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Abstract

The historical experience from the past 100 years or so indicates that parts of the labour-market structure in Denmark are endogenously dependent on the monetary regime. A credible monetary regime that delivers on the final target of price stability gives a basis for inflation expectations firmly anchored around price stability, which facilitate the use of multiyear nominal wage contracts and a higher degree of decentralised wage formation among forward-looking workers and employers. Lack of credibility of a monetary regime that results in high and volatile inflation makes shorter wage contracts based on centralised wage bargaining more attractive and encourages the use of inflation indexation of nominal wages. If labour-market structures to some extent are endogenously dependent on the monetary regime, results and policy conclusions from theoretical models that treats these part of the economy as exogenous might be questionable.

Key words: Wage formation, labour-market structures, monetary regimes, Danish economic history

JEL Classification: E42, J50, N13, N14, N33, N34.

Resumé (Danish summary)

Erfaringen fra de seneste hundrede år kunne tyde på, at strukturerne på arbejdsmarkedet i Danmark delvist afhænger af det monetære regime. Et troværdigt monetært regime, som leverer på endemålet om stabile priser, giver basis for en fast forankring af inflationsforventningerne omkring prisstabilitet, hvilket gør det lettere at anvende flerårige lønkontrakter og en højere grad af decentral løndannelse blandt fremadskuende lønmodtagere og arbejdsgivere. Fravær af et troværdigt monetært regime, som resulterer i høje og volatile inflationsrater, gør det mere attraktivt at anvende kortere overenskomstperioder og centraliseret løndannelse samt tilskynder til prisindeksering af lønningerne. Hvis strukturerne på arbejdsmarkedet i nogen grad er endogent afhængig af det monetære regime, kan resultater og politik konklusioner fra teoretiske modeller, som behandler disse forhold som eksogent givne, muligvis være tvivlsomme.

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1. Introduction

It is a well-established result from theoretical and empirical literature that the effects of monetary policy depend on the institutional characteristics of the wage formation regime, cf. e.g. Acocella *et al.* (2008). However, theoretically one could also imagine that the links goes the other way so that labour market structures partly reflect the monetary regime, cf. De Grauwe & Mongelli (2004) for a recent survey within the context of Optimal Currency Areas. The length of wage contracts might for example depend on the level and volatility of inflation, which again might depend on the monetary regime. Another example could be wage policies and labour market reforms, which might become more important economic-policy instruments in a monetary union or in a country with a fixed-exchange-rate peg where monetary policy is not available as an instrument for domestic stabilisation purposes.

The aim of the study at hand is to trace some possible links between the monetary regime and the institutional settings of the labour market in Denmark in a long-span perspective. A new data set on the length of collective agreements, the use of automatic inflation-indexation in wage agreements and on intervention in the renewal of collective agreements by act of Parliament 1900-2007 is presented in this paper and the links with the monetary regime are uncovered. Furthermore the relationship between the development in wages, prices and productivity and the monetary regime since the introduction of the krone as the present Danish currency unit in 1875 is explored. It is not the ambition to formally model and econometrically test these interactions but merely to uncover some stylised facts and offer some eclectic interpretations of the findings.

The analysis in the paper indicate that a credible monetary regime that delivers on the final target of price stability gives a basis for inflation expectations firmly anchored around price stability, which facilitate the use of multiyear nominal wage contracts and a higher degree of decentralised wage formation among forward-looking workers and employers. Lack of credibility of a monetary regime that results in high and volatile inflation makes shorter wage contracts based on centralised wage bargaining more attractive and encourages the use of inflation indexation of nominal wages. If labour-market structures to some extent are endogenously dependent on the monetary regime, results and policy conclusions from theoretical models that treats these part of the economy as exogenous might be questionable.

The structure of the paper is the following: After a brief review of previous research in section 2, section 3 summarises the long-run development trends in Danish labour market conditions since 1875 followed by an analysis of wage inflation in the various monetary regimes in section 4. The link between the monetary regime and the length of collective agreements, the use of automatic inflation indexation in wage contracts, governmental intervention in the bargaining process and the degree of centralisation in the collective

bargaining system are treated in section 5-8. Section 9 contains some finalising remarks. Appendix A outlines the historical development of the Danish labour-market system since the early 19th century in order to provide some background information for readers without a detailed prior knowledge of the economic history of Denmark. Sources and compilation methods used to construct the data set applied in the study is described in appendix B followed by a listing of all data series in appendix C.

2. A brief review of the literature

A number of empirical short-span studies seem to confirm that the length of wage contracts decreases with inflation uncertainty and that inflation uncertainty increases the intensity of indexation in wage contracts, cf. e.g. the survey in Christofides & Peng (2006).

However, only few empirical long-span studies have focused on how the institutional characteristics of the wage formation process and other parts of the labour-market settings might be endogenously dependent on the monetary regime. A notable exception is Fregert & Jonung (1998, 2006) who study the length of collective wage agreements and the use of inflation-indexation of wages in the industrial sector in Sweden sine 1908. They find that the length of wage contracts in general decreases in step with uncertainty around the macro-economic policy regime. The longest contract lengths are found during the classical gold standard 1908-1914, towards the end of the Bretton Woods period 1966-1974 and in the recent period 1995-2005 with an inflation-targeting regime. Inflation indexation has been used most extensively during World War II and in the period 1977-1990. These two periods were characterised by high volatility in nominal wages and prices.

A couple of authors have made long-span empirical studies of the Danish labour market and the wage-formation process. Kærgård (1991) presents a detailed study of the Phillips curve relationship for the Danish economy 1904-1970. Furthermore, Pedersen (1984) offers a comprehensive study of a wide range of topics related to the Danish labour market in the twentieth century (including Phillips curve analysis) with a great deal of effort devoted to the construction of several key long-span time series on Danish labour-market conditions. However, none of these studies focus directly on the possible monetary-regime dependence of labour market structures.

3. General outline of the Danish labour market in historical perspective

The Danish labour-market system is often characterised as a system based on collective bargaining between the workers' and employers' organisations on pay and all other major issues relating to working conditions. Trade union membership is widespread and the level of

organisation among employers is also higher than in most other countries. The emphasis is on self-regulation via voluntary agreements among the labour-market parties rather than legislation[2].

Most of the characteristic elements of the current Danish system of labour-market regulation dates back to the last decades of the 19th century and the early decades of the 20th century. During this period the main labour-market organisations, the general framework for collective agreements and the system for settlement of disputes on the labour market were established. The origin and development of the Danish labour-market institutions since the early 19th century is briefly outlined in appendix A.

Figure 1 presents a range of key figures on Danish labour market since 1875.[3] The following observations and development trends can be noted:

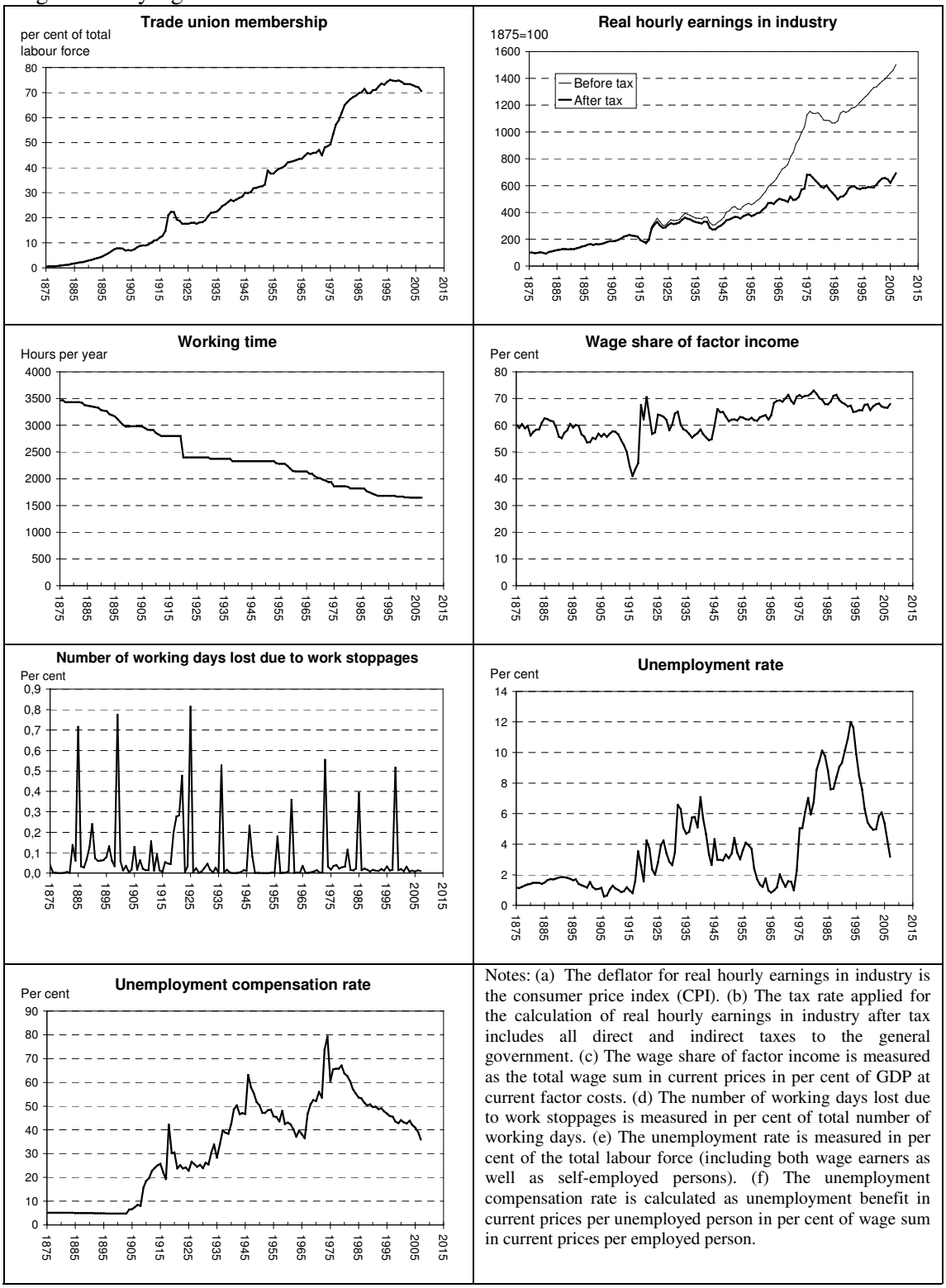
- Trade union membership has gradually increased from less than 10 per cent of the total labour force in the last quarter of the 19th century to more than 70 per cent in the early 2000s.
- The same period has witnessed a substantial increase in the level of real hourly earnings and a significant reduction in the annual working time.
- The wage share of factor income has remained roughly unchanged at a level around 60-70 per cent, although with some local upward and downward trends.
- In general the Danish labour market system has delivered a high degree of industrial peace. The number of working days lost due to work stoppages has on average amounted to less than 0.1 per cent of the total number of working days. Except for the years following immediately after the end of World War I – where syndicalism temporary influenced the Danish labour movement[4] – the high degree of stability in labour-market relations has characterised the whole period since 1875.
- The rate of unemployment displays a high degree of persistence with peaks around the Great Depression in the 1930s and again during the 1980s and early 1990s. An upward trend in the level of the unemployment rate over the long run appears to be present.
- Finally, there has also been an upward long-run trend in the unemployment compensation rate since the introduction of public subsidies to unemployment benefit associations in 1907. The swings in the levels of the unemployment compensation rate seem to be related to the swings in the unemployment rate.

[2] One exception has been the 1973 Act on Equal Pay between men and women. Most other labour market related legislation (e.g. on holidays with pay) is usually only amended by the Parliament after an agreement has been reached on the issue by the parties on the labour market and there is e.g. no legislated minimum wage.

[3] As with all long-span historical statistics a word of caution is in order. Compilation methods and practices may vary over time and a number of judgements and estimations have been necessary to construct the data set applied in the paper at hand. The results and conclusions presented in the paper have therefore do some degree to be taken with "a pinch of salt".

[4] Cf. Stræde (1978) and Gold (1987). The government even feared that the inflow of Russian currency was used to finance the revolutionary movements in Denmark. In November 1918 the Nationalbank therefore ceased to buy Russian currency, cf. page 90 in Hansen (1996).

Figure 1: Key figures of the Danish Labour market 1875-2007



Notes: (a) The deflator for real hourly earnings in industry is the consumer price index (CPI). (b) The tax rate applied for the calculation of real hourly earnings in industry after tax includes all direct and indirect taxes to the general government. (c) The wage share of factor income is measured as the total wage sum in current prices in per cent of GDP at current factor costs. (d) The number of working days lost due to work stoppages is measured in per cent of total number of working days. (e) The unemployment rate is measured in per cent of the total labour force (including both wage earners as well as self-employed persons). (f) The unemployment compensation rate is calculated as unemployment benefit in current prices per unemployed person in per cent of wage sum in current prices per employed person.

Source: See appendix B.

4. Wage inflation and labour productivity

Table 1 shows a range of summary descriptive statistics on nominal wage inflation, labour productivity and consumer price inflation since 1875 broken down by sub-periods determined by the Danish exchange-rate policy.

Table 1: Monetary regimes and wage inflation in Denmark – summary statistics 1875-2007

		Growth in nominal hourly earnings in industry			Growth in hourly labour productivity (a)			CPI inflation		
		Mean	Max	Min	Mean	Max	Min	Mean	Max	Min
		per cent per annum								
1875-1913	The Classical Gold Standard	2.2	6.4	-5.0	2.4	7.1	-2.7	0.0	8.5	-10.6
1914-1945	World Wars and inter-war period	5.8	72.9	-21.5	1.4	17.7	-14.0	3.8	24.4	-15.0
1946-1971	Bretton Woods	8.2	13.7	2.7	4.8	13.4	0.6	4.4	11.7	-0.7
1972-1986	European exchange-rate co-operation - The ”soft peg” period	10.4	19.9	4.6	2.5	4.0	1.0	9.1	15.2	3.6
1987-2007	European exchange-rate co-operation - The ”hard peg” period	4.0	9.4	2.4	2.2	3.9	0.3	2.4	4.8	1.2
1875-2007	Total	5.5	72.9	-21.5	2.6	17.7	-14.0	3.2	24.4	-15.0

(a) Compiled as annual growth in real total economy GDP per working hour.
Source: See appendix B.

During the Classical Gold Standard period 1875-1913 Denmark participated in the Scandinavian Currency Union based on gold together with Sweden and (from 1877) Norway. During this period all other main trading partners participated in the international fixed-exchange-rate Gold Standard system as well. The price level in Denmark was roughly unchanged in the period 1875-1913 seen as one, and the average level of nominal wage inflation was low (2.2 per cent per annum).

The period 1914-1945 saw rather frequent changes in the monetary regime. World War I *de facto* terminated the Scandinavian Currency Union and the international Classical Gold Standard. After the war Denmark and its main trading partners gradually returned to the Gold Standard, but the system collapsed again after a few years when the UK went off gold in September 1931. Denmark left the Gold Standard within the same month, and in 1932 a comprehensive exchange-control system was introduced. Apart from a major Danish devaluation in 1933, the Danish krone was pegged rather closely to the British pound most of the time until the outbreak of World War II. The average level of nominal wage inflation in

the period 1914-1945 was still moderate (5.8 per cent per annum), but the volatility was substantial.

In the period 1946-1971 Denmark participated in the Bretton Woods fixed-exchange-rate system. In the late 1940s the UK was still Denmark's largest trading partner and the devaluation of the British pound by 30.5 per cent in September 1949 was followed fully by Denmark. During the 1950s and 1960s Denmark's trade pattern gradually changed towards higher export shares to continental Europe, and the devaluation of the British pound in November 1967 by 14.3 per cent vis-à-vis the US dollar was not followed fully by Denmark (7.9 per cent). In the Bretton Woods period there was a sustained upward trend in the level of nominal wage inflation without a single year with negative wage inflation whereas nominal wage deflation frequently occurred during the classical gold standard and also occurred several times in the interwar period.

After the breakdown of the Bretton Woods system in the beginning of the 1970s, the Danish exchange-rate policy became part of the European exchange-rate co-operation. In principle, a fixed exchange-rate policy was pursued but frequent devaluations of the Danish krone occurred until the early 1980s. During the period 1972-1986 the average level of nominal wage inflation reached double-digit figures and the volatility was fairly high.

The last realignment of the central parity for Danish kroner vis-à-vis Deutsche Mark within ERM occurred at the beginning of 1987. Since then Denmark has pursued a "hard" peg against the D-mark and later the euro. The period since 1987 has seen an average level of wage inflation of 4.0 per cent – the lowest level since the classical gold standard – and volatility has been very low.

The analysis above shows that the lowest level of wage inflation has occurred in those periods where Denmark has pursued a consistent fixed-exchange-rate policy: The pre-1914 Classical Gold Standard period and the hard peg vis-à-vis D-mark (later the euro) since 1987. The latter period has also seen the lowest volatility in the level of wage inflation. It thus appears that in the case of Denmark a consistent fixed-exchange-rate policy historically has provided the best foundation for anchoring the inflation expectations.

It is furthermore worth noticing that in all the sub-periods since 1875 shown in table 1 the average annual level of consumer price inflation has approximately been equal to the average annual nominal wage inflation less the average annual growth in hourly labour productivity. The advances in real hourly earnings before taxes have approximately followed the development in labour productivity – irrespectively of the type of monetary regime. The growth in real hourly earnings seems thus in a medium-term or long-run perspective to be determined by real factors (productivity) rather than nominal factors (the size of nominal wage increases). The role played by the monetary regime seems only related to nominal

variables – the ability to create a stable nominal anchor for the economy. However, as seen in figure 1 the largest drops in the level of real hourly earnings after tax occurred around World War I and II and in the decade following the mid-1970s. Those periods were characterised by high level of CPI inflation. It thus appears that it comes with a cost when inflation expectations loose their anchor.

5. Length of collective agreements

For the period 1875-1899 only sparse and fragmented information on the length of collective agreements is available. For the earliest period – before collective agreements became common – the so-called "schedules of wages" were in some cases changed several times a year. By 1899 "... virtually every trade in Copenhagen and the more important trades in provincial cities were governed by collective agreement."[5] However, the duration was often not specified in the agreements. In many cases it was just stated that an agreement could only be terminated after a minimum of one year. There might have been a tendency towards somewhat longer duration than one year in the 1890s, especially in the second half of the decade.[6]

For the post-1900 period figure 2 shows the length of new collective agreements in the industrial sector. For the period 1900-1910 the information is only based on the collective agreements for the members of The Danish National Union of Smiths and Fitters[7], whereas the period since 1911 covers most of the industrial sector.

During the latter part of the Classical Gold Standard period the length of collective agreements increased from 2 to 5 years – the longest duration that has occurred during the entire post-1900 period. This might reflect the credibility of the Classical Gold Standard, which at that time had delivered on the final target of price stability for quite some time. This gave a basis for inflation expectations firmly anchored around price stability and facilitated the use of multiyear nominal wage contracts among forward-looking workers and employers.

The wartime inflation resulted in a shortening of the term to one year, which with a few exceptions was the standard length of collective agreements in the interwar period. The world wars and the interwar period were characterised by a higher and more volatile inflation than the Classical Gold Standard period, and the lack of credibility of the monetary regime might – despite negotiation costs – have made shorter wage contracts more attractive.

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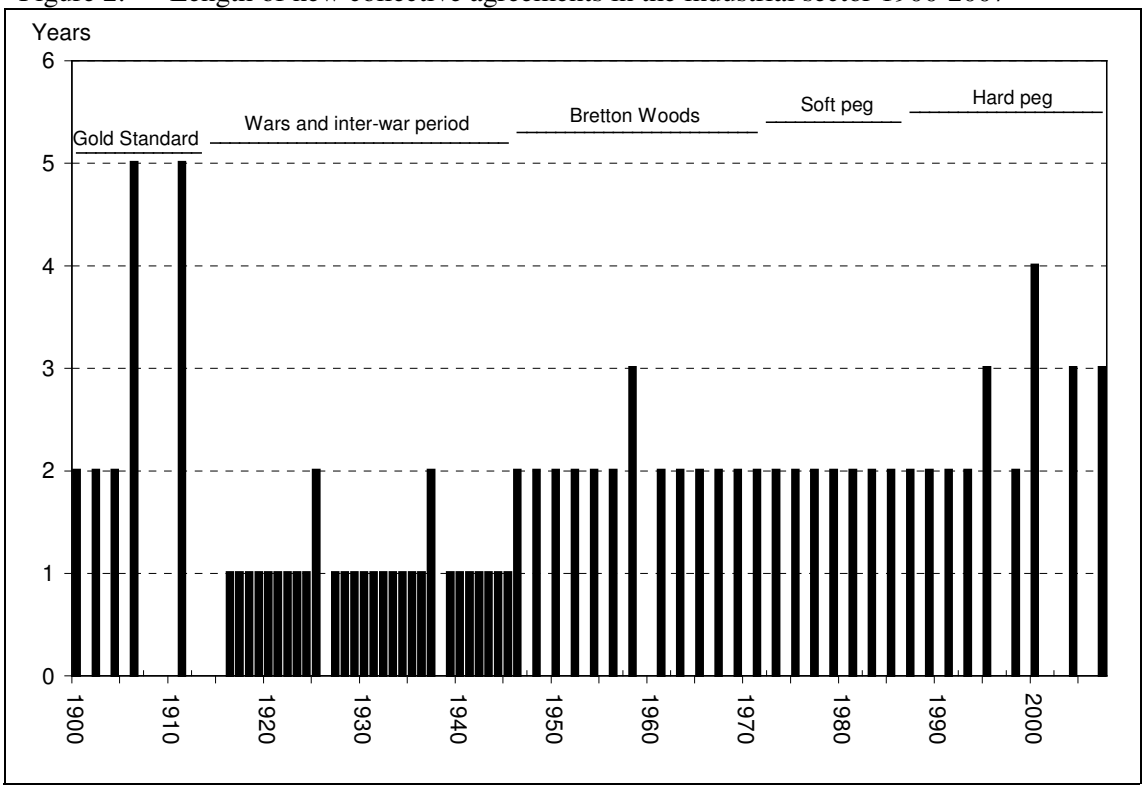
[5] Quotation from page 97 in Galenson (1952).
[6] Cf. also the descriptions on pp.427-429 in Nørregaard (1943) and on p. 105 in Galenson (1952).

Figure 2: Length of new collective agreements in the industrial sector 1900-2007



Note: The length has been rounded to a whole number of years
Sources: See appendix B.

In most of the post-World War period, the standard length of new collective agreements has been 2 years. However, the last decade or so contracts with a length of 3 or 4 years have dominated. This might reflect the increased credibility of the Danish fixed-exchange-rate peg and the international decline of inflation rates during the 1980s and the beginning of the 1990s.

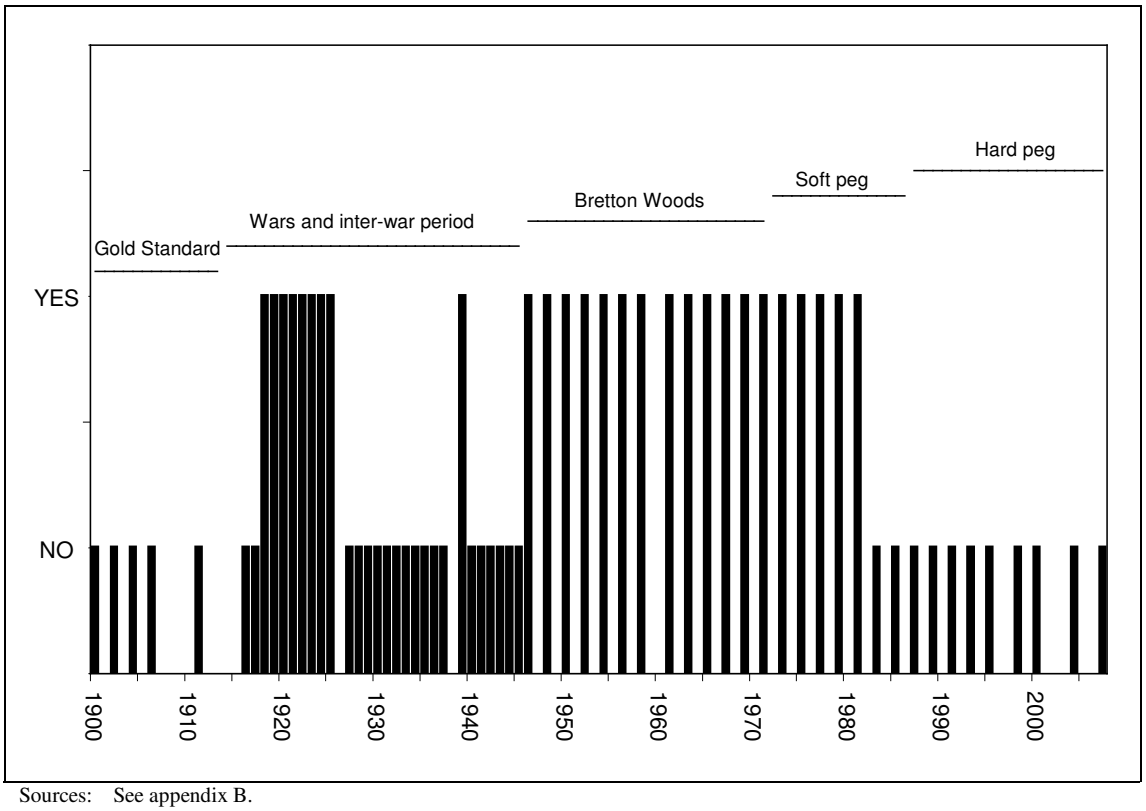
6. Use of automatic cost-of-living indexation in wage agreements

Figure 3 plots the use of automatic inflation-indexation of wages in collective agreements in the industrial sector since 1900.

Inflation indexation was first introduced in light of the rapid inflation towards the end of World War I. It was a standard element in the collective agreements during the first half of the 1920s. From 1927 automatic inflation indexation were no longer an element in the collective agreements until just before the outbreak of World War II.

[7] In 1900 The Danish National Union of Smiths and Fitters was the largest trade union for skilled workers and accounted for 9 per cent of members of the national federation of workers in Denmark at the time, cf. Jensen & Olsen (1901).

Figure 3: Use of automatic cost-of-living indexation of wages in collective agreements in the industrial sector 1900-2007



Sources: See appendix B.

After World War II automatic cost-of-living indexation returned as a standard element in collective agreements until the early 1980s. Inflation indexation was suspended by Act of Parliament as part of a set of income-policy initiatives in 1982 and abolished altogether in 1986. Since then automatic inflation indexation has not been part of the collective agreements even though no legislation prevent a reintroduction by agreement between the parties on the labour market[8].

The Danish experience with automatic cost-of-living indexation of wages thus indicates that a monetary regime that results in high and volatile inflation encourages the use of inflation indexation of nominal wages among forward looking agents whereas a regime with low and stable inflation makes inflation indexation unnecessary.

7. Intervention in the renewal of collective agreements by Act of Parliament

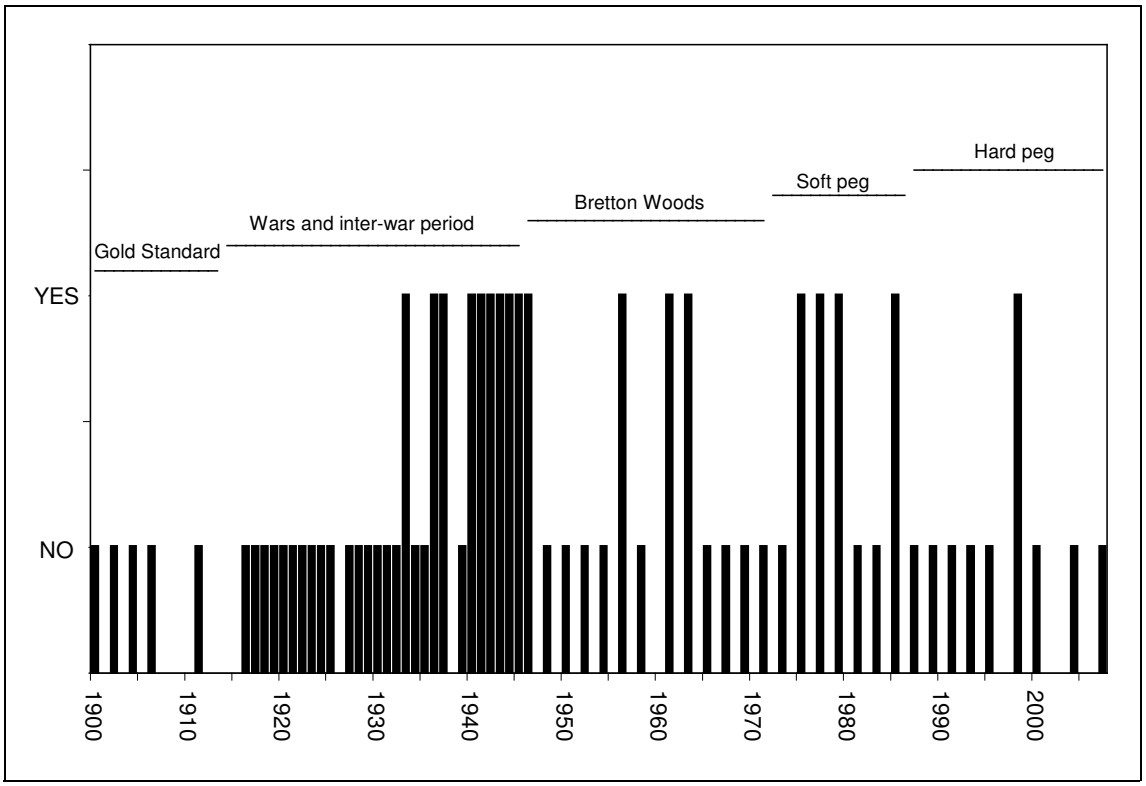
Figure 4 shows the level of intervention in the renewal of collective agreements by Act of Parliament in the period since 1900. The permanent compulsory arbitration enacted in 1940

[8] Cf. page 230 in Hansen *et al*. (1988).

and in force during the German occupation of Denmark until 1945 has been classified as "intervention" in all the years 1940-1945.

Disregarding the World War II period, the labour-market partners have most of the time reached collective agreements without any governmental intervention. However, starting with the so-called "Kanslergade Agreement" in 1933, there have been a few cases where the partners in the labour market have failed to reach an agreement on renewal of collective agreements and where the government therefore has intervened. In case of intervention it has usually taken form of an Act by Parliament based on a compromise proposed by the Public Conciliator. The level of intervention in the renewal of collective agreements does not seem related to the type of monetary regime in any clear way. However, in the most recent period with the hard peg there has so far only been one case of intervention.

Figure 4: Intervention in the renewal of collective agreements by Act of Parliament 1900-2007



Note: The Parliament's interventions are usually based on a compromise proposed by the Public Conciliator, which again normally builds on negotiation results reached by several of the sub-organisations on the labour market in various trades. There may thus be interventions that also cover the industrial sector, even though the worker and employer organisations within the industrial sector have managed to reach agreements prior to the involvement of the Public Conciliator and the Parliament. Such cases have also been classified as intervention. The figure therefore shows the occurrence of interventions related to a large part of the private-sector labour market rather than interventions to settle disputes solely within the industrial sector.

Sources: See appendix B.

8. Degree of centralisation in the collective bargaining system

The degree of centralisation in the collective bargaining system is difficult to measure. Intervention by the Parliament represents e.g. in a way a high degree of centralisation. However, the Parliament's interventions are usually based on a compromise proposed by the Public Conciliator, which again normally builds on negotiation results reached by several of the sub-organisations on the labour market in various trades.

Due *et al*. (1994) contains an analysis of the degree of centralisation in the Danish system of collective bargaining in the time-span from 1934 to 1993. They use a classification system with 7 centralisation degrees. Degree 1 represents the most decentralised type of bargaining where the sub-organisations on the labour market obtain the negotiation results, while degree 7 represents situations with political interventions. Degree 2 to 6 depend on the scale of involvement of the main labour market organisations (DA[9] and DsF/LO[10]) and the Public Conciliator. The analysis indicates that the period 1934-1993 can be divided into three phases characterised by their own form of collective bargaining, although the authors underline that each phase contains atypical bargaining situations. The first phase 1934-1950 and the third phase 1981-1993 were characterised by bargaining where the main focus is on the sub-organisations whereas the main organisation played a larger role in the second phase 1951-1979. Furthermore, in the first phase DA maintained a high degree of control of the bargaining conducted by its members compared to the third phase. The most decentralised collective bargaining with the largest involvement of the sub-organisations has thus occurred in the post 1980 period. Due *et al*., *op.cit.*, furthermore notes that the negotiations since 1991 might even be seen as the beginning of a new fourth decentralised phase where the details are filled in at a firm level.

The Danish Economic Council has also emphasised the trend towards decentralisation in collective bargaining in the most recent decades, cf. Det Økonomiske Råd. Formandskabet (2007). Since the late 1980s the wage systems have changed towards more flexible pay systems (minimum-wage agreements, minimum-pay agreements and agreements without minimum rate), where the actual pay is fixed at the firm level. In 2004 these flexible wage systems covered 84 per cent of the LO/DA area compared to 66 per cent in 1989. The normal-wage agreements, in which pay is mainly determined at a central level by the main organisations, has declined correspondingly from 34 per cent in 1989 to 16 per cent in 2004.

Prior to World War I, the main organisations played only a limited role in the collective agreements. There might therefore be a tendency towards a higher degree of decentralisation in periods where the monetary regime has delivered on the final target of price stability, i.e.

[9] The main private employer organisation, cf. appendix A.
[10] The main national federation of workers, cf. appendix A.

the pre-1914 Classical Gold Standard period and the hard peg period since 1987. An environment with low (and stable) inflation eases the formation of inflation expectations, which might promote decentralised wage negotiations. With a higher level of inflation and inflation volatility larger amounts of resources are required in order to forecast inflation and form inflation expectations. This might give a larger role to play for centralised labour-market organisations that can allocate the necessary professional resources to make inflation forecasts in relation to collective nominal wage bargaining.

9. Some finalising remarks

Based on the historical evidence for Denmark during the past century or so it seems that parts of the labour-market structure are at least to some degree endogenously dependent on the monetary regime. A credible monetary regime that delivers on the final target of price stability provides a basis for inflation expectations firmly anchored around price stability, which facilitate the use of multiyear nominal wage contracts and decentralised wage formation among forward-looking workers and employers. Lack of credibility of a monetary regime that results in high and volatile inflation makes shorter wage contracts based on centralised wage bargaining more attractive and encourages the use of inflation indexation of nominal wages.

Not only labour-market structures but also the fiscal policy regime might be endogenously dependent on the monetary regime. One could e.g. imagine that a monetary regime characterised by fixed exchange rates and free cross-border movement of capital foster fiscal prudence by imposing a potential mechanism of market discipline. In a fixed-exchange-rate regime with free capital movements a lack of fiscal prudence might quickly be "punished" by pressure on the exchange rate and higher domestic long-term interest rates. In a panel-data study of the OECD countries in the period 1970-2005 Christensen & Hansen (2007) find that both shifts to a fixed-exchange-rate policy (including participation in a monetary union) and to inflation targeting have led to a decline in inflation beyond the global trend in the years following the regime switch. However, they also find a significant reduction in the volatilities in both inflation and output-gap, beyond the global trend, after the adoption of a consistent fixed-exchange-rate policy, while no such effect can be found from a move to inflation targeting. They indicate that fiscal policy might play a role for these results.

A final question one could consider is whether the monetary regime in itself is exogenous or not. One could e.g. imagine that a prudent fiscal policy and a flexible labour market where wage formation is in line with productivity and the level of competitiveness result in a monetary regime with price stability and stable nominal exchange rates. Based on annual trade-weighted nominal and real effective exchange-rate indices for Denmark 1875-2002,

Abildgren (2005) finds the strongest tendency towards long-run relative PPP convergence in those periods (the pre-1913 Classical Gold Standard and the post-1987 hard peg period) with the lowest volatility in the nominal effective krone rate.

If both labour-market structures and the fiscal policy regime to some extent are endogenously dependent on the monetary regime – and if even the monetary regime in itself is to some degree endogenous – results and policy conclusions from theoretical models that treats these parts of the economy as exogenous might be invalid or at least questionable. This certainly leaves plenty of scope for future research at both the theoretical and empirical level.

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Appendix A: The historical origin and development of the Danish labour-market system[11]

The Danish system of labour-market regulation has deep roots in the past and its origin and development since the last quarter of the 19th century will be briefly outlined in this appendix.

The guild system and the first steps towards labour-market organisation

The modern Danish labour market system emerged in the first five decades following the abolition of the medieval guild system in the middle of the nineteenth century. Under the guilds system both output prices and wages were originally determined by the master guilds, so wages were almost uniform among employers. Foreign and non-guild competition was limited, so the guilds could act as monopolies both on the output side and on the factor demand side.

In 1800 the guild system in Copenhagen was amended by regulation. The regulation stated the right of journeymen to conduct individual wage negotiations with their master. Furthermore, journeymen with four years' experience got permission to establish themselves as freemasters without completing the traditional masterwork. The result was an increased competitive pressure on the guilds. The suspension from performing the masterwork was abolished again in 1822, but a practice of homework developed and spread among the journeymen. An increasing ratio of journeymen to masters reduced the probability that all journeymen could become masters. The result was an increased focus on higher wages and better working conditions among the journeymen.

On the background of a strike among building timbres in Copenhagen in 1794, which spread to other trades, strikes were also forbidden by the guild reform of 1800. However, in the middle of the nineteenth century strikes were not uncommon in Copenhagen. In 1851 the masons' guild in Copenhagen made an attempt to get the ban on strikes confirmed by the court of justice, but no verdict was passed, and strikes were thereby *de facto* recognised as legal actions.[12]

In 1857 an Act on freedom of trade was implemented in Denmark which included an abolition of the guild system with effect from 1862. After the abolition of the guild system many of the master's guilds carried on as voluntary organisations. Some of these transformed into employer organisations, while other newer industries formed separate employer organisations. In the mid-1880s the first major employer association was established.[13]

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[11] The long-span historical development of the Danish labour market system is covered by e.g. Due *et al.* (1994), Finansministeriet (1999), Galenson (1952), Ibsen & Scheuer (2000) and chapter IV in Olsen (1962).
[12] Cf. also Dübeck (1979).
[13] The Federation of Metal Trade Manufactures in Copenhagen (in Danish: "Foreningen af Fabrikanter i Jernindustrien i København") was established in 1885. Schiott (1960) covers the history of the federation.

The journeymen guilds can only in a very general sense be seen as the antecedents of the trade unions. After the Freedom of Trade Act in 1862 most of the journeyman guilds continued as voluntary sick and burial societies, although some took an interest in the more general working conditions of their members and also concluded written collective agreements with their former masters.[14] However, a number of actual local trade unions were established during the 1860s and 1870s and worker unionisation gained pace during the 1880s with the formation of local joint organisations covering all trade unions within a local area.[15] During the late 1880s national trade unions also emerged.[16] The organisational tradition might be seen as the most direct heritage from the guild system. Around 80 per cent of the 65 local trade unions established in Copenhagen from 1870 to 1880 were in trades where the guild system previously had dominated, although at most 65 per cent of the workers in Copenhagen were employed within those trades.[17] Another legacy from the guild system might be the tendency to establish separate trade unions for skilled blue-collar workers, unskilled blue-collar workers and white-collar workers and a certain degree of conflict of interest between the groups.[18] The majority of the early trade unions required journeyman status as a condition for membership. Trade unions for unskilled blue-collar workers[19] and white-collar workers[20] therefore developed relatively late.

The many scattered and short strikes of the 1860s and 1870s were in the 1880s replaced by a higher degree of co-ordination. The main strategy of the trade unions was to fight for better

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[14] Cf. page 97 in Galenson (1952).

[15] The Federation of Trade Unions in Copenhagen (In Danish: "De samvirkende Fagforeninger i København") was e.g. established in 1886, cf. Markvad (1986).

[16] Two of the "classic" examples (both among the "founding fathers" of the main national federation of workers, the Co-operating National Trade Unions in Denmark, DsF, cf. below) were the following:

- The Danish National Union of Masons (in Danish: Murerforbundet i Danmark) was established in 1887. The Danish National Union of Masons was temporary outside DsF during the years 1912-1935. The history of the trade union is covered by Murerforbundet i Danmark (1987).
- The Danish National Union of Smiths and Fitters (in Danish: Dansk Smede- og Maskinarbejder Forbund) was established as a national trade union in 1888. The name was later changed to the National Union of Metalworkers (in Danish: "Dansk Metal"). The history of the trade union is covered by Hansen (1913), Andersen (1938), Bengtsson (1988) and Maigaard (edt.) (1999).

In 1900 the Danish National Union of Masons and the Danish National Union of Smiths and Fitters were the two largest trade unions for skilled workers and accounted for respectively 7 and 9 per cent of DsF's members, cf. Jensen & Olsen (1901).

[17] Cf. page 17 in Galenson (1952).

[18] Cf. page 18 and 22 in Galenson (1952).

[19] The Danish General Worker's Union (in Danish: Dansk Arbejdsmandsforbund) was established in 1897. The union organised unskilled workers from a variety of industries, including longshoremen and heavy construction, shipyard, diary and cement workers. The Danish General Worker's Union was in 1959 renamed to "Dansk Arbejdsmands- og Specialarbejderforbund" and in 1974 to "Specialarbejderforhundet i Danmark" (SiD). The union was among the "founding fathers" of DsF in 1898. Hansen (1997) covers the history of the SiD.

The Women's Labour Union in Denmark (in Danish: Kvindeligt Arbejderforbund i Danmark, KAD) was founded in 1901 as an organisation for unskilled women workers in a broad range of industries. The history of KAD is covered by Christensen & Hansen (1951).

In 2005 SiD and KAD merged into The United Federation of Danish Workers (in Danish: Fagligt Fælles Forbund, 3F).

[20] The Union of Commercial and Clerical Employees (in Danish: Handels- og Kontorfunktionærernes Forbund, HK) was founded in 1900. The union became member of DsF in 1932. Christensen & Federspiel (2000) covers the history of the union.

working conditions by challenging the employers one by one via a range of successive strikes at selected firms, often small and non-affiliated employers (so-called leap frogging[21]). The employers responded by joining forces and made use of lockout of all workers in the entire local area where the strikebound firms were located.

A major conflict – the so-called Metal Trades Lockout – took place in Copenhagen in 1885. The lockout lasted for five months and was initiated when the employers refused to accept collective agreements with the skilled smiths. As a precondition for letting the smiths back on work the employers demanded that the workers should leave their union. However, in the end the employers had to accept an agreement, which recognised the workers' right to organise.

Although the second half of the 19th century witnessed an increased migration of farm labour to the urban areas, agriculture still accounted for more than 40 per cent of the labour force around 1900[22]. However, trade unions for agricultural workers developed relatively late. In 1906 the Association of Servants[23] was established and in 1915 it was restructured into The Agricultural Workers' Union in Denmark[24]. Also the employers in the agricultural sector became organised rather late. The Danish Confederation of Employers' Associations in Agriculture[25] was established in 1947 as the main organisation for employers in agriculture and the foodstuffs industry.

The founding of the main labour-market organisations

During the last decade up to the turn of the century collective bargaining became more widespread, and the two main labour market organisations were established towards the end of the 1890s.

The Employers' Confederation of 1896[26] was originally established as an employer organisation for building trades in Copenhagen. In 1897 the Metal Industry Employers' Associations[27] was included as member and in 1898 the Employers' Confederation of 1896 merged with the Industry Employers' Association[28] into the Danish Employers' Confederation (DA)[29], which since has been the main private employer organisation on the Danish labour market.

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[21] In Danish: Omgangsskruen.
[22] Cf. page 231 in Hansen (1983).
[23] In Danish: Tjenestefolkenes Forening.
[24] In Danish: Landarbejderforbundet i Danmark. The union became member of DsF in 1917. Grelle (1982) coves the early history of Landarbejderforbundet.
[25] In Danish: Sammenslutningen af Landbrugets Arbejdsgiverforeninger, SALA. SALA is not a member of DA.
[26] In Danish: "Arbejdsgiverforeningen af 1896".
[27] In Danish: "Jernindustriens Arbejdsgiverorganisationer, JA".
[28] In Danish: "Industriens Arbejdsgiverforening".
[29] In Danish: "Dansk Arbejdsgiver- og Mesterforening", later renamed to "Dansk Arbejdsgiverforening". The history of DA is covered by Dansk Arbejdsgiverforening (1946, 2007) and Fink (1996).

Right from the beginning DA was granted centralised competence in cases where its member organisations failed to achieve results by collective bargaining, and from 1907 a practice was established after which all collective agreements concluded by the member organisations of DA were to be approved by DA.

In 1898 the main national federation of workers, the Co-operating National Trade Unions in Denmark (DsF)[30], was founded as a federation of 38 national trade unions and 25 separate local trade unions. DsF was formally established as a relatively loose coalition of national trade unions. DsF set up a common strike fund covering all the national trade unions, but the national trade unions still had their own strike funds. Collective agreements were in principle to be concluded by the trade unions at the regional or national level with the corresponding branch organisation of employers, but the strong element of centralisation on the employer side forced the labour movement to centralise competence as well.

More recently two other main organisations outside LO for respectively salaried employees and graduates has been established on the Danish labour market. The Confederation of Salaried Employees and Civil Servants[31] was established in 1952 and covers mainly employees with medium-cycle higher education within the public or financial sector. The main organisation for university graduates - The Danish Confederation of Professional Associations[32] - was established in 1972 by a merger of two older organisations[33] for university graduates.

The September 1899 Compromise

In 1899 a minor strike among carpenters in Jutland escalated into a nation-wide lockout covering a large part of the building sector and the iron industry. The nation-wide lockout lasted for three months. On the 5th September 1899 the two main organisations, DA and DsF, concluded the so-called "September Compromise".

The main elements of the September Compromise were the following[34]:

- Mutual recognition by the workers and employers of the right to form organisations.
- Recognition of both parties' right to effect work stoppages through strikes and lockout subject to the observance of certain rules (14 days' notice to the other party and approval of the work stoppage by a majority of three-fourth in a competent assembly).
- Fulfilment of collective agreements concluded by the two parties.
- Recognition of the employers' right to manage and allocate work and employ the amount of labour deemed necessary (the so-called "managerial prerogative" of the employers).

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[30] In Danish: "De samvirkende Fagforbund i Danmark". Later, in 1967, DsF changed its name to the Danish Confederation of Trade Unions (in Danish: Landsorganisationen i Danmark, LO). The history of LO is covered by Koch-Olsen (edt.) (1973), Tjørnehøj (edt.) (1998) and Grelle (edt.) (1998).
[31] Funktionærernes og Tjenestemændenes Fællesråd, FTF.
[32] In Danish: Akademikernes Centralorganisation, AC.
[33] Statsembedsmændenes Samraad founded in 1919 and Akademikernes Samarbejdsudvalg established in 1950.
[34] The September Compromise is reprinted on page 4-6 in Finansministeriet (1999).

- Collective agreements can only be cancelled by a three months notice.
- Work supervisors are allowed not to be member of the workers' organisations.
- Neither of the two parties is allowed to support industrial actions violating the rules of the game stated in the September compromise.
- The occurrence of breaches of collective agreements is first to be handled by the competent assembly of the parties' organisations. If agreement can not be reached the issue is to be presented for the court of justice.

The September Compromise – with subsequent amendments – still serve as the "constitution of the Danish labour market". Some of the main developments have been the following:

- In 1947 DA and DsF concluded the so-called Co-operation Agreement regarding the establishment of information and consultation committees at the firm level.
- In 1960 the September Compromise was replaced by the so-called General Agreement between DA and DSF.
- In 1973 the General Agreement was amended. It was stated that the employers should conduct their managerial right in co-operation with the employees.
- In 1981 the parties on the labour market concluded a so-called Technology Agreement as an annex to the Co-operation Agreement.

The "norm", the Labour Court and the Public Conciliator

After a major conflict in 1898 DA and DSF agreed to establish a joint body, the Joint Commission of 1898[35], to interpret and deal with breaches of collective agreements. As a result of the September compromise of 1899, the Permanent Arbitration Board[36] replaced the Joint Commission in 1900. The purpose of the Permanent Arbitration Board was to handle breaches of the September 1899 compromise. It consisted of 7 members: 3 appointed by DA, 3 by DsF and a chairman jointly elected by the two parties.

After a major work stoppages the government took the initiative to set up a Commission in 1908 with participants from DA and DsF. The aim was to review the existing collective bargaining system and make suggestions for improvements. An impartial chairman appointed by the government headed the work in Commission, which resulted in three main outcomes:

- In 1910 DA and DSF agreed on the so-called "Norm for dealing with industrial strife"[37]. The norm set up some standard rules for dealing with disputes of rights. Issues regarding interpretation of existing collective agreements should be handled via arbitration boards at a local or centralised level whereas breaches of existing collective agreements should be handled by legal proceedings. Furthermore the norm emphasised the obligation to maintain industrial peace outside the periods where collective agreements were due for renewal. The only exceptions from the peace obligation were areas not covered by collective agreements, matter of "life, honour and welfare" or cases where wages were withheld.

[35] In Danish: Fællesudvalget af 1898.
[36] In Danish: Den permanente Voldgiftsret.
[37] In Danish: Norm for behandling af faglig strid.

- On the basis of the report from the Commission, the Labour Court Act of 1910 was implemented. The Labour Court[38] replaced the Permanent Arbitration Court from 1900 and had jurisdiction to deal with breaches of all collective agreements (not only violations of the September 1899 compromise). The Labour Court should consist of 7 members: 3 appointed by DA, 3 by DsF and a presiding judge nominated jointly by the partisan members and formally appointed by the government. The decisions of the Labour Court were to be final and legally binding, and the Court should have the power to impose fines.
- Finally a temporary Act on a Public Conciliator[39] of 1910 was also implemented as a result of the work in the Commission. The Public Conciliator should act as mediator in case of disputes between the parties in connection with the conclusion of collective agreements. The Public Conciliator was appointed on a two-year basis by the government after recommendation of the members of the Labour Court.

The initiatives of 1910 have – with few deviations[40] – constituted the framework for the settlement of disputes on the Danish labour market ever since. Some of the main amendments have been the following:

- In 1921 Act on a Public Conciliator was made permanent, the number of Public Conciliators were increased from one to three and the term of office was expanded from two to three years.
- In 1934 the Act on a Public Conciliator was amended. The rules regarding acceptance or rejection of mediation proposals were formalised. A mediation proposal could only be rejected by a simple majority of those voting if the participation ratio was at least 75 per cent. Furthermore, the Public Conciliator was empowered to chain together negotiation results from various trades and put a joint proposal up for a vote.
- In 1945 the Act on a Public Conciliator was amended again. A panel of 12 submediators[41] was added to the mediation institution in order to assist in the early stages of collective bargaining if requested by either of the two parties.

[38] In Danish: Den faste Voldgiftsret. Later (in 1964) renamed to "Arbejdsretten".
[39] In Danish: Forligsmand.
[40] During the German occupation of Denmark 1940-1945 any disputes in relation to collective bargaining were compulsory settled by arbitration. Cf. also the section below on "Governmental interventions in collective bargaining".
[41] In Danish: Mæglingsmænd.

Appendix B: Data sources and calculation methods

Annual growth in nominal hourly earnings in industry
Sources:

Various issues of Dansk Arbejdsgiverforening, Statistik-Nyt. Other sources: Christensen (1975) and Dansk Arbejdsgiverforening (1946, 2007).

Comments:

(1) 1876-1896: Covers only male workers in urban areas. (2) Prior to 1960: Covers only blue-collar workers.

Annual growth in consumer prices
Sources:

For the period 1876-2002: Abildgren (2005). The data set has been expanded with observations from 1875 and 2003-2007 from the same sources as stated in Abildgren, *op.cit.*

Comments:

Annual increase in consumption deflator before 1915.

Labour force, 1000 persons
Sources:

For the period 1875-1989: Abildgren (2006). The data set has been expanded with observations from 1874 and 1990-2007 from the same sources as stated in Abildgren, *op.cit.*

Comments:

(1) In the period since 1903 calculated as employment plus unemployment. (2) Adjusted for break in series in 1903.

Employment, 1000 persons
Sources:

For the period 1875-1989: Abildgren (2006). The data set has been expanded with observations from 1874 and 1990-2007 from the same sources as stated in Abildgren, *op.cit.*

Comments:

(1) Includes both wage earners as well as self-employed persons. (2) In the period 1875-1902 calculated as labour force less unemployment. (3) Since 1921: Including Sønderjylland (the northern part of the old Duchy of Schleswig). (4) Adjusted for break in series in 1948 and 1990.

Unemployment, 1000 persons
Sources:

For the period 1875-1989: Abildgren (2006). The data set has been expanded with observations from 1874 and 1990-2007 from the same sources as stated in Abildgren, *op.cit.*

Comments:

(1) For the period 1875-1899 interpolated from the number of unemployed persons in 1900 and the development in the number of persons receiving social security benefits from the local authorities in Copenhagen. (2) In the period 1900-1902 interpolated on the basis of the unemployment among labour union members in November of the year concerned and seasonal factors based on the period 1906-1910. (3) 1903-1910 average number of insured unemployed persons multiplied by the ratio between the total number of unemployed (insured and non-insured) and the number of insured unemployed in 1911. (4) Since 1911 average annual number of insured and non-insured unemployed persons.

Unemployment, per cent
Comments:

Calculated as unemployment in per cent of the total labour force.

Working time
Sources:

Various issues of: Statistics Denmark, *Statistical ten-year review*. Other sources: Christensen (1975); Dansk Arbejdsgiverforening (2007); Nørregaard (1943); and Schmidt-Sørensen (1985).

Comments:

(1) For the whole period based on an assumption of 52 weeks per year of which public holidays constitutes 1.5 weeks. (2) 1875-1919: Covers skilled urban male blue-collar workers. (3) For the period since 1920: Covers the agreed working hour on the private manual labour market. (4) Work on Sundays was quite common around 1875, but had almost disappeared around 1900. The calculations of working days per years in the period 1875-1909 include an estimate for work on Sundays.

Gross domestic product (GDP), current prices
Sources:

For the period 1875-2002: Abildgren (2006). The data set has been updated to 2007 from the same sources as stated in Abildgren, *op.cit.*

Comments:

Since 1921: Including Sønderjylland (the northern part of the old Duchy of Schleswig).

Total wage sum, current prices

Sources:

Statistics Denmark, *StatBank Denmark*, Statistics Denmark's website; and Pedersen (1978).

Comments:

(1) Includes an imputed compensation per self-employed person corresponding to the average wage sum for wage earners. (2) For the years 1875-1920, 1922, 1937 and 1944 the total wage sum has been estimated on the basis of the development in hourly earnings in industry, the total employment (wage earners and self-employed) and the yearly working time. (3) Adjusted for several breaks in series.

Wage share of factor income

Comments:

Calculated as total wage sum in current prices in per cent of GDP at current factor costs.

Annual growth in real Gross Domestic Product (GDP) at factor costs

Sources:

Hansen (1983); Statistics Denmark (1995); and Statistics Denmark, *StatBank Denmark*, Statistics Denmark's website.

Comments:

(1) 1876-1948: Annual growth in real GDP from national-account figures in constant 1929-prices. (2) 1949-1966: Annual growth in real GDP from national-account figures in constant 1980-prices. (3) Since 1967: Based on annual growth in real gross value added from national-account figures in constant chain-weighted 2000-prices. (4) Since 1922: Annual growth in real GDP including the northern part of the old Duchy of Schleswig.

Annual growth in hourly labour productivity

Comments:

Compiled as annual growth in real total economy GDP per working hour. The annual working time per employee used in the calculations is based on the agreed working time on the private manual labour market. For the period since 1966 figures for the actual working time in hours per year for the total economy are available from Statistics Denmark. However, application of figures for the actual working time does not materially change the long-run picture. With

index 1966=100.0 the level of hourly labour productivity was 283.2 in 2007 using the agreed working time on the private manual labour market. Using the actual working time for the total economy the corresponding figure in 2007 was 284.2.

Total taxes to general government, current prices
Sources:

For the period 1875-2005: Abildgren (2006). The data set has been updated to 2007 from the same sources as stated in Abildgren, *op.cit.* and Finansministeriet (2008).

Comments:

(1) Total direct and indirect taxes. (2) Includes social security contributions (including membership contributions to unemployment benefit associations).

Tax-rate
Comments:

Calculated as total direct and indirect taxes to general government in current prices in per cent of GDP at factor costs in current prices.

Unemployment benefits
Sources:

Various issues of: Statistics Denmark, *Statistical ten-year review*. Other sources: Kærgård (1991); Statistics Denmark (2001); Finansministeriet (2008) and Statistics Denmark, *StatBank Denmark*, Statistics Denmark's website.

Comments:

(1) For the period 1875-1962 the general government expenditures on unemployment benefits have been calculated as the number of unemployed persons multiplied by the daily unemployment related government expenditures per unemployed person and the number of working days per year. (2) For the period 1875-1902 the daily unemployment related government expenditures per unemployed person has been interpolated from the level in 1903 and the development in nominal wage sum per employed person.

Unemployment compensation rate
Comments:

Calculated as unemployment benefit in current prices per unemployed person in per cent of the wage sum in current prices per employed person.

Work stoppages
Sources:

Various issues of: Dansk Arbejdsgiverforening, *KonfliktStatistik*; Statistics Denmark, *Nyt fra Danmarks Statistik*; Statistics Denmark, *Statistical ten-year review*; and Statistics Denmark, *Statistical Yearbook*. Other sources: Bruun (1938); Statistics Denmark (1995); Jensen & Olsen (1901); Johansen (1985); Mikkelsen (1992); Nørregaard (1943); and Schovelin (1883).

Comments:

(1) Since 1948: Comprises only work stoppages with more than 100 working days lost. (2) The number of working days lost during the period 1875-1896 has been estimated on the basis of the amounts paid out from the trade union's strike funds, the number of conflicts and the development in nominal wages. (3) The figures for 2007 comprise only the LO/DA area.

Trade union membership
Sources:

Various issues of: Statistics Denmark, *Statistical ten-year review*; and Statistics Denmark, *Statistical Yearbook*. Other sources: Galenson (1952); Jensen & Olsen (1901); Statistics Denmark (1995); and Johansen (1985).

Comments:

For period 1875-1897 the number of workers with trade union membership has been estimated on the basis of trade union membership for each trade union in 1900 and the number of members in the years of establishment for each trade union established in the period prior to 1900.

Remaining time of collective agreement
Sources:

Various issues of: Statistics Denmark, *Statistical ten-year review*. Other sources: Andersen (1938); Due et al. (1994); Galenson (1952); Kærgård (1991); Scheuer (1990); and Tjørnehøj (edt.) (1998).

Comments:

(1) Covers collective agreements in most of the industrial sector. (2) For the period 1900-1910 only based on the collective agreements for members of The Danish National Union of Smiths and Fitters.[42] (3) Remaining time has been rounded to a whole number of years.

[42] In 1900 The Danish National Union of Smiths and Fitters was the largest trade union for skilled workers and accounted for 9 per cent of DsF's members, cf. Jensen & Olsen (1901).

Renewal of collective agreements
Sources:

Various issues of: Statistics Denmark, *Statistical ten-year review*. Other sources: Andersen (1938); Due et al. (1994); Galenson (1952); Kærgård (1991); Scheuer (1990); and Tjørnehøj (edt.) (1998).

Comments:

(1) Covers collective agreements in most of the industrial sector. (2) For the period 1900-1910 only based on the collective agreements for members of The Danish National Union of Smiths and Fitters.[43]

Intervention in the renewal of collective agreements by Act of Parliament
Sources:

Various issues of: Statistics Denmark, *Statistical ten-year review*. Other sources: Due et al. (1994), Galenson (1952); Scheuer, S. (1990); and Tjørnehøj (edt.) (1998).

Comments:

(1) The Parliament's interventions are usually based on a compromise proposed by the Public Conciliator, which again normally builds on negotiation results reached by several of the sub-organisations on the labour market in various trades. There may thus be interventions that also cover the industrial sector even though the worker and employer organisations within the industrial sector have managed to reach agreements prior to the involvement of the Public Conciliator and the Parliament. Such cases have also been classified as intervention. The data therefore shows the occurrence of interventions related to a large part of the private-sector labour market rather than interventions to settle disputes solely within the industrial sector. (2) The permanent compulsory arbitration enacted in 1940 and in force during the German occupation of Denmark until 1945 has been classified as "intervention" in all the years 1940-1945.

Automatic cost-of-living indexation of wages
Sources:

Various issues of: Statistics Denmark, *Statistical ten-year review*. Other sources: and Tjørnehøj (edt.) (1998).

[43] In 1900 The Danish National Union of Smiths and Fitters was the largest trade union for skilled workers and accounted for 9 per cent of DsF's members, cf. Jensen & Olsen (1901).

Comments:

Covers collective agreements in most of the industrial sector.

Appendix C: Data

Table A.1: Annual growth in nominal hourly earnings in industry 1875-2007

Year	per cent	Year	per cent
1875	6.4	1945	7.7
1876	0.0	1946	10.1
1877	-4.8	1947	5.7
1878	-5.0	1948	8.2
1879	1.3	1949	4.2
1880	3.5	1950	4.7
1881	1.7	1951	10.7
1882	2.1	1952	7.9
1883	2.0	1953	2.7
1884	1.6	1954	3.5
1885	0.0	1955	4.6
1886	-0.8	1956	7.6
1887	0.0	1957	5.5
1888	0.8	1958	3.9
1889	2.4	1959	7.7
1890	2.7	1960	7.0
1891	3.0	1961	11.2
1892	2.9	1962	10.2
1893	1.8	1963	8.1
1894	2.1	1964	7.9
1895	2.4	1965	11.9
1896	4.3	1966	12.3
1897	3.6	1967	9.2
1898	0.0	1968	11.1
1899	3.4	1969	11.2
1900	3.3	1970	11.3
1901	3.2	1971	13.7
1902	3.1	1972	10.6
1903	3.0	1973	15.1
1904	2.9	1974	19.9
1905	2.9	1975	19.2
1906	2.8	1976	11.6
1907	5.4	1977	9.8
1908	5.1	1978	9.8
1909	4.9	1979	10.2
1910	4.7	1980	9.7
1911	4.4	1981	8.8
1912	2.1	1982	10.0
1913	2.1	1983	6.6
1914	2.4	1984	4.7
1915	1.6	1985	4.6
1916	13.7	1986	5.3
1917	13.8	1987	9.4
1918	28.8	1988	6.1
1919	72.9	1989	3.8
1920	31.3	1990	3.7
1921	-6.2	1991	4.1
1922	-21.5	1992	2.7
1923	-4.2	1993	2.4
1924	5.7	1994	4.2
1925	5.0	1995	3.7
1926	-10.6	1996	3.9
1927	-5.2	1997	3.7
1928	0.0	1998	3.9
1929	1.0	1999	4.2
1930	2.1	2000	3.4
1931	0.0	2001	4.0
1932	-2.3	2002	4.0
1933	0.0	2003	3.3
1934	1.2	2004	2.8
1935	1.1	2005	3.4
1936	0.8	2006	3.5
1937	2.3	2007	4.6
1938	5.2		
1939	2.7		
1940	10.5		
1941	8.3		
1942	4.8		
1943	6.9		
1944	5.8		

Table A.2: Annual growth in consumer prices 1875-2007

Year	per cent	Year	per cent
1875	-0.8	1945	1.1
1876	0.3	1946	-0.7
1877	-3.3	1947	2.9
1878	-6.6	1948	2.5
1879	-2.3	1949	2.4
1880	8.5	1950	9.1
1881	8.0	1951	11.7
1882	-10.6	1952	2.2
1883	-1.2	1953	-0.5
1884	-3.8	1954	1.9
1885	-3.3	1955	6.7
1886	-4.5	1956	5.0
1887	-2.7	1957	1.2
1888	0.8	1958	0.9
1889	3.4	1959	2.1
1890	2.3	1960	2.3
1891	3.8	1961	4.5
1892	-3.3	1962	6.6
1893	-2.6	1963	5.2
1894	-3.1	1964	3.6
1895	-0.4	1965	6.4
1896	-2.6	1966	6.7
1897	2.1	1967	7.4
1898	2.8	1968	8.0
1899	-0.4	1969	3.5
1900	5.7	1970	6.6
1901	1.3	1971	5.8
1902	-0.7	1972	6.6
1903	-1.7	1973	9.3
1904	-1.3	1974	15.2
1905	4.2	1975	9.6
1906	0.9	1976	9.0
1907	2.0	1977	11.2
1908	-0.4	1978	10.0
1909	-1.6	1979	9.6
1910	2.4	1980	12.3
1911	0.5	1981	11.7
1912	4.8	1982	10.1
1913	3.0	1983	6.9
1914	5.1	1984	6.3
1915	15.8	1985	4.7
1916	17.8	1986	3.6
1917	15.8	1987	4.0
1918	16.8	1988	4.6
1919	18.6	1989	4.8
1920	19.3	1990	2.6
1921	-15.0	1991	2.4
1922	-15.0	1992	2.1
1923	4.2	1993	1.3
1924	6.0	1994	2.0
1925	-2.8	1995	2.1
1926	-15.0	1996	2.1
1927	-3.4	1997	2.2
1928	-0.6	1998	1.8
1929	-0.6	1999	2.5
1930	-4.8	2000	2.9
1931	-5.7	2001	2.3
1932	-0.7	2002	2.5
1933	2.7	2003	2.1
1934	3.9	2004	1.2
1935	3.8	2005	1.8
1936	1.2	2006	1.9
1937	3.6	2007	1.7
1938	1.2		
1939	2.9		
1940	24.4		
1941	14.7		
1942	3.5		
1943	0.8		
1944	2.2		

Table A.3: Labour force, employment and unemployment 1874-2007

Year	Labour force	Employment	Unemployment	Unemployment rate
	1000 persons			per cent
1874	1004	992	13	1.3
1875	1013	1001	12	1.2
1876	1020	1009	11	1.1
1877	1029	1017	12	1.2
1878	1035	1022	13	1.3
1879	1042	1027	14	1.4
1880	1047	1032	15	1.4
1881	1052	1037	15	1.5
1882	1059	1044	15	1.5
1883	1066	1051	16	1.5
1884	1073	1058	15	1.4
1885	1078	1062	16	1.5
1886	1085	1067	18	1.6
1887	1090	1072	19	1.7
1888	1097	1079	19	1.7
1889	1105	1085	19	1.7
1890	1108	1088	20	1.8
1891	1115	1094	21	1.9
1892	1123	1103	21	1.8
1893	1135	1114	20	1.8
1894	1152	1132	20	1.7
1895	1162	1142	19	1.6
1896	1174	1154	20	1.7
1897	1186	1170	17	1.4
1898	1201	1185	16	1.3
1899	1215	1200	15	1.2
1900	1228	1213	14	1.2
1901	1240	1221	19	1.5
1902	1255	1240	15	1.2
1903	1266	1253	13	1.1
1904	1287	1274	14	1.1
1905	1294	1280	15	1.1
1906	1345	1338	8	0.6
1907	1354	1346	9	0.6
1908	1347	1333	14	1.0
1909	1350	1333	17	1.3
1910	1374	1359	15	1.1
1911	1394	1380	14	1.0
1912	1393	1381	12	0.9
1913	1409	1396	13	0.9
1914	1443	1426	17	1.2
1915	1444	1430	14	1.0
1916	1517	1505	12	0.8
1917	1515	1491	24	1.6
1918	1504	1451	53	3.5
1919	1553	1513	40	2.6
1920	1596	1571	25	1.6
1921	1625	1556	69	4.2
1922	1650	1589	61	3.7
1923	1705	1665	40	2.3
1924	1740	1705	35	2.0
1925	1745	1696	49	2.8
1926	1735	1667	68	3.9
1927	1747	1673	74	4.2
1928	1788	1727	61	3.4
1929	1816	1764	52	2.9
1930	1856	1807	49	2.6
1931	1853	1789	64	3.5
1932	1793	1675	118	6.6
1933	1842	1726	116	6.3
1934	1908	1811	97	5.1
1935	1944	1853	91	4.7
1936	1977	1882	95	4.8
1937	1984	1870	114	5.7
1938	2010	1894	116	5.8
1939	2041	1937	104	5.1
1940	2006	1864	142	7.1
1941	2070	1953	117	5.7
1942	2085	1988	97	4.7
1943	2103	2033	70	3.3

Table A.3 (continued): Labour force, employment and unemployment 1874-2007

Year	Labour force	Employment	Unemployment	Unemployment rate
	1000 persons			per cent
1944	2118	2062	56	2.6
1945	2104	2013	91	4.3
1946	2116	2053	63	3.0
1947	2113	2050	63	3.0
1948	2135	2072	63	3.0
1949	2163	2091	72	3.3
1950	2209	2141	68	3.1
1951	2213	2138	75	3.4
1952	2200	2103	97	4.4
1953	2208	2132	76	3.4
1954	2229	2162	67	3.0
1955	2225	2145	80	3.6
1956	2221	2130	91	4.1
1957	2218	2131	87	3.9
1958	2213	2131	82	3.7
1959	2238	2184	54	2.4
1960	2272	2233	39	1.7
1961	2291	2260	31	1.4
1962	2321	2293	28	1.2
1963	2346	2305	41	1.7
1964	2377	2354	23	1.0
1965	2409	2389	20	0.8
1966	2371	2348	23	1.0
1967	2376	2348	28	1.2
1968	2415	2366	49	2.0
1969	2451	2412	39	1.6
1970	2474	2444	30	1.2
1971	2480	2441	39	1.6
1972	2531	2492	39	1.5
1973	2549	2524	25	1.0
1974	2563	2505	58	2.3
1975	2604	2473	131	5.0
1976	2651	2517	134	5.1
1977	2676	2512	164	6.1
1978	2722	2531	191	7.0
1979	2719	2557	162	6.0
1980	2723	2539	184	6.8
1981	2743	2500	243	8.9
1982	2772	2509	263	9.5
1983	2794	2511	283	10.1
1984	2826	2550	276	9.8
1985	2863	2611	252	8.8
1986	2895	2675	220	7.6
1987	2911	2689	222	7.6
1988	2913	2669	244	8.4
1989	2923	2658	265	9.1
1990	2917	2645	272	9.3
1991	2925	2629	296	10.1
1992	2918	2600	318	10.9
1993	2911	2562	349	12.0
1994	2947	2604	343	11.6
1995	2912	2624	288	9.9
1996	2893	2648	245	8.5
1997	2904	2684	220	7.6
1998	2906	2723	183	6.3
1999	2904	2746	158	5.4
2000	2910	2760	150	5.2
2001	2930	2785	145	4.9
2002	2933	2787	146	5.0
2003	2927	2756	171	5.8
2004	2916	2739	177	6.1
2005	2920	2763	157	5.4
2006	2932	2808	124	4.2
2007	2945	2851	94	3.2

Table A.4: Working time 1874-2007

Year	Working time, hours per week	Number of working weeks per year	Number of working days per year	Working time, hours per year
1874	69.7	50.2	327	3497
1875	69.1	50.2	327	3464
1876	69.1	50.2	327	3464
1877	68.4	50.2	327	3431
1878	68.4	50.2	327	3431
1879	68.4	50.2	327	3431
1880	68.4	50.2	327	3431
1881	68.4	50.2	327	3431
1882	68.4	50.2	327	3431
1883	68.2	50.2	326	3421
1884	67.3	50.2	325	3378
1885	67.1	50.2	324	3368
1886	66.9	50.2	323	3357
1887	66.7	50.2	322	3347
1888	66.5	50.2	321	3336
1889	66.3	50.2	320	3326
1890	65.5	50.2	319	3284
1891	65.3	50.2	318	3273
1892	65.0	50.2	317	3263
1893	64.0	50.2	315	3209
1894	63.5	50.2	313	3188
1895	63.1	50.2	310	3166
1896	62.0	50.2	308	3113
1897	61.0	50.2	306	3060
1898	60.0	50.2	304	3008
1899	59.4	50.2	304	2978
1900	59.4	50.2	304	2979
1901	59.4	50.2	304	2979
1902	59.4	50.2	304	2980
1903	59.4	50.2	304	2980
1904	59.4	50.2	304	2980
1905	59.4	50.2	304	2979
1906	58.7	50.2	304	2947
1907	58.1	50.2	304	2915
1908	58.1	50.2	304	2914
1909	58.1	50.2	303	2913
1910	57.0	50.2	301	2860
1911	56.4	50.2	301	2829
1912	55.8	50.2	301	2799
1913	55.8	50.2	301	2799
1914	55.8	50.2	301	2799
1915	55.8	50.2	301	2799
1916	55.8	50.2	301	2799
1917	55.8	50.2	301	2799
1918	55.8	50.2	301	2799
1919	55.8	50.2	301	2799
1920	48.0	50.0	300	2400
1921	48.0	50.0	300	2400
1922	48.0	50.0	300	2400
1923	48.0	50.0	300	2400
1924	48.0	50.0	300	2400
1925	48.0	50.0	300	2400
1926	48.0	50.0	300	2400
1927	48.0	50.0	300	2400
1928	48.0	50.0	300	2400
1929	48.0	50.0	300	2400
1930	48.0	49.5	297	2376
1931	48.0	49.5	297	2376
1932	48.0	49.5	297	2376
1933	48.0	49.5	297	2376
1934	48.0	49.5	297	2376
1935	48.0	49.5	297	2376
1936	48.0	49.5	297	2376
1937	48.0	49.5	297	2376
1938	48.0	48.5	291	2328
1939	48.0	48.5	291	2328
1940	48.0	48.5	291	2328
1941	48.0	48.5	291	2328
1942	48.0	48.5	291	2328
1943	48.0	48.5	291	2328

Table A.4 (continued): Working time 1874-2007

Year	Working time, hours per week	Number of working weeks per year	Number of working days per year	Working time, hours per year
1944	48.0	48.5	291	2328
1945	48.0	48.5	291	2328
1946	48.0	48.5	291	2328
1947	48.0	48.5	291	2328
1948	48.0	48.5	291	2328
1949	48.0	48.5	291	2328
1950	48.0	48.5	291	2328
1951	48.0	48.5	291	2328
1952	48.0	48.5	291	2328
1953	48.0	48.5	291	2328
1954	48.0	47.7	286	2288
1955	48.0	47.5	285	2280
1956	48.0	47.5	285	2280
1957	48.0	47.5	285	2280
1958	47.2	47.5	285	2240
1959	46.2	47.5	285	2193
1960	45.2	47.5	285	2145
1961	45.0	47.5	285	2138
1962	45.0	47.5	285	2138
1963	45.0	47.5	285	2138
1964	45.0	47.5	285	2138
1965	45.0	47.5	285	2138
1966	44.2	47.5	285	2098
1967	44.0	47.5	285	2090
1968	43.1	47.5	285	2048
1969	42.5	47.5	285	2019
1970	42.3	47.5	285	2007
1971	41.8	47.5	285	1983
1972	41.8	47.0	282	1962
1973	41.8	46.5	279	1941
1974	41.7	46.5	233	1937
1975	40.0	46.5	233	1860
1976	40.0	46.5	233	1860
1977	40.0	46.5	233	1860
1978	40.0	46.5	233	1860
1979	40.0	46.5	233	1860
1980	40.0	46.2	231	1847
1981	40.0	45.5	228	1820
1982	40.0	45.5	228	1820
1983	40.0	45.5	228	1820
1984	40.0	45.5	228	1820
1985	40.0	45.5	228	1820
1986	39.9	45.5	228	1816
1987	38.8	45.5	228	1767
1988	38.3	45.5	228	1744
1989	37.8	45.5	228	1721
1990	37.3	45.5	228	1699
1991	37.0	45.5	228	1684
1992	37.0	45.5	228	1684
1993	37.0	45.5	228	1684
1994	37.0	45.5	228	1684
1995	37.0	45.5	228	1684
1996	37.0	45.5	228	1684
1997	37.0	45.5	228	1684
1998	37.0	45.1	226	1669
1999	37.0	45.1	226	1669
2000	37.0	45.1	226	1669
2001	37.0	44.7	224	1654
2002	37.0	44.7	224	1654
2003	37.0	44.5	223	1647
2004	37.0	44.5	223	1647
2005	37.0	44.5	223	1647
2006	37.0	44.5	223	1647
2007	37.0	44.5	223	1647

Table A.5: Total wage sum and GDP 1875-2007

Year	Total wage sum in current prices	GDP at current factor costs	Wage share
	Million kroner		Per cent
1875	488	808	60
1876	491	832	59
1877	467	773	60
1878	446	758	59
1879	454	759	60
1880	472	840	56
1881	482	839	57
1882	496	850	58
1883	507	868	58
1884	512	839	61
1885	513	820	63
1886	510	819	62
1887	510	827	62
1888	516	841	61
1889	530	892	59
1890	538	965	56
1891	556	1008	55
1892	575	1005	57
1893	581	1000	58
1894	599	990	60
1895	614	1039	59
1896	636	1059	60
1897	657	1097	60
1898	654	1157	57
1899	679	1217	56
1900	709	1322	54
1901	737	1372	54
1902	771	1396	55
1903	803	1462	55
1904	841	1479	57
1905	868	1558	56
1906	923	1627	57
1907	968	1739	56
1908	1007	1773	57
1909	1056	1828	58
1910	1107	1922	58
1911	1161	2051	57
1912	1173	2159	54
1913	1211	2301	53
1914	1267	2529	50
1915	1291	2887	45
1916	1545	3767	41
1917	1741	4003	44
1918	2183	4766	46
1919	3935	5821	68
1920	4600	7396	62
1921	4273	6057	71
1922	3418	5406	63
1923	3422	6030	57
1924	3767	6566	57
1925	3937	6153	64
1926	3521	5529	64
1927	3359	5318	63
1928	3373	5437	62
1929	3376	5802	58
1930	3440	5705	60
1931	3455	5369	64
1932	3327	5112	65
1933	3314	5506	60
1934	3494	5967	59
1935	3696	6380	58
1936	3799	6690	57
1937	3958	7141	55
1938	4226	7514	56
1939	4635	8127	57
1940	5040	8620	58
1941	5547	9790	57
1942	6119	11020	56
1943	6785	12480	54
1944	7586	13850	55

Table A.5 (continued): Total wage sum and GDP 1875-2007

Year	Total wage sum in current prices	GDP at current factor costs	Wage share
	Million kroner		Per cent
1945	8361	13960	60
1946	9754	14770	66
1947	10558	16274	65
1948	11476	17662	65
1949	11937	18895	63
1950	13292	21618	61
1951	14527	23403	62
1952	15544	24985	62
1953	16389	26536	62
1954	17441	27618	63
1955	18066	28707	63
1956	19078	30643	62
1957	20281	32668	62
1958	21333	33981	63
1959	23182	37435	62
1960	24997	40523	62
1961	28570	45375	63
1962	32174	50768	63
1963	34126	53476	64
1964	37896	61071	62
1965	43506	68291	64
1966	48113	70394	68
1967	53282	77050	69
1968	58923	84973	69
1969	66646	96754	69
1970	74915	106946	70
1971	84533	118476	71
1972	93475	135126	69
1973	107308	157657	68
1974	126860	179484	71
1975	143002	200427	71
1976	163161	231306	71
1977	180933	254836	71
1978	200112	281384	71
1979	222649	309914	72
1980	244839	335531	73
1981	264195	368076	72
1982	298056	424879	70
1983	325057	467634	70
1984	350150	515226	68
1985	377151	555579	68
1986	405105	588479	69
1987	441560	622104	71
1988	463062	648999	71
1989	480330	691997	69
1990	498531	727665	69
1991	515307	758706	68
1992	531595	793284	67
1993	535632	795099	67
1994	551085	847850	65
1995	576259	884237	65
1996	606311	923502	66
1997	633794	966539	66
1998	669291	988812	68
1999	701181	1032880	68
2000	729698	1111428	66
2001	767485	1144437	67
2002	796485	1174977	68
2003	817378	1199771	68
2004	839260	1250792	67
2005	876638	1314447	67
2006	925680	1391247	67
2007	978428	1439668	68

Table A.6: Annual growth in real GDP and hourly labour productivity, per cent, 1875-2007

Year	Real GDP	Hourly labour productivity	Year	Real GDP	Hourly labour productivity
1875	1.8	1.8	1945	-7.5	-5.2
1876	2.0	1.2	1946	15.6	13.4
1877	-2.8	-2.7	1947	5.6	5.7
1878	4.0	3.4	1948	3.3	2.2
1879	3.3	2.8	1949	6.1	5.1
1880	2.3	1.8	1950	5.8	3.3
1881	0.9	0.5	1951	2.4	2.6
1882	3.7	3.0	1952	1.0	2.7
1883	3.3	2.9	1953	5.7	4.2
1884	0.5	1.1	1954	3.3	3.7
1885	0.7	0.6	1955	1.6	2.8
1886	4.1	3.9	1956	0.8	1.5
1887	3.4	3.3	1957	5.6	5.6
1888	0.8	0.5	1958	2.6	4.4
1889	1.3	1.0	1959	7.8	7.5
1890	6.0	7.1	1960	6.2	6.1
1891	1.9	1.6	1961	7.9	7.0
1892	2.5	2.0	1962	6.2	4.7
1893	1.9	2.5	1963	2.1	1.6
1894	2.1	1.1	1964	9.3	7.1
1895	5.6	5.4	1965	5.3	3.7
1896	3.7	4.4	1966	2.4	6.2
1897	2.4	2.8	1967	4.2	4.6
1898	1.6	2.0	1968	5.2	6.5
1899	4.3	4.0	1969	6.5	6.0
1900	3.4	2.3	1970	1.4	0.6
1901	4.2	3.5	1971	3.7	5.0
1902	2.4	0.9	1972	4.2	3.2
1903	5.9	4.8	1973	4.0	3.7
1904	2.2	0.5	1974	0.0	1.0
1905	1.7	1.2	1975	-1.4	4.0
1906	2.8	-0.6	1976	5.1	3.3
1907	3.7	4.2	1977	2.1	2.3
1908	3.2	4.2	1978	2.3	1.5
1909	3.8	3.9	1979	4.3	3.2
1910	3.0	2.9	1980	0.5	2.0
1911	5.3	4.8	1981	-0.4	2.7
1912	0.0	1.0	1982	3.9	3.5
1913	3.7	2.6	1983	2.4	2.3
1914	6.3	4.0	1984	4.2	2.7
1915	-6.9	-7.2	1985	3.7	1.3
1916	4.2	-1.0	1986	3.4	1.2
1917	-5.9	-5.0	1987	1.1	3.4
1918	-3.3	-0.6	1988	1.0	3.1
1919	12.9	8.2	1989	1.1	2.9
1920	4.7	17.7	1990	2.0	3.9
1921	-2.9	-1.9	1991	1.2	2.8
1922	10.1	7.8	1992	1.8	2.9
1923	10.5	5.5	1993	0.6	2.1
1924	0.3	-2.0	1994	4.8	3.1
1925	-2.3	-1.8	1995	3.2	2.4
1926	5.9	7.7	1996	2.4	1.5
1927	1.9	1.6	1997	3.0	1.6
1928	3.4	0.2	1998	1.9	1.3
1929	6.7	4.5	1999	2.9	2.0
1930	6.0	4.5	2000	4.4	3.9
1931	1.1	2.1	2001	0.7	0.7
1932	-2.6	4.0	2002	0.3	0.3
1933	3.2	0.2	2003	0.4	1.9
1934	3.0	-1.8	2004	1.5	2.2
1935	2.3	-0.1	2005	1.7	0.8
1936	2.5	0.9	2006	3.9	2.2
1937	2.4	3.1	2007	1.9	0.4
1938	2.4	3.2			
1939	4.8	2.4			
1940	-14.0	-10.7			
1941	-9.9	-14.0			
1942	2.3	0.5			
1943	11.1	8.6			
1944	10.4	8.9			

Table A.7: Total taxes to the general government, current prices, 1875-2007

Year	million kroner	Year	million kroner
1875	57	1945	2544
1876	59	1946	3084
1877	59	1947	3553
1878	59	1948	4195
1879	60	1949	4330
1880	62	1950	4430
1881	64	1951	5071
1882	67	1952	5637
1883	69	1953	6093
1884	71	1954	6371
1885	70	1955	7045
1886	68	1956	7513
1887	70	1957	8169
1888	72	1958	8939
1889	74	1959	9942
1890	74	1960	10852
1891	76	1961	11925
1892	78	1962	14443
1893	82	1963	16729
1894	83	1964	18726
1895	85	1965	22003
1896	88	1966	25652
1897	92	1967	29323
1898	96	1968	35000
1899	99	1969	39434
1900	102	1970	49105
1901	104	1971	58454
1902	109	1972	66685
1903	118	1973	73764
1904	120	1974	86488
1905	122	1975	88153
1906	129	1976	104853
1907	137	1977	117661
1908	142	1978	135226
1909	137	1979	154273
1910	146	1980	170141
1911	160	1981	184935
1912	173	1982	206846
1913	186	1983	238231
1914	191	1984	269210
1915	214	1985	300930
1916	323	1986	338149
1917	505	1987	360056
1918	532	1988	377250
1919	704	1989	388719
1920	875	1990	388942
1921	866	1991	403589
1922	785	1992	422185
1923	752	1993	437236
1924	765	1994	478452
1925	791	1995	500194
1926	778	1996	528208
1927	752	1997	553204
1928	718	1998	575627
1929	741	1999	609825
1930	772	2000	640557
1931	784	2001	648945
1932	783	2002	658510
1933	804	2003	674355
1934	889	2004	720700
1935	950	2005	787400
1936	1033	2006	808700
1937	1133	2007	824300
1938	1208		
1939	1300		
1940	1570		
1941	1711		
1942	1931		
1943	2154		
1944	2413		

Table A.8: Tax-rate, 1875-2007

Year	per cent	Year	per cent
1875	7.1	1945	18.2
1876	7.1	1946	20.9
1877	7.6	1947	21.8
1878	7.8	1948	23.8
1879	7.9	1949	22.9
1880	7.3	1950	20.5
1881	7.7	1951	21.7
1882	7.8	1952	22.6
1883	8.0	1953	23.0
1884	8.4	1954	23.1
1885	8.5	1955	24.5
1886	8.3	1956	24.5
1887	8.4	1957	25.0
1888	8.5	1958	26.3
1889	8.2	1959	26.6
1890	7.7	1960	26.8
1891	7.6	1961	26.3
1892	7.7	1962	28.4
1893	8.2	1963	31.3
1894	8.4	1964	30.7
1895	8.2	1965	32.2
1896	8.3	1966	36.4
1897	8.4	1967	38.1
1898	8.3	1968	41.2
1899	8.2	1969	40.8
1900	7.7	1970	45.9
1901	7.5	1971	49.3
1902	7.8	1972	49.4
1903	8.1	1973	46.8
1904	8.1	1974	48.2
1905	7.8	1975	44.0
1906	7.9	1976	45.3
1907	7.9	1977	46.2
1908	8.0	1978	48.1
1909	7.5	1979	49.8
1910	7.6	1980	50.7
1911	7.8	1981	50.2
1912	8.0	1982	48.7
1913	8.1	1983	50.9
1914	7.5	1984	52.3
1915	7.4	1985	54.2
1916	8.6	1986	57.5
1917	12.6	1987	57.9
1918	11.2	1988	58.1
1919	12.1	1989	56.2
1920	11.8	1990	53.5
1921	14.3	1991	53.2
1922	14.5	1992	53.2
1923	12.5	1993	55.0
1924	11.6	1994	56.4
1925	12.9	1995	56.6
1926	14.1	1996	57.2
1927	14.1	1997	57.2
1928	13.2	1998	58.2
1929	12.8	1999	59.0
1930	13.5	2000	57.6
1931	14.6	2001	56.7
1932	15.3	2002	56.0
1933	14.6	2003	56,2
1934	14.9	2004	57.6
1935	14.9	2005	59.9
1936	15.4	2006	58.1
1937	15.9	2007	57.3
1938	16.1		
1939	16.0		
1940	18.2		
1941	17.5		
1942	17.5		
1943	17.3		
1944	17.4		

Table A.9: Unemployment benefits, current prices, 1875-2007

Year	million kroner	Year	million kroner
1875	0.3	1945	176.6
1876	0.3	1946	189.0
1877	0.3	1947	187.7
1878	0.3	1948	193.8
1879	0.3	1949	212.9
1880	0.3	1950	212.3
1881	0.4	1951	240.5
1882	0.4	1952	337.9
1883	0.4	1953	282.2
1884	0.4	1954	262.1
1885	0.4	1955	308.3
1886	0.4	1956	370.4
1887	0.4	1957	360.8
1888	0.4	1958	393.3
1889	0.5	1959	243.6
1890	0.5	1960	188.3
1891	0.5	1961	165.8
1892	0.5	1962	158.1
1893	0.5	1963	226
1894	0.5	1964	147
1895	0.5	1965	139
1896	0.5	1966	172
1897	0.4	1967	297
1898	0.4	1968	619
1899	0.4	1969	566
1900	0.4	1970	480
1901	0.5	1971	756
1902	0.4	1972	784
1903	0.4	1973	784
1904	0.6	1974	2325
1905	0.7	1975	4573
1906	0.4	1976	5682
1907	0.5	1977	7774
1908	0.8	1978	9930
1909	2.1	1979	9460
1910	2.3	1980	11319
1911	2.3	1981	16078
1912	2.3	1982	18863
1913	2.7	1983	20952
1914	3.8	1984	20940
1915	3.2	1985	19509
1916	2.7	1986	17740
1917	5.4	1987	18792
1918	33.7	1988	21270
1919	31.4	1989	24290
1920	22.4	1990	25453
1921	45.1	1991	28872
1922	32.9	1992	31706
1923	19.6	1993	35819
1924	18.7	1994	34720
1925	26.0	1995	29648
1926	38.1	1996	25741
1927	38.0	1997	23660
1928	29.1	1998	19547
1929	25.1	1999	17284
1930	22.3	2000	17490
1931	32.3	2001	17254
1932	59.6	2002	17854
1933	68.2	2003	22206
1934	63.4	2004	22793
1935	51.6	2005	20405
1936	65.2	2006	15955
1937	96.2	2007	11600
1938	100.6		
1939	95.6		
1940	163.2		
1941	161.4		
1942	150.2		
1943	109.0		
1944	97.0		

Table A.10: Unemployment compensation rate, 1875-2007

Year	per cent	Year	per cent
1875	5	1945	47
1876	5	1946	63
1877	5	1947	58
1878	5	1948	56
1879	5	1949	52
1880	5	1950	50
1881	5	1951	47
1882	5	1952	47
1883	5	1953	48
1884	5	1954	48
1885	5	1955	46
1886	5	1956	45
1887	5	1957	44
1888	5	1958	48
1889	5	1959	42
1890	5	1960	43
1891	5	1961	42
1892	5	1962	40
1893	5	1963	37
1894	5	1964	40
1895	5	1965	38
1896	5	1966	36
1897	5	1967	47
1898	5	1968	51
1899	5	1969	53
1900	5	1970	52
1901	5	1971	56
1902	5	1972	54
1903	5	1973	74
1904	6	1974	79
1905	7	1975	60
1906	7	1976	65
1907	8	1977	66
1908	8	1978	66
1909	16	1979	67
1910	18	1980	64
1911	20	1981	63
1912	23	1982	60
1913	24	1983	57
1914	25	1984	55
1915	26	1985	54
1916	22	1986	53
1917	19	1987	52
1918	42	1988	50
1919	30	1989	51
1920	31	1990	50
1921	24	1991	50
1922	25	1992	49
1923	24	1993	49
1924	24	1994	48
1925	23	1995	47
1926	27	1996	46
1927	26	1997	46
1928	24	1998	44
1929	25	1999	43
1930	24	2000	44
1931	26	2001	43
1932	25	2002	43
1933	31	2003	44
1934	34	2004	42
1935	28	2005	41
1936	34	2006	39
1937	40	2007	36
1938	39		
1939	38		
1940	43		
1941	49		
1942	50		
1943	47		
1944	47		

Table A.11: Work stoppages 1875-2007

Year	Number of work stoppages	Number of working days lost	Number of working days lost	
		Thousand days	Per cent of total number of working days	
1875	53	130	0.040	
1876	27	10	0.003	
1877	15	6	0.002	
1878	9	4	0.001	
1879	8	3	0.001	
1880	11	4	0.001	
1881	18	18	0.005	
1882	21	7	0.002	
1883	39	473	0.138	
1884	76	209	0.061	
1885	107	2460	0.716	
1886	71	115	0.033	
1887	59	94	0.027	
1888	88	230	0.067	
1889	77	446	0.128	
1890	100	834	0.240	
1891	111	254	0.073	
1892	94	209	0.060	
1893	98	214	0.061	
1894	105	225	0.064	
1895	134	280	0.079	
1896	232	465	0.131	
1897	111	215	0.060	
1898	147	123	0.034	
1899	98	2828	0.775	
1900	82	218	0.059	
1901	57	52	0.014	
1902	68	133	0.035	
1903	61	19	0.005	
1904	86	69	0.018	
1905	75	499	0.128	
1906	90	68	0.017	
1907	105	255	0.062	
1908	122	85	0.021	
1909	65	58	0.014	
1910	71	61	0.015	
1911	51	648	0.156	
1912	60	50	0.012	
1913	76	382	0.091	
1914	44	56	0.013	
1915	43	32	0.007	
1916	66	241	0.053	
1917	215	214	0.048	
1918	253	194	0.044	
1919	472	916	0.201	
1920	243	1306	0.277	
1921	110	1321	0.283	
1922	31	2272	0.477	
1923	58	20	0.004	
1924	71	175	0.034	
1925	49	4139	0.814	
1926	32	23	0.005	
1927	17	119	0.024	
1928	11	11	0.002	
1929	22	41	0.008	
1930	37	144	0.027	
1931	16	246	0.046	
1932	18	87	0.017	
1933	26	18	0.004	
1934	38	146	0.027	
1935	14	14	0.003	
1936	12	2946	0.527	
1937	22	21	0.004	
1938	22	90	0.016	
1939	19	16	0.003	
1940	9	5	0.001	
1941	2	3	0.001	
1942	7	11	0.002	
1943	91	31	0.005	
1944	62	89	0.015	

Table A.11 (continued): Work stoppages 1875-2007

Year	Number of work stoppages	Number of working days lost	Number of working days lost	
		Thousand days	Per cent of total number of working days	
1945	85	66	0,011	
1946	108	1386	0,232	
1947	116	473	0,079	
1948	24	8	0,001	
1949	17	10	0,002	
1950	18	4	0,001	
1951	12	4	0,001	
1952	9	4	0,001	
1953	8	2	0,000	
1954	20	23	0,004	
1955	13	10	0,002	
1956	98	1087	0,179	
1957	14	7	0,001	
1958	15	9	0,001	
1959	23	18	0,003	
1960	82	61	0,010	
1961	34	2308	0,358	
1962	26	15	0,002	
1963	19	24	0,004	
1964	40	17	0,003	
1965	37	242	0,036	
1966	22	15	0,002	
1967	22	10	0,001	
1968	17	34	0,005	
1969	48	56	0,008	
1970	77	102	0,015	
1971	31	21	0,003	
1972	35	22	0,003	
1973	205	3901	0,554	
1974	134	184	0,032	
1975	147	100	0,017	
1976	204	210	0,036	
1977	228	230	0,039	
1978	314	129	0,022	
1979	218	173	0,029	
1980	225	187	0,032	
1981	94	652	0,115	
1982	180	93	0,016	
1983	161	79	0,014	
1984	157	132	0,023	
1985	820	2333	0,393	
1986	215	93	0,015	
1987	202	137	0,022	
1988	157	97	0,016	
1989	132	53	0,009	
1990	232	98	0,016	
1991	203	70	0,012	
1992	151	63	0,011	
1993	218	114	0,020	
1994	240	75	0,013	
1995	424	197	0,033	
1996	930	76	0,013	
1997	1023	102	0,017	
1998	1257	3173	0,516	
1999	1079	92	0,015	
2000	1081	125	0,020	
2001	954	60	0,010	
2002	1349	194	0,031	
2003	681	55	0,009	
2004	804	76	0,012	
2005	534	51	0,008	
2006	476	86	0,014	
2007	768	70	0.011	

Table A.12: Trade union membership 1875-2007

Year	Number of workers	Per cent of total labour force	Year	Number of workers	Per cent of total labour force		
	Thousand persons			Thousand persons			
1875	5	0.5	1945	631	30.0		
1876	5	0.5	1946	630	29.8		
1877	6	0.6	1947	640	30.3		
1878	6	0.6	1948	678	31.8		
1879	7	0.7	1949	691	32.0		
1880	10	0.9	1950	715	32.4		
1881	11	1.0	1951	721	32.6		
1882	12	1.1	1952	732	33.3		
1883	13	1.2	1953	857	38.8		
1884	17	1.6	1954	840	37.7		
1885	19	1.8	1955	839	37.7		
1886	21	1.9	1956	861	38.8		
1887	23	2.1	1957	876	39.5		
1888	25	2.3	1958	885	40.0		
1889	28	2.6	1959	912	40.8		
1890	32	2.9	1960	955	42.0		
1891	35	3.2	1961	969	42.3		
1892	40	3.6	1962	989	42.6		
1893	44	3.9	1963	1009	43.0		
1894	48	4.2	1964	1033	43.5		
1895	54	4.6	1965	1049	43.6		
1896	61	5.2	1966	1061	44.8		
1897	69	5.8	1967	1087	45.8		
1898	79	6.6	1968	1098	45.5		
1899	89	7.3	1969	1124	45.9		
1900	96	7.8	1970	1137	46.0		
1901	96	7.7	1971	1166	47.0		
1902	96	7.7	1972	1137	44.9		
1903	88	7.0	1973	1226	48.1		
1904	91	7.1	1974	1245	48.6		
1905	90	7.0	1975	1283	49.3		
1906	99	7.4	1976	1421	53.6		
1907	110	8.1	1977	1530	57.2		
1908	118	8.8	1978	1606	59.0		
1909	121	9.0	1979	1686	62.0		
1910	123	9.0	1980	1769	65.0		
1911	128	9.2	1981	1815	66.2		
1912	139	10.0	1982	1866	67.3		
1913	153	10.9	1983	1905	68.2		
1914	161	11.2	1984	1945	68.8		
1915	175	12.1	1985	1999	69.8		
1916	193	12.7	1986	2028	70.0		
1917	224	14.8	1987	2079	71.4		
1918	315	20.9	1988	2032	69.8		
1919	346	22.3	1989	2039	69.7		
1920	355	22.2	1990	2068	70.9		
1921	314	19.3	1991	2082	71.2		
1922	309	18.7	1992	2115	72.5		
1923	299	17.5	1993	2141	73.6		
1924	305	17.5	1994	2156	73.1		
1925	307	17.6	1995	2163	74.2		
1926	311	17.9	1996	2170	74.8		
1927	314	18.0	1997	2171	74.7		
1928	314	17.6	1998	2167	74.5		
1929	328	18.1	1999	2172	74.6		
1930	339	18.3	2000	2162	74.2		
1931	354	19.1	2001	2154	73.5		
1932	369	20.6	2002	2151	73.4		
1933	404	21.9	2003	2147	73.6		
1934	422	22.1	2004	2127	72.7		
1935	437	22.5	2005	2114	72.3		
1936	460	23.3	2006	2114	71.8		
1937	490	24.7	2007	2078	70.6		
1938	508	25.3					
1939	536	26.3					
1940	543	27.1					
1941	552	26.7					
1942	569	27.3					
1943	588	28.0					
1944	604	28.5					

Table A.13: Collective agreements in the industrial sector 1900-2007

Year	Remaining time of collective agreement	Renewal of collective agreements	Intervention in the renewal of collective agreements by Act of Parliament	Automatic cost-of-living indexation of wages
	Years	1 = YES; 0 = NO	1 = YES; 0 = NO	1 = YES; 0 = NO
1900	2	1	0	0
1901	1	0	0	0
1902	2	1	0	0
1903	1	0	0	0
1904	2	1	0	0
1905	1	0	0	0
1906	5	1	0	0
1907	4	0	0	0
1908	3	0	0	0
1909	2	0	0	0
1910	1	0	0	0
1911	5	1	0	0
1912	4	0	0	0
1913	3	0	0	0
1914	2	0	0	0
1915	1	0	0	0
1916	1	1	0	0
1917	1	1	0	0
1918	1	1	0	1
1919	1	1	0	1
1920	1	1	0	1
1921	1	1	0	1
1922	1	1	0	1
1923	1	1	0	1
1924	1	1	0	1
1925	2	1	0	1
1926	1	0	0	1
1927	1	1	0	0
1928	1	1	0	0
1929	1	1	0	0
1930	1	1	0	0
1931	1	1	0	0
1932	1	1	0	0
1933	1	1	1	0
1934	1	1	0	0
1935	1	1	0	0
1936	1	1	1	0
1937	2	1	1	0
1938	1	0	0	0
1939	1	1	0	1
1940	1	1	1	0
1941	1	1	1	0
1942	1	1	1	0
1943	1	1	1	0
1944	1	1	1	0
1945	1	1	1	0
1946	2	1	1	1
1947	1	0	0	1
1948	2	1	0	1
1949	1	0	0	1
1950	2	1	0	1
1951	1	0	0	1
1952	2	1	0	1
1953	1	0	0	1
1954	2	1	0	1
1955	1	0	0	1
1956	2	1	1	1
1957	1	0	0	1
1958	3	1	0	1
1959	2	0	0	1
1960	1	0	0	1
1961	2	1	1	1
1962	1	0	0	1
1963	2	1	1	1
1964	1	0	0	1
1965	2	1	0	1
1966	1	0	0	1
1967	2	1	0	1
1968	1	0	0	1
1969	2	1	0	1

Table A.13 (continued): Collective agreements in the industrial sector 1900-2007

Year	Remaining time of collective agreement	Renewal of collective agreements	Intervention in the renewal of collective agreements by Act of Parliament	Automatic cost-of-living indexation of wages
	Years	1 = YES; 0 = NO	1 = YES; 0 = NO	1 = YES; 0 = NO
1970	1	0	0	1
1971	2	1	0	1
1972	1	0	0	1
1973	2	1	0	1
1974	1	0	0	1
1975	2	1	1	1
1976	1	0	0	1
1977	2	1	1	1
1978	1	0	0	1
1979	2	1	1	1
1980	1	0	0	1
1981	2	1	0	1
1982	1	0	0	1
1983	2	1	0	0
1984	1	0	0	0
1985	2	1	1	0
1986	1	0	0	0
1987	2	1	0	0
1988	1	0	0	0
1989	2	1	0	0
1990	1	0	0	0
1991	2	1	0	0
1992	1	0	0	0
1993	2	1	0	0
1994	1	0	0	0
1995	3	1	0	0
1996	2	0	0	0
1997	1	0	0	0
1998	2	1	1	0
1999	1	0	0	0
2000	4	1	0	0
2001	3	0	0	0
2002	2	0	0	0
2003	1	0	0	0
2004	3	1	0	0
2005	2	0	0	0
2006	1	0	0	0
2007	3	1	0	0