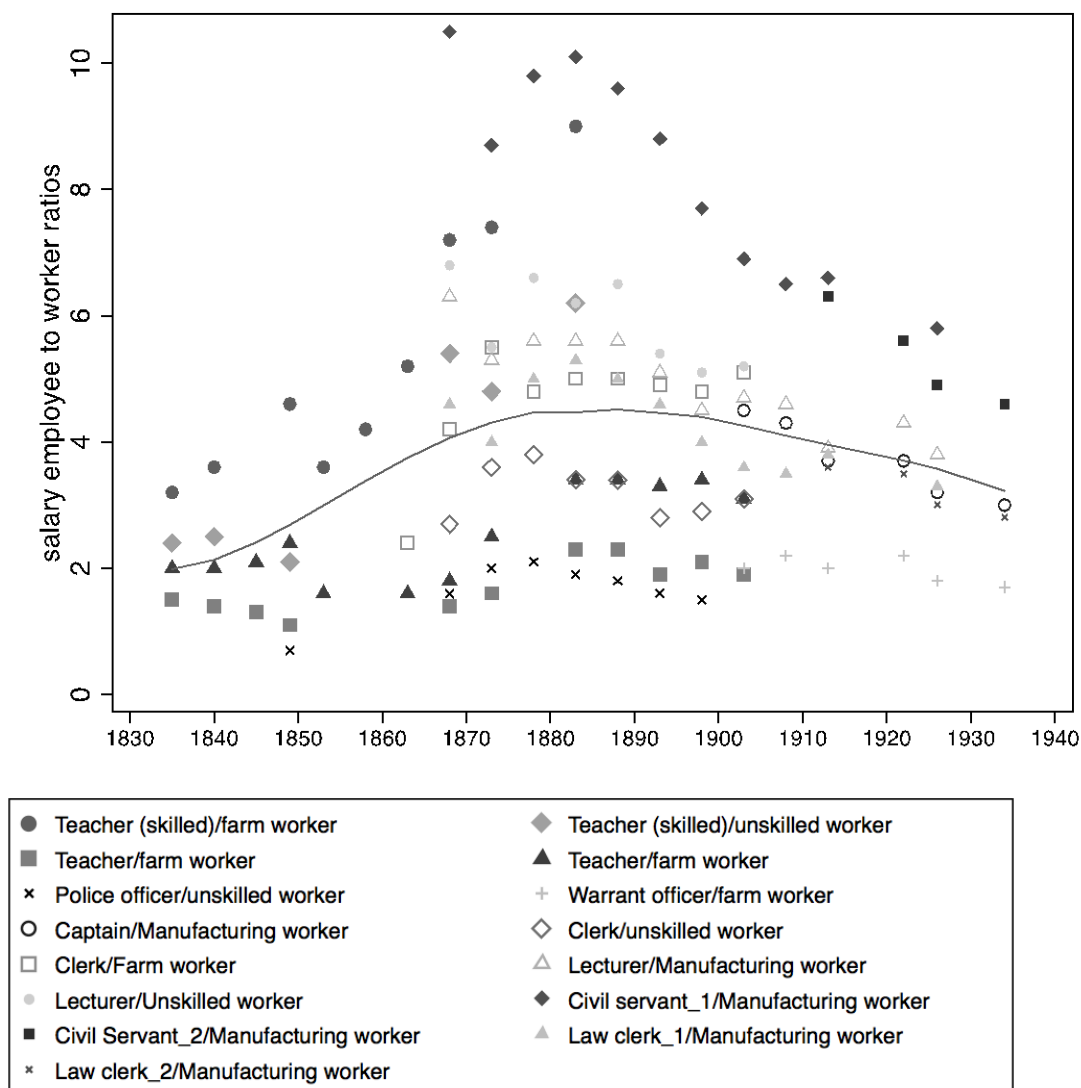
	Row #, Table 1	1833–7	1838– 42	1843–7	1848– 50	1851–5	1856– 60	1861–5	1866– 70	1871–5	1876– 80	1881–5
Secondary school teacher/farm worker	1/23, 24	3.2	3.6		4.6	3.6	4.2	6.6	7.2	7.4		9.0
Secondary school teacher/unskilled worker	1/20	2.4	2.5		2.1				5.4	4.8		6.2
Primary school teacher/unskilled worker	2, 3, 4, 5/20	1.5	1.4	1.3	1.1				1.4	1.6		2.3
Primary school teacher/farm worker	2, 3, 4, 5/23, 24	2.0	2.0	2.1	2.4	1.6		1.6	1.8	2.5		3.4
Police offices/unskilled worker	13/20				0.7				1.6	2.0	2.1	1.9
Warrant officer/Manufacturing worker	17/21											
Captain/Manufacturing worker	18/21											
Clerk/unskilled worker	10/20								2.7	3.6	3.8	3.4
Clerk/Farm worker	10/23, 24							2.4	4.2	5.5	4.8	5.0
Janitor/unskilled worker	14/20				0.9				1.4			
Janitor/Farm worker	14/23, 24				1.9	1.6	1.5	2.0	1.8			
Lecturer/manufacturing worker	9/21								6.3	5.3	5.6	5.6
Lecturer/unskilled worker	9/20								6.8	5.5	6.6	6.2
Civil servant/manufacturing worker	12/21								10.5	8.7	9.8	10.1
Civil servant/manufacturing worker	16/21											
Law clerk/manufacturing worker	11/21								4.6	4.0	5.0	5.3
Law clerk/manufacturing worker	15/21											

	1881–85	1886–90	1891–95	1896–00	1901–05	1906–10	1911–15	1921–2	1925–6	1932–5
Secondary school teacher/farm worker	9.0				9.4					
Secondary school teacher/unskilled worker	6.2				5.8					
Primary school teacher/unskilled worker	2.3	2.3	1.9	2.1	1.9					
Primary school teacher/farm worker	3.4	3.4	3.3	3.4	3.1					
Police offices/unskilled worker	1.9	1.8	1.6	1.5						
Warrant officer/Manufacturing worker					2.0	2.2	2.0	2.2	1.8	1.7
Captain/Manufacturing worker					4.5	4.3	3.7	3.7	3.2	3.0
Clerk/unskilled worker	3.4	3.4	2.8	2.9	3.1					
Clerk/Farm worker	5.0	5.0	4.9	4.8	5.1					
Janitor/unskilled worker		1.7	1.6							
Janitor/Farm worker		2.4	2.8							
Lecturer/manufacturing worker	5.6	5.6	5.1	4.5	4.7	4.4	3.9	4.3	3.8	
Lecturer/unskilled worker	6.2	6.5	5.4	5.1	5.2					
Civil servant/manufacturing worker	10.1	9.6	8.8	7.7	6.9	6.2	6.5		5.8	
Civil servant/manufacturing worker							6.3	5.6	4.9	4.6
Law clerk/manufacturing worker	5.3	5.0	4.6	4.0	3.6	3.3	3.8		3.3	
Law clerk/manufacturing worker							3.6	3.5	3.0	2.8

Note: Earnings ratios based on the annual earnings figures from Table 1. In 1881–5 to 1891–5, teachers (rows 4 and 5) is the arithmetic mean of male and female teachers from Table 1, rows 4 and 5. Florin (1987, s 57–59) shows that female workers made up on average 15 percent in 1880, and 33 percent in 1900. The share was much higher in urban areas than in the countryside.

**Graph 1. Salary employees to workers earnings ratios, 1833–1935**



As for primary school teachers, these were, in reality, *not* as badly paid as rural workers. A teacher employed in a *barnskola* earned about twice as much as a rural worker, and 10 to 50 percent more than an unskilled construction worker between the 1830s and the 1850s. This advantage in favour of teachers remained after the creation of the primary schools (*folkskolor*): teachers enjoyed a wage advantage of 40 to 110 percent in relation to workers in construction workers, textile, and agriculture.

In the 1860s, the wage paid to a primary school teacher in Stockholm was about 80 percent higher than the wage paid to a rural worker. It is true that teachers' wages were

particularly high in Stockholm: the minimum wage paid to a primary school teacher in the whole country was 400 *riksdaler* (Florin 1987), whereas teachers in Stockholm earned around 600 *riksdaler* (Table 1). Considering that a rural worker in the Stockholm region had only a 5 percent wage advantage in relation to the average rural worker in the country, the wage advantage enjoyed by teachers in Stockholm (in relation to their colleagues elsewhere in the country) was greater. The average Swedish rural worker earned about 327 *kronor* annually in the 1860s.<sup>10</sup> Accordingly, the *lowest* paid primary school teacher earned about 22 percent more than the average rural worker. The difference is not striking, but it is clear. In addition, our calculation of this difference is in the lower range, since we compare teachers' minimum wages with the rural workers' average wages. One must bear in mind, however, that the cost of living was lower for a rural worker (Lundh and Prado 2014).

Teachers had a considerable pay rise in the 1880s: their salaries increased from about 600 to 1 200 *kronor* for women and 1 600 *kronor* for men. Workers did not experience a similar favourable wage development. Teachers earned 3 to 5 times more than workers: a female primary school teacher who had worked for five years earned about 3 times more than a male rural worker in the last two decades of the nineteenth century; a male primary school teacher earned even more, that is, about 4 times more than a male rural worker.

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 with basis on Florin's work, 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 (Spetze 1992, pp. 147ff). Hence, it is not surprising that we can see an increase in the wage ratio of a typical primary school teacher (average of wages paid to male and female professionals) to a male rural worker, from 1.4 and 1.8 in the 1860s to 2.3 and 3.4 between the 1880s and 1890s. 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. 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

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<sup>10</sup> Calculated with basis on data presented by Jörberg (1972) assuming 300 workdays.

the *folkskolor* and workers widened between 1830 and 1890, as it did in the case of the secondary school teachers. The average monthly wage of a primary school teacher today is 28 000 *kronor*, which, compared to the 20 800 *kronor* that a rural worker earns every month, yields a ratio of 1.3 (SCB *Lönestrukturstatistik*). The salary-wage difference reached a historical peak in the end of the nineteenth and beginning of the twentieth century.

Our results are less conclusive in relation to teachers and researchers employed at research institutes and colleges (*högskolor*). First, 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 ( $2\,400/251=9.6$ ). The gap remains considerable if declining slightly until the mid-1870s ( $2\,290/288=7.9$ ), 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. In the 1860s and 1870s, they still earned about 6 to 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 1895, and 3.5 to 4.1 times more than an unskilled construction worker. If we disregard the differences among the three research institutes, we cannot see a growing wage gap between researchers and the working class.

Clerks earned about 2.4 times more than rural workers in the 1860s, but the wage gap widens considerably in the 1870s and 1880s, when a clerk could earn about 5 times more than a rural worker. The gap between clerks and unskilled construction workers was smaller: clerks earned 2.7 times more in the 1860s and about 3.5 more in the 1870s and 1880s. The wage distance decreases around the turn of the century to a factor of about 3. These figures resonate with Boot's (1999) description of the modernisation of the tasks performed by British clerks during industrialisation in the first half of the nineteenth century.

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. To be sure, police officers did have a wage advantage in relation to rural workers of about 50 percent in the 1850s and 1860s, and this advantage increased to about 150 and 200 percent towards the end of the century. Yet the gap in relation to unskilled construction workers did not undergo

any changes between 1860 and 1890, remaining at about 60 percent. Similarly, janitors did not increase their wage advantage in relation to rural workers or unskilled construction workers either. In 1850, when the comparison begins, a janitor earns on average 1.9 times more than the average rural worker; in 1905, the ratio is 2.1. Not a significant difference, in other words. In relation to unskilled construction workers, the ratio does grow from 0.9 in 1850 (a year when wages paid to unskilled construction workers were particularly high) to 1.4 in 1870, but it remains largely unchanged in 1900 and 1905.

The wage data for lecturers and higher civil servants at The Legal, Financial and Administrative Services Agency (*Kammarkollegiet*) provided by The Social Board (*Socialstyrelsen*) offer us a perspective into changes of the wage relationship up to the 1920s. Our analysis of lecturers' and civil servants' wages in relation to manufacturing workers' wages shows a narrowing gap. In the 1880s, a higher civil servant earned 10 times more than a manufacturing worker; the wage difference diminished considerably in the period 1916–1920 (the ratio decreased to 5.8). There is no indication that the wage difference experienced any significant increase in the remaining decades of the twentieth century. The ratio of a lecturer to a manufacturing worker decreased from about 5.5 to 4. 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 and Molinder 2017). Not much is known about the effects of the 8-hour workday reform on middle-class occupations.

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. 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.

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. 446–60). It also mentions that salaried workers who received the lowest salaries caught up with those who received 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.

## 5. The Bourgeois Century in Sweden

Our analysis allows us to make two central claims. First, the wage gap between the middle class and the working class between the 1830s and 1930s grew until the 1880s and then declined slowly. As far as we can see, the upswing and downswing in the earnings ratio cannot be attributed to any specific factor or circumstance affecting payment schemes in the public sector. Police officers and janitors, for instance, professionals of the public sector who are not typical salaried employees, did not enjoy remarkably higher wages in relation to workers. Only the salaries of what is commonly described as the new middle class underwent a considerable increase between the 1830s and the 1880s. The bulging pay advantage of the middle class in this time period squares with British evidence presented by Boot (1999) and Williamson (1985), and with American evidence presented by Lindert and Williamson (1980). In light of our quantitative findings, the nineteenth century does emerge, as Kocka (1987) put it, as “the bourgeois century” in Sweden too.

Second, when the earnings gap peaked in the 1880s, the pay advantage of the middle class was much wider than previous researchers had pointed out (Sörensen 1942; Florin 1987; Florin and Johansson 1993). Their findings, as we have shown, are based on anecdotal evidence. For instance, Florin and Johansson (1993, p. 144) quote a Swedish primary school teacher (*folkskollärare*) who, writing his memories in the end of the nineteenth century, complains about his material poverty earlier in life: as a young professional and family father in the 1860s, this teacher claims that he received “as much as a contract worker (*statare*)”, and was forced to live in “asceticism and celibate”. The teachers’ lamentation abounds with indignation: “the family of a primary school teacher must dress better than the family of contract worker” (Sörensen 1942, p. 291). Our investigation shows that the anecdotes of teachers concerning their relative wages have no bearing on the factual wage differentials relative to workers in construction, agriculture or manufacturing. In sum, it is incorrect to claim that primary school teachers were as socially disadvantaged as rural workers.

Instead, we argue, the excerpts from the teacher’s memoirs illustrate how wage differences between the middle class and the working class are associated with such issues as hierarchy and status, which lie at the heart of the perception of wage differences among social groups as fair. Middle-class salaries were high and wages for unskilled workers such as maids

were low; the educated “new middle class” at the turn of the twentieth century could, for instance, afford to hire a maid (Nordlund-Edvinsson and Söderberg 2010). It is not surprising that, considering himself deprived of a well-deserved class distinction, the teacher would choose to compare himself precisely with a contract worker, whose status, even before the emergence of the so-called proletarian literature in the 1930s, was naturally associated with submission and destitution (Hellspong 2005). 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.

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, since they were required to deal with the growing flow of information and with economic and juridical documentation.

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 (Florin 1987, Emanuelsson 1990). 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 professionalization 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 benefitted 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 the workers' golden age as a result of mass emigration. Prado (2010a), on the other hand, casts doubt on this assumption; the wage data available for skilled and unskilled workers, 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.

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 and 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 creation of the 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 can be described as a turning point in the history of trade unions and wage development (Bengtsson 2017). 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 was the introduction of the 8-hour workday in 1919, which resulted in an unparalleled raise in the hourly wages paid to manufacturing workers (Prado 2010b; Bengtsson and Molinder 2017).

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, pp. 28, 155–7). The reduction in the wage gap occurred precisely after the period considered here, which projects the years between 1830 and the early twentieth century as a unique epoch. The wage differences in the 1880s and 1890s, as we have seen, were considerably larger than the differences in the 17th century, the 18th century, and today. Ericsson (2004) argues that the middle class played an important part in Sweden's modernisation between 1840 and 1940. Our findings support his view. True, the transition from agrarian to industrial society was the most manifest expression of the early modernisation, and it proceeded in tandem with the growth of modern bureaucracy. Yet the importance of the middle class in this process has been neglected. Historical accounts of the Swedish modernisation often focus on capitalists and workers, and hence overlook the significance of the middle class, both as professionals and as bureaucrats. Our findings point in the same direction of Ericsson's: the strong and improved economic position of the professional middle class in relation to the working class cannot be disregarded.

## 6. Conclusion

Economic-historical research on wage inequality in the nineteenth century has placed too much focus on differences between types of workers and, as a consequence, neglected the significance of the differences between salaried employees and workers, that is to say, between the new 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 manifestly. In all likelihood, the dimension of the wage gap between the middle and the working class in the nineteenth century is unparalleled; in the case of some occupations, the wage ratio of a salaried employee to a worker is as high as 7–9. As a measure of inequality, this high wage ratio corroborates what we already know about the distribution of wages 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.

The implications of the widening wage gap between the working and the middle class between 1830 and 1880 should be examined in light of such aspects as class consciousness, values, and social and political attitudes. More often than not, previous researchers who have focused on the teaching profession have reproduced teachers' complaints about their low wages without subjecting these accounts to closer examination (Sörensen 1942; Florin and Johansson 1993). Our results show that these complaints are not an accurate description of the historical reality. Yet they might be indicative of a process to which Blumin (1989), Kocka (1981) and others have called attention, namely, the middle class' sustained efforts to differentiate itself from the working class in the industrialised society. The impact of the wage spread on the attitudes of the Swedish middle class in relation to democracy and the working class should be examined, as it has been in the context of 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, pp. 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 to 8 times more than the average rural worker, 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 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.

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