

Determinants of Trade Union Membership in Finland 1975 2008

Economics

Master's thesis

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DETERMINANTS OF TRADE UNION MEMBERSHIP IN FINLAND 1975–2008

The purpose of this thesis is to examine the factors that affect the development of trade union density in Finland during 1975–2008. Finnish trade union membership grew rapidly since the beginning of the 1970s. In the mid 1990s trade union density reached about 85 percent of the labour force but has since declined some 5 percentage points.

The existing empirical literature on the determinants of union membership on aggregate level using time-series analysis is reviewed. The business cycle approach to membership determination presented in the literature is used as the basis for the empirical analysis conducted in this study. In the cyclical approach trade union density is explained with unemployment, inflation and nominal wage growth or the real wage growth. An annual time-series of these variables is constructed for Finland in the period 1975–2008.

The main finding in the empirical study is that change in unemployment rate influences trade union density positively. A one percentage point increase in the unemployment rate is estimated to increase trade union density by about 0.6 percentage points. The finding is in line with evidence from other Ghent-countries where unions administer the unemployment insurance funds. Higher unemployment increases the probability of unemployment for workers. This increases the expected costs of unemployment. Workers then join unions to get access to the earnings-related unemployment benefits.

Keywords: Ghent, membership, trade union, unemployment, unionization,

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1. Introduction

Trade unions have considerable effect on labour markets and the surrounding societies. In addition to the most obvious, namely collective wage bargaining, unions bargain with employers over many important subjects, for example over working hours and conditions. The amount of bargaining power trade unions have is dependent on their ability to gather and maintain a large membership in the workforce. Therefore, studying the factors that affect trade union membership is of great importance.

The aim of this thesis is to study the determinants that explain changes in trade union density in Finland over time. Some relevant existing literature on the determinants of trade union membership is reviewed and then an empirical study is conducted using time-series data on macroeconomic variables in the period 1975-2008.

The main finding in the empirical study is that change in unemployment rate influences trade union density positively. A one percentage point increase in the unemployment rate is estimated to increase trade union density by some 0.6 percentage points. This can be explained by the fact that unions administer most of the unemployment insurance funds in Finland. Higher unemployment increases the probability of unemployment. Higher risk of unemployment then increases the expected costs of unemployment. Workers then join unions to get access to the earnings-related unemployment benefits if the expected costs increase enough.

Finland poses an interesting case for study as unions are an important part of the Finnish labor relations. Union density is among the highest in the world at about 80 percent depending on the definition and union negotiated contracts cover some 95 percent of the workforce. Unions also administer most unemployment insurance funds paying earnings-related unemployment benefits. Additionally, major labour market reforms have been results of tri-party negotiations between unions, employers and the government (Böckerman and Uusitalo, 2006: 284).

This thesis is organized as follows. Section 2 defines what a trade union is and discusses the reasons why workers decide to join them in Finland. Section 3 goes through the historical development of trade unionism in Finland. Section 4 examines existing literature on time-series business cycle models for macro-determinants of trade union membership. Section 5

presents my empirical study on Finnish data. Section 6 then discusses briefly additional approaches for studying trade union membership. First, the micro-determinants of individuals' membership decisions and structural explanations of unionization are discussed and then the institutional factors for unionization are presented. Section 7 concludes the thesis.

2. What are trade unions and why workers join them in Finland?

Checchi and Lucifora (2002: 366) define the modern view of trade unions as 'a coalition of workers meant to strengthen their hand in bargaining with their counterparts'. This definition is somewhat broad as it does not define what unions bargain over and with whom. However, trade unions have existed since the Industrial Revolution and they have been, and some still are, part of a social movement promoting mass democracy. At the beginning of the labor movement countries had different social, economic and political situations and thus the development of trade unions has experienced wide diversity across countries. (Ebbinghaus and Visser, 2000: 4–7.) So the broad definition above actually captures well the different kinds of trade union settings experienced nowadays.

The Finnish trade union setting is characterized by high union membership density and active union participation in the society. Wage bargaining has been highly centralized in the past so that the bargaining has occurred in tri-party negotiations between the union and employer confederations and the government. The resulting contracts were called Comprehensive Income Policy Agreements. Presently bargaining has been slightly more decentralized as the bargaining has taken place at the industry level.

Trade unions are also to some extent political actors. Traditionally union movements have advocated for the expansion of welfare state. In addition to the conventional lobbying some unions have had close links with political parties (Brugiavini et al, 2001: 175). In Finland the largest union confederation Central Organization of Finnish Trade Unions (SAK) is closely affiliated with the Social Democratic Party.

Generally, the main reasons for joining a union can be divided into three groups. These are the bargaining benefits, union offered services and social motives. The credit for higher

wages, shorter working hours and better working conditions is often taken by unions. All three usually result from a bargaining process between a trade union and an employer or employers. Often this process is visible in the media especially when strikes are used to pressure employers. From the perspective of costs and benefits of unionization the bargaining benefits are not that important in Finland. This is because union negotiated contracts cover a large share of the workforce so that union negotiated contracts apply to non-members too. Thus there is no gain in wages when an individual worker joins a union.

In exchange for the dues that union members pay unions are able to offer services for their members. These are for example strike pay, legal advice and grievance procedures. These services are assumed to be attractive for workers demanding employment security. Unions also offer income insurance in countries with the so-called Ghent-system. In this arrangement trade unions administer the unemployment insurance funds that offer earnings-related unemployment benefits. The name of the system is derived from the Belgian town Ghent where it was first introduced at the beginning of the 20th century. Currently the Ghent countries are Belgium, Denmark, Finland, Iceland and Sweden. In 1992 an independent unemployment fund (YTK) was formed in Finland and this has undermined the linkage between unions and unemployment insurance.

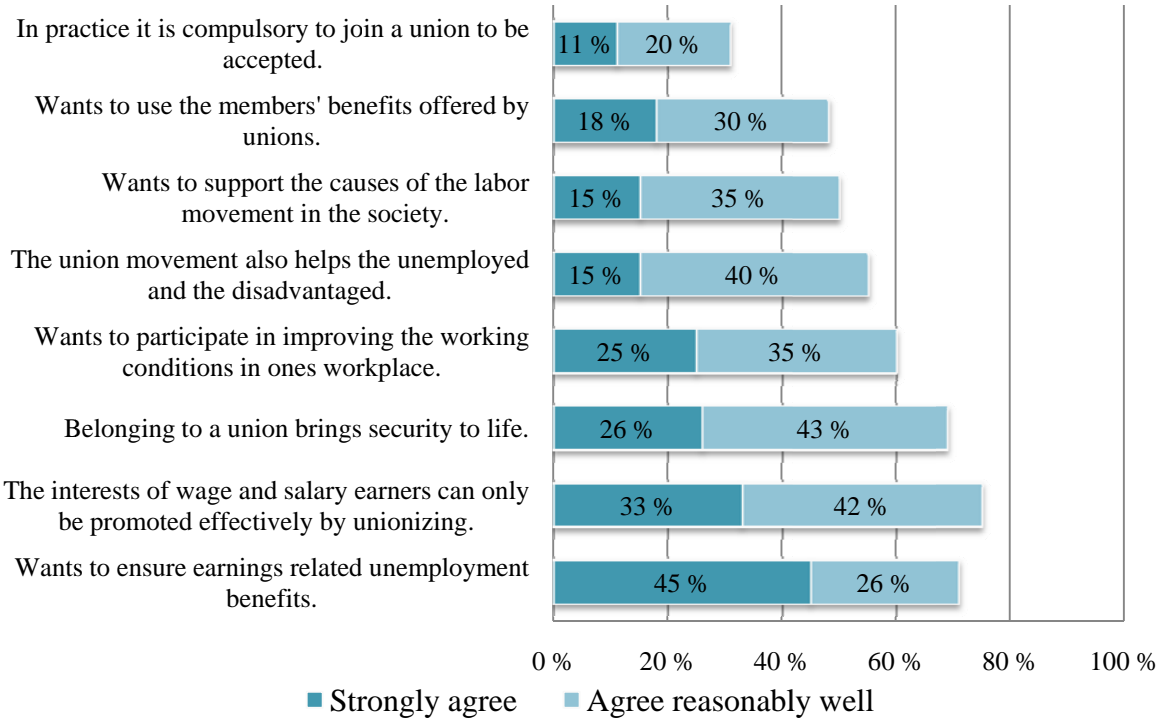
Visser (2002: 406) emphasizes that making the decision of whether or not to join a trade union does not take place in a social vacuum. There are many relevant actors that have an effect on and are influenced by the decision such as family, friends, co-workers, management and union representatives. As a result a social pressure to become unionized can exist.

A survey by Taloustutkimus (2003) was conducted to study the attitudes and opinions towards trade union movement in Finland. The sample size was 995 interviews representing the 15–74 year old population. Figure 1 presents the findings of the survey on reasons for belonging to a trade union in Finland.

Pecuniary reasons seem to be important when joining unions as 71 percent of the respondents at least reasonably well agree that they wanted to ensure earnings-related unemployment benefits. Almost half admit that they want to use the benefits offered by unions to its members. Union membership can also be thought as an insurance against insecurity as 69 percent of the respondents agree with the claim that unions bring security to life.

Social and political motives are clearly important. Half of the respondents claim that they want to support the labour movement whereas 55 percent believe that unionization helps the disadvantaged. Some form of social pressure to unionize seems to exist in the Finnish workplaces since almost one third agrees that union membership is required to be accepted. Overall, 75 percent think that unionization is the only way to look after the interest of wage and salary earners.

Figure 1. Survey on reasons for belonging to a union in Finland



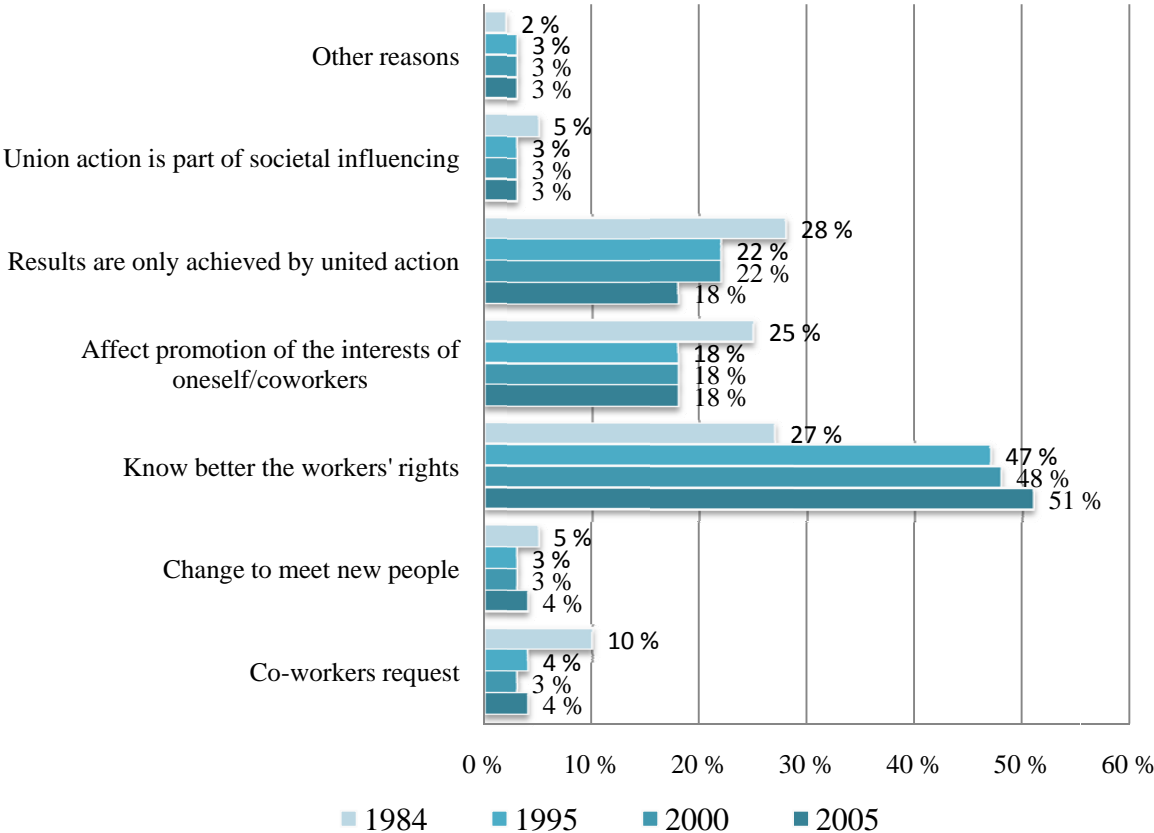
Source: Taloustutkimus (2003), translated from Finnish by author

Laukkanen (2006) presents findings from interviews of the members of Central Organization of Finnish Trade Unions (SAK) which is the largest union confederation in Finland with about 1 050 000 members in 2008. It accounts for almost half of the union members in Finland and consists mainly of blue-collar workers. The survey was conducted by Statistics Finland and it is a representative sample of the SAK members in 2005.

Figure 2 reports the main motives why union members participate in trade union action in SAK according to Laukkanen (2006: 258). The three main motives are to better know workers' rights, the belief on collective action and promoting the interest of oneself and co-workers. There has been some change over time. Overall, this change can be roughly divided

to the motives in 1984 and the motives after that since there has not been much variation in the responses during 1995–2005. In 1984 27 percent of the respondents claimed that the main motive to participate in trade union action was to know better the workers’ rights. Since that about half of the respondents have given that as the main motive. This could reflect the change in risk of unemployment in the early 1990s. The unemployment rate grew from about 5 percent in 1984 to some 11 percent in 1992 and over 16 percent the year after.

Figure 2. Main motives for participating in union action 1984–2005: blue-collar workers



Source: Laukkanen (2006), translation from Finnish by author

Visser (2002: 406) concludes that unions can fail to attract members for two reasons. They do not succeed to offer the goods and services that workers need or they fail to maintain the norm or social custom that ensures sufficient level of membership. In the case of Finland the formation and growing popularity of the independent unemployment insurance fund offering earning-related unemployment benefits could threaten union membership. The fund, established in 1992, has steadily gathered more members reaching about 200 000 members in 2002 (Böckerman and Uusitalo, 2006: 288) and over 300 000 members in 2009 (YTK

website). However, the decision to join a union might not be a simple one as there are probably many factors affecting the joining decision simultaneously.

The situation where an individual is able to enjoy the benefits of group action without incurring the costs is referred to as the free-rider problem. This problem is clearly evident in the case of a trade union providing collective goods such as higher wages and better working conditions. According to Olson (1965: 96, 134) there are two ways by which trade unions can continue to exist. Either they have negotiated a closed shop arrangement, meaning that union membership is compulsory, or the union is able to offer some private benefits to its members that induce them to remain in the trade union. The fact that closed shops are illegal in Finland and in most developed countries implies that the latter explanation may be more important.

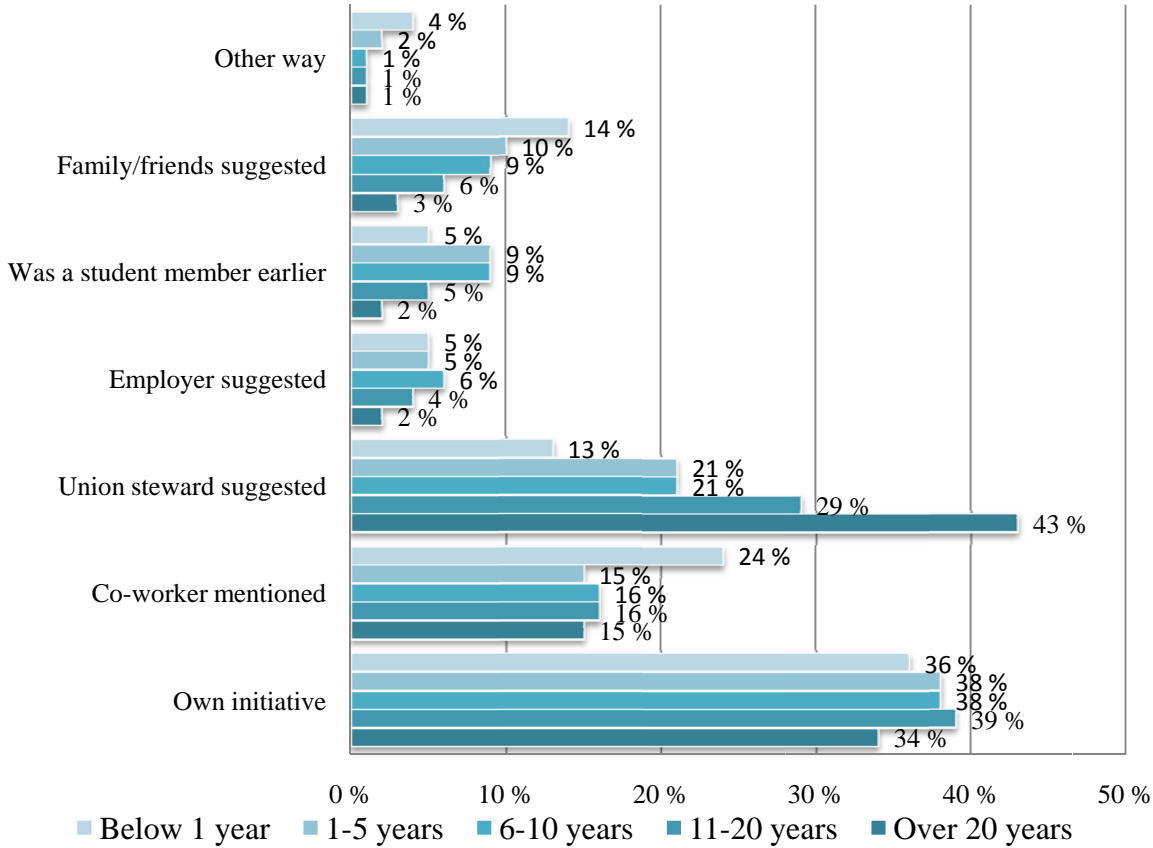
Booth (1985: 255) modeled formally a social custom model of trade union membership where sociological factors are incorporated to the traditional utility-maximizing framework. The idea is that reputation in a group is desirable for an individual and that each person's reputation is included in one's utility function. There is a set of rules and customs in a group and breaking them results in a loss of reputation and consequently utility. In the case of a trade union there could be a social custom of joining the union. Not conforming to the social custom and free-riding could result in a loss of reputation and utility. Thus the economic incentive to free-ride could be less than the incentive to join.

The social custom of joining a trade union is influenced by the overall social values in a society, for example the individualization of life styles and solidarity (Ebbinghaus and Visser, 1999: 138). So changes in the social custom over time are possible but measuring it is difficult. It is especially hard in aggregate level time-series analyses, as in the empirical part of this thesis in section 5, since there are no suitable proxies for measuring such phenomenon. Some dummy-variables for political climate are tested in the empirical study but they might be more short-term in nature compared to changing social values.

Laukkanen (2006: 24) reports statistics for the way how SAK members became member the first time. These statistics are reported in figure 3 and they are grouped according to the duration of membership. The three most important ways to become union member have been co-worker or union personnel suggesting membership and own initiative. About one third of the respondents have taken their own initiative to join a trade union and this has remained

relatively stable over time. However, the share of workers who joined because of union stewards and other union personnel suggesting membership has diminished over time. It has changed from 43 percent for those who have been members over twenty years to only 13 percent for those who have been members less than a year. This has been replaced with more unionization decisions affected by suggestions from co-workers, friends and family.

Figure 3. Way of joining a union for the first time by duration of membership in SAK



Source: Laukkanen (2006), translation from Finnish by author

The findings by Taloustutkimus (2003) support the hypothesis of some sort of a social custom of joining a union in Finland since 31 percent of the respondents agreed at least reasonably well with the claim that it is compulsory to be a union member to be accepted. Do the statistics reported by Laukkanen (2006) shed more light on this supposed social custom and its development over time in Finland? The membership level of SAK has not experienced dramatic changes after the early 1980s. SAK had some 1 050 000 members both in 1984 and 2008. Between those years SAK membership peaked slightly higher at about 1 132 000 members in 1993 (see section 5.1. for data source). An interesting hypothesis would be that

the impact of such custom might not have changed drastically over time but its form could have. It could be that recruiting by union officials has diminished and become less aggressive and the custom is now upheld more by co-workers, friends and family. However, any conclusions shouldn't be made here without deeper analysis. Not least for the reason that the statistics from Laukkanen (2006) are only from existing members and those who have left the union are absent making the statistics biased.

3. Trade union history in Finland

The first Finnish trade union, the printers' union, was established in 1896 and it signed its first collective agreement in 1900. For a long time the labour movement was characterized by political splits and conflicts in the labour relations. The first trade union confederation established was the socialist Finnish Union Confederation SAJ (Suomen Ammattijärjestö) in 1907. In the same year the Employers' Confederation STK (Suomen Työnantajain Keskusliitto) was founded. The communists took power in SAJ after 1920 prompting STK to refuse cooperation because they saw SAJ supporting the Communist party. The employers did not need to change their attitude because the labour was weakened by the Great Depression and the rise of the Fascist Lapua Movement in the 1930s. Additionally, SAJ was banned after the general strike of 1929. (Ebbinghaus and Visser, 2000.)

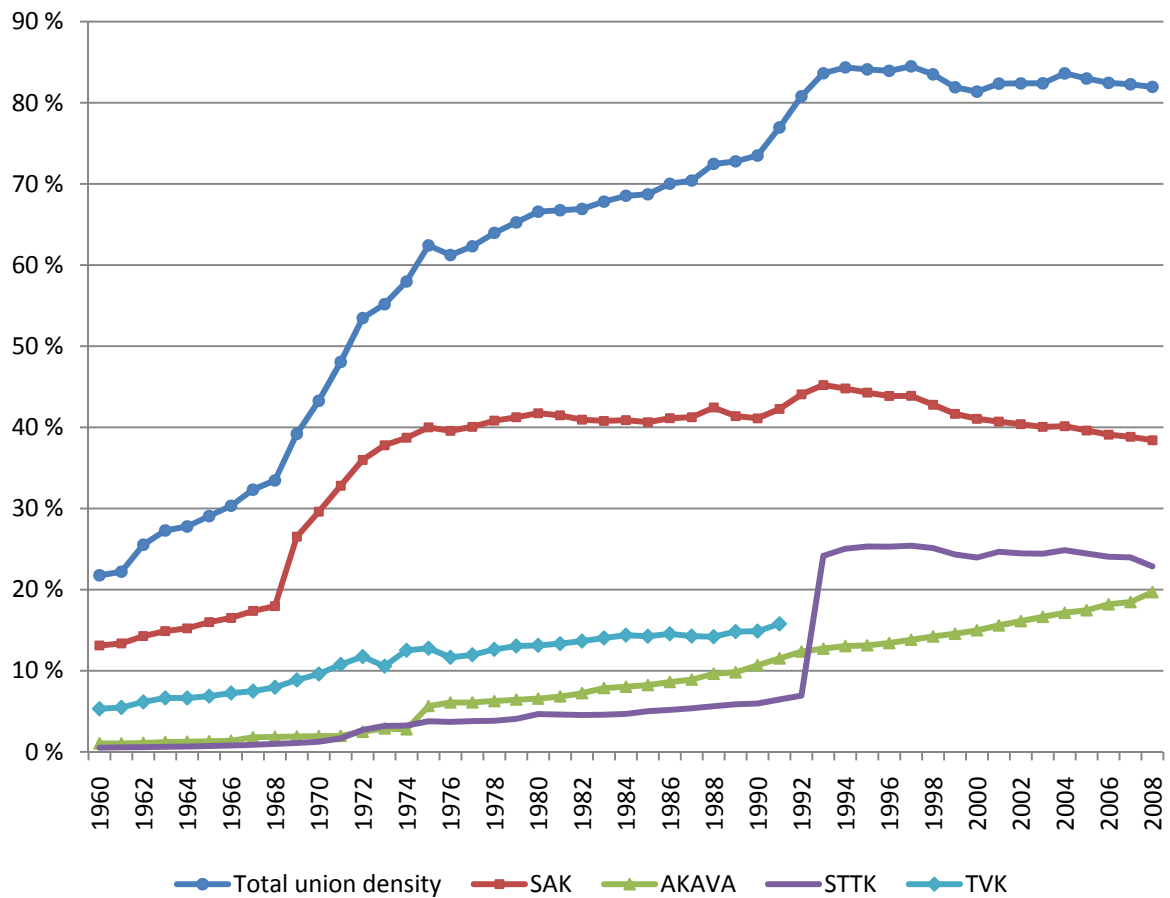
Confederation of Finnish Trade Unions SAK (Suomen Ammattiyhdistysten Keskusliitto) was founded on the remnants of the banned SAJ in 1930 but it was now the social democrats that were in charge. Still, it took ten years for the unions to get formal recognition. This happened during the Second World War when SAK and STK signed the 'January Agreement' in 1940 and the Basic Agreement 1944. The employer's prerogative was acknowledged by unions and the employers accepted the rights of organization, collective bargaining, shop stewards and strikes. However, after the wars the state regulated wages and prices until 1956. After deregulation the negotiations were unsuccessful. Additionally, SAK drifted to internal difficulties as the communists broke away from SAK and formed the old SAJ again in 1960. It took almost a decade for the Social Democratic and Communist unions to get closer to each other again. The help of a left-center coalition government and employer's growing interest in peaceful labour relations paved the way for the 'historic compromise' in 1968 and the merger of SAK and SAJ in 1969. (Ebbinghaus and Visser, 2000.)

The 1968 agreement initiated a series of such tri-party agreements between the government, employer confederations and trade union confederations that were called Comprehensive Income Policy Agreements. The 1968 agreement is seen as the beginning for an era of labour market corporatism. The employers reaffirmed union recognition while the government granted full tax deductions for union dues that were to be collected by employers from then on. This effectively institutionalized union membership in Finland. (Tanninen and Pehkonen, 1997.)

Lasting from 1 to 3 years at a time the Comprehensive Income Policy Agreements were negotiated until late 1990s in an effort to stabilize the macroeconomic environment often including changes in the welfare state (Böckerman and Uusitalo, 2006). In the 2000s bargaining has been more decentralized though as unions have bargained at the industry level.

For some time already the trade union movement has been dominated by three union confederations. The aforementioned SAK is the largest confederation with over one million members. It consists mainly of blue-collar unions organized according to their industries. The Confederation of Academic Professional Associations AKAVA (Akateemisten Toimihenkilöiden Keskusjärjestö) was founded in 1950 for employees with an academic degree. The steady growth of the AKAVA membership, currently over 500 000 members, reflects the growing level of education in Finland. According to the Statistical Yearbook of 2010 (Statistics Finland) the number of university graduates in a year grew from 10 982 in 1990 to 22 310 in 2007. STTK (Suomen Teknisten Toimihenkilöiden Keskusliitto) was founded in 1946 for technical employees whereas the Confederation of Salaried Employees TVK (Toimihenkilö- ja Virkamiesjärjestöjen Keskusliitto) was founded in 1956. However, TVK went bankrupt in 1992 and most of its affiliates joined with the old STTK to form a new Finnish Confederation of Salaried Employees STTK (Toimihenkilöjärjestö) in 1993. TVK had over 400 000 members at the time it went bankrupt while the old STTK had little over 160 000 members. The new STTK combined become the second largest confederation with over 600 000 members in 1993 and the level has maintained just about the same. Figure 4 depicts the membership shares of total labour force of each trade union confederation as well as total union density in Finland during 1960–2008. (Ebbinghaus and Visser, 2000.)

Figure 4. Union confederation shares of total labour force in Finland 1960–2008



Source: Ebbinghaus and Visser (2000) for membership figures before 1970, various volumes of Statistical yearbook of Finland (Statistics Finland 1971–2009) for membership figures from 1970 onwards except for Kauppinen and Köykkä (1991) for year 1988. The total labour force figures are from OECD website.
 Note: SAK figures include SAJ.

As figure 4 shows the growth in union membership accelerated in the beginning of the 1970s which is often attributed to the ending of the political division in the union movement, namely the merger of SAK and SAJ in 1969 (Böckerman and Uusitalo, 2006: 286).

4. Macro-determinants of trade union membership

The preceding section depicted the history of trade union development in Finland and in this section I will investigate the macro-determinants of trade union membership that explain the degree of unionization on the aggregate level. The main idea behind the cyclical approach to union membership determination is that a worker's decision to become a member of a trade union is affected by the business cycle in the economy by influencing the costs and benefits of unionization. Consequently, changes of macroeconomic variables in an economy should explain changes in the aggregate trade union membership. Table 1 summarizes the estimations of the studies discussed below. The following subsections then discuss different explanatory variables separately.

An extensive empirical literature on the determinants of union membership on the aggregate level using time-series analysis has emerged. The study by Ashenfelter and Pencavel (1969) investigating trade union growth in the United States between 1900 and 1960 has become a milestone among business cycle studies. The authors estimate a model where they try to explain the annual growth of trade union membership with the inflation and growth of employment in the unionized sectors of the economy. Unemployment in the preceding recession of the business cycle is used to proxy the stock of workers' grievances, whereas the percentage of Democrats in the US House of Representatives proxies for the effect of legislation and general opinion. Finally they include the lagged trade union density to test if there is a diminishing response to union recruiting efforts as union density rises.

All the explanatory variables turn out to be significant in the study by Ashenfelter and Pencavel (1969) and the model is able to explain some 75 percent of the variation in annual growth in trade union membership. They find that inflation and growth of employment both have a strong positive effect on union growth whereas the estimated effects of unemployment and the political variable are both positive but small. Finally, the coefficient for the lagged density level is negative. The authors test for first order autocorrelation with the Durbin-Watson statistic which implies no problems with autocorrelation.

Sharpe (1971) estimates a similar model to the one by Ashenfelter and Pencavel (1969) to examine Australian trade union growth during 1907–1969. However, the author uses real wage growth instead of inflation as an explanatory variable. Additionally, the author uses a

dummy variable to explain changes in pro-labour legislation and unemployment rate is used as such not as a proxy for worker grievance. The model fits reasonably well explaining about 75 percent of the variation in the change in annual union membership and all the estimated coefficients appear to be significant. Real wage growth affects union growth negatively, whereas employment affects it positively. Lagged density and the unemployment rate both have negative effect on unionization. Finally the dummy variable for pro-labour legislation gets a positive coefficient. Durbin-Watson statistics suggest no problems with autocorrelation.

D'Agostino (1992) investigates trade union growth in Sweden during 1945–1985. Growth of union density is explained with inflation and nominal wage growth, level of unemployment and lagged density. In some specification compositional changes in the labour force are tested as well as average unemployment benefit and cost of unemployment insurance. Estimating the effects of compositional changes in time-series studies is questionable as the risk for spurious regressions becomes higher. The variables seem to have varying effects in different specifications and they affect the coefficients of the other variables. Consequently, only the basic specification without the compositional variables is considered here. The estimation gives positive effect for inflation and nominal wage growth though only the latter is significant. Unemployment rate affects union growth positively whereas the lagged density negatively. Interestingly the unemployment benefit variable had a positive and highly significant coefficient but it was included in a specification with the compositional variables. No serious autocorrelation problem is reported and the model explains some 45 percent of the variation in the growth of union density.

D'Agostino (1992) estimates almost the same model as mentioned above for Finnish data for the years 1951–1985, only inflation is left out. The estimated effects for nominal wage growth and level of unemployment are positive while the estimated effects for lagged density and change in unemployment are negative. All variables are significant but the model fit is quite poor as it only explains less than 30 percent of the variation in growth of union density.

Pehkonen and Tanninen (1997) examine the level of unionism in Finland during 1962–1992. The authors use a logistic transformation of union density as the dependant variable. This is explained with the lagged dependant variable, real wage growth, lagged level of employment and unemployment rate and its lag. Additionally the ratio of unemployment insurance benefits to unemployment assistance benefit is used as an explanatory variable as well as a dummy for

labour legislation that gets value one after the year 1968. The authors find a significant and positive effect on union density for all the variables. In their preferred specification a one percentage point increase in unemployment rate increases union density by 0.8 percent whereas a growth of one percent in real wages induces a 1.61 percent growth in union density.

Van Ours (1992) investigates trade union growth in the Netherlands between 1961–1989. Union density was fairly stable in the 1960s and 1970s in the Netherlands but then experienced a sharp decline in the 1980s from 43 to 33 percent. The author explains the rate of change of union membership with unemployment rate, lagged union density and labour income ratio which is defined as the ratio of gross wages to gross value added. A lower labour income ratio means that workers are extracting fewer rents from firms' profits. Price inflation variable was left out because price indexation of wages was in place. The effect of real wages is captured in the labour income ratio variable. The author finds a positive and significant effect for the growth of labour income ratio on change in union membership whereas the level and growth of unemployment rate affect growth in union membership negatively. The prevailing level of union density also dampens further membership growth.

Table 1. Selected time-series studies of trade union growth

<i>Explanatory variables</i>	<i>Authors and samples</i>					
	Ashenfelter/Pencavel (1969) USA 1900–1960	Sharpe (1971) Australia 1907–1969	D’Agostino (1992) Sweden 1945–1985	D’Agostino (1992) Finland 1951–1985	Tanninen/Pehkonen (1997) Finland 1962–1992	Van Ours (1992) Netherlands 1961–1989
Price Inflation	+		(+)			
Nominal wage growth			+	+		
Real wage growth		-			+	
Employment growth	+	+				
Unemployment rate		-	+	+	+	-
Change in unemployment						(-)
Prevailing level of density (lag)	-	-	-	-	+	-
Politics (labour friendly)	+					
Dummy for labour legislation		+			+	
Unemployment at the bottom of the last recession	+					
Change in labour income ratio						+
Unemployment benefit mark-up			+		+	

Note: +/- indicates an explanatory variable with a positive/negative influence on the dependant variable at the 5 percent significance level, insignificant results in parentheses.

Source: Table adapted from Schnabel (2003), data collected by author

4.1. Unemployment and employment

Unemployment is often seen to hurt the bargaining power of trade unions and consequently union growth. Workers see the benefit of unions diminish as unions achieve less. During spells of unemployment leaving a trade union could also be seen as an attractive signal to the employer when workers compete for jobs. Sharpe (1971: 143) and van Ours (1992: 1064) confirm the view that rising unemployment rate has a negative effect on trade union density.

Institutional settings influence the way unemployment affects union membership. In countries where unions administer the unemployment insurance funds rising unemployment induces workers to join unions to gain access to the earnings-related unemployment benefits offered by the funds. Pehkonen and Tanninen (1997: 591) along with D'Agostino (1992) confirm this. More discussion on this so-called Ghent-system in section 6.

Ashenfelter and Pencavel (1969: 437–438) use unemployment differently. They specify it as a proxy for the stock of workers' grievance so that unemployment at the bottom of the previous slump is applied. This stock is allowed to decay over time. The authors find the effect positive and significant.

Employment growth is positively related to trade union membership. If new workers consider union as attractive as the existing workers then growth in employment leads to growth in unionization assuming that the employment growth is not a results of structural change. The employment variable may also capture some sort of a social custom effect if new workers are persuaded to join unions.

Ashenfelter and Pencavel (1969) argue that employment growth affects the relative benefits and costs of union membership to workers. Employer retaliation is claimed to be lowest when employment is higher. Unions are also assumed to embark 'on membership drives' when employment increases.

4.2. Price inflation, nominal wage growth and real wage growth

Lesch (2004:14) asserts that price inflation threatens employees' standard of living thus encouraging workers to join unions to defend their real wages. A positive coefficient estimate

for inflation is found here by Ashenfelter and Pencavel (1969) and D'Agostino (1992) for Sweden.

However, rising nominal wages are expected to induce union growth because workers are thought to give credit to unions on the higher nominal wages (van Ours, 1992: 1061). This is confirmed by D'Agostino (1992) for both Sweden and Finland.

Interpreting the two aforementioned variables needs to be considered carefully. Many studies that include both the price inflation and nominal wages find positive signs for both of them. This implies that if prices and nominal wages grew at the same rate union membership is still expected to grow even though there is no change in real wages.

Ashenfelter and Pencavel (1969) conclude that the evidence of positive effect of inflation on trade union growth supports to some extent the hypothesis that trade unions are defensive organizations. This is a strong statement implying that unions would only try to keep real wages constant and not try to bargain higher real wages.

Sharpe (1971) and Tanninen and Pehkonen (1997) both estimate the impact of the change of real wages on union membership. The results are mixed as the former finds the effect negative whereas the latter find it positive. Sharpe (1971) argues that when real wages decline worker's discontent increases so that their desire to unionize in order to retain their real wage is higher. Van Ours (1992) specifies a labour income ratio variable as the ratio of gross wages to gross value added. The variable measures the workers share of rents available and the author finds a positive relationship for labour income and union membership growth.

When estimating the effects of inflation and wage growth the possible endogeneity problem should be kept in mind. It is very possible that high unionization increases the bargaining power of unions. With higher bargaining power the unions may be able to increase nominal wages. Consequently, increasing nominal wages affect inflation and finally the growth of real wages. Thus the causal relationship could actually be reverse compared to what is assumed in the literature. This kind of simultaneous equations bias can make the OLS-estimators to be biased.

4.3. Other explanatory variables

Many studies here include the prevailing level of union density as an explanatory variable to capture a saturation effect which assumes that increasing union membership is more difficult as union density rises. Most studies reviewed here find its effect negative with the exception of Tanninen and Pehkonen (1997) for Finland.

Increasing government expenditure on social benefits can be seen as a substitute for union services. Van Ours (1992: 1064) argues that government expenditure on social benefits is ‘an irrelevant variable since the unions never had the task in the period in analysis’. This argument can be criticized on the basis that unions do not need to offer social benefits themselves but offer protection from unemployment. Changing social benefits will affect the demand for unemployment protection as the relative cost of unemployment changes. Consequently, as demand for union services change the demand for union membership changes.

D’Agostino (1992) and Pehkonen and Tanninen (1997) examine the effect of a unemployment benefit mark-up variable. It measures the ratio of the earnings-related unemployment benefits paid by the union administered unemployment insurance funds to the basic unemployment allowance. Both studies find the estimated coefficient positive and significant. This confirms that the government social benefits act as a substitute for union services. If the basic unemployment allowance increases the mark-up variable decreases causing union membership to decline.

Some studies investigate the effect of strikes on union membership. Van Ours (1992) argues that strikes may foster unionization when workers wish to receive strike pay.

4.4. Political cycles

Political climate and the general opinion both affect the functioning of trade unions as politicians decide upon the legislation where unions operate. Taking into account that trade unions have historically been associated with left wing political parties, some studies try to proxy the pro-labor sentiment with the share of left wing parties in the parliaments.

Ashenfelter and Pencavel (1969) use the percentage of Democrats in the US House of Representatives to proxy for the effect of legislation and general opinion on union membership. They find the variable positive and significant.

4.5. Legislation

Practically the only way to account for changes in legislation in time-series studies is to use dummy variables. Both Sharpe (1971) and Tanninen and Pehkonen (1997) find significant positive effect for their dummy variables. However, there is always the problem of judging what effects the dummy actually captures.

4.6. Critique

Moore and Pearce (1976) test the predictive power of the empirical model of Ashenfelter and Pencavel (1969). The authors demonstrate that even though the model is able to explain trade union growth reasonably well its predictive power for the period after the Second World War is poor.

Pehkonen and Tanninen (1997: 580) argue that the business cycle theory does not have solid theoretical microfoundations which have led the empirical specifications to vary between different studies. Recently, individual-level cross-sectional analyses have gained ground among the empirical literature on trade union membership. These are discussed in section 6.

5. Empirical analysis on Finnish data

In this section I will present the empirical part of this thesis. The idea is to follow the cyclical approach to union membership determination presented in section 4. I will investigate the variables that affect trade union density in Finland over time by using time-series data of annual macroeconomic variables in the time period 1975–2008. Annual data was chosen because the membership data is collected annually.

5.1. Data

Constructing a long time-series for the study posed two challenges. First of all, data availability put restrictions on the data forcing to limit the study to the period 1975–2008.

Secondly, during this 34 year period the data collection classification regarding the calculation of labour force statistics has changed in 1988. The effect of this break in the data needs to be investigated in the regressions.

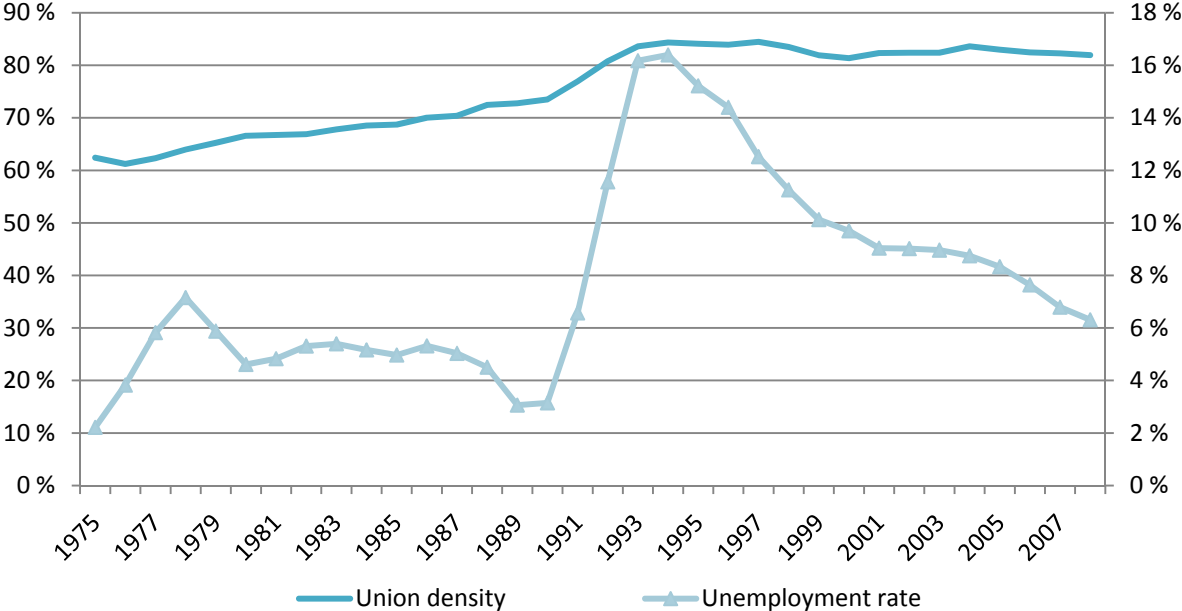
Trade union membership is reported annually in the Statistical Yearbook of Finland by Statistics Finland. As union membership is the focus of interest in this study the whole data set is accordingly constructed as annual. The time-series for the level of union membership was collected from various volumes of the Statistical Yearbook of Finland ranging from 1975 to 2008. As the data is missing for year 1988, I rely on Kauppinen and Köykkä (1991) for that particular year. Unions report their membership figures at the end of each year to Statistics Finland. There seems to be variation in the rounding convention for the membership figures. Some unions report the figure with the accuracy of one while some seem to round to the nearest hundred or even thousand. So the membership figure is subject to some degree of measurement error.

In addition to the actual amount of union members in Finland the level of union density is of interest. Union density is defined here as the ratio of total union membership to total labour force. The figures for total labour force are from Labour Force Statistics of the OECD website. Some studies adjust the total labour force measure to proxy better for potential membership by excluding the self-employed, pensioners and students. Provided that the union membership figures would also exclude them, the adjusted density figure would better represent the unionization level of those who pay dues, use union services and potentially benefit from bargaining. In this study the total membership figures include pensioners and students and there is no consistent data available on the share of them over time. As the membership figures cannot be adjusted I argue that adjustments to the labour force figure would only make the density figure worse.

The data for employment and unemployment was also acquired from the OECD Labour Force Statistics. These are the data series that have a break after the year 1988. To cope with the break in the data a dummy variable is constructed so that it gets value zero until year 1988 and value one after the year 1988. Unemployment rate is calculated as the ratio of unemployed to total labour force. Figure 5 plots the progress of the levels of union density and unemployment rate during the sample period and figure 6 plots the changes in the same

variables. Figure 7 depicts the evolution of the amount of total labour force, employment, unemployment and union membership in thousands during the same period.

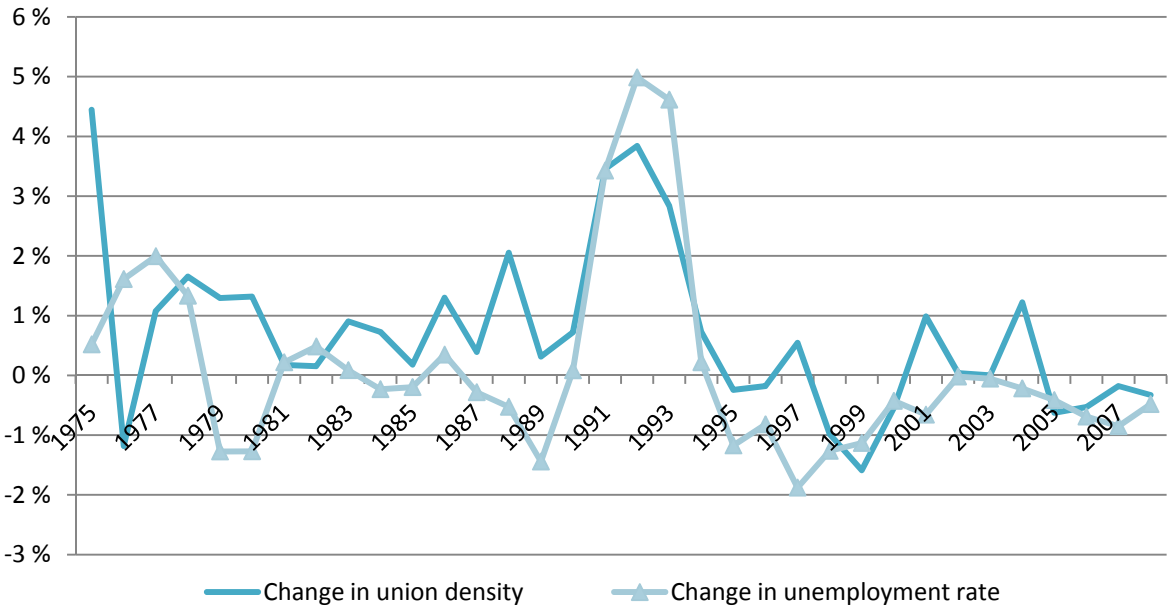
Figure 5. Union density and unemployment rate 1975–2008



Source: Author’s calculations from the data
 Note: Union density scale on the left vertical axis and unemployment rate on the right

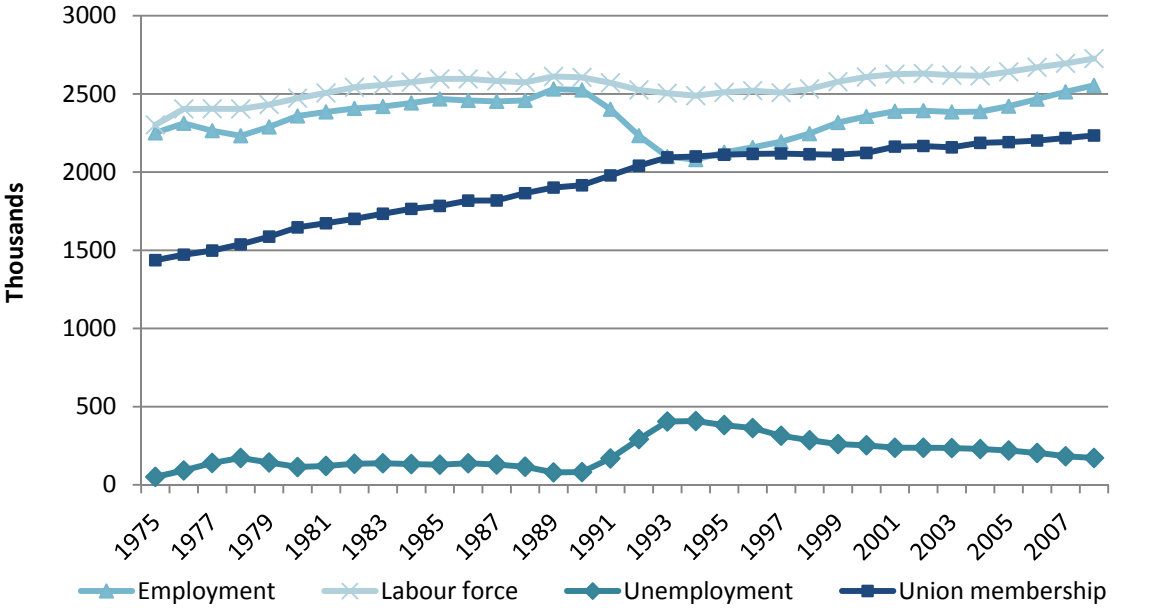
The nominal wage growth is calculated from the index of wage and salary earnings (Statistical Yearbook of Finland 2009). The consumer price index acquired from the ILO database of labour statistics is used to calculate inflation. The real wage growth is calculated from the two aforementioned indexes. Figure 8 plots the three aforementioned growth rates during the sample period.

Figure 6. Changes in union density and unemployment rate 1975–2008



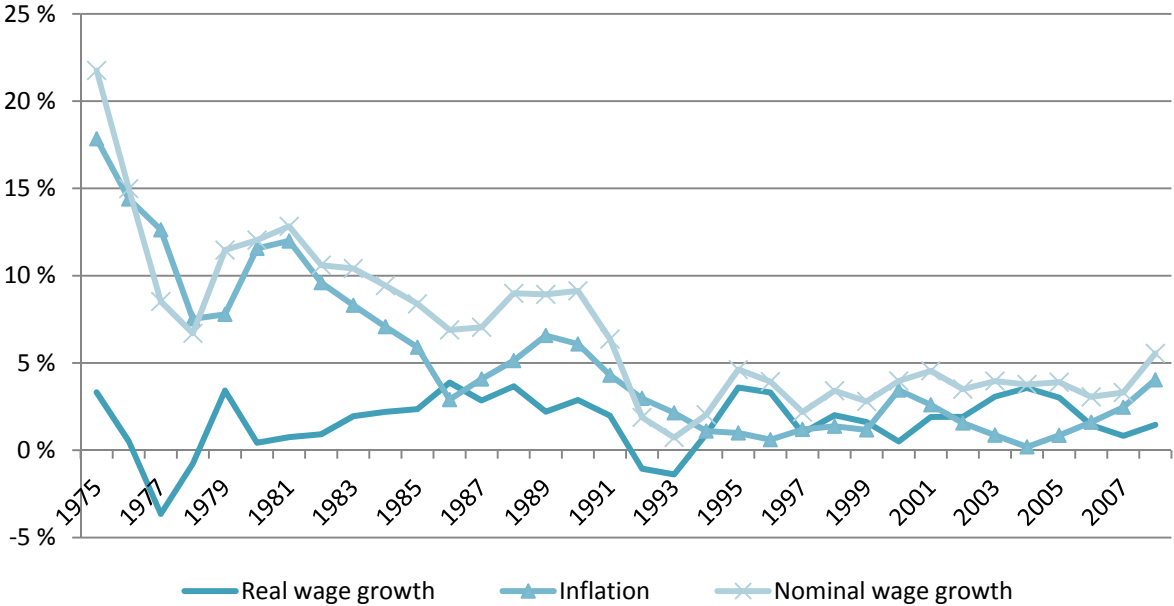
Source: Author’s calculations from the data

Figure 7. Labour force, employment, unemployment and union membership 1975–2008



Source: Author’s calculations from the data

Figure 8. Nominal wage growth, inflation and real wage growth 1975–2008



Source: Author’s calculations from the data

Several dummy variables were constructed for the estimations. Two dummy variables are tested as proxies for the political climate. First, ‘SDP biggest’-dummy variable gets value one whenever Social Democratic Party has gained the largest share of votes in the previous parliamentary elections and zero otherwise. The only periods that SDP was not the party with largest share of votes were 1991–1995 and 2003–2008 during the time frame of the study. Data for the elections was acquired from the YLE website. ‘SDP in cabinet’-dummy variable gets value one when SDP has been part of the cabinet of the Finnish Government. The only periods when that has not been the case are 1991–1995 and 2007–2008. Actually there were some short periods during 1975–1976 that SDP was not in the cabinet but those cabinets were short lived and thus ignored in the dummy. Data for the cabinets is from the website of the Finnish Government.

A labour income ratio variable is specified as the ratio of gross wages to gross value added as suggested by van Ours (1992). The data for the variable was acquired from the National accounts of the Statistics Finland website. Labour disputes are of interest in this study so the number of working days lost in thousands each year due to strikes is included in the time-

series. The data was found in the Statistical yearbook of Finland (2009). Table 2 presents descriptive statistics of the variables.

Table 2. Descriptive statistics

Variable	Mean	Standard deviation	Min	Max
Union density	0.7545	0.0814	0.6123	0.8448
Δ Union density	0.0071	0.0137	-0.0159	0.0445
Employment	2352.1	127.0	2080	2554
Unemployment rate	0.0780	0.0381	0.0222	0.1639
Δ Unemployment rate	0.0014	0.0158	-0.0188	0.0499
Inflation	0.0508	0.0449	0.0019	0.1784
Nominal wage growth	0.0681	0.0445	0.0073	0.2175
Real wage growth	0.0166	0.0166	-0.0365	0.0388
Labour income ratio	0.4750	0.0311	0.4298	0.5285
Strikes	502.4	684.7	16.4	2787.6
SDP biggest	0.7059	0.4625	0	1
SDP in council	0.8235	0.3870	0	1

Source: Author's calculations from the data

Definitions: Labour income ratio is defined as the ratio of gross wages to gross value added. Employment figures and in thousands. Strikes defined as working days lost in thousands.

5.2. Findings

The cyclical approach to union membership determination, presented in section 4, is used as a basis for the model used here. The aim is to explain the level of unionization with the rate of unemployment, inflation and growth of nominal wages as well as the change in real wages. The labour income ratio is used as a proxy for the rents that workers are able to capture. Dummy-variables are tested as proxies for political climate and institutional changes.

The unemployment rate proxies for the unemployment risk in the economy. According to the interview studies reported in section 2 one important factor for joining a union in Finland is the access to the earnings-related unemployment benefits. Thus a change in unemployment rate is expected to reflect on union density. To cope with the break in the data in 1988 the

year dummy will be estimated as such and also interacting with the variables having the break.

As already noted in section 4 the justification of the inclusion of inflation and nominal wage growth is ambiguous as severe endogeneity problems can arise. The rationale has been that workers join unions to defend their real wage from price inflation (Lesch, 2004: 14) or that workers credit unions for higher nominal wages (van Ours, 1992: 1061). The problem is that the causal relationships could go the other way round. With higher union membership unions could be able to extract more rents from firms resulting in higher wages. Higher wages may also speed up inflation. Nevertheless, the variables are tested here following the business cycle models but keeping in mind the possible problems.

The inclusion of the number of working days lost due to strikes per year in the estimations is justified on the ground that eligibility to strike pay would be a pecuniary incentive for workers to join unions. Again, it is possible that the causality is reverse. High unionization implying high union bargaining power may result in more strikes and lost working days.

As the Social Democratic Party (SDP) is closely affiliated with the largest union confederation Central Organization of Finnish Trade Unions (SAK) it is assumed that high support for the Social Democratic Party suggests pro-labour politics that may foster unionization. The dummy variables for politics are “SDP biggest” and “SDP in cabinet” as defined in the data section.

Standard ordinary least squares estimation (OLS) is used as the starting point in this study. Time-series estimations often suffer from autocorrelation meaning that the residuals of the estimated model are correlated. This violates the OLS assumptions and it causes the standard errors of the coefficient estimates to be calculated incorrectly. Severe autocorrelation also increases the risk of spurious regressions.

Deciding the model specification for the estimations is not clear cut. First of all, there is no distinct business cycle model to pick up and estimate as the specifications vary in the literature. There are two choices for the dependant variable. Either one explains the actual membership figures or union density. Here union density is chosen as the dependant variable as we are interested in explaining the level of unionization in Finland.

It was noted above in the data section that the membership figures collected by Statistics Finland from unions probably suffer from measurement error. The consistency of the OLS estimators is not affected if the measurement error has zero mean and it is uncorrelated with the explanatory variables. If the measurement errors in the union membership figures come purely from rounding a reasonable assumption would be that the measurement errors do have zero mean. If the mean is not zero the estimator for the constant term is simply biased which should not be a problem as the constant does not have any economical meaning in the regressions in this study anyway. However, if the measurement error is correlated with the explanatory variables the OLS estimators get larger variances.

An obvious possibility is that unions boost their membership figures to appear larger and more powerful than they are. If the level of boosting does not change over time it only violates the zero mean assumption of the measurement errors. Could it be then that unions inflate their membership figures according to some of the explanatory variables used in the regressions, for example the unemployment rate? Assuming that unions always want to increase the utility of their members there is no point of inflating membership figures according to some cyclical factor. The union wants to look powerful all the time. Thus it is assumed here that the measurement errors of the membership figures are not correlated with the explanatory variables and the measurements errors are not a serious problem for the OLS estimators.

As a first regression union density was explained with the unemployment rate. Seemingly good fit is produced as the model explains over 85 percent of the variation in union density (R^2) with the two highly significant explanatory variables. However, the Durbin-Watson (D-W) statistic for first order autocorrelation implies severe positive autocorrelation. Including a linear trend or both a linear and a squared trend does not provide significant help for the autocorrelation. The next step is to estimate the same basic model in differences where the change in union density is regressed on the change in unemployment rate. The D-W statistic implies that the model does not suffer from autocorrelation in the difference form.

As we have found a specification with no serious problem with autocorrelation we can move and start testing additional variables. Table 3 summarizes the estimations. Newey-West standard errors are reported to take into account for both autocorrelation and heteroscedasticity. Maximum lag length is chosen to be three when computing the Newey-

West standard errors. In addition to the normal Durbin-Watson test for first-order autocorrelation the alternative test Durbin's H is reported. P-value for the test is reported below the statistic implying the lowest significance level at which the null hypothesis of no autocorrelation would be rejected.

Equation 1 presents the basic model where the change in union density is explained solely with the change in the unemployment rate. Equation 2 then adds inflation and nominal wage growth to the explanatory variables. In equation 3 the change in density is explained with the change in unemployment rate and real wage growth while in equation 4 the real wage growth is substituted with the labor income ratio. The constant term is only included in equation 1 since its estimates are small and often difference models do not include them.

Equations 5–7 test the political and institutional variables with change in unemployment rate, inflation and nominal wage growth. First, in equation 5 the effect of strikes, defined as the number of working days lost in a year, is estimated. The influence of political atmosphere on unionization is estimated in equation 6. Lastly, the Unemployment Act of 1985 brought about a significant increase in the earnings-related unemployment benefit so a dummy variable that gets one from 1985 onwards is tested.

The most notable thing in the estimated models presented in table 3 is the effect of the change in unemployment rate. In all specifications the influence on the change in union density is clearly positive and highly significant. Even the magnitude of the effect is relatively stable in the different specifications. For example in equation 3 where change in union density is explained with the change in unemployment rate and growth of real wages the estimated effect of the change in unemployment rate is such that a one percent point increase in the unemployment rate would result in a 0.66 percent point increase in union density.

Table 3. Regression results from the estimation period 1975–2008

Dependant variable: change in union density							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Δ Unemployment rate	0.530 (0.100)	0.636 (0.103)	0.715 (0.076)	0.517 (0.101)	0.666 (0.123)	0.603 (0.112)	0.667 (0.117)
Inflation		-0.172 (0.078)			-0.210 (0.095)	-0.226 (0.085)	-0.230 (0.102)
Nominal wage growth		0.229 (0.062)			0.300 (0.105)	0.325 (0.087)	0.285 (0.091)
Real wage growth			0.320 (0.071)				
Labor income ratio				0.014 (0.003)			
Log of strikes					-0.0007 (0.0007)		
SDP in council						-0.006 (0.003)	
D85							-0.002 (0.002)
Constant	0.006 (0.002)						
Statistics:							
Adjusted R ²	0.354	0.571	0.524	0.488	0.570	0.584	0.563
Durbin-Watson	1.870	2.244	2.091	1.909	2.342	2.322	2.304
Durbin's H	0.330 (0.566)	1.374 (0.241)	1.019 (0.313)	0.457 (0.499)	1.746 (0.186)	1.728 (0.189)	1.598 (0.206)

Note: Newey-West standard errors in parenthesis with three lags
P-values in parentheses below the Durbin's H-test value.

In the empirical literature unemployment usually has a negative impact on unionization (Sharpe, 1971; van Ours, 1992) as unemployment hurts the bargaining power of unions thus lowering the benefits of union membership. However, in Finland and the other Ghent countries the relationship is positive. The rationale is such that higher unemployment increases the expected risk of unemployment for an individual worker. Expected costs of unemployment are higher when the risk of unemployment is higher. Workers then join unions to get access to the unemployment insurance fund offering earnings-related unemployment

benefits which reduces the expected costs of unemployment. Other studies that confirm the positive relationship for Ghent-countries are Tanninen and Pehkonen (1997) and D'Agostino (1992).

Tanninen and Pehkonen (1997) estimated in their preferred specification that a one percentage point increase in unemployment rate increases union density by 0.8 percent. So if union density was 70 percent a one percentage point increase in unemployment rate would increase union density to 70.56. This is very close to the magnitude obtained in this study.

In specification 2 the change in union density is explained with inflation and nominal wage growth. Nominal wage growth has a positive relationship with the change in union density. A one percent increase in nominal wage growth should result in a 0.23 percentage point increase in union density. This finding also agrees with the empirical literature where the common explanation is that workers credit the unions for higher nominal wages by joining the union (van Ours, 1992: 1061). Conversely, the impact of inflation differs from the literature. Here, the effect of inflation on the change in union density is negative. In the estimation results according to specification 2 a one percent growth in inflation generates a 0.17 percentage point decrease in union density.

The effect of growth in real wages is estimated in specification 3. The effect of real wage growth on union density is positive and significant. According to the results a one percent growth in real wages increases union density by 0.32 percentage points. The positive relationship agrees with the finding of Tanninen and Pehkonen (1997). They estimate that a growth of one percent in real wages induces a 1.61 percent growth in union density. A union density of 70 percent would then grow to 71.13 meaning an increase of 1.13 percentage point. The magnitude in the study of Tanninen and Pehkonen (1997) is much larger than in this study.

The labor income variable tested in specification 4 turn out to be positive but very small. The range between the highest and lowest value for labour income ratio in the sample is only about 0.1. An increase of 0.1 in the labour income ratio would increase union density only by 0.001 percentage points.

Interpreting the estimation results for inflation, nominal wage growth and real wage growth poses some difficulties and brings out the basic problem with the cyclical approach. The model does not have solid theoretical background. For example the explanation for the positive effect of nominal wage growth presented in the literature (van Ours, 1992: 1061) that workers credit unions for higher wages by joining. But consider a utility maximizing individual noticing that nominal wages have grown because the union has done a good job. Why would she join the union and pay dues if she is able to free-ride. On the other hand one could hypothesis that the nominal wage change has positive effect on unionization in countries with high union non-union wage differential so that if the differential is higher than the union dues the worker joins. In Finland where the union contracts cover a large share of the workforce regardless of union membership, identifying the wage differential is difficult which would imply that the hypothesis is not true in Finland.

It is assumed here that inflation, nominal wage growth and real wage growth explaining union density suffer from endogeneity problem. It is more probable that the causal relationship is reverse. High union density implies higher bargaining power which enables the union to increase nominal wages. This affects inflation and finally real wages. A solution would be to use instrumental variables estimation but no good instrument has been found in the literature. Another solution would be simultaneous equations estimations.

Equation 5 tests the effect of strikes on the change of union density. The estimated effect turns out to be small and insignificant. The same applies to the political variable SDP in cabinet and the dummy for the Unemployment Act of 1985 in equations 6 and 7. The other political dummy SDP biggest that is not reported gave similar results. The dummy variable for the break in the data after 1988 was tested in many different settings but it did not prove to be of any significance. The problem with estimating institutional or legislature changes with dummy variables in a time-series data is obviously the fact that one cannot know for sure what the dummy measures. Secondly, institutions and laws change all the time so one could find a reason to include a dummy for every single year in the sample. Thus the probability of finding a significant year increases but the validity of such finding would be poor.

Table 4. Alternative specifications and sensitivity analysis

	(8)	(9)	(10)
Dependant variable	Union density	Log of union density	Growth of membership
Time period	1975–2008	1975–2008	1975–2008
Inflation			-0.060 (0.096)
Nominal wage growth			0.118 (0.079)
Real wage growth		0.079 (0.082)	
Change in unemployment rate			0.319 (0.143)
Unemployment rate	1.608 (0.336)	-0.489 (0.266)	
Unemployment rate _{t-1}		0.361 (0.373)	
log Employment		-0.668 (0.151)	-0.016 (0.023)
log Employment _{t-1}		0.604 (0.206)	
log D _{t-1}		1.100 (0.123)	
log D _{t-2}		-0.121 (0.103)	
D _{t-1}			-0.063 (0.037)
Constant	0.629 (0.035)	0.529 (0.796)	0.176 (0.185)
Statistics:			
Adjusted R ²	0.554	0.993	0.537
Durbin-Watson	0.138		1.505
Durbin's H	174.146 (0.000)	1.394 (0.238)	0.000 (0.987)

Note: Newey-West standard errors in parenthesis with three lags
P-values in parentheses below the Durbin's H-test value.

Table 4 presents some additional specifications and sensitivity analysis. Specification 8 is the regression that was made in the beginning of estimations when the issue of autocorrelation was investigated.

Specification 9 follows the model in Tanninen and Pehkonen (1997). The dependant variable is the log of union density. As the model is in levels a lag structure had to be decided. Here the two lags of the dependant variable almost add up to one which explains the models seemingly high ability to explain variation in the log of union density. In this specification the effect of unemployment rate on union density is negative which is opposite to what was found in the main estimations. The reason why this specification was not used further is that there is tendency for small changes to have large effects on the outcomes.

In specification 10 the dependant variable is union membership growth. The estimated effect remain in the same direction as in the main regressions in table 3. The lagged union density has a negative impact on union membership growth. This is explained so that high prevailing level of union density dampens further growth reflecting a saturation effect (Schnabel, 2003).

6. Discussion

Time-series analyses such as the empirical study presented in this thesis in the previous section are unable to address some relevant issues affecting trade union membership. Such issues would be the compositional change in the workforce and labour market as well as changes in social values. The former refers to structural change, for example, the decline of manual and rise of white-collar and service work as well as increased female participation. The latter refers to changes in values such as individualization, solidarity and overall attitude towards labour movement which may affect the supposed social custom of union membership. Additionally, the changing institutions within countries affect unionization and cross-national differences in union densities may be explained with different institutions.

6.1. Micro-determinants of trade union membership

Here the empirical literature that uses individual level data for explaining union density is reviewed briefly. The literature surveys by Riley (1997) and Schnabel (2003) are relied on as a point of comparison for the two recent studies investigating Finnish data. Böckerman and

Uusitalo (2006) use the annual Income Distribution Survey conducted by Statistics Finland for households. It covers 10,000 households with about 25,000 individuals weighted to match known population totals. The survey is a rotating-panel so that each household remains in the survey for two years and half of the respondents are replaced each year. The authors use data in the period 1992–2000 to estimate a discrete choice model explaining union membership in each year. Variables such as gender, age, education, unemployment risk, industry and region are controlled. As the authors want to investigate the effect of the growing independent unemployment fund they use the multinomial logit model with three outcome variables: trade union members, members of the independent unemployment fund and non-members. Groups outside the labour force such as self-employed, pensioners and students were excluded from their analysis.

Schnabel and Wagner (2005) utilize the first wave of the European Social Survey conducted in 22 countries during 2002–2003. It provides individual-level data collected with the same procedure in all the countries. The authors use data from 18 European Union countries, one of them being Finland, and estimate probit models for the probability of union membership. The survey data allows them to investigate the effects of personal characteristics and attitudes, family background and occupational factors as well as union presence in the workplace.

6.1.1. Personal characteristics and attitudes

The effects of age and work experience on the probability of being a union member are somewhat mixed in the literature but usually a positive and concave relationship is found. Interestingly Böckerman and Uusitalo (2006: 297) find that the generations born after the early 1960s are 20 percent less likely to be union members in Finland and they attribute a large fraction of the union density decline in 1990s to this cohort effect. Bryson and Gomez (2005: 87) find similar results in Britain where the share of workers that have never been members of a trade union has grown significantly.

Traditionally men have been more inclined to be unionized but for Finland (Böckerman and Uusitalo, 2006: 292) as well as for two other high density Ghent-countries Denmark and Sweden the opposite seems to be true (Schnabel and Wagner, 2006: 20). Higher education is expected to lower the probability of belonging to a union. The rationale is that higher educated individuals have more individual bargaining power and they are seen as identifying

themselves more with the management than with the labour. Conversely, Böckerman and Uusitalo (2006: 292) find that trade union density is higher for more educated workers in Finland. Additionally, having a university degree raises the probability of belonging to the independent unemployment insurance fund.

The evidence of the effect of wages and earnings on the probability of union membership is somewhat mixed in the literature but often a positive impact is found. Some studies have found evidence of a hill-shaped relationship where the probability of union membership first rises with the level of earnings and then starts to diminish. This may reflect diminishing benefits of union membership related to higher earnings and the hypothetical union objective of reducing the dispersion of earnings. In Finland union density is lowest among the least earning workers. Table 5 presents statistics on union density in Finland according to different personal characteristics.

Table 5. Trade union density in Finland according to personal characteristics

	1991	1995	2000
Gender			
Female	0.79	0.83	0.80
Male	0.72	0.80	0.72
Age			
15–24	0.53	0.62	0.46
25–34	0.74	0.78	0.70
35–44	0.81	0.84	0.79
45–54	0.81	0.86	0.83
55–64	0.77	0.82	0.85
Education			
Primary	0.73	0.81	0.74
Secondary	0.77	0.81	0.75
Tertiary	0.82	0.84	0.82
Wage			
1st (lowest)	0.66	0.70	0.62
2nd	0.81	0.87	0.81
3rd	0.81	0.87	0.81
4th (highest)	0.77	0.82	0.78

Source: Böckerman and Uusitalo (2006)

Left-wing political views are often associated with higher probability of union membership. To some extent dissatisfaction at work as well as the image of unions and trust in unions raises the membership probability. Additionally, unionized relatives or spouse makes union membership more likely. Schnabel and Wagner (2005) report that in Finland agreeing with

the proposition that employees need strong unions raises the probability of unionization as does father's low level of education. However, political orientation or work satisfaction did not have a significant effect on the unionization probability.

6.1.2. Occupational, industrial and firm characteristics

Commonly blue-collar or manual workers are highly unionized whereas part-time workers are not which reflects their lower attachment to labour force. Part-timers may not intent to stay in the particular employment for long implying that they don't share the same interest as full-time workers. Schnabel and Wagner (2005) do not find any significance for these variables in Finland.

Large bureaucratic workplaces are assumed to be easier and cheaper for union recruitment which explains the higher unionization in the public sector and large firms. According to the statistics by Böckerman and Uusitalo (2006) union density is higher in the public sector, as can be seen in table 6 which illustrates union density in Finland according to different occupational and industrial characteristics. Additionally, the authors report in their empirical analysis that working in the private sector raises the probability of belonging to the independent unemployment insurance fund. Schnabel and Wagner (2005) control for the establishment size in their study but do not find any significant influence on the probability of union membership for that factor in Finland.

Table 6. Trade union density in Finland as per occupational and industrial characteristics

	1991	1995	2000
Type of contract			
Permanent	–	–	0.77
Temporary	–	–	0.70
Sector			
Private	0.72	0.77	0.70
Public	0.85	0.90	0.89
Third sector	0.65	0.76	0.81
Industry			
Agriculture and forestry	0.64	0.74	0.69
Manufacturing	0.80	0.85	0.82
Energy and water supply	0.88	0.87	0.89
Construction	0.75	0.81	0.72
Trade	0.62	0.67	0.56
Hotels and restaurants	0.63	0.68	0.60
Transportation	0.74	0.74	0.69
Communications	0.87	0.90	0.82
Finance and insurance	0.76	0.85	0.71
Other private services	0.56	0.69	0.60
Public administration	0.86	0.91	0.87
Education and R&D	0.84	0.85	0.86
Health care and social services	0.86	0.90	0.89
Other public and personal services	0.63	0.76	0.71

Source: Böckerman and Uusitalo (2006)

Note: Information about the type of contract not available for 1991 and 1995.

6.1.3. Compositional change in Finland

Many personal and occupational characteristics that exhibit different union densities are presented above. An interesting question is how compositional changes affect aggregate union density over time. For example, what are the effects of growing education level and higher service sector share on the aggregate union density when we know that education raises the

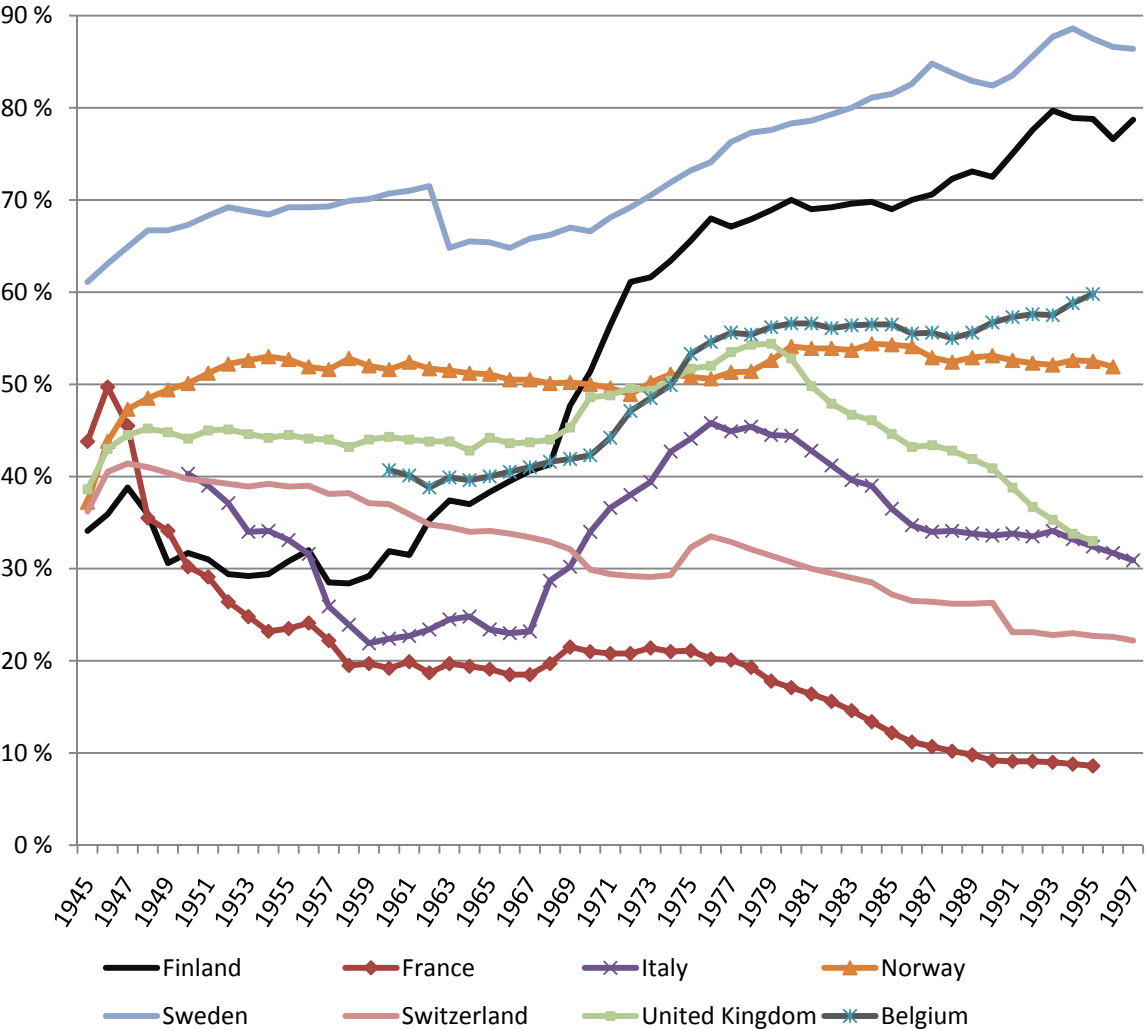
probability of union membership but the service sector experiences lower union density than in average?

The main purpose of the paper by Böckerman and Uusitalo (2006) was to analyze the reasons behind the more than 10 percentage point decrease in union density in Finland during the 1990s. During that time Finland experienced changes both in the composition of the labour force and in the labour market as the level of education and the share of service sector increased. The authors first estimate the logit models for each year in the sample to get pure year effects. Then they do the estimation again but this time controlling for the other variables in the data. By comparing the year effects of the two estimations the effect of changes in the composition of the labour force can be evaluated. The authors come to the conclusion that only about a quarter of the union density decline during the 1990s can be explained by the compositional changes in the labour force and a large part of the decline has come from the decreased union membership in the cohorts born after the early 1960s. Overall, the authors argue that the reason for the decline has been the build-up of the independent unemployment insurance fund.

6.2. Institutional factors for unionization

The growing divergence of union density levels cross-nationally in Europe has induced researchers to study cross-national differences in institutional settings that may affect unionization. Figure 9 depicts the evolution of trade union densities in eight European countries during 1945–1997. Apart from Sweden, all the countries in the picture have about 35–45 percent union density at the beginning of the sample period. Since that the density figures have diverged. An interesting fact in figure 9 is that the highest union densities at the end of the 1990s are all Ghent-countries with union managed unemployment insurance funds. These are Sweden, Finland and Belgium.

Figure 9. Trade union densities in selected countries



Source: Ebbinghaus and Visser (2000)

Note: Density defined as the ratio of active membership (excluding pensioners, students, etc.) to labour force.

Cecchi and Lucifora (2002: 364) propose that some institutions can affect the value of union membership by either acting as a complement or a substitute for union activity. The authors analyze a panel data of 14 European countries to estimate the effects of institutions while controlling for economic factors such as unemployment and inflation. They argue that employment protection laws, unemployment benefits (both the replacement rate and duration), wage indexation and mandatory extension of collective contracts act as substitutes for unions by reducing labour market risks. Conversely, the Ghent-system where unions administer the unemployment insurance funds offering earnings-related benefits, minimum

wages, workplace representation rights, bargaining centralization and higher tax wedge are found to be complementing union activity and fostering unionization. Checchi and Visser (2005: 10–12) confirm the positive effects of the Ghent-system, workplace representation and bargaining centralization on union density in their longitudinal analysis of 14 European countries during 1950–1996.

The Ghent-system seems to be the most distinctive institutional difference between countries. Lesch (2004: 15) notes that only the Ghent countries, currently in force in Belgium, Denmark, Finland, Iceland, Sweden and Norway, resisted the decline in union density after the 1970s. As already discussed in section 4, higher unemployment has a positive effect on union density in the Ghent-countries because workers want to have access to the unemployment insurance fund when the risk of unemployment is high. Schnabel and Wagner (2005: 15) note that union density among the unemployed is highest in the Ghent countries.

Checchi and Lucifora (2002: 393) consider the attitude of unions towards labour market institutions. Interestingly, unions may have promoted for example employment protection laws even though the laws would actually lower the need for union provided employment protection.

Institutional settings regarding the establishment of bargaining processes and union contract coverage affect the opportunities for employer opposition. Freeman and Kleiner (1990) analyze data from two interview surveys conducted in the United States to investigate the consequences of employer opposition to union organizing drives. A survey of employers was conducted in 1986 and a survey of union organizers was conducted in 1982–1983. The authors find that management opposition was more likely in firms where wages were relatively low, working conditions were poor, supervisory problems existed, likelihood of union establishment was uncertain and the potential benefit from unionization was high. The authors conclude that the management responses were in line with the hypothesis of profit maximizing behavior by firms.

However, the process of establishing a union representation is very different in United States than what it is in Finland. In US thirty percent of employees in a workplace have to sign a petition showing desire to be represented by a union. The National Labour Relations Board then organizes a ballot where the union receives representation rights if over half of the

employees vote for it in the ballot (Basic Guide of the NLRB website). The process is somewhat lengthy and gives the employer opportunities to file complaints. In Finland many unions have negotiated a so-called generally binding contract with the employer union for their industry. A separate board is set up to determine whether the contract is generally binding. If it is, all employers in the industry need to obey the contract even if the employees do not belong to unions in that workplace or the employer does not belong to the employer union that negotiated the contract. So due to the institutional differences the environment for employer opposition is very different in the two countries.

Visser (2002: 408) argues that employer opposition is lower with high centralization of bargaining because it is more difficult to reward and favor non-members with extra payments. The author also recognizes that legislation and institutions are important so that extending contracts to non-organized firms and workers and legislations protecting union members against discrimination lowers employer opposition. Considering the Finnish case where union bargained contracts cover some 95 percent of the workforce employer opposition may not be so significant factor contributing to trade union density in this respect.

7. Conclusions

The level of union membership grew in Finland each year from the 1960s to mid 1990s. Union density measured as the total union membership divided by the total labour force reached over 80 percent in the 1990s. High union density describes well the importance of unions in Finland. Unions have been politically active and they have taken part in negotiations for major labour market reforms.

There are many reasons why workers join unions in Finland. According to interview studies workers agree that unions offer employment protection and valuable benefits to their members. An important reason to join a union is the need to ensure earnings-related unemployment benefits that the union administered unemployment insurance funds offer. Some form of social pressure to unionization is present as some 30 percent of respondents in a survey stated that they need to be union members to be accepted (Taloustutkimus, 2003). Considering the high union density it is not surprising that there is such pressure to overcome free-riding.

The empirical literature on the determinants of union membership using time-series analysis stresses the cyclical explanation of union membership determination. According to this cyclical approach the evolution of union membership over time can be explained with the business cycle in the economy. Consequently, the empirical literature has investigated the effects of unemployment, inflation, growth of nominal wages and real wages on union membership in many countries.

The empirical part of this thesis uses aggregate time-series data from Finland during 1975–2008. The estimation specification is based on the cyclical approach identified from the empirical literature. Following this literature the effect of inflation, nominal wage growth and real wage growth on union density was estimated. The main finding in the empirical study is that change in unemployment rate influences trade union density positively. A one percentage point increase in the unemployment rate is estimated to increase trade union density by about 0.6 percentage points. The finding is in line with evidence from other G7-countries where unions administer the unemployment insurance funds. Higher unemployment increases the probability of unemployment. Higher risk of unemployment increases the expected costs of unemployment. Workers then join unions to get access to the earnings-related unemployment benefits if the expected costs increase enough.

In accordance with the cyclical model of trade union membership determination the effects of inflation, nominal wage growth and real wage growth on union density are estimated. All the estimates proved to be significant and all but inflation affect unionization in the same direction as the empirical literature proposes. There is however a problem in the explanations proposed in the literature as the models lack microfoundations. There is a high probability for an endogeneity problem. Rather than assuming that the aforementioned variables affect the level of union membership or union density, it is believed here that the causal relationship is reverse. It is assumed here that it is more probable that high union density implies high bargaining power. With this power unions are able to extract higher rents and thus increase the nominal wages. This will have an effect on inflation and finally real wages.

One solution to the endogeneity problem would be to use the method of instrumental variables but no good instrument has been presented in the literature. Another solution would be to turn to the more complicated simultaneous equations estimations. As regard to the basic

OLS estimations conducted in this study the only finding that has real value is the effect of unemployment on unionization.

For further study on the determinants of trade union membership the attention should focus on individual-level data or cross-national analyses. Studies investigating individual-level data are able to investigate personal characteristics and attitudes as well as occupational characteristics affecting the probability of union membership. In these studies the researchers are able to address questions on the effect of structural and compositional changes on union density.

Cross-national studies are able to explain differences between countries with differing institutions. Some institutions act as substitutes to unions, such as employment protection laws and social benefits. On the other hand, institutions can act as complements and boost unionization. These are for example the Ghent-system and workplace representation.

8. References

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