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# A Note on Danish Living Standards through Historical Wage Series, 1731-1913

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## Abstract

This paper makes use of published information on wages and prices in Denmark to construct consistent real wage series for the years 1731 to 1913, which can be compared to other countries. Placing Denmark in a comparative perspective demonstrates that from being a relatively poor, backward economy in the eighteenth century, by the 1870s Copenhagen had one of the highest standards of living in Europe. Interestingly, this was *before* the introduction of stream-driven cooperative creameries, which leads us to speculate that high wages might have been an incentive to mechanize, as well as being a consequence of the later productivity increases in agriculture in particular.

JEL classification: N33

Keywords: Copenhagen, Denmark, prices, real wages

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## 1. Introduction

There is a distinct lack of information published in English on wages in Denmark for the eighteenth and nineteenth centuries. Thus, standard sources such as Mitchell (1980) only include occasional information for Denmark from 1914. Moreover, after several decades of work with archival sources, the (now defunct) Price History Group at the University of Copenhagen concluded that the wage material they uncovered was 'too scattered to enable the construction of long and uninterrupted series' (Andersen and Pedersen 2004, p.44). The motivation behind this short note is nevertheless to gather what little evidence there is to construct as consistent series as possible for urban and rural wages for both men and women in Denmark as far back as possible. The material we use covers the early eighteenth century until the First World War and is taken from secondary sources. Although it is often poorly documented, it can at least serve to allow light to be shed on the relative standard of living in Denmark during the latter part of the so-called little divergence between northern and southern Europe.[3] In this regard Denmark is a particularly interesting case, since her economic catch up, traditionally dated from the 1880s, was largely through agriculture rather than industry (Henriksen 1992).

Thus, this note proceeds to construct wage series for men and women in urban and rural occupations and uses the methodology suggested by Allen (2009) to calculate prices of baskets of goods which are comparable to those he and others have constructed for other countries. We find that Denmark was poor during the eighteenth century, but rapidly caught up with the leading European economies over the nineteenth century, so that already by the 1870s laborers in Copenhagen enjoyed some of the highest living standards in Europe.

Is it surprising that Denmark was so well off? In fact, as early as 1860, Rainals, the British Vice-Consul in Copenhagen, noted that 'The Danish farm labourer is generally well off and while he is without family is able to save part of his wages as is sufficiently proved by the large sums of money placed in the savings banks by this class' (Rainals 1860, p. 290). Moreover, the fact that Denmark was a country of immigration during the 'first era of

[3] Unfortunately we cannot rely on the estimates of national income constructed by Hansen (1984) to make international comparisons, since they only start in 1818, and more importantly have been found wanting in several respects. Revised estimates are only available from 1896 (see the discussion in Larsen et al 2010). A group at the University of Southern Denmark has, however, recently received a research grant from the Danish Research Council to construct more reliable estimates back to the eighteenth century.

globalization', when many European countries were seeing massive emigration, particularly to the United States, must surely reflect the fact that the Danish labor market was relatively attractive (Willerslev 1983, Østergaard 2007). Other quantitative accounts of Denmark over this period point towards similar findings. Johansen (1998, 2005) finds that the 'consumer revolution', i.e. the point at which there is a constant decline in the proportion of income being spent on food, probably started before 1790 in Denmark, earlier than the other Nordic countries. He is however skeptical about the source material.

In the next section, we construct wage series for various groups in Denmark from 1788-1913. In Section 3, we detail the baskets required to construct welfare ratios à la Allen (2009). In Section 4, we compare our findings with other countries, and provide a brief interpretation. Section 5 concludes.

## 2. Construction of the wage series

As mentioned in the introduction, some wage information has been published for Denmark for the eighteenth and nineteenth centuries, although mostly in Danish. One of the earliest contributions comes from an investigation by Falbe Hansen (1889), who gives information on agricultural wages in various locations for 1788 and a number of years in the nineteenth century. Forty years later, Pedersen (1930) collected an impressive amount of information on wages from the 1840s for specific urban and rural locations, and for both men and women, and Ølgaard (1976) provides a wealth of data both from the cities and the countryside collected from a variety of sources for the years after 1875. In fact, the most complete collection of agricultural sources, together with a detailed description of the available data is given by Christensen (1985), who provides detailed (although not annual) information on many types of agricultural wages (men/women/children, summer/harvest/winter, etc.) from 1829 collected from a wide variety of sources.

For urban wages, the most well-known series is by Hansen (1984), who constructed an index of urban wages from 1818 based on a large number of sources. More detailed information can be found in Christensen (1992), who collected a information on urban wages for the years 1830 to 1870. For subsequent years, Christensen (1975) has wages in crafts and

industry from 1870 to 1914, and Christensen (1986) has women's wages in crafts and industry from 1870 to 1914. Finally, Statistics Denmark published frequent reports on wages from around the turn of the nineteenth and twentieth centuries.

We use this information to construct five consistent wage series for Denmark, for the longest possible period. Three series are for men, and two are for women: male and female (unskilled) agricultural and urban laborers, and male masons to represent skilled occupations.

Table 1 presents how we constructed the agricultural wage series, and Table 2 gives the sources used in constructing the urban wage series.

**Table 1: Sources used in constructing the agricultural wage series**

| **Years** | **Location and years mentioned** | **Source** |
|---|---|---|
| *Laborer (male)* | | |
| 1788-1801 | Copenhagen County, '1788-1790' | Falbe Hansen (1889) |
| 1802-29 | Denmark, '1802-03/1804-07' | Falbe Hansen (1889) |
| 1829-39 | Denmark, 1829-39 | Christensen (1985) |
| 1840-50 | Denmark, 1840-49 | Christensen (1985) |
| 1851-58 | Denmark, 1851 | Christensen (1985) |
| 1859-1913 | Fladsaa, 1859-1913 | Pedersen (1930) |
| *Laborer (female)* | | |
| 1859-1913 | Fladsaa, 1859-1913 | Pedersen (1930) |

**Notes:** Copenhagen County was the area surrounding Copenhagen, not including the city itself. Fladsaa was a municipality close to Næstved in the south of the island of Zealand (the island on which Copenhagen is located).

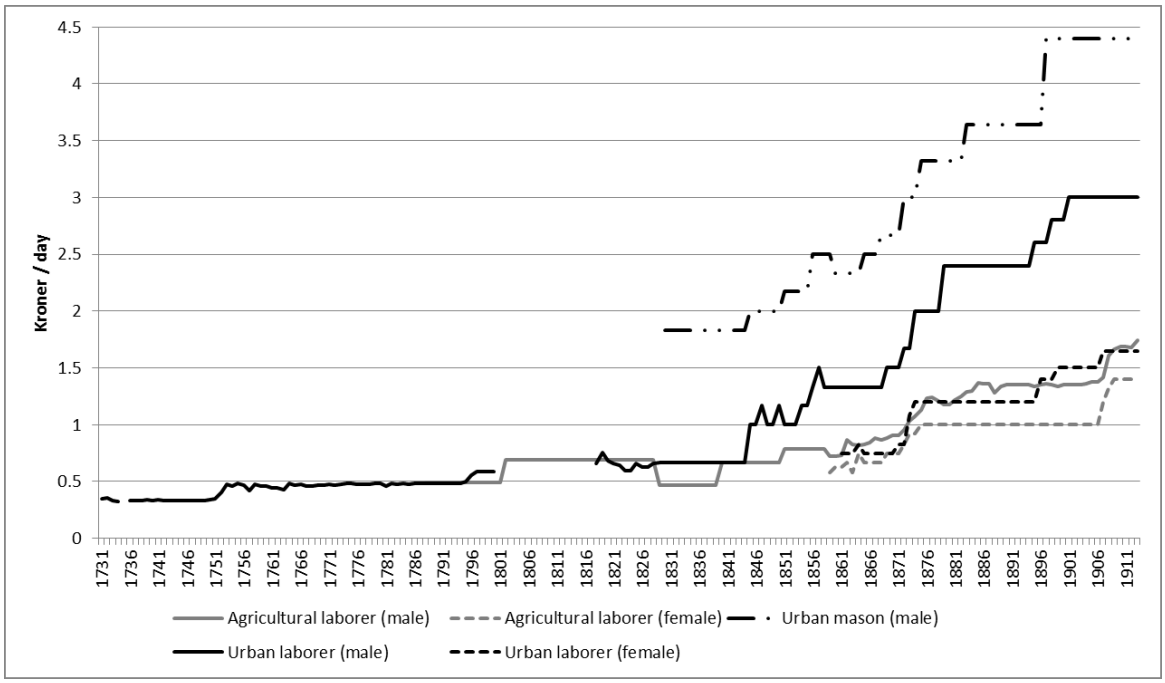
**Table 2: Sources used in constructing the urban wage series**

| Years | Location and years mentioned | Source |
|---|---|---|
| *Mason (male)* | | |
| 1830-70 | Copenhagen, 1830-70 | Christensen (1992) |
| 1871-85 | Copenhagen 'Efter C. Nyrop', 1871-85 | Christensen (1992) |
| 1886-1913 | Interpolated based on other series | Christensen (1992) |
| *Laborer (male)* | | |
| 1731-1800 | Copenhagen, 'workmen'[4] | Thestrup (1971) |
| 1818-29 | Denmark, interpolated back using index | Hansen (1984) |
| 1830-70 | Copenhagen, 1830-70 | Christensen (1992) |
| 1871-1900 | Copenhagen, 'Stadsingeniørens Kontor', 1871-1900 | Pedersen (1930) |
| 1901-13 | Interpolated based on other series | Pedersen (1930) |
| *Laborer (female)* | | |
| 1861-1913 | Copenhagen, 'Jacob Holm & Sønners Rebslag.', 1861-1913 | Pedersen (1930) |

It should again be emphasized at this point that the reliability and representativeness of much of this data is unknown. This is particularly an issue for agricultural wages. For example, Falbe Hansen (1889) gives no sources whatsoever. Christensen's (1985) series for agricultural workers are, however, based on surveys which 'to a greater or lesser degree cover the whole country' (p. 114). The Copenhagen wages have been chosen to track single occupations as consistently as possible from the sources available, although even here interpolation was sometimes necessary to complete the series. Nevertheless, with these misgivings in mind, Figure 1 presents the series we have constructed.

[4] Converted from skilling/day to kroner/day with 1 skilling = 0.02 kroner.

**Figure 1: Wages in Denmark in kroner per day, 1731-1913**




**Sources:** See Tables 1 and 2.

**Notes:** Although the currency of Denmark was the rigsdaler until the Scandinavian Monetary Union of 1874 which introduced the krone, we have used the official conversion rate of two kroner to the rigsdaler.

The coincidence between the agricultural and urban wages until the 1840s is remarkable, but might reflect poor source material, and more work needs to be done to reconstruct reliable series of rural wages for the eighteenth century in particular. For the later years, however, we can use these wage series to construct measures of the skill premium (the ratio of the wages of masons to those of urban laborers), and the gender gap (the ratio of male / female wages for urban laborers) over a number of decades, as presented in Table 3.

**Table 3: Skill premium and gender gap in Denmark, 1830-1913**

| | Skill premium | Gender gap |
|---|---|---|
| 1830-39 | 273% | |
| 1840-49 | 234% | |
| 1850-59 | 192% | |
| 1860-69 | 182% | 178% |
| 1870-79 | 167% | 177% |
| 1880-89 | 148% | 200% |
| 1890-99 | 152% | 197% |
| 1900-09 | 148% | 193% |
| 1910-13 | 147% | 182% |

**Sources:** As Figure 1 and own calculations.

**Note:** Gender gap for 1860-69 is for 1861-69.

The skill premiums are quite large for the early decades in comparison with those found by Clark (2005) for England at around 150 percent for this entire period, although they converge on this level. They are much larger than the levels found by van Zanden (2009), at around 50 percent for Western Europe and between 60 and 140 percent for Central and Southern Europe. Van Zanden's interpretation is that this suggests a poor but improving institutional environment, since a low skill premium suggests that households have access to relatively cheap capital, and that institutions for the formation of human capital are efficient. This is consistent with the dramatic reforms in the Danish economy just prior to and during this period, such as the abolition of serfdom in 1800, the introduction of compulsory schooling in 1814, and the liberal constitution of 1849. Thus, in his interpretation, the rapid decline in the skill premium before the 1880s can be seen to have presaged the improved economic performance to come.

Interestingly, and in common with Clark (2005), we find no evidence of an increase in the skill premium in the run up to Danish industrialization from the late nineteenth century which would be consistent with theories emphasizing the importance of increased incentives for human capital accumulation with the run up to modern economic growth (e.g. Becker et al 1990). However, perhaps masonry was not the type of skill which would reflect this best.

Turning to the gender gap, this is relatively constant over the short period for which we have data. Women were paid approximately half that of men (although clearly we are probably

not comparing equivalent occupations). This is similar to the gender gap found by Humphries and Weisdorf (2014) for 'casual' workers in England in 1850, but it is difficult to add much more interpretation to this, due to the short time period over which we have wages for women.

## 3. From nominal to real wages: constructing welfare ratios for Denmark

Following Allen (2009), we construct both a respectable and a subsistence basket of goods which we can use to calculate real wages. The idea behind Allen's work is that the contents of the baskets should be as close as possible to those used for other countries so as to make direct comparisons of real wages possible, so we cannot use for example the consumer price index given by Abildgren (2010)[5]. The contents of our baskets is given in Table 4 and is based on that described by Allen (2009, p. 36). Although our analysis below largely focuses on the respectability basket, we also calculate the subsistence basket for the sake of comparability to previous work.

**Table 4: The contents of the subsistence and respectability baskets**

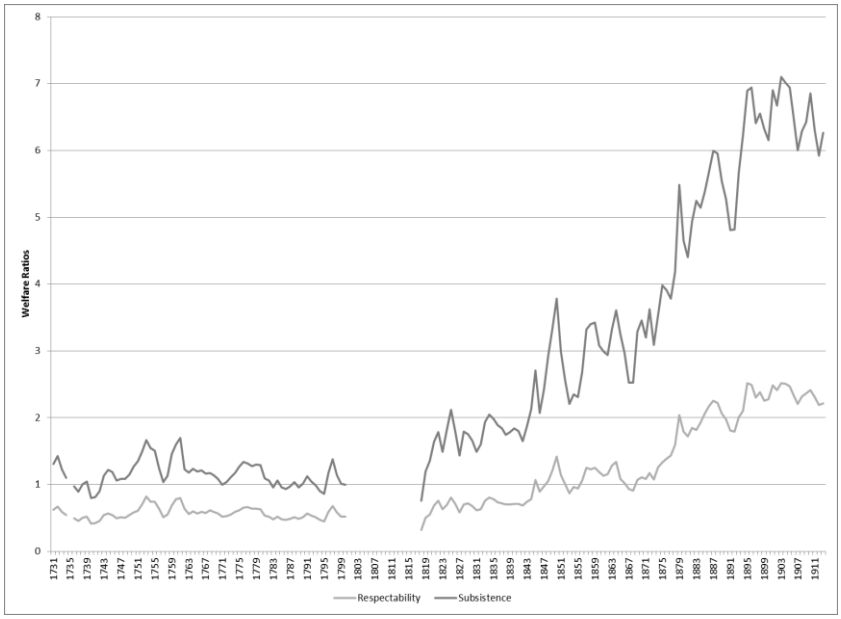
| | Subsistence | Respectability |
|---|---|---|
| Bread | 155 kg | 234 kg |
| Beans / peas | 20 kg | 52 l |
| Meat | 5 kg | 26 kg |
| Butter | 3 kg | 5.2 kg |
| Cheese | - | 5.2 kg |
| Eggs | - | 52 |
| Beer | - | 182 l |
| Soap | 1.3 kg | 2.6 kg |
| Cotton | 3 m | 5 m |
| Candles | 1.3 kg | 2.6 kg |
| Lamp oil | 1.3 l | 2.6 l |
| Fuel | 2 mbtu | 5 mbtu |
| Rent | 5% of total | 5% of total |

The prices we use to price the baskets come from a number of sources, which are described in Appendix A.1. Fewer misgivings might be had about the quality of the price data

[5] Although he did kindly make his underlying data available to us, which forms the basis of some of the prices we used.

compared to the wages, since the underlying sources are well-documented. Moreover, an assumption of similar prices across the whole country does not seem unrealistic given market integration in a country with a small geographical size and long coastline, making transportation easy and cheap. Again following Allen, the welfare ratios in Figure 2 give the number of times an unskilled laborer in Copenhagen could purchase the baskets for a family of three and working 250 days per year. The gap over the years 1801-17 reflects the collapse of the Danish currency due to her costly participation in the Napoleonic War, culminating in the 'Danish state bankruptcy' of 1813, when Denmark defaulted on her international financial obligations. Prices and wages are unfortunately scarce over this period.

**Figure 2: Welfare ratios, 1731-1913**




**Sources:** Own calculations.

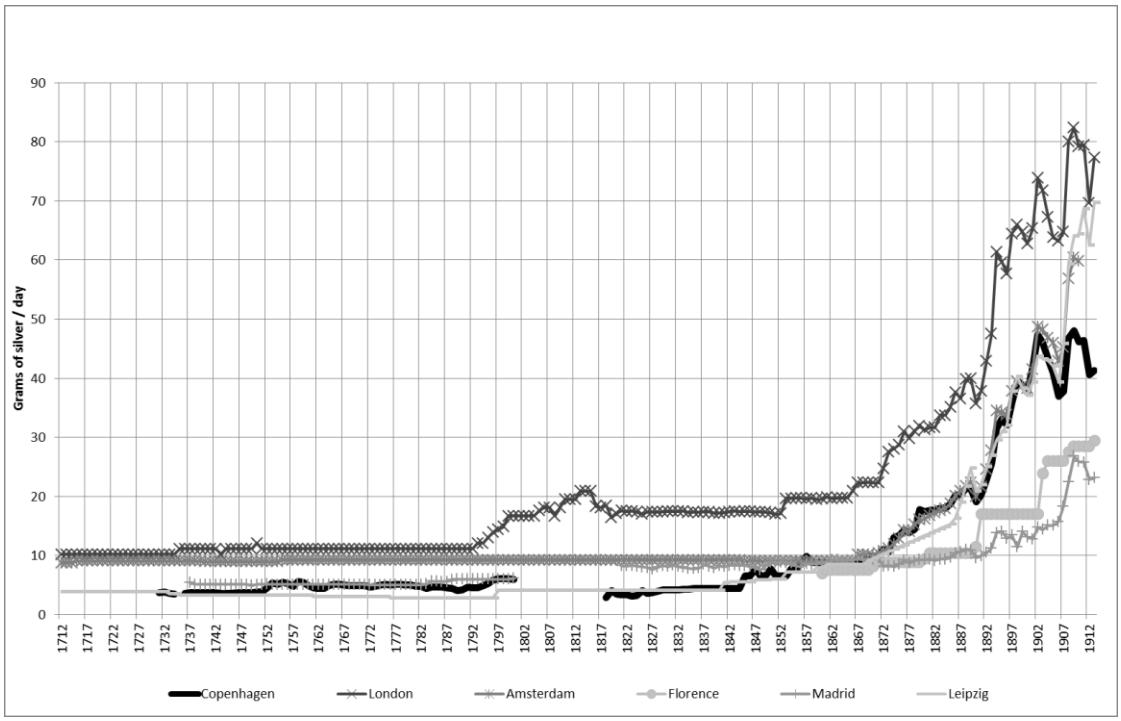
Real wages were surprisingly constant during the eighteenth century. An urban laborer could just support his family on his own salary, but a 'respectable' basket would have required his wife and/or children to work. This begins to change from the nineteenth century, however, and there is an almost constant improvement in living standards, although with some periods of stagnation. Interestingly, there is a noticeable takeoff in the 1840s, and again in

the 1870s, which predates the famous story of Danish catch-up and development with the introduction of the steam-powered cream separator and cooperative creameries from 1882 (see Henriksen 1992, Henriksen et al 2011). In fact, already by 1880, an urban laborer would have been able to purchase twice the respectability basket for his family of three. The divergence between the two welfare ratios from 1882 reflects dramatic relative price falls in key components of the subsistence basket, in particular bread. With the American grain invasion, and Denmark's decision to remain a free trader, all types of grains became much cheaper.

## 4. A comparison of Danish standards of living with those of other countries

Allen (2009) suggests two ways of comparing wages across countries. The first is to convert wages into grams of silver, and the second is to deflate using comparable baskets (as constant as possible across countries), such as the ones described above. In Figure 3, we follow the first approach, and compare silver wages for unskilled laborers in Copenhagen to those in other major European cities. The sources for the silver prices are given in Appendix A.1.

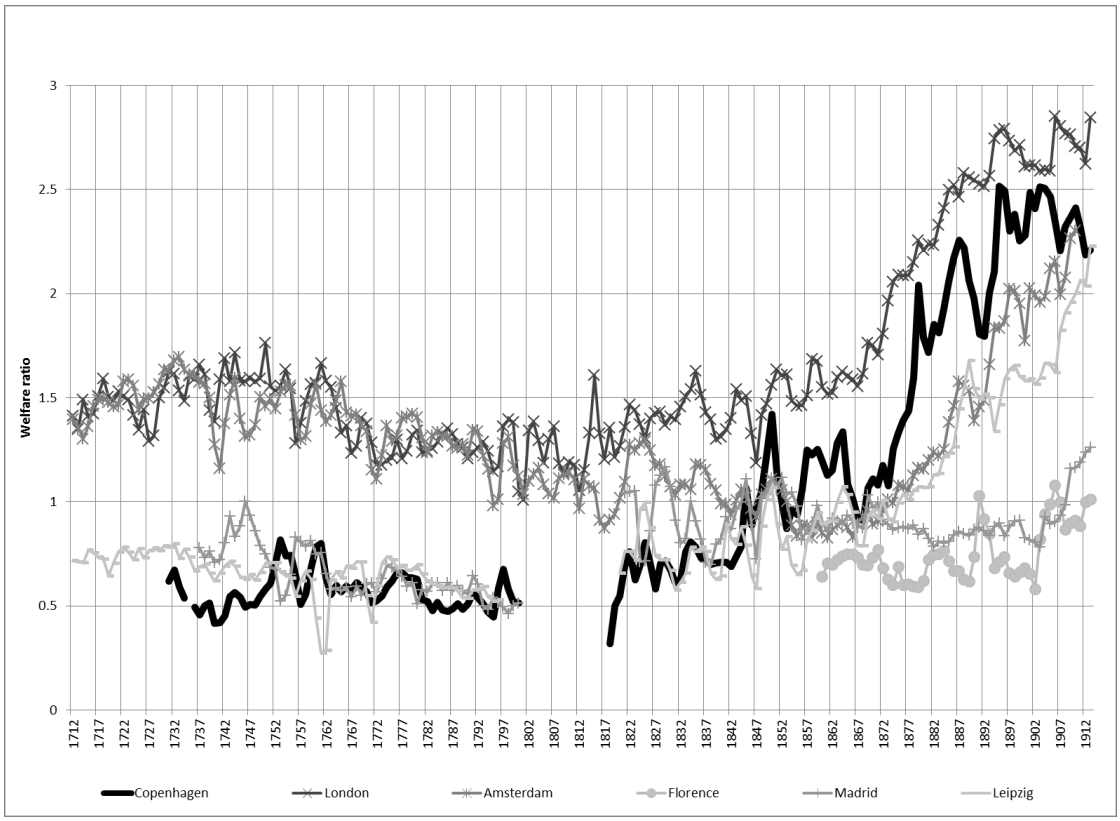
**Figure 3: Silver wages for unskilled laborers, 1712-1913**




**Sources:** Allen (2001), own calculations.

Copenhagen is clearly relatively poor until 1840 when it, together with Leipzig, converges on Amsterdam and follows both until just towards the end of our period, when Denmark was particularly badly hit by the global financial crisis and banking panics of 1907 (Bordo and Landon-Lane 2010). The picture of relative Danish prosperity is even more striking when we compare welfare ratios (respectability basket) as in Figure 4.

**Figure 4: Welfare ratios for unskilled laborers, 1712-1913**




**Sources:** Allen (2001), own calculations.

In terms of welfare ratios, Copenhagen was clearly relatively rich at the end of our period. The cheap price of agricultural goods in what by the end of the nineteenth century was a major agricultural exporter is the main reason for the slight difference in relative prosperity for Denmark between Figures 3 and 4. However, the trends are clear. The 'little divergence' between north and south Europe (see for example de Plejt and van Zanden 2013), when the north overtook the historically more prosperous south, saw Denmark very much in the northern club of countries – but only from the late nineteenth century. [6]

[6] This might seem in contrast to the findings of Williamson (1995), who states (based on data from Christensen 1975) that Denmark had 'low real wages in 1870'. However, his data only go back to 1870, and it is clear from our series that the early 1870s mark something of a trough in real wages. These years marked the 'crisis of grain sales' as it is known in Danish economic history, when Danish agriculture suffered from the 'American grain invasion', but rapidly responded by diversifying into animal production.

## 5. Conclusion

Our look at prices and wages in Denmark leads us to the conclusion that she was, in terms of real wages, relatively poor in the eighteenth century, but rapidly converging and even overtaking the leading European economies towards the end of the nineteenth century. This relative prosperity was already notable in the 1870s, thus predating the rise of the cooperative creameries (from 1882) which are often taken as a leading cause of Danish catch-up.

This gives rise to an interesting potential implication. Although the development of highly productive agriculture from the 1880s certainly spurred further increases in living standards, perhaps the fact that they were high already before this might be one of the reasons why Denmark turned to such a highly capital intensive, labor-saving technology in the first place. After all, one of Allen's (2009) main arguments for the adoption of capital intensive textile machinery during the British industrial revolution was the fact that labor was relatively expensive. In Denmark, labor was also relatively expensive, thus giving similar incentives to adopt capital intensive forms of production, as was in fact the case in the dairy industry from the 1880s.

**Appendix A.1: Sources for the price series**

**Bread:** 1712-1800, 'Fine rye bread', Abildgren (2010); 1815-75, 'Rye bread', Hansen (1984); 1876-1913, 'Rye bread' (from Copenhagen Municipal Hospital), Pedersen (1930).

**Peas:** 1712-1800, 'Peas', Abildgren (2010); 1815-75, 'Peas', Hansen (1984); 1876-1906, 'Peas' (from Copenhagen Municipal Hospital), Pedersen (1930), 1907-13 assumed constant at 1906 price. Kg converted to liters assuming density of 750 kg/$m^3$.

**Meat:** Used pork prices. 1712-1800, 'Pork', Abildgren (2010); 1815-75, 'Pork', Hansen (1984); 1876-1913, 'Pork', Statistics Denmark (1958).

**Butter:** 1712-1800, 'Butter', Abildgren (2010); 1815-75, 'Butter', Hansen (1984); 1876-1913, 'Butter' (average of prices in Odense, Aarhus and Varde), Pedersen (1930).

**Cheese:** 1712-1800, 'Cheese', Abildgren (2010); 1815-75, 'Cheese', Hansen (1984); 1876-1913, 'Cheese', Statistics Denmark (1958).

**Eggs:** 1712-1800, 'Eggs', Abildgren (2010); 1815-75, 'Eggs', Hansen (1984); 1876-1913, 'Eggs', Statistics Denmark (1958).

**Beer:** 1712-1800, 'Beer', Abildgren (2010); 1815-75, 'Beer', Hansen (1984); 1876-1906, 'Beer' (sea forts), Pedersen (1930); 1907-13 assumed constant at 1906 price.

**Soap:** 1712-1800, 'Green soap', Abildgren (2010); 1815-75, 'Green soap', Hansen (1984); 1876-1913, 'Green soap' (average of prices in Odense, Aarhus and Varde), Pedersen (1930).

**Cloth:** 1712-1800, 'Linen', Abildgren (2010); 1815-19, interpolated back from 1820 using 'Middling American' cotton prices, Hansen (1984); 1820-75, 'Cotton cloth, uncolored', Hansen (1984); 1876-1913, interpolated from 1875 using Dutch cotton price index (http://www.iisg.nl/hpw/brannex.php). Kg are converted into meters using the assumption that 1 $m^2$ = 400 grams.

**Candles:** 1712-1800, 'Tallow candles', Abildgren (2010); 1815-1913, no data available, so we doubled the amount spent on lamp oil for the basket.

**Lamp oil:** Where we used tallow prices, we converted assuming a density of 0.9 kg/liter. 1712-1800, 'Tallow', Abildgren (2010); 1815-75, 'Tallow', Hansen (1984); 1876-1913, 'Petroleum' (from Copenhagen Municipal Hospital), Pedersen (1930).

**Fuel:** 1712-1800, 'Coal', Abildgren (2010); 1815-57, 'Coal', Hansen (1984); 1858-1913, 'Coal' (Prices at the Copenhagen gasworks), Københavns Belysningsvæsen (1932). Following Allen, we assumed that there are 26,339 BTU in 1 kg coal.

**Silver:** Until 1873 taken from http://www.helmer-c.dk/Econhist/Skilling1541-1873.html; 1874-1913 from http://www.measuringworth.com/gold/.

## Appendix A.2: Prices

## Table A.2: Prices (kroner per unit) in Denmark, 1712-1913

| | Rye bread | Pork | Butter | Cheese | Eggs | Peas | Beer | Cloth | Tallow | Petroleum | Tallow Candles | Coal | Green soap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | kg | kg | kg | kg | unit | liter | liter | meter | liter | liter | kg | kg | kg |
| 1712 | 0.12 | 0.23 | 0.39 | 0.21 | 0.01 | 0.03 | 0.03 | 0.12 | 0.47 | | 0.43 | 0.01 | 0.50 |
| 1713 | 0.11 | 0.21 | 0.41 | 0.21 | 0.01 | 0.03 | 0.02 | 0.03 | 0.56 | | 0.46 | 0.01 | 0.46 |
| 1714 | 0.13 | 0.21 | 0.41 | 0.21 | 0.01 | 0.03 | 0.04 | 0.04 | 0.65 | | 0.48 | 0.01 | 0.42 |
| 1715 | 0.15 | 0.21 | 0.41 | 0.21 | 0.01 | 0.03 | 0.03 | 0.05 | 0.56 | | 0.51 | 0.01 | 0.42 |
| 1716 | 0.15 | 0.22 | 0.40 | 0.25 | 0.02 | 0.03 | 0.03 | 0.07 | 0.56 | | 0.55 | 0.01 | 0.42 |
| 1717 | 0.15 | 0.23 | 0.56 | 0.23 | 0.02 | 0.03 | 0.03 | 0.04 | 0.61 | | 0.50 | 0.01 | 0.42 |
| 1718 | 0.14 | 0.24 | 0.59 | 0.21 | 0.02 | 0.03 | 0.04 | 0.03 | 0.75 | | 0.45 | 0.01 | 0.46 |
| 1719 | 0.14 | 0.21 | 0.44 | 0.19 | 0.01 | 0.03 | 0.05 | 0.02 | 0.75 | | 0.41 | 0.01 | 0.50 |
| 1720 | 0.13 | 0.25 | 0.59 | 0.17 | 0.02 | 0.03 | 0.04 | 0.03 | 0.75 | | 0.38 | 0.01 | 0.46 |
| 1721 | 0.12 | 0.23 | 0.36 | 0.16 | 0.01 | 0.03 | 0.03 | 0.03 | 0.67 | | 0.38 | 0.01 | 0.46 |
| 1722 | 0.09 | 0.21 | 0.22 | 0.15 | 0.01 | 0.03 | 0.02 | 0.03 | 0.59 | | 0.39 | 0.01 | 0.46 |
| 1723 | 0.09 | 0.19 | 0.22 | 0.13 | 0.01 | 0.03 | 0.02 | 0.02 | 0.53 | | 0.40 | 0.01 | 0.46 |
| 1724 | 0.11 | 0.18 | 0.21 | 0.12 | 0.01 | 0.03 | 0.02 | 0.02 | 0.47 | | 0.40 | 0.01 | 0.46 |
| 1725 | 0.15 | 0.17 | 0.20 | 0.11 | 0.01 | 0.03 | 0.03 | 0.02 | 0.42 | | 0.41 | 0.01 | 0.46 |
| 1726 | 0.15 | 0.20 | 0.19 | 0.10 | 0.01 | 0.03 | 0.03 | 0.01 | 0.37 | | 0.41 | 0.01 | 0.46 |
| 1727 | 0.14 | 0.19 | 0.26 | 0.09 | 0.01 | 0.03 | 0.04 | 0.01 | 0.46 | | 0.42 | 0.01 | 0.46 |
| 1728 | 0.13 | 0.19 | 0.36 | 0.08 | 0.01 | 0.03 | 0.02 | 0.02 | 0.56 | | 0.42 | 0.01 | 0.46 |
| 1729 | 0.12 | 0.21 | 0.35 | 0.13 | 0.01 | 0.03 | 0.02 | 0.05 | 0.44 | | 0.50 | 0.01 | 0.29 |
| 1730 | 0.11 | 0.21 | 0.38 | 0.12 | 0.01 | 0.02 | 0.02 | 0.02 | 0.35 | | 0.50 | 0.01 | 0.29 |
| 1731 | 0.10 | 0.21 | 0.39 | 0.12 | 0.01 | 0.02 | 0.03 | 0.02 | 0.28 | | 0.50 | 0.01 | 0.29 |
| 1732 | 0.10 | 0.21 | 0.36 | 0.11 | 0.01 | 0.02 | 0.03 | 0.02 | 0.29 | | 0.46 | 0.01 | 0.29 |
| 1733 | 0.11 | 0.21 | 0.33 | 0.11 | 0.01 | 0.02 | 0.03 | 0.01 | 0.30 | | 0.46 | 0.01 | 0.31 |
| 1734 | 0.12 | 0.22 | 0.29 | 0.10 | 0.01 | 0.02 | 0.03 | 0.01 | 0.31 | | 0.46 | 0.01 | 0.34 |
| 1735 | 0.13 | 0.22 | 0.26 | 0.10 | 0.01 | 0.02 | 0.03 | 0.01 | 0.32 | | 0.42 | 0.01 | 0.34 |
| 1736 | 0.14 | 0.23 | 0.24 | 0.09 | 0.01 | 0.03 | 0.03 | 0.02 | 0.34 | | 0.42 | 0.01 | 0.34 |
| 1737 | 0.16 | 0.23 | 0.31 | 0.09 | 0.01 | 0.03 | 0.03 | 0.03 | 0.35 | | 0.42 | 0.01 | 0.34 |
| 1738 | 0.13 | 0.24 | 0.41 | 0.09 | 0.01 | 0.02 | 0.03 | 0.02 | 0.36 | | 0.42 | 0.01 | 0.34 |
| 1739 | 0.13 | 0.25 | 0.55 | 0.08 | 0.01 | 0.02 | 0.03 | 0.01 | 0.37 | | 0.46 | 0.01 | 0.38 |
| 1740 | 0.18 | 0.26 | 0.30 | 0.10 | 0.01 | 0.03 | 0.03 | 0.01 | 0.37 | | 0.50 | 0.01 | 0.29 |
| 1741 | 0.17 | 0.26 | 0.39 | 0.11 | 0.01 | 0.04 | 0.03 | 0.01 | 0.56 | | 0.56 | 0.01 | 0.31 |
| 1742 | 0.15 | 0.25 | 0.29 | 0.13 | 0.01 | 0.03 | 0.03 | 0.01 | 0.51 | | 0.63 | 0.01 | 0.32 |
| 1743 | 0.12 | 0.23 | 0.27 | 0.08 | 0.01 | 0.02 | 0.03 | 0.01 | 0.47 | | 0.61 | 0.01 | 0.34 |
| 1744 | 0.11 | 0.22 | 0.29 | 0.17 | 0.01 | 0.02 | 0.04 | 0.02 | 0.37 | | 0.59 | 0.01 | 0.35 |
| 1745 | 0.11 | 0.25 | 0.31 | 0.17 | 0.01 | 0.02 | 0.04 | 0.02 | 0.56 | | 0.59 | 0.01 | 0.37 |
| 1746 | 0.12 | 0.27 | 0.71 | 0.17 | 0.01 | 0.03 | 0.04 | 0.02 | 0.23 | | 0.63 | 0.01 | 0.38 |
| 1747 | 0.12 | 0.26 | 0.50 | 0.08 | 0.01 | 0.02 | 0.04 | 0.01 | 0.30 | | 0.63 | 0.01 | 0.40 |
| 1748 | 0.12 | 0.25 | 0.45 | 0.12 | 0.01 | 0.03 | 0.04 | 0.01 | 0.37 | | 0.60 | 0.01 | 0.42 |
| 1749 | 0.11 | 0.25 | 0.42 | 0.17 | 0.01 | 0.03 | 0.03 | 0.01 | 0.47 | | 0.57 | 0.01 | 0.42 |
| 1750 | 0.10 | 0.25 | 0.39 | 0.25 | 0.01 | 0.02 | 0.03 | 0.01 | 0.37 | | 0.54 | 0.01 | 0.42 |
| 1751 | 0.10 | 0.23 | 0.36 | 0.35 | 0.01 | 0.02 | 0.03 | 0.01 | 0.37 | | 0.51 | 0.01 | 0.42 |
| 1752 | 0.10 | 0.21 | 0.46 | 0.50 | 0.01 | 0.02 | 0.02 | 0.01 | 0.42 | | 0.49 | 0.01 | 0.42 |
| 1753 | 0.11 | 0.20 | 0.26 | 0.46 | 0.01 | 0.02 | 0.02 | 0.01 | 0.42 | | 0.46 | 0.01 | 0.84 |
| 1754 | 0.12 | 0.19 | 0.43 | 0.42 | 0.01 | 0.02 | 0.03 | 0.01 | 0.37 | | 0.44 | 0.01 | 0.34 |
| 1755 | 0.13 | 0.19 | 0.39 | 0.27 | 0.01 | 0.02 | 0.03 | 0.01 | 0.37 | | 0.42 | 0.01 | 0.84 |
| 1756 | 0.16 | 0.19 | 0.41 | 0.17 | 0.01 | 0.03 | 0.03 | 0.01 | 0.37 | | 0.55 | 0.01 | 0.34 |
| 1757 | 0.16 | 0.25 | 0.41 | 0.29 | 0.01 | 0.03 | 0.04 | 0.01 | 0.37 | | 0.42 | 0.01 | 0.59 |
| 1758 | 0.17 | 0.31 | 0.41 | 0.29 | 0.01 | 0.03 | 0.04 | 0.01 | 0.37 | | 0.46 | 0.01 | 0.53 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1759 | 0.12 | 0.32 | 0.41 | 0.25 | 0.01 | 0.05 | 0.03 | 0.01 | 0.37 | | 0.46 | 0.01 | 0.47 |
| 1760 | 0.11 | 0.25 | 0.41 | 0.17 | 0.01 | 0.02 | 0.02 | 0.01 | 0.42 | | 0.59 | 0.02 | 0.42 |
| 1761 | 0.10 | 0.25 | 0.32 | 0.17 | 0.01 | 0.02 | 0.02 | 0.01 | 0.51 | | 0.59 | 0.02 | 0.38 |
| 1762 | 0.14 | 0.22 | 0.41 | 0.17 | 0.01 | 0.03 | 0.02 | 0.01 | 0.51 | | 0.76 | 0.02 | 0.39 |
| 1763 | 0.13 | 0.31 | 0.57 | 0.15 | 0.01 | 0.03 | 0.04 | 0.03 | 0.47 | | 0.76 | 0.02 | 0.41 |
| 1764 | 0.15 | 0.29 | 0.53 | 0.13 | 0.01 | 0.03 | 0.04 | 0.01 | 0.51 | | 0.76 | 0.02 | 0.42 |
| 1765 | 0.15 | 0.34 | 0.57 | 0.21 | 0.01 | 0.03 | 0.04 | 0.03 | 0.42 | | 0.59 | 0.02 | 0.42 |
| 1766 | 0.15 | 0.27 | 0.52 | 0.21 | 0.01 | 0.04 | 0.04 | 0.02 | 0.51 | | 0.76 | 0.02 | 0.42 |
| 1767 | 0.15 | 0.26 | 0.64 | 0.29 | 0.01 | 0.03 | 0.03 | 0.02 | 0.51 | | 0.71 | 0.02 | 0.39 |
| 1768 | 0.16 | 0.27 | 0.47 | 0.21 | 0.01 | 0.03 | 0.02 | 0.02 | 0.61 | | 0.63 | 0.01 | 0.36 |
| 1769 | 0.17 | 0.25 | 0.50 | 0.34 | 0.01 | 0.03 | 0.02 | 0.02 | 0.51 | | 0.71 | 0.01 | 0.34 |
| 1770 | 0.18 | 0.25 | 0.60 | 0.27 | 0.01 | 0.03 | 0.02 | 0.02 | 0.47 | | 0.63 | 0.01 | 0.34 |
| 1771 | 0.19 | 0.32 | 0.64 | 0.21 | 0.01 | 0.06 | 0.03 | 0.01 | 0.61 | | 0.76 | 0.02 | 0.38 |
| 1772 | 0.18 | 0.29 | 0.57 | 0.21 | 0.01 | 0.05 | 0.03 | 0.02 | 0.61 | | 0.76 | 0.02 | 0.42 |
| 1773 | 0.17 | 0.33 | 0.50 | 0.13 | 0.01 | 0.06 | 0.04 | 0.02 | 0.61 | | 0.71 | 0.01 | 0.42 |
| 1774 | 0.17 | 0.27 | 0.38 | 0.13 | 0.01 | 0.04 | 0.04 | 0.01 | 0.51 | | 0.67 | 0.01 | 0.42 |
| 1775 | 0.15 | 0.25 | 0.34 | 0.13 | 0.01 | 0.03 | 0.04 | 0.01 | 0.51 | | 0.67 | 0.02 | 0.42 |
| 1776 | 0.14 | 0.25 | 0.42 | 0.13 | 0.01 | 0.02 | 0.04 | 0.02 | 0.42 | | 0.67 | 0.01 | 0.42 |
| 1777 | 0.14 | 0.25 | 0.44 | 0.13 | 0.01 | 0.03 | 0.03 | 0.02 | 0.47 | | 0.63 | 0.01 | 0.42 |
| 1778 | 0.15 | 0.25 | 0.40 | 0.15 | 0.01 | 0.04 | 0.03 | 0.01 | 0.47 | | 0.67 | 0.02 | 0.42 |
| 1779 | 0.15 | 0.28 | 0.41 | 0.17 | 0.01 | 0.02 | 0.03 | 0.02 | 0.47 | | 0.65 | 0.02 | 0.42 |
| 1780 | 0.15 | 0.27 | 0.39 | 0.13 | 0.01 | 0.03 | 0.04 | 0.01 | 0.51 | | 0.63 | 0.02 | 0.42 |
| 1781 | 0.16 | 0.29 | 0.51 | 0.13 | 0.01 | 0.04 | 0.04 | 0.01 | 0.61 | | 0.80 | 0.02 | 0.42 |
| 1782 | 0.18 | 0.34 | 0.43 | 0.13 | 0.01 | 0.04 | 0.04 | 0.06 | 0.56 | | 0.76 | 0.02 | 0.46 |
| 1783 | 0.20 | 0.34 | 0.46 | 0.25 | 0.01 | 0.06 | 0.04 | 0.02 | 0.56 | | 0.76 | 0.02 | 0.42 |
| 1784 | 0.18 | 0.39 | 0.47 | 0.22 | 0.01 | 0.06 | 0.04 | 0.02 | 0.51 | | 0.76 | 0.02 | 0.42 |
| 1785 | 0.20 | 0.39 | 0.39 | 0.19 | 0.01 | 0.08 | 0.04 | 0.02 | 0.56 | | 0.76 | 0.02 | 0.46 |
| 1786 | 0.20 | 0.42 | 0.62 | 0.17 | 0.01 | 0.09 | 0.03 | 0.02 | 0.61 | | 0.76 | 0.02 | 0.50 |
| 1787 | 0.20 | 0.41 | 0.50 | 0.25 | 0.01 | 0.04 | 0.04 | 0.02 | 0.65 | | 0.76 | 0.02 | 0.42 |
| 1788 | 0.19 | 0.38 | 0.58 | 0.17 | 0.01 | 0.04 | 0.04 | 0.01 | 0.61 | | 0.76 | 0.02 | 0.50 |
| 1789 | 0.21 | 0.37 | 0.43 | 0.16 | 0.01 | 0.05 | 0.04 | 0.01 | 0.61 | | 0.76 | 0.02 | 0.50 |
| 1790 | 0.19 | 0.33 | 0.55 | 0.16 | 0.01 | 0.05 | 0.04 | 0.02 | 0.61 | | 0.76 | 0.02 | 0.50 |
| 1791 | 0.17 | 0.30 | 0.48 | 0.15 | 0.01 | 0.04 | 0.04 | 0.03 | 0.56 | | 0.76 | 0.02 | 0.42 |
| 1792 | 0.18 | 0.28 | 0.52 | 0.15 | 0.01 | 0.05 | 0.03 | 0.02 | 0.51 | | 0.76 | 0.02 | 0.42 |
| 1793 | 0.20 | 0.29 | 0.55 | 0.14 | 0.01 | 0.05 | 0.03 | 0.03 | 0.47 | | 0.76 | 0.02 | 0.42 |
| 1794 | 0.22 | 0.34 | 0.63 | 0.14 | 0.01 | 0.05 | 0.03 | 0.03 | 0.51 | | 0.76 | 0.02 | 0.42 |
| 1795 | 0.23 | 0.42 | 0.59 | 0.13 | 0.01 | 0.06 | 0.03 | 0.02 | 0.56 | | 0.76 | 0.02 | 0.42 |
| 1796 | 0.18 | 0.42 | 0.70 | 0.13 | 0.01 | 0.05 | 0.03 | 0.03 | 0.79 | | 0.76 | 0.02 | 0.42 |
| 1797 | 0.16 | 0.36 | 0.64 | 0.13 | 0.01 | 0.05 | 0.04 | 0.03 | 0.70 | | 0.76 | 0.02 | 0.42 |
| 1798 | 0.20 | 0.34 | 0.61 | 0.13 | 0.01 | 0.06 | 0.04 | 0.03 | 0.51 | | 0.76 | 0.03 | 0.42 |
| 1799 | 0.23 | 0.37 | 0.61 | 0.13 | 0.01 | 0.06 | 0.04 | 0.02 | 0.56 | | 0.76 | 0.04 | 0.46 |
| 1800 | 0.23 | 0.37 | 0.61 | 0.13 | 0.02 | 0.10 | 0.04 | 0.03 | 0.65 | | 0.76 | 0.03 | 0.59 |
| 1801 | | | | | | | | | | | | | |
| 1814 | | | | | | | | | | | | | |
| 1815 | 0.38 | 1.92 | 2.58 | 1.01 | 0.10 | 0.13 | 0.14 | 4.58 | 3.30 | | | 0.08 | 1.77 |
| 1816 | 0.37 | 1.50 | 2.21 | 0.85 | 0.10 | 0.21 | 0.18 | 5.05 | 3.32 | | | 0.09 | 2.11 |
| 1817 | 0.46 | 1.21 | 1.79 | 0.84 | 0.10 | 0.13 | 0.21 | 3.90 | 2.70 | | | 0.06 | 2.30 |
| 1818 | 0.26 | 1.02 | 1.32 | 0.48 | 0.08 | 0.14 | 0.13 | 2.21 | 1.51 | | | 0.04 | 1.54 |
| 1819 | 0.20 | 0.76 | 0.91 | 0.30 | 0.05 | 0.06 | 0.11 | 1.30 | 1.29 | | | 0.03 | 0.89 |
| 1820 | 0.14 | 0.63 | 0.79 | 0.35 | 0.05 | 0.05 | 0.09 | 1.26 | 1.23 | | | 0.04 | 0.85 |
| 1821 | 0.10 | 0.39 | 0.68 | 0.26 | 0.03 | 0.04 | 0.06 | 1.24 | 1.03 | | | 0.04 | 0.75 |
| 1822 | 0.10 | 0.25 | 0.50 | 0.22 | 0.03 | 0.04 | 0.06 | 1.05 | 0.79 | | | 0.04 | 0.66 |
| 1823 | 0.12 | 0.30 | 0.55 | 0.21 | 0.03 | 0.03 | 0.08 | 1.05 | 0.63 | | | 0.04 | 0.62 |
| 1824 | 0.09 | 0.39 | 0.65 | 0.25 | 0.03 | 0.03 | 0.08 | 0.90 | 0.54 | | | 0.03 | 0.57 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1825 | 0.08 | 0.36 | 0.71 | 0.23 | 0.03 | 0.03 | 0.08 | 0.80 | 0.65 | | | 0.03 | 0.45 |
| 1826 | 0.10 | 0.36 | 0.68 | 0.25 | 0.02 | 0.08 | 0.08 | 0.74 | 0.58 | | | 0.03 | 0.43 |
| 1827 | 0.15 | 0.42 | 0.67 | 0.30 | 0.03 | 0.05 | 0.10 | 0.69 | 0.62 | | | 0.03 | 0.49 |
| 1828 | 0.11 | 0.48 | 0.60 | 0.25 | 0.03 | 0.06 | 0.08 | 0.63 | 0.70 | | | 0.03 | 0.46 |
| 1829 | 0.13 | 0.40 | 0.54 | 0.27 | 0.03 | 0.05 | 0.08 | 0.54 | 0.69 | | | 0.02 | 0.53 |
| 1830 | 0.13 | 0.46 | 0.69 | 0.27 | 0.03 | 0.07 | 0.08 | 0.56 | 0.66 | | | 0.02 | 0.47 |
| 1831 | 0.15 | 0.48 | 0.67 | 0.32 | 0.03 | 0.06 | 0.09 | 0.53 | 0.74 | | | 0.02 | 0.53 |
| 1832 | 0.14 | 0.55 | 0.71 | 0.28 | 0.03 | 0.04 | 0.09 | 0.48 | 0.74 | | | 0.02 | 0.45 |
| 1833 | 0.11 | 0.44 | 0.63 | 0.23 | 0.03 | 0.04 | 0.08 | 0.47 | 0.70 | | | 0.02 | 0.42 |
| 1834 | 0.10 | 0.35 | 0.54 | 0.23 | 0.02 | 0.05 | 0.08 | 0.47 | 0.67 | | | 0.02 | 0.41 |
| 1835 | 0.11 | 0.38 | 0.58 | 0.23 | 0.03 | 0.04 | 0.08 | 0.51 | 0.59 | | | 0.02 | 0.51 |
| 1836 | 0.11 | 0.51 | 0.74 | 0.27 | 0.03 | 0.05 | 0.08 | 0.49 | 0.58 | | | 0.02 | 0.56 |
| 1837 | 0.12 | 0.51 | 0.71 | 0.27 | 0.03 | 0.04 | 0.08 | 0.43 | 0.65 | | | 0.02 | 0.51 |
| 1838 | 0.12 | 0.49 | 0.71 | 0.26 | 0.03 | 0.06 | 0.08 | 0.40 | 0.74 | | | 0.02 | 0.47 |
| 1839 | 0.12 | 0.51 | 0.70 | 0.28 | 0.03 | 0.06 | 0.08 | 0.38 | 0.75 | | | 0.02 | 0.47 |
| 1840 | 0.11 | 0.55 | 0.73 | 0.29 | 0.03 | 0.06 | 0.08 | 0.35 | 0.78 | | | 0.02 | 0.45 |
| 1841 | 0.12 | 0.49 | 0.73 | 0.29 | 0.03 | 0.07 | 0.08 | 0.33 | 0.81 | | | 0.02 | 0.46 |
| 1842 | 0.14 | 0.42 | 0.77 | 0.27 | 0.03 | 0.05 | 0.08 | 0.30 | 0.69 | | | 0.02 | 0.50 |
| 1843 | 0.12 | 0.45 | 0.79 | 0.30 | 0.03 | 0.05 | 0.08 | 0.28 | 0.66 | | | 0.02 | 0.48 |
| 1844 | 0.09 | 0.50 | 0.77 | 0.31 | 0.03 | 0.05 | 0.08 | 0.28 | 0.64 | | | 0.02 | 0.45 |
| 1845 | 0.12 | 0.49 | 0.79 | 0.32 | 0.03 | 0.08 | 0.08 | 0.28 | 0.65 | | | 0.02 | 0.44 |
| 1846 | 0.17 | 0.53 | 0.85 | 0.34 | 0.03 | 0.10 | 0.08 | 0.26 | 0.72 | | | 0.01 | 0.39 |
| 1847 | 0.16 | 0.66 | 0.93 | 0.35 | 0.05 | 0.08 | 0.09 | 0.29 | 0.87 | | | 0.02 | 0.43 |
| 1848 | 0.10 | 0.65 | 0.87 | 0.43 | 0.04 | 0.05 | 0.08 | 0.24 | 0.77 | | | 0.02 | 0.43 |
| 1849 | 0.09 | 0.47 | 0.73 | 0.37 | 0.03 | 0.04 | 0.08 | 0.24 | 0.68 | | | 0.01 | 0.43 |
| 1850 | 0.09 | 0.41 | 0.75 | 0.33 | 0.03 | 0.05 | 0.08 | 0.25 | 0.63 | | | 0.01 | 0.48 |
| 1851 | 0.10 | 0.49 | 0.82 | 0.33 | 0.03 | 0.06 | 0.08 | 0.24 | 0.60 | | | 0.01 | 0.50 |
| 1852 | 0.13 | 0.61 | 0.85 | 0.35 | 0.03 | 0.07 | 0.08 | 0.24 | 0.65 | | | 0.01 | 0.50 |
| 1853 | 0.14 | 0.75 | 1.08 | 0.40 | 0.04 | 0.12 | 0.08 | 0.25 | 0.81 | | | 0.02 | 0.50 |
| 1854 | 0.16 | 0.77 | 1.09 | 0.40 | 0.03 | 0.09 | 0.08 | 0.22 | 0.90 | | | 0.02 | 0.42 |
| 1855 | 0.16 | 0.77 | 1.18 | 0.44 | 0.04 | 0.13 | 0.08 | 0.22 | 0.69 | | | 0.02 | 0.51 |
| 1856 | 0.16 | 0.80 | 1.29 | 0.46 | 0.04 | 0.09 | 0.09 | 0.23 | 0.67 | | | 0.02 | 0.46 |
| 1857 | 0.13 | 0.81 | 1.42 | 0.46 | 0.05 | 0.11 | 0.09 | 0.23 | 0.70 | | | 0.02 | 0.48 |
| 1858 | 0.11 | 0.73 | 1.22 | 0.48 | 0.04 | 0.09 | 0.09 | 0.24 | 0.65 | | | 0.02 | 0.45 |
| 1859 | 0.11 | 0.66 | 1.21 | 0.46 | 0.04 | 0.08 | 0.09 | 0.25 | 0.72 | | | 0.02 | 0.43 |
| 1860 | 0.13 | 0.75 | 1.07 | 0.44 | 0.04 | 0.09 | 0.08 | 0.25 | 0.73 | | | 0.02 | 0.40 |
| 1861 | 0.13 | 0.83 | 1.12 | 0.45 | 0.04 | 0.10 | 0.09 | 0.25 | 0.82 | | | 0.02 | 0.43 |
| 1862 | 0.14 | 0.77 | 1.11 | 0.37 | 0.03 | 0.08 | 0.08 | 0.30 | 0.70 | | | 0.02 | 0.47 |
| 1863 | 0.12 | 0.66 | 1.05 | 0.40 | 0.04 | 0.07 | 0.08 | 0.40 | 0.65 | | | 0.02 | 0.49 |
| 1864 | 0.10 | 0.70 | 1.27 | 0.39 | 0.03 | 0.06 | 0.08 | 0.47 | 0.51 | | | 0.02 | 0.49 |
| 1865 | 0.11 | 0.80 | 1.49 | 0.42 | 0.04 | 0.09 | 0.14 | 0.41 | 0.50 | | | 0.02 | 0.45 |
| 1866 | 0.13 | 0.88 | 1.26 | 0.43 | 0.04 | 0.09 | 0.14 | 0.41 | 0.61 | | | 0.02 | 0.47 |
| 1867 | 0.17 | 0.85 | 1.17 | 0.48 | 0.05 | 0.12 | 0.14 | 0.34 | 0.61 | | | 0.02 | 0.43 |
| 1868 | 0.16 | 0.96 | 1.64 | 0.48 | 0.05 | 0.11 | 0.14 | 0.30 | 0.52 | | | 0.02 | 0.42 |
| 1869 | 0.13 | 1.07 | 1.42 | 0.50 | 0.05 | 0.09 | 0.15 | 0.31 | 0.48 | | | 0.02 | 0.42 |
| 1870 | 0.12 | 1.01 | 1.49 | 0.45 | 0.04 | 0.08 | 0.15 | 0.29 | 0.49 | | | 0.02 | 0.43 |
| 1871 | 0.14 | 0.92 | 1.49 | 0.45 | 0.05 | 0.09 | 0.15 | 0.27 | 0.49 | | | 0.02 | 0.43 |
| 1872 | 0.13 | 1.04 | 1.40 | 0.64 | 0.05 | 0.10 | 0.15 | 0.28 | 0.52 | | | 0.02 | 0.46 |
| 1873 | 0.16 | 1.05 | 1.63 | 0.58 | 0.05 | 0.11 | 0.15 | 0.28 | 0.52 | | | 0.03 | 0.50 |
| 1874 | 0.17 | 1.07 | 1.87 | 0.52 | 0.05 | 0.11 | 0.15 | 0.26 | 0.52 | | | 0.02 | 0.49 |
| 1875 | 0.14 | 1.12 | 1.84 | 0.54 | 0.06 | 0.11 | 0.15 | 0.26 | 0.47 | | | 0.02 | 0.43 |
| 1876 | 0.14 | 1.06 | 2.05 | 0.54 | 0.05 | 0.13 | 0.13 | 0.33 | | 0.34 | | 0.02 | 0.50 |
| 1877 | 0.15 | 0.99 | 1.95 | 0.54 | 0.05 | 0.15 | 0.10 | 0.33 | | 0.36 | | 0.02 | 0.49 |
| 1878 | 0.13 | 0.96 | 1.76 | 0.54 | 0.04 | 0.15 | 0.08 | 0.39 | | 0.28 | | 0.01 | 0.51 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1879 | 0.12 | 0.92 | 1.50 | 0.54 | 0.04 | 0.14 | 0.08 | 0.34 | | 0.23 | | 0.01 | 0.47 |
| 1880 | 0.15 | 1.03 | 1.86 | 0.48 | 0.04 | 0.14 | 0.09 | 0.30 | | 0.23 | | 0.01 | 0.44 |
| 1881 | 0.16 | 1.05 | 1.95 | 0.48 | 0.04 | 0.15 | 0.09 | 0.31 | | 0.23 | | 0.02 | 0.42 |
| 1882 | 0.13 | 0.99 | 2.01 | 0.48 | 0.04 | 0.16 | 0.09 | 0.27 | | 0.21 | | 0.02 | 0.41 |
| 1883 | 0.12 | 1.01 | 1.87 | 0.48 | 0.05 | 0.15 | 0.12 | 0.27 | | 0.20 | | 0.01 | 0.40 |
| 1884 | 0.12 | 0.88 | 1.87 | 0.48 | 0.05 | 0.20 | 0.09 | 0.28 | | 0.21 | | 0.01 | 0.40 |
| 1885 | 0.12 | 0.82 | 1.81 | 0.48 | 0.04 | 0.16 | 0.08 | 0.28 | | 0.20 | | 0.01 | 0.40 |
| 1886 | 0.11 | 0.80 | 1.65 | 0.48 | 0.05 | 0.17 | 0.07 | 0.27 | | 0.20 | | 0.01 | 0.42 |
| 1887 | 0.10 | 0.77 | 1.68 | 0.48 | 0.04 | 0.17 | 0.07 | 0.28 | | 0.18 | | 0.01 | 0.35 |
| 1888 | 0.10 | 0.80 | 1.73 | 0.48 | 0.05 | 0.17 | 0.07 | 0.24 | | 0.19 | | 0.01 | 0.35 |
| 1889 | 0.11 | 0.85 | 1.85 | 0.48 | 0.05 | 0.17 | 0.08 | 0.24 | | 0.20 | | 0.02 | 0.36 |
| 1890 | 0.12 | 0.95 | 1.66 | 0.36 | 0.05 | 0.17 | 0.08 | 0.26 | | 0.20 | | 0.02 | 0.36 |
| 1891 | 0.13 | 0.93 | 2.02 | 0.36 | 0.05 | 0.21 | 0.10 | 0.25 | | 0.18 | | 0.02 | 0.36 |
| 1892 | 0.13 | 0.96 | 2.03 | 0.36 | 0.06 | 0.21 | 0.10 | 0.24 | | 0.16 | | 0.02 | 0.37 |
| 1893 | 0.10 | 0.97 | 1.97 | 0.36 | 0.06 | 0.18 | 0.09 | 0.18 | | 0.14 | | 0.01 | 0.37 |
| 1894 | 0.09 | 0.92 | 1.74 | 0.36 | 0.05 | 0.16 | 0.10 | 0.18 | | 0.14 | | 0.01 | 0.37 |
| 1895 | 0.09 | 0.82 | 1.74 | 0.36 | 0.05 | 0.15 | 0.07 | 0.24 | | 0.17 | | 0.01 | 0.35 |
| 1896 | 0.09 | 0.77 | 2.02 | 0.36 | 0.06 | 0.13 | 0.08 | 0.17 | | 0.16 | | 0.01 | 0.34 |
| 1897 | 0.10 | 0.93 | 1.96 | 0.36 | 0.06 | 0.14 | 0.08 | 0.18 | | 0.15 | | 0.01 | 0.33 |
| 1898 | 0.11 | 0.98 | 1.91 | 0.36 | 0.06 | 0.14 | 0.08 | 0.17 | | 0.13 | | 0.01 | 0.33 |
| 1899 | 0.11 | 0.93 | 2.08 | 0.36 | 0.06 | 0.17 | 0.10 | 0.17 | | 0.15 | | 0.02 | 0.33 |
| 1900 | 0.11 | 0.94 | 2.11 | 0.36 | 0.06 | 0.18 | 0.08 | 0.20 | | 0.16 | | 0.02 | 0.35 |
| 1901 | 0.10 | 1.01 | 2.13 | 0.34 | 0.06 | 0.17 | 0.08 | 0.24 | | 0.16 | | 0.02 | 0.36 |
| 1902 | 0.11 | 1.00 | 2.07 | 0.35 | 0.06 | 0.17 | 0.09 | 0.24 | | 0.15 | | 0.02 | 0.36 |
| 1903 | 0.10 | 0.96 | 2.04 | 0.38 | 0.06 | 0.16 | 0.09 | 0.23 | | 0.16 | | 0.02 | 0.35 |
| 1904 | 0.11 | 0.84 | 2.04 | 0.42 | 0.06 | 0.14 | 0.10 | 0.28 | | 0.15 | | 0.01 | 0.32 |
| 1905 | 0.11 | 0.88 | 2.13 | 0.44 | 0.06 | 0.14 | 0.10 | 0.24 | | 0.14 | | 0.01 | 0.32 |
| 1906 | 0.11 | 1.00 | 2.16 | 0.51 | 0.07 | 0.19 | 0.09 | 0.30 | | 0.14 | | 0.02 | 0.32 |
| 1907 | 0.13 | 0.96 | 2.12 | 0.56 | 0.07 | 0.19 | 0.10 | 0.35 | | 0.14 | | 0.02 | 0.32 |
| 1908 | 0.12 | 0.82 | 2.23 | 0.56 | 0.07 | 0.19 | 0.10 | 0.35 | | 0.16 | | 0.02 | 0.36 |
| 1909 | 0.12 | 0.78 | 2.20 | 0.51 | 0.08 | 0.19 | 0.10 | 0.29 | | 0.14 | | 0.01 | 0.37 |
| 1910 | 0.10 | 0.89 | 2.22 | 0.50 | 0.07 | 0.19 | 0.10 | 0.35 | | 0.13 | | 0.01 | 0.37 |
| 1911 | 0.12 | 0.85 | 2.24 | 0.53 | 0.07 | 0.19 | 0.10 | 0.35 | | 0.14 | | 0.01 | 0.40 |
| 1912 | 0.13 | 0.92 | 2.36 | 0.60 | 0.08 | 0.19 | 0.10 | 0.33 | | 0.13 | | 0.02 | 0.38 |
| 1913 | 0.11 | 1.05 | 2.36 | 0.54 | 0.08 | 0.19 | 0.10 | 0.34 | | 0.17 | | 0.02 | 0.38 |

**Sources:** See Appendix A.1.

## Appendix A.3: Wages

## Table A.3: Wages (kroner per day) in Denmark, 1731-1913

| | Rural Laborer | | Urban Laborer | | Mason |
|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male |
| 1731 | | | 0.35 | | |
| 1732 | | | 0.35 | | |
| 1733 | | | 0.33 | | |
| 1734 | | | 0.32 | | |
| 1735 | | | | | |
| 1736 | | | 0.34 | | |
| 1737 | | | 0.33 | | |
| 1738 | | | 0.33 | | |
| 1739 | | | 0.34 | | |
| 1740 | | | 0.33 | | |
| 1741 | | | 0.34 | | |
| 1742 | | | 0.33 | | |
| 1743 | | | 0.33 | | |
| 1744 | | | 0.33 | | |
| 1745 | | | 0.33 | | |
| 1746 | | | 0.33 | | |
| 1747 | | | 0.33 | | |
| 1748 | | | 0.33 | | |
| 1749 | | | 0.33 | | |
| 1750 | | | 0.34 | | |
| 1751 | | | 0.35 | | |
| 1752 | | | 0.41 | | |
| 1753 | | | 0.48 | | |
| 1754 | | | 0.46 | | |
| 1755 | | | 0.49 | | |
| 1756 | | | 0.47 | | |
| 1757 | | | 0.42 | | |
| 1758 | | | 0.47 | | |
| 1759 | | | 0.46 | | |
| 1760 | | | 0.46 | | |
| 1761 | | | 0.45 | | |
| 1762 | | | 0.45 | | |
| 1763 | | | 0.43 | | |
| 1764 | | | 0.48 | | |
| 1765 | | | 0.47 | | |
| 1766 | | | 0.47 | | |
| 1767 | | | 0.46 | | |
| 1768 | | | 0.46 | | |
| 1769 | | | 0.47 | | |
| 1770 | | | 0.47 | | |
| 1771 | | | 0.47 | | |
| 1772 | | | 0.46 | | |
| 1773 | | | 0.48 | | |
| 1774 | | | 0.48 | | |
| 1775 | | | 0.49 | | |
| 1776 | | | 0.48 | | |
| 1777 | | | 0.48 | | |
| 1778 | | | 0.47 | | |
| 1779 | | | 0.48 | | |
| 1780 | | | 0.48 | | |
| 1781 | | | 0.46 | | |
| 1782 | | | 0.48 | | |
| 1783 | | | 0.48 | | |
| 1784 | | | 0.49 | | |

| | | | | |
|---|---|---|---|---|
| 1785 | | 0.48 | | |
| 1786 | | 0.48 | | |
| 1787 | | 0.48 | | |
| 1788 | 0.49 | 0.49 | | |
| 1789 | 0.49 | 0.48 | | |
| 1790 | 0.49 | 0.48 | | |
| 1791 | 0.49 | 0.49 | | |
| 1792 | 0.49 | 0.48 | | |
| 1793 | 0.49 | 0.48 | | |
| 1794 | 0.49 | 0.48 | | |
| 1795 | 0.49 | 0.50 | | |
| 1796 | 0.49 | 0.55 | | |
| 1797 | 0.49 | 0.58 | | |
| 1798 | 0.49 | 0.58 | | |
| 1799 | 0.49 | 0.58 | | |
| 1800 | 0.49 | 0.58 | | |
| 1801 | | | | |
| 1814 | | | | |
| 1815 | 0.69 | | | |
| 1816 | 0.69 | | | |
| 1817 | 0.69 | | | |
| 1818 | 0.69 | 0.66 | | |
| 1819 | 0.69 | 0.76 | | |
| 1820 | 0.69 | 0.68 | | |
| 1821 | 0.69 | 0.66 | | |
| 1822 | 0.69 | 0.64 | | |
| 1823 | 0.69 | 0.60 | | |
| 1824 | 0.69 | 0.60 | | |
| 1825 | 0.69 | 0.66 | | |
| 1826 | 0.69 | 0.63 | | |
| 1827 | 0.69 | 0.63 | | |
| 1828 | 0.69 | 0.66 | | |
| 1829 | 0.47 | 0.67 | | |
| 1830 | 0.47 | 0.67 | | 1.83 |
| 1831 | 0.47 | 0.67 | | 1.83 |
| 1832 | 0.47 | 0.67 | | 1.83 |
| 1833 | 0.47 | 0.67 | | 1.83 |
| 1834 | 0.47 | 0.67 | | 1.83 |
| 1835 | 0.47 | 0.67 | | 1.83 |
| 1836 | 0.47 | 0.67 | | 1.83 |
| 1837 | 0.47 | 0.67 | | 1.83 |
| 1838 | 0.47 | 0.67 | | 1.83 |
| 1839 | 0.47 | 0.67 | | 1.83 |
| 1840 | 0.67 | 0.67 | | 1.83 |
| 1841 | 0.67 | 0.67 | | 1.83 |
| 1842 | 0.67 | 0.67 | | 1.83 |
| 1843 | 0.67 | 0.67 | | 1.83 |
| 1844 | 0.67 | 0.67 | | 1.83 |
| 1845 | 0.67 | 1.00 | | 2.00 |
| 1846 | 0.67 | 1.00 | | 2.00 |
| 1847 | 0.67 | 1.17 | | 2.00 |
| 1848 | 0.67 | 1.00 | | 2.00 |
| 1849 | 0.67 | 1.00 | | 2.00 |
| 1850 | 0.67 | 1.17 | | 2.00 |
| 1851 | 0.79 | 1.00 | | 2.17 |
| 1852 | 0.79 | 1.00 | | 2.17 |
| 1853 | 0.79 | 1.00 | | 2.17 |
| 1854 | 0.79 | 1.17 | | 2.17 |
| 1855 | 0.79 | 1.17 | | 2.17 |
| 1856 | 0.79 | 1.33 | | 2.50 |
| 1857 | 0.79 | 1.50 | | 2.50 |
| 1858 | 0.79 | 1.33 | | 2.50 |

| | | | | | |
|---|---|---|---|---|---|
| 1859 | 0.72 | 0.58 | 1.33 | | 2.50 |
| 1860 | 0.72 | 0.63 | 1.33 | | 2.33 |
| 1861 | 0.73 | 0.63 | 1.33 | 0.75 | 2.33 |
| 1862 | 0.87 | 0.67 | 1.33 | 0.75 | 2.33 |
| 1863 | 0.83 | 0.58 | 1.33 | 0.75 | 2.33 |
| 1864 | 0.82 | 0.75 | 1.33 | 0.83 | 2.33 |
| 1865 | 0.83 | 0.67 | 1.33 | 0.75 | 2.50 |
| 1866 | 0.84 | 0.67 | 1.33 | 0.75 | 2.50 |
| 1867 | 0.88 | 0.67 | 1.33 | 0.75 | 2.50 |
| 1868 | 0.87 | 0.67 | 1.33 | 0.75 | 2.67 |
| 1869 | 0.88 | 0.75 | 1.50 | 0.75 | 2.67 |
| 1870 | 0.91 | 0.75 | 1.50 | 0.75 | 2.67 |
| 1871 | 0.91 | 0.75 | 1.50 | 0.83 | 2.67 |
| 1872 | 0.95 | 0.83 | 1.67 | 0.83 | 3.00 |
| 1873 | 1.03 | 0.92 | 1.67 | 1.08 | 3.00 |
| 1874 | 1.07 | 0.92 | 2.00 | 1.20 | 3.00 |
| 1875 | 1.13 | 1.00 | 2.00 | 1.20 | 3.32 |
| 1876 | 1.23 | 1.00 | 2.00 | 1.20 | 3.32 |
| 1877 | 1.24 | 1.00 | 2.00 | 1.20 | 3.32 |
| 1878 | 1.21 | 1.00 | 2.00 | 1.20 | 3.32 |
| 1879 | 1.18 | 1.00 | 2.40 | 1.20 | 3.32 |
| 1880 | 1.18 | 1.00 | 2.40 | 1.20 | 3.32 |
| 1881 | 1.22 | 1.00 | 2.40 | 1.20 | 3.32 |
| 1882 | 1.25 | 1.00 | 2.40 | 1.20 | 3.32 |
| 1883 | 1.29 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1884 | 1.30 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1885 | 1.37 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1886 | 1.36 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1887 | 1.36 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1888 | 1.28 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1889 | 1.34 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1890 | 1.35 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1891 | 1.35 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1892 | 1.35 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1893 | 1.35 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1894 | 1.35 | 1.00 | 2.40 | 1.20 | 3.64 |
| 1895 | 1.34 | 1.00 | 2.60 | 1.20 | 3.64 |
| 1896 | 1.35 | 1.00 | 2.60 | 1.40 | 3.64 |
| 1897 | 1.36 | 1.00 | 2.60 | 1.40 | 4.40 |
| 1898 | 1.35 | 1.00 | 2.80 | 1.40 | 4.40 |
| 1899 | 1.34 | 1.00 | 2.80 | 1.50 | 4.40 |
| 1900 | 1.35 | 1.00 | 2.80 | 1.50 | 4.40 |
| 1901 | 1.35 | 1.00 | 3.00 | 1.50 | 4.40 |
| 1902 | 1.35 | 1.00 | 3.00 | 1.50 | 4.40 |
| 1903 | 1.35 | 1.00 | 3.00 | 1.50 | 4.40 |
| 1904 | 1.36 | 1.00 | 3.00 | 1.50 | 4.40 |
| 1905 | 1.38 | 1.00 | 3.00 | 1.50 | 4.40 |
| 1906 | 1.38 | 1.00 | 3.00 | 1.50 | 4.40 |
| 1907 | 1.42 | 1.20 | 3.00 | 1.65 | 4.40 |
| 1908 | 1.61 | 1.32 | 3.00 | 1.65 | 4.40 |
| 1909 | 1.66 | 1.40 | 3.00 | 1.65 | 4.40 |
| 1910 | 1.69 | 1.40 | 3.00 | 1.65 | 4.40 |
| 1911 | 1.69 | 1.40 | 3.00 | 1.65 | 4.40 |
| 1912 | 1.68 | 1.40 | 3.00 | 1.65 | 4.40 |
| 1913 | 1.74 | 1.40 | 3.00 | 1.65 | 4.40 |

**Sources:** See Tables 1 and 2.

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