Labour Unions on a changing market

A comparative study of membership development over time.

Erik Nordman
Abstract

Memberships in labour unions have been a well discussed topic during recent years. A regime shift in 2006 lead to massive drops in memberships. The loss of members does not however start there. A peak in affiliation grade in Sweden were hit in 1995 with 85 % affiliated and a decrease has been seen ever since. This paper investigate three unions from different parts of the labour force and what reasons that can explain their membership development for the period 1996 – 2012. Factors affecting the unions were found in literature and a simple model were set up. Membership data for the unions were received from the central organisation TCO (Tjänstemännens Centralorganisation). The estimations were done using ordinary least square method (OLS). The time series were short, only 17 observations. Results showed that for two of the unions there were no significant results. For the Union of Finance, educational level was a determinant factor for becoming a member. High education reduce the number of members. Conclusively this thesis cannot show any scientific results of what affects union membership.
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1. Introduction

During the 21st century the discussion about labour unions in Sweden has been streaming through media with a number of different opinions and attitudes. Their role in the economy and their influence on the Swedish labour market have continuously been evaluated. Falling membership levels and weaker bargain power have repeatedly been brought up. So why is this interesting? Sweden is one of few countries with long traditions of strong unions and high membership ratios. Today, Sweden has an average membership ratio slightly above 70 % of the labour force. These high numbers of affiliation is exceptional not only for Sweden but for the Nordic countries in general. In comparison to Europe, the same average number reaches 31 %. Since 1995, when there was a peak in the affiliation with 85 %, the number has been decreasing to 71 % 2012.

Unionization have for long been more accepted in the Nordic countries than in others. Their influence have been extensive on the development of the Swedish economy. Today we can notice differences in affiliation grade between men and women. Since the beginning of the 1990’s there has been a higher level of union affiliated members among women. Furthermore it varies between private and public employed women. The same disparity can be seen among men. This development is not an exception, most countries have a similar progress. This is why it is relevant to compare different labour unions in private and public sectors.

However, are all of the unions losing members as media states? And if not, what might be the underlying causes that some unions remain strong? Are some unions gaining members even though the central organisations are losing in total?

Union membership and membership of an unemployment insurance (UI) fund are in Sweden two separate things. They have different fees and as employed you can choose to either be part of a union, of a UI fund or both of them combined. Most common is the last alternative. The regime shift in Swedish politics lead to an increased price for membership in the UI fund while the union membership fee were unaffected. The price for union membership has only marginally changed over the same time period.

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1 Anders Björklund, Olof Åslund, and Studieförbundet Näringsliv och samhälle, Arbetsmarknaden (Stockholm: SNS förlag, 2006), 259.
3 Björklund, Åslund, and Studieförbundet Näringsliv och samhälle, Arbetsmarknaden, 258.
Figure 1: Average cost for UI Fund membership per year 1996-2012.

With the increased UI Fund fee people now had to prioritize what they valued and massive drops in both these fragments (UI fund and unions) could be seen, partly since the combined fee now appeared too high. The unions suffered greatest and a total loss of 235,000 union members were noticed during 2007-2008. The cost versus the gain of unions became more subtle, people selected income insurance before union membership, and for the first time white-collar workers were outnumbering the blue-collar workers in union affiliation.\(^4\)

Labour forces reacts differently to shocks and explanations for variations in memberships could be found elsewhere than expenses. Still, a high fee for the UI fund combined with a boom in the economy can trigger people to believe that they can manage without union interference and that might contribute to the negative effect on memberships. The successive fall memberships can as well be explained by the change in labour force composition between the years of 1993 – 2007.\(^5\)


\(^5\) Ibid., 14.
Lot of research in Economics have focused upon unions and their stagnating numbers with different aims. In figure 1 the evolvement of the central organisation TCO, (Tjänstemännens Centralorganisation) that covers white-collar workers, is illustrated from 1996 – 2012. A peak in 2002 followed by decrease lead up to a massive drop starting in 2006 due to a new government regime and policy changes. This altered and since 2009 a positive trend can be noticed. Possible reasons why the union density is changing, is not only individualism and temporary jobs with high insecurity. Sweden is a country under progress with a declining industry and increased privatization. The employment of white-collar workers are growing but a direct effect on the union density have yet to come. Additionally, increased private sector with sometimes negative attitudes against unions gives structural differences, affecting young people’s incentives to join.\(^6\)

Distinctive differences in attitudes towards unions can be found. Young people have in general a less positive attitude and the affiliation grade are falling rapidly among young people. A possible interpretation is that young people grow up with a sense of “make it on your own”, where the collective are no longer in focus. Literature brings up the consequences of later entry to the labour market and the increase of time-limited employments, where usually younger people ends up, as possible reasons for this tendency.\(^7\)

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\(^7\) Björklund, Åslund, and Studieförbundet Näringsliv och samhälle, *Arbetsmarknaden*, 259.
1.1 Purpose
The purpose of this thesis is to investigate what factors affect the choice of maintaining a membership of a labour union during a period from 1996 to 2012. The aim is to identify variables that affect memberships and compare their effect for three identified unions through a time series analysis. The unions chosen represent different parts of the labour force.

1.2 Constraints
TCO were the only central organisation that could provide complete time-series for their labour unions back to 1996, a constraint have hence been made in accordance with data availability. The chosen unions are “Lärarförbundet”, “Fackföreningen ST (Statstjänstemän)” and “Finansförbundet”, all part of TCO. They were chosen since they represent different parts of the labour force and are more united when it comes to types of profession than other ones, thus makes it easier to generalize. Data were obtainable about more than these three unions but in order to simplify and draw accurate conclusions (since many unions are a mix of many professions and labour forces) a limitation were made.

“Unionen” for example is the largest labour union under TCO and affiliates white-collar workers in the private sector in general but on all kinds of levels and areas. It was created in 2008 through merger of the previous white-collar organisations HTF and Sif. Vision is another large union but affiliates people in both public and private sector within many different professions. Their wide range of focus is the reason they are disregarded.

“Lärarförbundet” is specific with all members in the same profession, it is the second largest union within TCO. Union of Finance organise members only within the private sector in banking and finance. The union ST organise members employed by the Swedish state. These unions all represent white-collar forces. The thesis does not intend to cover how these unions market power has changed nor how other psychological factors such as trust in the market or state of the economy have affected memberships. Hence, avoidance of wage setting power and how the unions affect employment rates will be consistent in the analysis but is mentioned under previous studies and theoretical framework. Despite a short time series the goal is to provide some insight. The research have progressively evolved during the process in

accordance with the exclusion method dependent on availability of time series for explaining variables.

1.3 Contribution
This empirical study is adding another element to the research about unions since most previous studies have used cross-sectional methods. Therefore this thesis will analyse a few factors and their impact over time. The comparison between three completely different groups of labour has as far as I know never been done before and what factors affecting their memberships during these years.

1.4 Disposition
The thesis begins with a historical background about labour unions in general and their development over the years followed by a theoretical background including previous research about labour unions and a theoretical framework.

The second part starts with a descriptive analysis of the selected unions followed by data and method being explained. This sums up by a descriptive statistics overview in the end.

In the last part results and conclusions from this thesis is presented.

The disposition is supposed to at first provide a general knowledge around labour unions and successively narrow it down to these specific unions.

2. Historical background
Labour unions in Sweden has since the late 19th century, when the first organised union emerged, played an important role on the Swedish labour market. ‘Svenska Typograf- förbundet’ was created in 1886 and was the first one to be established. The first central organisation, LO (Landsorganisationen i Sverige), was created in 1898.10 With the labour unions connected through a central agency, they could put pressure on the employers and through this gained bargain- and market power, partly through collective agreements. The unions covered both men and women and the workers recognised that only by working together could they achieve changes.11 LO was in the beginning only covering blue-collar workers in manufacturing, construction and industry.

10 Björklund, Åslund, and Studieförbundet Näringsliv och samhälle, Arbetsmarknaden, 261.
Within the first half of the 20th century the interest for labour unions grew and 1944 respectively 1947, TCO (Tjänstemännens Centralorganisation) and SACO (Sveriges Akademikers Centralorganisation) were created. Both are white-collar organisations but with SACO gathering those with academic education. High levels of affiliation, both blue-collar and white-collar labour forces, has strengthen the organisations positions and kept the trading unions intact.\textsuperscript{12} Unions are commonly organised under two sub groups: the profession principle and the industrial/business principle. The profession principle include people within the same profession such as the Teachers Union. The industrial/business principle organises based on employers. People within the same industry/business type belong to the same organisation, for example the Union of Finance.\textsuperscript{13}

In economic theory there has historically been two different views upon how labour unions operate. The first of them express labour unions as maximizing a pre-determined function that involves two aims, the real wage and the employment rate. The other view is that labour unions work as organisations that mediate different opinions, for example when members and the board of directors does not agree. For simplicity reasons we assume, in both cases, that the labour unions main focus are high employment rate and high real wage amongst their members.\textsuperscript{14}

### 3. Theoretical Background

This section will begin by presenting studies about unions, membership and different views upon them. The second part will provide a theoretical framework.

#### 3.1 Previous studies

Research about labour unions has been extensive in Economics, being brought up in micro and macro level and in its more natural field, labour economics. Quantitative studies have since the 80’s developed and both theoretical contributions and empirical research have taken form. However, main focus have been on the goal function of the labour unions and until today there are no simple way to determine exactly what that function is, what the unions exactly try to accomplish. Many complex econometric models has in purpose of estimating parameters been

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{12} Björklund, Åslund, and Studieförbundet Näringsliv och samhälle, \textit{Arbetsmarknaden}, 261–262.
\item \textsuperscript{13} Ibid.
\item \textsuperscript{14} Ibid., 243.
\end{itemize}
\end{footnotesize}
practised, primarily in order to describe how a labour union values the relationship between real wage and employment.  

Some researchers bring up the difficulties of studying a specific pattern of attitudes about labour unions. They argue that most studies and literature about unions are surrounded by inconsistency problems, where definitions in general are functions of discrepant researchers and arbitrary variables. Due to this the theoretical framework providing a method to select variables, used to proclaim variations in areas investigated, is therefore vague.

Some labour union areas are more investigated than others. Research around member’s attitude towards their own unions have for long been unexploited. Therefore a study where done investigating how these attitudes shapes and take form. Early explanations through psychology have focused on the factors explaining the commitment in the unions themselves. It was stated that an increase in commitment and activism within the union were of significant matter for not losing members.

A definition of commitment were set up: “commitment can be characterized by three factors, a) a strong belief and acceptance of the organizations goals and values, b) a willingness to exert considerable effort on behalf of the organization, and c) a strong desire to maintain membership in the organization.”

By reflecting over a gender perspective in labour unions, there are empirical evidence that since the 1990’s women have advanced their position in the decisive-bodies of the trading unions. Woman have historically not been in the front seat of corporatist circles. But with an increase of women, Sweden’s traditionally unique relationship between their organisations, such as LO, SAF (Swedish Employer Federation) and LRF (Swedish Farmers) and the political institutions were important for gaining ground, alleviating for women to advance in these organisations.

In Sweden the political arena has, in terms of numbers, for a long period been an equal playground with many women in politics. The corporatist arena and union equality have not had the same development. A breakthrough for women in these organisations came approximately 10 years later than in the political parties. Nowadays the woman’s role within

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15 Ibid., 250.
17 Ibid.
18 Ibid.
labour unions are stronger than ever and this has, through the connections between the corporatist organisations and politics, increased their influence and hence the equality.  

Things worth noticing are that during the period of 2007-2008 the member drop were enormous, a total of 235 000 members left their unions due to new government policy. The loss of members hit the two central organisations LO and TCO hard, while SACO instead during the same period grew in membership, which implies that the labour forces was struck dissimilarly by the rise in the UI fund fee.

Another view on labour unions is examined in an article about Membership interface unionism. The authors argue that trade unions are to be observed as service providers and have not truly been examined in what extent they work as a service marketing force. They assume that the utilization of reviewing them from a service perspective can provide a useful insight of unionism. The research focus is Managerial Unionism around a white-collar union, contributing with an understanding that managerial unionism distinguish the members as consumers of services led by their individual values. The unions has always had an aspiration of active members and participation, such as representatives on workplaces and within the union. Hence, they argue, members being seen as in a customer’s /clients position are incorrect and a nuancing has to be considered.

The need for labour unions have from the Swedish point of view always been considered a force to maintain balance and stability on the labour market. The union affiliation are the highest in the world and only in recent years has the employer organisations reached higher levels of memberships. What can be seen is that there is a growing thought about an individualistic approach from the employees. The collectivist ideas of a strong unification are fainting and the beliefs that negotiations with employers are more favourable without the involvement of the

20 Ibid., 126,131.
23 Ibid., 70–72.
unions are rising. This assumption primarily apply to the higher level white-collar workers and manual workers outside of union affiliation.\textsuperscript{25}

An observed pattern is that young people not only tend to have a lower percentage of unionization but that they furthermore have a more individualistic approach towards employers. This may be rooted in more uncertainty around the circumstances of a stable job or, the reasons for joining a labour union have not yet become interesting. These factors can both enlighten their more individual attitude. Due to these circumstances, the unions are facing new problems and modifications within the unions will have to be overlooked to attract this group.\textsuperscript{26}

The same authors also refer to an earlier study where it is stated that the labour market itself is the driving force behind progression of more individualistic approaches. The three main underlying causes of this process is perceived as: education, mobility and competition. The different social classes and previous strict definitions between labour forces are fading out and the attitude depends on which union you are connected to.\textsuperscript{27}

An aspect that might have a significant value in studying reasons for membership is the part time/half time workers. If the variation among these groups differs accordingly to membership and their attitudes towards the unions. Though, research of this kind could not show any significant differences verifying the author’s hypothesis.\textsuperscript{28}

This is interesting since Sweden has a generally high level of part-time employees which usually includes a lot of young people. Connected to the previous part, processes like the individualization often originate among the young. Higher levels of alternation from traditional employments creates a critical moment for the labour unions. They need to change focus to ‘pick up’ the new a-typical workers that historically have been excluded from these organisations.\textsuperscript{29}


\textsuperscript{26} Ibid.

\textsuperscript{27} Ibid., 577–578.


\textsuperscript{29} Ibid., 293.
3.2 Theoretical Framework

As mentioned in the introduction the unemployment insurance fund (UI), possess an important role around union membership. A structure called the Gent system, founded in the Belgian city Gent, was established through a UI funded by the government though administered by the unions. However, in Sweden the membership in the UI fund is not compulsory even though joining a labour union. This should hypothetically lead to an upsurge for the labour unions. However the author argues, the assumption cannot be taken for granted since a union organised fund leads to an increase in demand of services and has an effect on the wage setting on the market\textsuperscript{30} dependent on the fee for the UI fund.

In the figure below, the wage setting schedule (WS) and the membership schedule (MS) are linked together showing an equilibrium were decisions for membership in unions are steady with the decisions of wage setting. The MS curve is drawn steeper than the WS, due to the fact that this is a condition for stability.\textsuperscript{31} For example, a point where membership demand is higher (a point on MS-curve above the WS-curve) than the wage setting at a certain level of membership will lead to a larger decrease in wages than in membership (since the MS-curve is steeper) on the path back to the equilibrium. A point at the WS-curve to right of the equilibrium would have a high number of members with low wages. The number of members would fall more rapidly than the wages while restoring the equilibrium.

\begin{center}
\includegraphics[width=0.5\textwidth]{figure3.png}
\end{center}

\textit{Figure 3. Membership demand and wage setting.}\textsuperscript{32}


\textsuperscript{31} Ibid., 400.

\textsuperscript{32} Ibid.
Changes in population structure would shift the MS-curve to the right, providing a new equilibrium where the membership demand is higher along but only a tiny change in wage. This means that the affiliation grade would generally be higher to secure a relatively similar wage. An increased demand for membership in unions. An example could be if an industry loses a lot of jobs, which would increase the demand for membership in purpose of securing a wage.

The authors of the article above generated the following model for explaining the underlying choices of joining versus not joining a union. An assumption they made was that the membership in a union required a mandatory membership in the UI fund. The expected utility ($\Lambda_m$) of joining a union were given by the value of becoming a member. The valuation ($V$) of different union services provided, diverge between individuals pursuant to a uniform distribution on the interval [0, $\bar{V}$].

$$\Lambda_m = nU(w - c - a) + (1 - n)U(B) + (V).$$  \hspace{1cm} (1)

In the model the consumption for an individual is given by his wage ($w$) minus the premium paid for the UI which is signified by ($c$) and the consistent membership commission of the union represented by ($a$). The employment probability is characterized by ($n$) and this is equal for both workers that are members and for non-members. For an unemployed in the model, no fee for neither UI nor union membership is paid but an unemployment benefit is received, viewed in the model as ($B$). Hence the utility function ($U$) is cumulative for consumption and is concave. For simplification reasons the consumer price is standardised to unity and income taxes are being omitted.\footnote{Ibid., 401.} In this model, the membership fee for a union is fixed.

This report does not investigate the wages nor government subsidies and therefore will not explore that further.

The utility expected by a worker that are discarding membership in both the union and the UI fund, (which can be chosen to join separately but against a higher premium), can be known as

$$\Lambda_{nm} = nU(w) + (1 - n)U(b).$$  \hspace{1cm} (2)

Comparing these two models, in the first bracket ($w$) is still the consumption but paying the fees for membership and UI fund are removed. The utility now depends on your wage and in...
case of unemployment you will receive \( b \) instead of \( B \), that represent the unemployment assistance you can receive from the state.\(^{34}\)

Hence, a general assumption can be made, if \( \Lambda_m \geq \Lambda_{nm} \) the worker will choose to join the labour union. Which of course depend at what level the regular fee is. This implies that the marginal worker is indifferent about becoming a member or not. The valuation \( V^* \) the marginal workers puts in the services provided by the union is represented by

\[
M(.) = n(w)U(w - c(w) - a) + (1 - n(w))U(B) + V^*(m)
\]

\[
- n(w)U(w) - (1 - n(w))U(b) = 0. \tag{3}
\]

From this equation it can be said that workers with a \( V \geq V^* \) will apply for a membership. By using an implicit differentiation the slope of the membership schedule (MS-curve) can be derived in Fig. 2.

\[
\left( \frac{\partial w}{\partial m} \right)_{MS} = \frac{\bar{V}}{M_w}
\]

Where

\[
M_w = [U(w - c - a) - U(w)]n_w + [U(b) - U(B)]n_w
\]

\[
+ n(w)[U'(w - c - a)(1 - c_w) - U'(w)]. \tag{4}
\]

If \( M_w \geq 0 \) the slope of the MS-curve in figure 1 is positive. Which according to the authors with confidence holds for any realistic parameter values. Nevertheless, how can we say that the slope is positive? See eq. 4. If the wage increase, this has a negative impact on the employment rate. Simultaneously this decrease the utility for both members and non-members. However, the member’s advantage lies in the fact that their consumption is lower than non-members when employed (first square bracket) but significantly higher when unemployed (second square bracket). In the third bracket it can be seen that if wages goes up, this affect the membership due to the utility value of consumption.\(^{35}\)

Basic personal values has probably the most important role in the active choices of joining unions or not. Authors of an article describes that the basic personal values; “…are abstract

\(^{34}\) Ibid., 402.

\(^{35}\) Ibid., 403.
beliefs about trans-situational goals that serve as guiding principles in people’s lives.”

Referring to earlier studies they mention 10 different values: power, achievement, stimulation, hedonism, self-direction, universalism, tradition, benevolence, conformity and security. Unionism is not only a choice of self-interest, they argue, instead it can be considered a welfare choice to support one’s group of society you belong. Thus it can be concluded that co-existence between own gaining and social interests intersect around unionization decisions.

As previously shown, lots of different aspects and views upon unions have been examined. However, the area analysed in this thesis will be based upon knowledge collected from former studies but will focus on another area, time series. A theoretical framework as publicised above, is more advanced than what this theses will be, though useful insights has been taken into consideration.

4. Three unions - descriptive analysis

The following section will describe and analyse how the membership have changed for each of the unions examined. Notice that the Y-axis for the unions cover different ranges.

![Figure 4. Membership development Teachers Union.](image)

The Teachers Union is the second largest union within TCO, and the largest union for Teachers. It was founded due to mergers of unions covering teachers from pre-school, practical

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37 Ibid., 687.

subjects, high-school and gymnasium to become the Teachers Union in 1991. Figure 3 demonstrates a positive trend in memberships nowadays. Between the years 1997 and 2006, the union gained around 7000 members, an increase of 4 %. Between the years 2006-2008 almost 5 000 members left the union. From the bottom note in 2008 with 175 229 members to 2012 the union have increased with around 2000 members, + 1.1 %. From the peak in 2006 with 180 101 members to 2012, the membership has decreased with close to 3000 members. At a total, the union have during the entire period had a positive net change in memberships by a little more than 3000 members, an increase by + 1.86 %. The union is dominated by women. The male representation is 16.7 % according to TCOs official statistics. The next union reviewed is the Union of Finance.

Union of Finance affiliates people within banking and finance within the private sector. It is one of the oldest labour unions in Sweden, starting already 1887 as a white-collar union for bankers. In 1994 it became the Union of Finance covering the entire banking and finance sector. Since 1996 the negative trend is clear. A total loss of more than 10 000 members, around 26 %, can be observed. Neither can we notice any important fluctuations in the evolvement of the union, no real upturns or falls in membership. The division between men and woman are 38 % versus 62 %.

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The labour Union ST is today the largest union that affiliates members working within the Swedish state. The founding stones of labour Union ST were laid in 1904 but after many name changes and mergers of white-collar unions it finally became ST in 2004.

Between 1996 and 2002 ST had a decrease in number of members. The drop was around 15000 members or 19%. Between 2002 and 2003 the number increased with 10 000 members due to a merger between ST and “Försäkringsanställdas Förbund”, one of few white-collar unions previously within LO. During these years, the entire white-collar force increased its affiliation. Since the peak in 2003, the number of members dropped almost 20% until today and in total during the entire period studied, a drop of 24.5% can be noticed, representing a loss of almost 20 000 members. The gender distribution within ST displays that around 36% of the members are men and 64% women.

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5. Data and method

This thesis specifically focus on how the membership numbers have changed over a time period. At the beginning, the selected period were supposed to be longer but circumstances including problems finding data about the unions, lead to limitations. The collected data for the response variables, came directly from TCO through e-mail and telephone contact since no data older than 2007 were available at their website. The time series range is 1996 – 2012. Of the unions organised under TCO, three were selected. The Teachers Union, Union of Finance and Labour Union ST. The selection process were simply made based on differences. The numbers chosen are active members, which exclude retired people and students. This due to incomplete time series of total memberships, from 1996 to 2000 only numbers on active members were accessed.

5.1 Variables

**Unemployment.** A person is unemployed if he or she with short notice can take a job, or actively searching or are awaiting to start a job within the next three months. The labour force in this thesis contains ages 16-64. This is the old definition from Statistics Sweden, changing in 2005 to 15-74, but this will only marginally affect the estimates. The assumption, based on gained knowledge from previous work and articles around unions, is that unemployment is one of the most important factors while making a choice about joining a union or not. If unemployment is high, you have more incentives to join a union. This premise is however diffuse since a higher level of unemployment today is parallel with a lower number of affiliation based on statistics, even though theory implies the opposite.

Unions and also the UI fund is a safety net for the unemployed. With an increased risk of losing your job, the application for membership increases. An opposite thought might be that with high unemployment, the unemployed have difficulties paying their membership fees. In Sweden, a relatively low unemployment rate along with different safety mechanisms such as subsidies of a various spectra exists for people in need. Thus, expectations is based on theory. The variable is calculated in percentage. It is the relative unemployment rate of the 16-64 category of the population. It is represented by “Unemployment rate”.

Expected sign is positive; High unemployment will increase the incentive to join a labour union.

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**Post upper secondary school > 3 year**, means a student that have studied more than 3 years at university or similar. It is mentioned in previous theoretical methods that problems and confusions around how to approach labour union research exist. Though, the probability that high-level white-collar workers have less incentive to join labour unions is an argument discussed.\(^47\) An assumption made here imply that “high-level” associates with high educational level. Hence, a variable measuring the level of post upper secondary school > 3 years is considered appropriate for the model. Based on theory, a higher education have a negative impact on the labour unions. Logically a high degree should imply that you are desired on the labour market and the possibility of unemployment is therefore low. Further, this can be noticed on the fee for UI funds for different professions and labour forces\(^48\) some contain a higher risk of unemployment and therefore a higher fee. Though, “Lärarförbundet” might have a positive effect of education since becoming a teacher requires education between 3-5 years. In the model the variable will be known as “eftgymn3years”.

Expected sign is negative; Post upper secondary school > 3 years will decrease the interest for membership in the unions.

**Government Regime**, means if the government is left- or right-orientated. Literature brings up political factors that can affect the membership. A common assumption is that left-orientated governments has had a habit, through creation of laws, of simplifying and augment the recruitment of members for the unions. For example, tax-reductions for membership fees exists in Sweden.\(^49\) Obviously political decisions can have a reversed effect on unionism. Sweden has during a long period been ruled by Social-democratic governments and the labour unions in Sweden are strong. A suspicious correlation can therefore be considered between strong unions and left-orientated governments.

During the time period examined, we have had a shift in government from left to right and therefore it is necessary and interesting to take into account. The variable is a dummy, taking a value of 1 if left-orientated and 0 if right-wing government. In the model this variable will be known as “GovernmentRegime”.

Expected sign is positive; Left-orientated governments will increase the number of membership for the unions.

\(^{47}\) Furåker and Berglund, “Are the Unions Still Needed?,” 573.


\(^{49}\) Björklund, Åslund, and Studieförbundet Näringsliv och samhälle, Arbetsmarknaden, 253.
**Average Fee for the unemployment insurance (UI) Fund.** The yearly average fee paid by members in all unions. A major change in the UI fund were made in 2006, this may have had a negative effect on the number of members. The variable is expressed in Swedish crowns per year. As mentioned in the introduction, a change in the UI fund fee can affect the members since paying for both the union membership and UI fund could be looked upon as to expensive. Expected sign is negative; An increased fee for UI funds will reduce memberships for the unions.

5.2 Method
After retrieving data on the dependent variables in this time series analysis, the next step was to find appropriate variables for explaining these fluctuations in memberships. Through reading old journal articles and examine suitable factors, four different variables were chosen. Theory brings up many but in order to draw conclusions, they were bundled up to four larger ones. The theoretical framework also enlighten the focus of the UI fund and its close relationship to the fluctuations in union membership. This along with a sense of valuation, the gains of membership versus the costs is the main factors from theoretical framework considered in the empirical part.

The selected variables can easily be motivated why they fit in the model and according to labour market theory they are all suitable. Statistics for the variables are gathered from Statistics Sweden. Limitations due to incomplete time series in several variables have restrained the amount of independent variables able to use. The reason why union membership fee is not included depends on data availability. Only one of the unions investigated could easily supply me with union membership fees, but only back to 2007. But since that year, no exceptional changes has been made and more important, the union membership fee for all union in this thesis is based on how much you earn, while the UI fund fee is an absolute amount.

Since this thesis is not based on a clear theoretical framework, an own simplified model were set up in order to evaluate how the memberships evolves, being estimated by using an Ordinary Least Squares method (OLS). The ‘OLS’ is used to fit the best line possible to the observations by minimizing the squared sum of the range between the line and the observations in the data set. The smaller the deviations are, the better fitted is the line.\(^50\) Assumptions that has to be fulfilled are independent residuals. That the residuals are normally distributed with expected

---
value 0 and constant variance. Why the model is squared is because the observations beneath the fitted line becomes positive. The regressions were made using Stata 13. The method were chosen since it is one of the easiest ways to determine if an independent variable can explain the variation in the number of memberships issued in a union. The residual sum of squares (RSS) can be expressed as:

\[
RSS = \sum_{i=1}^{n} (y_i - \left( \beta_0 + \sum_{j=1}^{p} \beta_j x_j \right))^2
\]

Union membership were at the beginning calculated in percentage of TCO. Three regressions were made with each of the labour Unions as a dependent variable. A semi-logarithmic model were estimated, logging the dependent variable. This were done due to simplifications. Since absolute numbers would provide an exact number, which most likely is not correct, the interpretations with a logged variable could focus on the signs instead. Though, problems with signs in the wrong direction were noticed. The memberships in absolute numbers were instead logged and the same regressions were made. This changed the signs completely, which were more in line with theoretical assumptions. The period 1996 – 2012 covers two major alterations that made this approach interesting. First, a change in government regime were made in 2006. Second, and more important, that government made modifications in the UI fund which clearly affected the union’s memberships. The estimated model will provide an insight how the three labour unions have been affected during this period by the explaining factors.

The chosen method contains some problems. First, the time series is short and accurate conclusions are difficult to make. In the data material, a test for multicollinearity between the independent variables were made. Also a White’s test were done, checking for heteroskedasticity. This test checks if the data material contain a pattern in the residuals. A Durbin-Watson test were done, this checks for serial correlation in the material. This means that the residuals are dependent on the previous year in the time series. This creates a pattern and usually were the residuals at first are observed on one side of the trend for a while and then switches. A value between 1 and 3 are usually a sign of no extreme serial correlation.51

5.3 Descriptive Statistics

In the table below, (Table 2), the descriptive statistics are presented. This include the independent variables as previously mentioned and the dependent variables, displayed as both absolute numbers and as a natural logarithm version.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post upper secondary &gt; 3 years</td>
<td>17</td>
<td>14.53</td>
<td>3.20</td>
<td>9.33</td>
<td>18.95</td>
</tr>
<tr>
<td>Government Regime</td>
<td>17</td>
<td>0.588</td>
<td>0.507</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Unemployment 16-64</td>
<td>17</td>
<td>7.75</td>
<td>1.54</td>
<td>5.85</td>
<td>10.99</td>
</tr>
<tr>
<td>Average Fee UI Fund</td>
<td>17</td>
<td>1597.77</td>
<td>1065.6</td>
<td>508</td>
<td>4002</td>
</tr>
<tr>
<td>Teachers Union</td>
<td>17</td>
<td>176737.7</td>
<td>1809.4</td>
<td>173070</td>
<td>180101</td>
</tr>
<tr>
<td>Union of Finance</td>
<td>17</td>
<td>33143.29</td>
<td>3152.84</td>
<td>28923</td>
<td>39051</td>
</tr>
<tr>
<td>Labour Union ST</td>
<td>17</td>
<td>72807</td>
<td>6450.13</td>
<td>64056</td>
<td>85092</td>
</tr>
<tr>
<td>Ln Teachers Union</td>
<td>17</td>
<td>12.08</td>
<td>0.01</td>
<td>12.06</td>
<td>12.10</td>
</tr>
<tr>
<td>Ln Union of Finance</td>
<td>17</td>
<td>10.40</td>
<td>0.09</td>
<td>10.27</td>
<td>10.57</td>
</tr>
<tr>
<td>Ln Labour Union ST</td>
<td>17</td>
<td>11.19</td>
<td>0.09</td>
<td>11.07</td>
<td>11.35</td>
</tr>
<tr>
<td>Years</td>
<td>17</td>
<td>2004</td>
<td>5.05</td>
<td>1996</td>
<td>2012</td>
</tr>
</tbody>
</table>

*Table 1. Descriptive statistics*

The following numbers are gathered from the UI funds for the unions. Today the unions has the same fee for the UI fund regardless of membership only in the fund or members in the union as well. What led to a change was a shift in government financing, since the government decided not to cover equally much of the UI fund fee. This increased the amount paid by the members. The additional cost charged to the members has during the years 2007 – 2014 successively been reduced and is now removed. The first numbers represent people affiliated in the union and the second members connected only to the UI fund. It is displayed in Swedish Crowns (SEK). In 2014 both groups pay the same amount for the membership in the UI fund.
<table>
<thead>
<tr>
<th>Union of Finance</th>
<th>Before 2007</th>
<th>After 2007</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>86 / 96</td>
<td>244*</td>
<td>85</td>
</tr>
<tr>
<td>Labour Union ST</td>
<td>84 / 99</td>
<td>315 / 331</td>
<td>100</td>
</tr>
<tr>
<td>Teachers Union</td>
<td>95 / 111</td>
<td>247 / 269</td>
<td>90</td>
</tr>
</tbody>
</table>

Table 2. UI fund fee for the different unions.

* Union of Finance changed to the same fee for members within the union and members only in the UI fund in 2007. All unions had a similar increase in their fees for membership in their UI fund. Even though the hardest struck was against the members of the Labour Union ST. It became very expensive to be part of their UI fund.


A regression-model will be designed, where the coefficients $\beta_1, \beta_2 \ldots$ for each of the labour unions will be estimated. Where $\ln Y_t$ represent the different union’s number of members. The independent variables in the empirical specification is $x_1 - x_4$ (see table 1). Hence, the aim is to find what type of variable that affects people’s active choices of joining and which has been the most important one during the examined time period. The dependent variable $\ln Y_t$ represent each union separately.

$$\ln Y_t = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \varepsilon$$

The following regressions emerge from time series where $Y_t; t = 1, 2, \ldots$ and where(1 = 1996, 2 = 1997, ...). And where $\varepsilon$ is a stochastic error term. Time series are valuable both for predicting and since changes over time are interesting from an economics perspective and causations for certain scenarios. The response variable will be the number of memberships issued. The model will be estimated using a regular OLS. The number of observations in the model: 17 and (*) implies significance at 5 %, (**) significant at 1 % level.

7. Empirical Results

This section is divided up in four parts, presenting the results of the regression analysis for each of the labour unions and summing up with a comparison.

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52 Ibid., 137–139.
7.1 Teachers Union

A first important notification about the Teachers Union membership ratios is that the four independent variables only explains 18% of the variation in the memberships. Most important, none of the coefficients have a significant value which means that we cannot disregard the possibility of chance. The signs seem to be pointing in the right direction as expected, nevertheless the values are insignificant. The difference in signs here are though as mentioned before, the education level is required for becoming a teacher which should be positive. The d-statistic implies a small positive serial correlation since it is closer to 1 than 2. No results can be determined.

<table>
<thead>
<tr>
<th>Teachers Union</th>
<th>Coefficient</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>12.067 **</td>
<td>(0.038)</td>
</tr>
<tr>
<td>Government Regime</td>
<td>0.003</td>
<td>(0.010)</td>
</tr>
<tr>
<td>1 = Left-orientated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>-0.002</td>
<td>(0.002)</td>
</tr>
<tr>
<td>Post upper secondary &gt; 3 years</td>
<td>0.002</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Average Fee UI Fund</td>
<td>-4.60e-06</td>
<td>(3.71e-06)</td>
</tr>
<tr>
<td>Adjusted (R^2)</td>
<td>0.180</td>
<td></td>
</tr>
<tr>
<td>Durbin-Watson d-statistic</td>
<td>1.251</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Results regression model for the teachers union.

7.2 Union of Finance

The time series analysis of the Union of Finance displays some interesting results. The variation in the memberships is explained at a level of almost 95% in adjusted \(R^2\). The only coefficient with a significant value under 5% is post upper secondary school > 3 years. People with higher education seem to have less incentives of joining the Union of Finance. A correlation test between the variables shows that all the independent variables correlates with each other. Though, between Government regime and post upper secondary > 3 years a correlation coefficient of a value marginally under \(r = -0.8\). Though, Government regime is a dummy. Both remain in the model since theory express their importance. The other coefficients show insignificant values. These are not differentiated from zero. Due to an extremely high explanation grade, a regression explaining union of finance with
only the education variable were made. This shows an adjusted $R^2$ slightly below 95 % solitarily. The upper secondary school $> 3$ years follows a similar pattern over the years as the dependent variable. The d-statistic implies no problem with serial correlation since it is close to the value 2.

<table>
<thead>
<tr>
<th>Union of Finance</th>
<th>Model 1</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>10.687**</td>
<td>(0.086)</td>
</tr>
<tr>
<td>Government Regime</td>
<td>0.028</td>
<td>(0.023)</td>
</tr>
<tr>
<td>$1 = $Left-orientated $</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open unemployment</td>
<td>0.005</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Post upper secondary $&gt; 3$ years</td>
<td>-0.023 **</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Average Fee UI Fund</td>
<td>-2.76e-06</td>
<td>(8.35e-06)</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.950</td>
<td></td>
</tr>
<tr>
<td>Durbin-Watson d-statistic</td>
<td>1.713</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Results regression model for the Union of Finance.

7.3 Labour Union ST
The last regression is based upon ST. None of the explaining coefficients are significantly differentiated from zero. However, the adjusted $R^2$ shows a number of 58.5 %. Only thing noticed is that the signs are pointing the expected direction. However, the results are insignificant and possibility of chance is imminent. Most interesting result is that the p-values of the variables are all extremely high, and still produce a high level of explanation degree. The d-statistic imply a positive serial correlation, the value is below critical limit 1. Since all coefficients are insignificant, use of robust standard errors will not affect the results in order to counteract the serial correlation.
<table>
<thead>
<tr>
<th>Labour Union ST</th>
<th>Model 1</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>11.292**</td>
<td>(0.236)</td>
</tr>
<tr>
<td>Government Regime</td>
<td>0.051</td>
<td>(0.065)</td>
</tr>
<tr>
<td>1 = Left-orientated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open unemployment</td>
<td>0.008</td>
<td>(0.012)</td>
</tr>
<tr>
<td>Post upper secondary &gt; 3 years</td>
<td>-0.012</td>
<td>(0.009)</td>
</tr>
<tr>
<td>Average Fee UI Fund</td>
<td>-7.70e-06</td>
<td>(0.00002)</td>
</tr>
</tbody>
</table>

| Adjusted $R^2$                  | 0.584         |            |
| Durbin-Watson d-statistic       | 0.808         |            |

Table 5. Results regression model for the labour union ST.

The following tests were done on all the models.

A VIF test proving that there are problems with multicollinearity in the data. This is implied by a result over 5. The dummy variable Government regime display a value of 5.53 and as proven before, the variable correlates with upper secondary school > 3 years. This might be a random coincidence and correlation between dummies and normal ones have to be viewed differently. No further evaluation will be made. A white’s test were done checking for heteroskedasticity, no rejection of the null hypothesis of homoscedasticity could be done. The test includes few observations, 17, that can affect the results.

7.4 Comparison

From the regression results noticeable differences between the three unions were discovered. For the Teacher’s union, the sign for unemployment rate is pointing the “wrong” direction but the coefficient is insignificant. Union of Finance and Labour Union ST also have an insignificant value of unemployment, though hints of positive signs.

Education level affects the choice for joining the Union of Finance, which also is the only significant result in these tests. It has a negative sign, meaning that highly educated in wider range discard membership in the Union of Finance. Education above 3 years post upper secondary school level is required for becoming a teacher. A positive sign can be noticed, though still an insignificant value. The sign for ST is negative and also insignificant. What kind
of government there is, is not significantly differentiated from zero for any of the labour unions. A hint imply positive signs as anticipated.

The adjusted $R^2$ differs strongly between the unions. With an unnaturally high explanation grade for the Union of Finance and a quite low for the Teachers Union. Labour Union ST displays a number in between them.

The results found in these regression analysis are hard to interpret. None of the insignificant independent variables even pass a significance level at 10%. Different aspects and social features probably needs to be considered for each union. Non-measurable reasons, like if friends are members or family traditions, might be as or even more important than a general state of the economy. Concluded though is that the labour have various reason for joining unions. The unions are undoubtedly facing completely different types of issues that address their number of members.

8. Concluding remarks/discussion

Unionization have been an interesting subject to examine within economics. I approached the membership development by creating a model of my own. The time series investigated can be concluded to be too short for representing any accurate discoveries. However hints about possible explanations could be noticed. The memberships are in two of the three unions decreasing, showed in the descriptive analysis. Only the Teachers Union has a positive trend in recruiting members. The fluctuations seen in this period are due to changes in politics or merger of unions. TCO in general has had decreasing numbers for almost a decade but with a turning trend upwards since 2009.

The variables found and used in the regression models play, with most certainty, a role in why people maintain memberships in unions and why they do not. Thus, more personal values and social factors probably have an even larger influence. Therefore we can conclude that we have a lot of omitted variables.

No real results were conducted, where all but one variable displayed insignificant values for the coefficients and therefore I cannot exclude the presence of randomness. The signs of the coefficients are pointing in the expected direction but since the existence of insignificant results, no further conclusion could be done. Though longer time series would have been preferred for increasing the number of observations and obtain more accuracy.
The regime shift in 2006, where a left-wing government changed to a right-orientated one, seem to have a considerable impact on the unions. A severe raise in the UI fund fee made people leave their unions preferring to stay only as members of the UI fund. It became too expensive to be part of both. Even though this could not be proven in this thesis, some sort of relationship most certainly exists.

The one variable with a significant coefficient in the results part is educational level for the Union of Finance. This implies that the Union of Finance have harder to attract members with high education. The explanation grade is though suspiciously high, almost implying that what kind of education you possess is the only reason for joining or not. Therefore we can question the causality and not base great assumptions only on this. But why the $R^2$ values differs substantially between them is interesting. It is hard to interpret with any accuracy when all values are insignificant however reasonable arguments can be discussed.

Possible reasons for member drops depends on a number of major factors. On the one hand, the industrial structure has changed. Industries are being sold to other countries with lower production costs. This along with a different occupational structure, where the old concept “working class” is vanishing. Less industry and more service focused occupations. These groups do not usually have the same incentive of unification, which decrease the new recruitment for the unions. Worth mentioning is that young people are often employed in these professions.

The demographic structure; people are leaving the country side which leads to an increased urbanization. Additional people are searching for jobs within the same city and the companies wants the lowest cost. This can definitely affect union membership negatively depending what view the employer has. Another factor possibly affecting the membership is new governance or ownership of firms. More companies are today owned by multinational business groups where the traditions of union affiliation is different. This thesis however has not focused on that part. Undoubtedly the state of the economy will always have an impact on membership. A high labour demand makes it more difficult to see the purpose of unions, but with a decline in economic growth and increased unemployment they become more important than ever.

The Teachers Union is one of the larger unions and are generally not affected by the state of the economy, teachers will always find jobs and the active choice of joining a union depends on more personal values. Union of Finance have for long been losing members and within the bank sector, a huge part used to work without academic education. When people become more
educated and the financial sector increases, people might look past the unions and make it by themselves. This along with technology where most people today manage all their bank matters on internet, which decrease the number of vacancies needed. Labour Union ST has also had stagnating number of members, a reasonable argument here is that while working within the state, it is very hard to become discharged. This plays out the role of the union since they are supposed to back you up in times of crises. The unemployment risk loses its effect but government regime along with a high education can definitely have an impact. Working within the state has similarly with the bank sector previously not required a full on academic degree. This can naturally have an influence how people reason about union membership.

As brought up in previous studies, a strong effect like this can be linked to individualization. You can make it on your own since along with a high education comes an attractiveness on the labour market, therefore the union services seem unnecessary in the field of banking and finance.

Examining other unions than these ones, the result might have looked different. Concluded is that the unions are being affected differently to changes in politics and over time. Some forces have more traditions of joining unions and can probably keep members even in times of crises.

On the other hand the most interesting is that theory suggests that, applicants for membership would increase if unemployment goes up, but statistically the labour unions numbers are falling when unemployment increases in Sweden. More research needs therefore be made in this area before making any trustworthy conclusions about what actually affects people’s choices around union membership.

In general and as theory implied, labour union research is difficult. There are probably more factors playing a role than what is measurable. The myth about unions and their falling numbers can be concluded not to be entirely true. Some are gaining members, some are losing. I believe that the unions still have a part to play on the labour market and memberships are invaluable to maintain this. The unions faces major challenges, like how to attract new and especially young members.

8.1 Further Research

This paper has only scratched the surface of what can be underlying causes for joining labour unions and many papers have investigated similar areas. To make a more accurate research a longer time series would be needed and mainly an extensive survey about what people base their union choices upon. This thesis is based on an easy model and only three labour unions
are examined. The aim to pinpoint variables that affects membership might need a more advanced model and more explaining factors. An extension could be to investigate the central organisations in total, however more time would be necessary to collect data than possible for this thesis.

Another interesting area of investigation is the globalization of workers. People work in one country but the company itself is located in another. Views upon union affiliation are very different in other countries and this might have a negative effect on memberships in Sweden. This along with the “new jobs” that has advanced, especially within the field of computer science and IT (Information Technology) where traditions of unionization are absent.
Acknowledgements

I would like to express my gratitude to my supervisor Åsa Löfström for all the help and useful comments during the work with this thesis. Thanks to the opponents for the comments and critics from the seminar. Also a huge thanks to the Department of Economics for always keeping their doors open for people in need.
References


### Appendix

**Regression results Teachers Union**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>.000645713</td>
<td>4</td>
<td>.0001611428</td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>.00103154</td>
<td>12</td>
<td>.000085962</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.001677253</td>
<td>16</td>
<td>.000104828</td>
<td></td>
</tr>
</tbody>
</table>

| lnLlrar | Coef. | Std. Err. | t    | P>|t| | [95% Conf. Interval] |
|---------|-------|-----------|------|------|---------------------|
| Openunempl-t | -.0017023 | .0018986 | -.90 | 0.388 | -.005839 , .0024344 |
| eftgym3ye-s   | .002294  | .0014803 | 1.55 | 0.147 | -.0009312 , .0055193 |
| UIfeeavera-r  | -4.60e-06| 3.71e-06 | -1.24| 0.239 | -.0000127 , 3.48e-06 |
| Government~m  | .002956  | .0105191 | 0.28 | 0.783 | -.0199632 , .0258751 |
| _cons         | 12.06783 | .0384249 | 314.06| 0.000 | 11.98411 , 12.15156 |

**Regression results Union of Finance**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 17</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.135015369</td>
<td>4</td>
<td>.033753842</td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>.005221784</td>
<td>12</td>
<td>.00043149</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.140237153</td>
<td>16</td>
<td>.008764822</td>
<td></td>
</tr>
</tbody>
</table>

| lnFinans | Coef. | Std. Err. | t    | P>|t| | [95% Conf. Interval] |
|----------|-------|-----------|------|------|---------------------|
| Openunempl-t | .0053018 | .0042717 | 1.24 | 0.238 | -.0040053 , .0146089 |
| eftgym3ye-s   | -.0231279| .0033305 | -6.94| 0.000 | -.0303844 , -.0158713 |
| UIfeeavera-r  | -2.76e-06| 8.35e-06 | -0.33| 0.747 | -.00000209 , .0000514 |
| Government~m  | .0282104 | .0236671 | 1.19 | 0.256 | -.0233558 , .0797765 |
| _cons         | 10.6873 | .0864528 | 123.62| 0.000 | 10.49893 , 10.87566 |
Regression results Labour Union ST

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>0.086358068</td>
<td>4</td>
<td>0.021589517</td>
<td>F( 4, 12) = 6.63</td>
</tr>
<tr>
<td>Residual</td>
<td>0.039102587</td>
<td>12</td>
<td>0.003258549</td>
<td>R-squared = 0.6883</td>
</tr>
<tr>
<td>Total</td>
<td>0.125460655</td>
<td>16</td>
<td>0.007841291</td>
<td>Adj R-squared = 0.5844</td>
</tr>
</tbody>
</table>

| inSTtotal       | Coef.    | Std. Err. | t    | P>|t| | [95% Conf. Interval] |
|-----------------|----------|-----------|------|------|----------------------|
| Openunempl-t    | 0.0077144 | 0.0116893 | 0.66 | 0.522 | -0.0177545 - 0.0331832 |
| eftgymn3ye-s    | -0.012235 | 0.0091139 | -1.34 | 0.204 | -0.0320924 - 0.0076225 |
| UIFeeavera-r    | -7.70e-06 | 0.00000228 | -0.34 | 0.742 | -0.00000575 - 0.00000421 |
| Government~m    | 0.0510811 | 0.0647647 | 0.79 | 0.446 | -0.0900289 - 0.1921912 |
| _cons           | 11.29218  | 0.236577  | 47.73 | 0.000 | 10.77672 - 11.80763 |

Correlation test

| Openunempl-t    | 1.0000 |
| eftgymn3ye-s    | -0.4455 1.0000 |
| UIFeeavera-r    | -0.2883 0.6839 1.0000 |
| Government~m    | 0.1474 -0.8074 -0.7909 1.0000 |