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Determinants of Trade Union Membership

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ABSTRACT: A large number of potential determinants of union membership, which often can be interpreted in terms of costs and benefits, have been incorporated into economists' traditional supply and demand framework or into new models of an individual's decision to unionise (such as social custom theory). A review of the international empirical evidence shows that business cycle factors and structural developments are important macro-determinants, whereas micro-determinants include personal, occupational and firm characteristics, earnings, attitudes and social variables. In addition, institutional determinants such as a union-affiliated unemployment insurance play a role. What is often missing, however, are attempts to integrate macro- and micro-level findings and cyclical, structural and institutional explanations of unionisation.

ZUSAMMENFASSUNG: Viele potenzielle Einflussfaktoren der gewerkschaftlichen Mitgliedschaft, die oft im Sinne von Kosten und Nutzen interpretiert werden können, lassen sich im Rahmen von Angebot und Nachfrage darstellen oder in neuen Modelle des individuellen Gewerkschaftsbeitritts (wie z.B. social custom-Theorien) berücksichtigen. Ein Überblick über die internationale empirische Evidenz zeigt, dass konjunkturelle und strukturelle Entwicklungen wichtige Makro-Determinanten sind, während persönliche, berufliche und Firmen-Merkmale, Verdienste, Einstellungen und soziale Variablen zu den Mikro-Determinanten zählen. Darüber hinaus spielen institutionelle Faktoren wie eine von Gewerkschaften verwaltete Arbeitslosenversicherung eine Rolle. Allerdings fehlt es an Ansätzen, die Makro- und Mikro-Erkenntnisse sowie die konjunkturellen, strukturellen und institutionellen Erklärungsansätze zur gewerkschaftlichen Mitgliedschaft zu integrieren.

KEYWORDS: trade unions, union membership

JEL-KLASSIFIKATION: J51

1. INTRODUCTION

Recent economic, sociological and political science literature contains an upsurge of theoretical and empirical work on trade union membership. Interestingly, renewed interest in the area comes at a time when in many countries unions experience severe membership losses (see the data provided by Ebbinghaus and Visser, 2000). As the existence and the political and economic influence of trade unions depend on their ability to attract and nurture a loyal membership, it is important to know which workers join unions and why.

This survey starts to answer this question by sketching (in section 2) the conventional demand and supply framework used by economists to analyse the forces that influence union membership. Section 3 deals with the free-rider problem, namely why any individual would join a union when dues are costly and when the benefits apply to all workers regardless of their union status. It points to the existence of social customs and reviews corresponding theoretical models. While in general economic explanations of union membership determination are emphasised, supplementary explanations from other social sciences are discussed in section 4.

This review of the theoretical literature is followed by an overview of empirical results from time-series and cross-sectional analyses. Section 5 focuses on time-series business cycle models and attempts to identify the macro-determinants of union growth and decline. Section 6 deals with the micro-determinants of individuals' membership decision and discusses cross-sectional studies that try to provide structural explanations of unionisation. Institutional determinants of unionisation are investigated in section 7 by reviewing the empirical results of recent cross-national analyses. Some conclusions and directions of further research are provided in section 8.

2. THE DEMAND FOR AND SUPPLY OF UNIONISM

Traditionally, labour economists have analysed the forces that influence union membership within a conventional demand and supply framework.[1] Beginning with

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[1] This sort of analysis is described in detail by Hirsch and Addison (1986, ch. 2.5) and can be found in labour economics textbooks such as Ehrenberg and Smith (2000, ch. 13) and Borjas (2000, ch. 11).

Berkowitz (1954) and Pencavel (1971), union membership is considered as though it were an asset in the portfolio of an utility-maximising worker that provides a flow of services, which are private and/or collective goods. The demand function expresses the demand of workers for union representation and services, while the supply function reflects the supply of union services.

Following standard theory, demand for union membership (U^d) can be specified as

$$U^d = d(p, y, wdiff, z, s, t).$$

In this specification, the price *p* represents the costs of union membership (initiation fees and dues) relative to the price of other goods and assets, and it affects demand negatively. Wealth or permanent income *y* should influence union membership positively if union services are a normal good. The larger the (expected) union-nonunion wage differential *wdiff*, the more likely are employees to join a union. However, since the relative wage differential cannot in general be measured directly, studies often examine the relationship of unionism with personal and industry characteristics (such as age, skills and industry concentration), which serve as proxies for the expected benefits of union representation. In addition to wage gains, net non-pecuniary benefits *z* from a unionised work environment such as better working conditions and grievance procedures (proxied by firm size, accident risk etc.) can also be expected to stimulate demand for union representation. In contrast, the lower the cost of substitute services *s* (such as social welfare benefits), the lower demand for union services should be. Finally, individual's taste for unionism *t* can affect the demand for union membership. This variable is meant to reflect workers' attitudes and preferences, ideological motives, social pressure and custom, and related non-economic variables stressed by other disciplines of social science.

Although unions may not be typical profit maximizers, they face a binding budget constraint in that they must fund union organising, services and the like, which means that they must pay attention to revenues and (opportunity) costs. Therefore the supply function of union services (U^s) can be expressed by

$$U^s = e(p, co, cs, g).$$

Here, the revenue or price *p* of union services is assumed to have some positive relationship with the supply of these services whereas the costs of union organising *co* and the costs of servicing existing members *cs* both affect supply negatively. Organising costs involve a significant fixed-cost component and exhibit economies of

scale, and they depend, *inter alia*, on industry concentration and firm size. Servicing costs are also likely to have a fixed-cost component so that collective bargaining exhibits decreasing unit costs with respect to membership, and unionism is therefore less likely in small firms. Both the costs of organising and of servicing will be affected by employers' attitudes toward unions and collective bargaining, and they can be influenced substantially by the legal structure within which unions may operate. The last variable in the supply function stands for union goals *g* (such as maximising membership or a certain utility function) which may affect the supply of union services in various ways.

Assuming market clearing[2], the equilibrium level of unionism *U* is determined by

$$U = U^d = U^s.$$

In a reduced form, *U* and *p* are functions of all other variables within the system, so that the unionism equation is given by

$$U = f(y, wdiff, z, s, t, co, cs, g).$$

Because none of these determinants of unionism enter both the structural demand and supply equations, the sign on each in the reduced-form equation is unambiguous. Since most of these variables cannot be measured directly, however, they are often substituted for by proxy variables (such as firm size and personal characteristics) that are likely to affect unionism through more than one channel, making interpretation difficult. An advantage of this approach is that the price variable (for which data are often lacking) falls out of the model, and so empirical studies generally estimate some variant of this reduced-form equation. A difficulty with this approach is, however, that it ignores general equilibrium aspects, for instance that the benefits of union membership such as the union-nonunion wage differential will not be independent of the extent of unionisation.

In addition to measurement problems in the right-hand side variables of the reduced-form equation, the amount of union services *U* is also not directly observed. Assuming that the level of services is proportional to the level of unionisation, direct measures of union membership, union density or bargaining coverage can be used to proxy *U*. The appropriateness of each union measure depends on the econometric

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[2] Abowd and Farber (1982) point out that the market clearing assumption, while appropriate for the determination of total union membership and coverage, may be less appropriate for determining the union status of individual workers, which implies that empirical results of union choice models should be interpreted with caution.

design of the (cross-sectional or time-series) study, the data available and the legal framework.

3. THE FREE-RIDER PROBLEM AND SOCIAL CUSTOMS

The cost-benefit analysis of union membership determination sketched above does not take into account an important problem unions face in most countries, namely the free-rider problem. Many of the services unions provide – such as higher wages and better working conditions – accrue both to union members and non-members in the workplace. These services can be seen as public or collective goods since they are nonrival in consumption and low-cost exclusion of non-members is not possible. Hence an individual has a free-rider incentive not to join the union. The key problem for the economist is to explain why any individual would join a union when dues are costly and when the benefits apply to all workers regardless of their union status.[3]

While in small groups the free-rider problem may not be insurmountable, the difficulty is to explain why large groups providing collective goods such as trade unions manage to exist despite the free-rider problem. In his path-breaking analysis of collective action, Olson (1965) argued that a large group can only have formed for two reasons: Either because membership is compulsory (this would be the case of the 'closed shop' in which union membership is a condition of employment) or because the group offers selective incentives in the form of private goods and services available only to its members (with ancillary provision of the collective good as a 'byproduct').[4] In many countries, however, closed shops are either illegal or are rarely found anymore, and the widespread presence of 'open shop' unions (where membership is voluntary) suggests that selective incentives such as strike pay and legal support available to members may seem to be more important for joining a union.

In addition to such material selective incentives, Booth (1985) has suggested to interpret the incentive private good as being the 'reputation' utility that derives from

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[3] In a median voter model in which workers have different reservation wages and hence different optimal points in the trade-off between an increased wage and a decreased probability of employment, Bulkley and Myles (2001) argue that joining a union instead of free-riding may be rational if it enables individuals to influence union bargaining goals and thus their own employment probability.

[4] As regards unions, Olson (1965, p. 75) thought that '[i]n most cases it is compulsory membership and coercive picket lines that are the source of the union's membership'.

complying with a social custom of union membership. This idea stems from Akerlof (1980, p. 749) who defines a social custom as 'an act whose utility to the agent performing it in some way depends on the beliefs or actions of other members of the community'. This takes up an argument commonly put forward by sociologists and psychologist, namely that within a community there is a set of rules and customs that are obeyed by individuals because of the sanction of a loss of reputation if the custom should be disobeyed. In the context of union membership, the social custom can be thought of as urging workers not to free-ride. Following social custom theory, Booth (1985) and Naylor (1990) have proposed models in which it is assumed that workers directly derive utility from the reputation effect of belonging to a union (and not being a 'scab'), and which show that a union can exist despite the free-rider problem if it achieves a minimum critical density. In the social custom approach, the decision to join is interdependent and – contrary to the Olson (1965) free-rider paradox – workers may be more prepared to join a union if others are joining.[5]

Within this framework, Naylor and Cripps (1993) have shown that when workers' tastes are heterogeneous with respect to their sensitivity to reputation, stable intermediate union density is a possible equilibrium outcome. This is an improvement of the original Booth (1985) model with homogeneous tastes where the only stable non-zero level of union density occurs when everyone joins the union. They provide an explanation of voluntary membership of the open shop trade union in which the union density level is likely to increase as a result of a reduction in union membership costs, an increase in strike pay or an increase in individuals' sensitivity to the social custom of union membership and the associated solidarity effects. Extensions of the social custom model taking into account employer behaviour in form of management opposition to union membership have been proposed by Naylor and Raaum (1993) and – in a game-theoretic setting – by Corneo (1995). They show that a stable long-run equilibrium may exist, in which strong unions persist in spite of management opposition.

In the social custom framework, Booth and Chatterji (1993) provide a model of union membership and wage determination which predicts that the open shop union is viable only after membership has achieved a minimum critical density, and wages are at a sufficient level to support this. Wage setting is modelled using the median voter framework of social choice theory which implies that union executives will maximise the expected utility of the median voter in order to be re-elected, and

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[5] Naylor (1990) demonstrates the formal equivalence of the Booth (1985) model and the 'critical mass' or 'tipping' models developed by Schelling (1978) and discussed by Marwell and Oliver (1993); see also the 'resource mobilization' approach by Klandermans (1984).

heterogeneous workers join the union if their expected utility from so doing exceeds that from abstaining (for a given level of union-determined wages). The model generates a simultaneous equation system: membership at the margin is a function of the union set wage and other variables, and union wages are a function of median membership.[6] The insight that wages and membership are determined simultaneously, which already can be found in related closed shop models such as Grossman (1983), does not, however, depend on the median voter assumption. Naylor and Raaum (1993), for instance, do not appeal to any social choice framework like the median voter model when simultaneously modelling wages and membership determination.

One problem of social custom models is that they leave unexplained the formation of the social custom.[7] This is circumvented by another strand of literature that combines a similar formal approach with the hypothesis that unions provide pure private goods to their members instead of reputation. Booth and Chatterji (1995) develop a theoretical model of the simultaneous determination of union wages and membership which points to the existence of excludable private goods as an important factor motivating workers to join unions in the absence of coercive closed shop rules.[8] They estimate the model for manual workers in Britain and find empirical support for the notion that union-provided goods such as grievance procedures, influence over manning arrangements and negotiations over physical conditions are positively correlated with union density. Their results suggest that unions concerned with density will have to rely on devising excludable private goods to attract members since increasing wages alone will not increase density. In contrast, Moreton (1998, 1999) makes use of the (empirically supported) assumption that union members enjoy greater job security than do non-members in the form of a reduced probability of dismissal for reasons other than redundancy. Thus the private good of increased job security acts as a selective incentive to join the union. Less effective job

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[6] The impact of tax changes or labour demand shifts in such a model is investigated by Goerke (1997).

[7] Corneo (1997) tries to provide a microfoundation of the social custom approach by endogenizing the reputation effect of belonging to the union as the outcome of a signalling game among the workers. Depending on societal values, various shapes of the reputation effect may arise. If conformism prevails in the workers' community, the reputation effect increases with union density; if elitism prevails, the opposite applies.

[8] A prominent example of a such an excludable private good is a union-run unemployment insurance known as the Ghent system. A formal theoretical analysis by Holmlund and Lundborg (1999) shows that the Ghent system is more conducive to unionization than a compulsory unemployment system if it is heavily subsidized by the government or if workers are strongly risk averse.

protection by unions and lower union bargaining power are predicted to reduce union density.[9]

One corollary of most of the models discussed above is that a reduction in union membership caused by temporary shocks is likely to be persistent (Calmfors et al., 2001, p. 18). If membership is reduced, the process of rebuilding can be lengthy and even unsustainable since there exists a minimum critical mass of membership or density below which union existence is not viable. In the absence of coercion the open shop union's provision of services may be crucial in obtaining its critical level of density. Union density is likely to increase with the quality of the services provided, while at the same time the size and density of the union may positively affect the provision of services due to economies of scale. If, however, union-like services are available elsewhere at lower cost or if the provision of certain welfare benefits by government substitutes for the private provision by unions (as stressed by Streeck, 1981 and Neumann and Rissman, 1984), the attractiveness of union membership will be reduced and unions may face serious problems of survival.

4. SUPPLEMENTARY EXPLANATIONS FROM THE SOCIAL SCIENCES

While in this survey emphasis is laid on economic explanations of union membership determination, it should not be overlooked that social, psychological and political factors may also contribute to explaining the level and development of union membership. Sociologists and political scientists have long stressed the importance for union density of factors such as class consciousness, values, modes of production, the composition of the workforce, the political climate, the role of government incomes policies, and the centralisation and cohesiveness of the labour movement (see, for instance, Beyme, 1981 and Streeck, 1981). Some of these potential determinants have been incorporated in economic models of unionisation. While a full description of all contributions from the social sciences is clearly beyond the scope of this survey, several theories explaining individual behaviour will be sketched below without the pretension of exhaustiveness.[10]

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[9] In a different setting, Jones and McKenna (1994) show that in case a union is able to offer greater employment protection for its members, employed workers join the union if the marginal benefit of protection is at least as great as union dues, and their dynamic model permits a variety of relationships between employment and membership in the adjustment to steady state.

[10] Examples of psychological and socio-political approaches to unionization can be found, *inter alia*, in Crouch (1982), Klandermans (1984, 1986), Guest and Dewe (1988), Wallerstein (1989), Windolf and Haas (1989), Western (1997), Rij and Daalder (1997) and Visser (2002).

Following Klandermans (1986), three theoretical and partly overlapping approaches to trade union participation can be distinguished within the social psychology, namely the frustration-aggression approach, the rational-choice approach and the interactionist approach (see also Berg, 1995, p. 155f.). The *frustration-aggression approach* explains union membership as a result of individuals' frustration, dissatisfaction or alienation in their work situation (and membership resignation in terms of frustration with union policies). However, dissatisfaction 'is neither a necessary nor a sufficient condition for participation' (Klandermans, 1986, p. 199). Furthermore, from an economic point of view, this sort of joining and quitting behaviour could be interpreted as reflecting cost-benefit considerations and may be incorporated in standard explanations of the demand for unions.

The *rational-choice approach* interprets unionisation as the outcome of a process of weighing the costs and benefits of participation (a prominent example is Crouch, 1982). Of course, such an approach also underlies economic theories of unionisation, but economists often pay attention only to individual, selective costs and benefits. In contrast, social scientists try to take a broader view and point out that the decision to join a union can also be influenced by collective, social and ideological motives, which may be difficult to measure. The balance of costs and benefits, combined with expectations about the degree to which the union will be able to realise these motives, determine the actual membership decision.

In the *interactionist approach* union participation is inextricably bound up with group culture, and an individual's decision to join a union is strongly influenced by his social context, that is his living and working environment.[11] Concerning the living environment, tradition and prevailing opinions within someone's group are important because here general beliefs are formed about unions even before the employment relationship is entered into. Starting with Booth (1985) this line of reasoning has been incorporated into the social custom models of union membership discussed in the previous chapter which in some sense blend interactionist and rational-choice explanations. Concerning the working environment, the prevailing union density in an individual's establishment or industry and the contact with the union at the workplace may play a role. While this is also recognised in some economic explanations of union membership and growth, economists have tended to concentrate on the

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[11] See also social identity theory (e.g., Tajfel, 1982) which emphasizes the embeddedness of individuals in social groups.

demand side of unionism and have paid less attention to the supply side, for example the union's decision to allocate resources to the recruitment of new members.[12]

It is obvious that social scientists provide other explanations or emphasise different determinants of unionisation than economists. Some of these factors can be incorporated in the economist's supply-demand and cost-benefit framework discussed above whereas others are more difficult to operationalize. It can be concluded that theories from other disciplines of the social sciences should not be neglected when analysing unionisation, and the next chapters will show that many socio-political determinants have been included in empirical studies of union membership and union growth.

5. MACRO-DETERMINANTS OF UNION GROWTH AND DECLINE: EMPIRICAL RESULTS OF AGGREGATE TIME-SERIES ANALYSES

The preceding chapters have identified a large number of economic, social and political variables that according to theoretical considerations can be expected to influence individuals' decision to unionise and affect union membership growth. Empirical analyses, however, in many cases have not directly followed the lines of theoretical research. This divergence is partly due to the fact that the progress of the theoretical literature as to why employees belong to a union has been slow, and often empirical findings preceded or prompted theoretical research. In addition it reflects an eclectic approach of many empirical studies that mix economic, social and political variables. By and large, empirical analyses of union membership and growth fall within one of three approaches:[13] They either stress cyclical explanations and attempt to identify the macro-determinants of union growth and decline, or they provide structural explanations and concentrate on individual characteristics of union members as well as on sectoral and occupational factors, or they favour institutional explanations and analyse cross-national variations in institutional settings assumed to influence unionisation.

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[12] This is also stated by Wallerstein (1989, p. 484): 'From the traditional perspective, union growth occurs when workers organize unions. But it is equally true that union growth occurs when unions organize workers.'

[13] For a similar classification see Ebbinghaus and Visser (1999), who distinguish cyclical, structural and configurational (or institutional) explanations of union growth and decline, and Calmfors et al. (2001).

Historians and labour economists have invented (and traditionally have followed) the cyclical approach which focuses on the macro-determinants of union growth and decline. This approach can be traced back at least to Commons et al. (1918) who analysed the history of the US labour movement in the nineteenth century and tried to link membership changes to the stages of the business cycle. Over the course of the twentieth century numerous models have been developed (and estimated) that explain union growth in terms of such components of the business cycle as wage and price changes, employment growth and unemployment, and that often also include socio-political variables. Table 1 provides a synopsis of selected empirical time-series studies for the US, the UK, Germany, Australia and the Netherlands, all countries for which there exists an impressive empirical literature on unionisation.[14]

(Table 1 about here)

An early study by Ashenfelter and Pencavel (1969), examining trade union growth between 1904 and 1960, has received considerable attention and has served as the basis for much subsequent analysis.[15] The authors specify and estimate a model with the annual percentage change in trade union membership as the dependent variable and five explanatory variables that all prove to be statistically significant. Two variables that are meant to capture the movement of the relative benefits and costs of union membership to individual workers over time are the percentage change in the consumer price index and the percentage change in employment in highly unionised sectors during the current and three previous years. The positive relationship found between union growth and price inflation is interpreted as reflecting the demand for union membership as a means for catching up with previous inflation and maintaining real wages, whereas the positive impact of employment growth is said to reflect higher union organising funds and activity as well as reduced employer retaliation efforts in tighter labour markets. Since 'it seems clear that one important determinant of union growth must be workers discontent', Ashenfelter and Pencavel (1969, p. 437) also include the unemployment rate at the pit of the preceding recession as an indicator of labour's stock of grievances, whose

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[14] The studies in Table 1 were selected for comparative purposes and for providing a general overview of this field of empirical research. In addition there exist a large number of similar time-series studies for the countries in Table 1 and for other economies as diverse as Italy (see, for example, Checci and Corneo, 2000), Ireland (Sapsford, 1986; Roche and Larragy, 1990) and Taiwan (Sharma and Sephton, 1991).

[15] In fact, the first econometric analysis of union growth was undertaken by Hines (1964) in the context of testing theories of union wage-push. For the UK in the period 1893-1961 he estimated a simultaneous model which contained equations for the rates of change of wages, prices, and unionization. Hines, however, was not really interested in explaining union growth, and his work suffers from severe theoretical and empirical weaknesses (see Bain and Elsheikh, 1976, p. 26ff.).

(positive) influence is allowed to decay with time. The level of previous union density (that is union membership as a percentage of unionisable employment) is included in the model to test (and finally confirm) the saturationist hypothesis that (p. 438) 'the greater the proportion of employment in the union sectors that is already unionised the more difficult it is further to increase union membership'. The final explanatory variable in the Ashenfelter and Pencavel (1969) model is the percentage of Democrats in the US House of Representatives, which is interpreted as a proxy for the degree of pro-labour sentiment and which is found to affect union growth positively.

The Ashenfelter and Pencavel (1969) model could be judged successful by conventional statistical criteria, fitting the data for 1904 to 1960 well and thus encouraging Sharpe (1971) to develop a similar model for Australia. Despite its good results, however, the model has not gone uncontested. Criticism has focused on the model's temporal instability, its poor predictive power and the ad hoc use and justification of explanatory variables.[16]

Among the critics were Bain and Elsheikh (1976) who proposed an alternative model in which union membership growth is a function of wage and price inflation, the level (and/or rate of change) of unemployment and the level of union density in the previous period. The authors assume that a 'threat effect' may encourage workers to unionise when prices are rising in order to defend their standard of living whereas a 'credit effect' may lead workers to unionise when money wages are rising if they (rightly or wrongly) credit such rises to unions and hope that by supporting them they will do even better in the future. Unemployment is said to affect union growth negatively by influencing the relative bargaining power of employers and unions and by affecting the propensity to become or remain a union member in various ways. The prevailing level of union density is included to capture the conflicting 'saturation effect' (the greater difficulty of further increasing membership as density rises) and 'enforcement effect' (social coercion and the ability of unions to persuade employees to unionise, both of which increase with union density). Bain and Elsheikh (1976) estimate different specifications of this model for the UK, Sweden and (augmented by legislative dummy variables) for the US and Australia. In most cases their explanatory variables are statistically significant and the model is able to explain union growth over long periods of time. However, the authors have had face to much the same criticisms as Ashenfelter and Pencavel (1969) concerning the selection and

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[16] See, for instance, the critical assessments by Mancke (1971), Moore and Pearce (1976) and Sheflin, Troy and Koeller (1981).

justification of their explanatory variables, their empirical specifications, and the structural stability and predictive power of their models.[17]

Similar cyclical models have been estimated for a variety of countries and different periods. Although the magnitude and the statistical significance (and in some cases even the sign) of estimated coefficients differ, the results show some consistent patterns indicating that union growth is procyclical.[18] From Table 1 it appears that employment growth and a favourable political climate enhance union growth. The same can be said for price inflation and nominal wage growth, although these variables do not show up in the estimations for the Netherlands: Here, however, van Ours (1992) detects a positive influence of the change in the labour income ratio.[19] In most empirical models unemployment tends to inhibit union growth, but it is not clear whether it is the level or the rate of change of unemployment that plays a role. A more robust result is that (with the exception of Germany) the prevailing level of union density dampens membership growth, probably reflecting a saturation effect.

Against the theoretical background sketched above, Ashenfelter and Pencavel (1969), as well as others, have interpreted these results of cyclical models mainly in terms of individuals' decisions reflecting the expected benefits and costs of union membership. This is problematic because the available explanatory variables are hardly able to measure expected benefits and costs directly.[20] Furthermore, in interpreting union growth as the aggregate of individual worker decisions the role of employer opposition and union leadership and recruitment strategies (stressed by Visser, 1990) may be underrated.

In contrast, Bain and Elsheikh (1976, p. 62) have moved away from the traditional supply-demand framework by interpreting changes in union membership as resulting from changes in both the propensity and the opportunity to unionise, but their economic reasoning behind some key explanatory variables is questionable. For example, if prices and money wages increase at the same rate and thus real wages do not change, both a threat and a credit effect are said to enhance union growth in

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[17] See, for example, Pedersen (1978), Sheflin, Troy and Koeller (1981), Carruth and Disney (1988) and Visser (1990, ch 4).

[18] See also the surveys of the empirical evidence by Riley (1997) and Calmfors et al. (2001, p. 19ff.) and the overviews for the US by Fiorito and Greer (1982) and Chaison and Rose (1991).

[19] In contrast, for Australia a real wage variable is found to affect union growth negatively by Sharpe (1971) and by Borland and Ouliaris (1994), whereas Bodman (1998) identifies a positive long-run relationship.

[20] Due to lack of data, Pencavel (1971) provides one of the few time-series studies that could test (and confirm) the suspected negative influence of membership dues on unionisation for the UK, whereas Schnabel (1989b) found no statistically significant effect of this variable for Germany.

their model. This is difficult to reconcile with standard economic theory (and with the absence of money illusion). If union services are a normal good, only a rise in real wages should increase demand. Interestingly, the separate effects of price and money wage inflation on union membership growth are often confirmed by the data[21], but the absence of a good understanding of the reasons for the relationships should make us wary of placing undue emphasis on them. This is particularly true if wages and union membership are determined simultaneously (as predicted by the microeconomic models in section 3) and if there exists a simultaneous relationship between price and wage inflation and union membership growth (as proposed by the older wage-push theory of inflation).[22]

Concerning other theoretical approaches to unionisation, cyclical models of union growth and decline tend to neglect the free-rider problem. Moreover, they can only provide indirect evidence on social custom explanations, by not supporting the hypothesis of a positive enforcement effect of the prevailing level of union density. Sociopolitical variables such as changes in the context of industrial relations and labour legislation are mainly taken into account in time-series models by using dummy variables or indicators of parliamentary representation, and the real impact of these factors is difficult to identify and to interpret.[23] The same can be said for the substitution hypothesis that the provision of certain welfare benefits by government substitutes at least partially for the private provision by unions, which has been tested in time-series models for the US (confirmed by Neumann and Rissman, 1984, and rejected by Stepina and Fiorito, 1986) and for West Germany (rejected by Schnabel, 1989a, 1989b).

A serious flaw of the traditional business cycle approach to union growth is the failure to separate cycle and trend. Cyclical models mainly try to explain the ups and downs of trade union membership by corresponding movements in business cycle variables whereas shifts in underlying, or secular, variables which might explain the trend in union membership are neglected. Although shifts in the occupational composition of the labour force have been included in some business cycle models (see, for example, Stepina and Fiorito, 1986, and Schnabel, 1989a, 1989b), Carruth and

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[21] Real wage variants have been tested (and usually rejected) by Bain and Elsheikh (1976), Carruth and Disney (1988) and Carruth and Schnabel (1990).

[22] Rare examples of econometric work in the business cycle tradition allowing for simultaneity include Hines (1964), Ashenfelter and Pencavel (1969), Booth (1983) and Schnabel (1989b).

[23] Discussions and (often conflicting) empirical results of such legislative and political climate variables can be found in Stepina and Fiorito (1986) for the US, and in Armingeon (1989) and Schnabel (1989a, 1989b) for Germany. See also the controversy on the effect of the Thatcher government's labour laws on the fall in union density in the UK (cf. Freeman and Pelletier, 1990; Disney, 1990).

Disney (1988) were the first to develop a time-series model which explicitly distinguishes between cyclical (short-run) and trend (long-run) factors of unionisation. Their empirical model for the UK utilises cyclical variables in the explanation of membership changes and it employs the long-run relationship between membership and employment as an error-correction mechanism which allows the identification of a long-run solution (that is steady-state union density). Carruth and Schnabel (1990) went one step further and made use of cointegration techniques in identifying a long-run equilibrium relationship in the levels of the usual business cycle variables (supplemented by a labour force composition variable) that could serve as an error-correction mechanism in the dynamic modelling of union membership for Germany. Their empirical model is able to explain the short-run dynamics and the long-run trends in membership in a satisfactory manner and it nests neatly a pure business cycle model developed for Germany by Schnabel (1989a, 1989b). Similar empirical approaches with cointegration and error-correction techniques have been undertaken, *inter alia*, by van Ours (1992) for the Netherlands and by Borland and Ouliaris (1994) and Bodman (1998) for Australia.

These sort of time-series models based on newly developed econometric methods can be seen as an improvement on simple business cycle models because they are able to separate the cyclical short-run dynamics and the long-run secular trends affecting union membership (which might also improve the predictive power of time-series models). In doing so, they can take account of structural developments in the economy such as changes in the composition of the labour force towards women, services, etc., which are said to inhibit union growth. Even these new time-series models, however, face at least two limitations. First, aggregation problems cannot be ruled out.[24] Second, the models cannot explain within-country differences in union density and cross-country differences in the level and development of union membership and density. Here structural and institutional explanations using cross-sectional analyses occupy centre stage.

6. MICRO-DETERMINANTS OF UNION MEMBERSHIP: EMPIRICAL RESULTS OF INDIVIDUAL-LEVEL CROSS-SECTIONAL ANALYSES

In addition to time-series studies, empirical research as to why individuals belong to a union has made use of cross-sectional studies that seek to explain differences in

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[24] Chaison and Rose (1991, p. 37) point to the limitations of union membership data and criticise that '[a]ggregate data continue to be widely used to estimate union growth despite their tendency to obscure important and often contrasting trends, e.g., the differences between public and private sector membership growth…'.

unionisation across units at a point in time rather than variations over time.[25] Most of these studies tend to provide structural explanations of unionisation and concentrate on individual characteristics of union members as well as on sectoral and occupational factors. Determinants of unionisation are thus analysed by comparing the characteristics of union and non-union employees or firms, but with few exceptions (see Waddington and Whitston, 1997; Rij and Daalder, 1997; Visser, 2002), the process of joining a union itself is not the object of these studies.

The huge volume of cross-sectional studies of unionisation can be differentiated in two dimensions, namely the unit of analysis and the dependent variable used. Starting with the former, for some countries there exist cross-sectional studies based on aggregate data for different states, regions, industries, election units, and so on. Other studies analyse unionisation at the firm or establishment level.[26] The majority of cross-sectional analyses, however, focus on individual-level data of union and non-union employees. This approach will also be pursued in the following review of the cross-sectional literature which attempts to identify major individual determinants of unionisation.

The empirical studies selected for further analysis use trade union membership as the dependent variable. In the US, however, many studies use employees' voting behaviour in NLRB elections as the dependent variable.[27] This reflects important differences between the unionisation decision in the US and in most other countries (stressed by Wheeler and McClendon, 1991). Whereas in many countries unionisation simply involves joining an existing organisation which may or may not have representation rights, the decision of American workers to vote for a union also involves instituting a regime of collective bargaining, a union contract, a grievance and arbitration procedure, and so on. These differences should be kept in mind when making international comparisons, even if the empirical evidence for the US in Table 2 is based on studies that use union membership as their dependent variable.

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[25] Obviously it is difficult to clearly distinguish between macro- and micro-determinants of unionism, and the distinction above mainly relates to the different empirical approaches applied. Time-series and cross-sectional studies and their empirical results should be seen as complements whose relationship is interpreted by Riley (1997, p. 270) as follows: 'Whilst both approaches are valuable, individual-level studies may enjoy a higher ability to detect the morphology of the causal links whose effects have been identified on a macro-level.'

[26] See, for example, the interindustry analysis by Bain and Elsheikh (1979) for the UK and the interregional studies by Hirsch (1980) and Moore and Newman (1988) for the US. Inter-establishment studies include Gregg and Naylor (1993), Booth and Chatterji (1995) and Moreton (1999) for the UK and Klodt and Meyer (1998) for Germany. A survey of older studies is provided by Fiorito and Greer (1982, Appendix 2).

[27] See, for example, Farber and Saks (1980) and Farber (1990) as well as the surveys of the US literature by Fiorito and Greer (1982) and Wheeler and McClendon (1991).

(Table 2 near here)

Table 2 provides a synopsis of individual-level cross-sectional studies of union membership. As in Table 1 the countries selected are the US, the UK, Germany, Australia and the Netherlands.[28] The design and the analysis of these studies differ depending on their economic or social science motivation and the data available. Traditionally, economists have tended to interpret estimations of this sort as reduced-form membership equations deriving from the supply-demand framework and the cost-benefit considerations presented in section 2, but in recent years social custom interpretations have also been given attention. Due to space limitations only key explanatory variables are shown in Table 2, and similar variables are grouped together even if their definitions may not be exactly identical across studies. Although Table 2 reveals substantial differences in sample sizes used, variables tested and significance levels found, the results show some consistent patterns.

In most cross-sectional studies union membership has been found to be systematically related to a number of *personal characteristics* such as age, sex, race and education.[29] As Table 2 shows, the stylised fact of a greater propensity of males (m) to be union members is confirmed across countries. It has traditionally been interpreted as a reflection of men's greater degree of attachment to the labour force which would increase the benefits of unionisation both from the point of view of workers and of unions. Research results on the relationship between age or, more appropriately, years of work experience and membership are somewhat mixed, with many estimated coefficients not being statistically significant, but in general this relationship tends to be positive or concave (increasing at a decreasing rate and possibly falling at the end). While the older US literature points to a higher unionisation of non-whites reflecting unions' protection and egalitarian policies, international results for race and nationality are quite mixed and often insignificant (and relationships may have changed anyway over time due to tendencies of anti-discrimination and assimilation). Education is usually assumed to be negatively associated with unionism because more educated employees have greater individual bargaining power (and thus a lesser need for collective voice) and because

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[28] Again, the studies in Table 2 were selected for comparative purposes and for providing a general overview of this field of empirical research. In addition there exist similar cross-sectional studies for the countries in Table 2 (surveyed by Riley, 1997) and for other countries such as Israel (Haberfeld, 1995). For helpful discussions of variables and results, see also Fiorito and Greer (1982) and Hirsch and Addison (1986, ch. 3).

[29] Marital status and number of dependents are other personal characteristics that have been examined as potential determinants of unionisation (see Scoville, 1971; Bain and Elias, 1985; Berg and Groot, 1992; Fitzenberger et al., 1999), but here the evidence is usually inconclusive.

sometimes they identify more with management than with the labour movement. As Table 2 indicates, in the majority of studies selected such a negative relationship shows up, but some of these results are insignificant (and in the Netherlands even a positive relationship is found).

Occupational, industrial and firm characteristics have been included with some success in most studies, indicating that the workplace context plays an important role in unionisation. Not only in the selection made in Table 2, white-collar workers (or, more general, nonoperative occupations) are usually found to be less likely to be union members than blue-collar or manual workers. This is traditionally explained by the latter having more homogeneous preferences and working conditions which make them easier to organise. Part-time workers are also less likely to be members of a union, which may reflect their lower labour force attachment. Part-time jobs are still mostly female jobs that have traditionally been considered by unions as sub-standard and not worthwhile organising. Part-timers may also have a lower sense of shared interests with full-time colleagues at the workplace and may not expect to be in this form of employment for a long time, suggesting that they are less willing and more difficult to organise.

In contrast, union recruitment tends to be easier and less costly in large, homogeneous organisations with a bureaucratic nature and a low turnover rate, which may explain why across countries unionisation is higher in the public sector than in the market sector. Similarly, the positive impact of establishment size found in most studies may reflect lower organising costs for unions in larger units. In addition, union services may be valued most highly in large, bureaucratic organisations where workers are likely to be treated impersonally and feel a greater need for representation and protection.[30] Whether the positive effect on unionisation found in both the public sector and in large establishments also reflects higher peer pressure to conform to a social custom of union membership (as suggested for large firms by Riley, 1997) can only be speculated. In addition to establishment size and workforce characteristics, strong employer resistance to unionisation may also play a role at the workplace level. Although its influence is difficult to estimate empirically, there is some evidence that increased employer resistance to union representation elections in the US (see Lawler and West, 1985; Farber, 1990) and unions' low rate of

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[30] In addition to establishment size, many studies have also paid attention to the location of a company and have found significant effects of regional characteristics and urbanization; see, for example, the studies by Antos et al. (1980) for the US, Bain and Elias (1985) for the UK, and Berg and Groot (1992) for the Netherlands as well as the empirical surveys by Fiorito and Greer (1982) and Riley (1997).

recognition in new establishments in the UK (see Disney et al., 1995; Machin, 2000) have contributed to union decline in both countries.

Cross-sectional studies that have been able to investigate the impact of various measures of *wages and earnings* on union membership either find a positive impact (which would confirm the view of unionism as a normal good) or a hill-shaped relationship: the probability of unionisation first increases with earnings, and after a certain wage level it decreases again (see the graphical exposition in Lorenz and Wagner, 1991). This decrease may reflect increased employer opposition to unionisation of highly-paid employees that usually occupy higher hierarchical positions in a firm. In addition, the benefits of union membership as a proportion of earnings tend to decrease as earnings rise because unions often try to reduce the dispersion of earnings, thereby favouring the workers at the bottom of the income distribution most and those at the top least (Bain and Elias, 1985). Most of these studies, however, do not control for the likely simultaneity of wage and membership determination pointed out in the theoretical literature. Notable exceptions are the simultaneous estimations by Schmidt and Strauss (1976), Lee (1978) and Schmidt (1978) for the US and by Christie (1992) for Australia, who also deal with the union-nonunion wage differential.[31] The empirical tests of the social custom model by Goerke and Pannenberg (1998) and, with firm-level data, by Booth and Chatterji (1995) also take account of this relationship. In general, the results of simultaneous analyses do not drastically alter the insights obtained from single-equation estimations of union membership.

Political and social *attitudes* of individual employees as well as their instrumentality perceptions and images of unions have been found to be significant determinants of union membership in many studies (see the survey by Riley, 1997). Employees' ideological convictions, for instance, seem to influence their unionisation decision. Thus, left-wing views are associated with a higher probability of union membership (see Table 2). In some but not all studies, feelings of dissatisfaction with various aspects of work and pay are also found to significantly increase the probability of unionisation (see Guest and Dewe, 1988; Berg and Groot, 1992). The image of the union also plays a role (cf. Deery and De Cieri, 1991), and trust in the union is

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[31] Interestingly, the three US studies disagree on the question of whether the direction of causation runs from earnings to unionisation or the reverse. While Schmidt and Strauss (1976) find that earnings significantly affect unionisation (whereas the reverse is not true), Lee (1978) concludes that causality runs both ways and that the union-nonunion wage differential is the most important determinant of union membership for semi-skilled workers in the US. Schmidt (1978), however, finds that the wage differential has no discernible effect on the probability of unionism; see also Hirsch and Berger (1984). Since this differential is difficult to measure correctly and does not not exist in many other countries, its impact will not be analysed in detail in this survey.

associated with a higher probability of membership (cf. Windolf and Haas, 1989). Similarly, empirical evidence supports the instrumentality proposition that an employee's decision to unionise is based on his perception of the capacity of the union to produce the desired results (see Guest and Dewe, 1988)[32], whereas class consciousness does not seem to play an important role (cf. Deery and De Cieri, 1991). Such an instrumental view of the union role can be interpreted either in terms of social psychologists' rational choice theory or in terms of economists' cost-benefit considerations, indicating that a clear distinction between economic, social, psychological and political factors is hardly feasible and that all of these factors should be taken into account when explaining union membership.

This insight and the development of social custom models has led more and more researchers to include *social variables* into individual-level cross-sectional studies of unionisation. In these studies, the influence of reference groups and key individuals such as parents and spouses on the decision maker is investigated. As can be seen from the last column in Table 2, a consistent finding across several countries is that if relatives or spouses are unionised, an individual is more likely to be a union member, too. Furthermore, the higher union density in the industry or perceived density in the workplace, the higher is individuals' probability of union membership. Union presence and strength at the workplace (or the existence of a works council, as found by Windolf and Haas, 1989) thus seem to be important for increasing and stabilising membership. These findings are consistent with a social custom interpretation of union membership.[33]

In general, the evidence from cross-sectional studies suggests that a wide range of personal, occupational, attitudinal and social variables play an important role in the unionisation process, some of which cannot be investigated in time-series analyses. There is, however, the problem that cross-sectional analyses can only detect correlations between variables and are not able to answer questions of causality. This problem should be borne in mind when interpreting some of the significant relationships found in the empirical literature, for instance between an individual's union membership on the one hand and his left-wing views, his job satisfaction or the unionisation of his spouse and relatives on the other. Furthermore, the process of joining or leaving a union and the role played by union recruitment strategies is

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[32] In particular, perceived union instrumentality is consistently found to be significantly related to union support in the US; see, for instance, the studies by Farber and Saks (1980) and Deshpande and Fiorito (1989) and the survey of the US evidence by Wheeler and McClendon (1991).

[33] Similarly, from his empirical analysis of Dutch workers joining or leaving the union Visser (2002) concludes that 'social customs theory, and the hypotheses that we can derive from it, appear to stand the test.'

usually not the object of individual-level studies, but it would be a promising area of further research. Despite these qualifications, there is a well agreed upon set of structural variables that are found to be important for explaining union membership in a firm, region or country, but it remains to be seen whether these are also able to explain international differences in unionisation.

7. INSTITUTIONAL DETERMINANTS OF UNIONISATION: EMPIRICAL RESULTS OF CROSS-NATIONAL ANALYSES

In addition to the macro- and micro-determinants discussed above, the institutional framework in an economy and a society may also help determine the level and development of union membership or density. In principle, the costs and benefits of unionisation (as well as the propensity and the opportunity to organise) can be affected by institutional variables such as union-affiliated unemployment insurance, works councils and union access to the workplace, legal protection for union organisers and union members, the centralisation of collective bargaining, and the presence of left-wing governments and pro-union legislation. While some of these potential determinants (such as variations in the legislative framework) could also be investigated in the national time-series and cross-sectional studies described above, usually there is not much variation within a country in such institutions. Therefore analysing cross-national variations in institutional settings assumed to influence unionisation may provide additional insights, and this approach has been favoured mainly by sociologists and political scientists (see, for example, Western, 1997, Ebbinghaus and Visser, 1999, and Blaschke, 2000).

In exploiting cross-national variations in unionisation, such analyses make use of three empirical approaches: They either provide cross-sectional estimations of union density across industrialised countries at a certain date (see, for example, Western, 1997; Ebbinghaus and Visser, 1999); they compare changes in union membership or density in these countries over time (Ebbinghaus and Visser, 1999; Blaschke, 2000; Visser, 2002); or they analyse a pooled time-series cross-section panel data set (Calmfors et al., 2001). In addition to institutional variables, most of the cross-national models estimated also include cyclical and structural factors as potential explanatory variables of unionisation, but the evidence is mixed. Whereas Ebbinghaus and Visser (1999) report that business cycle and social structural variables are insignificant, Blaschke (2000), Calmfors et al. (2001) and Visser (2002) find that inflation,

unemployment, and some measures of the composition of the labour force do play a role in explaining cross-national variations in unionisation.

Concerning institutional variables, the focus is of course on institutions that may exert some influence on the recruitment or retention of union members. A likely candidate is a *union-managed unemployment insurance*, the so-called Ghent system, which currently can be found in Belgium, Denmark, Finland and Sweden (for details, see Western, 1997, ch. 4; for a theoretical analysis, see Holmlund and Lundborg, 1999). Although union membership is not usually a prerequisite for being insured, the administration of the insurance system by union officials (who probably have some discretion in determining who is unemployment involuntarily and thus eligible for drawing benefits) may be a quasi-selective incentive for workers to become union members, and the regular contact with the union during spells of unemployment may induce them to stay in the union when unemployed. Empirical tests of this hypothesis consistently find that the presence of a union-administered unemployment insurance is an important determinant of cross-national differences in union density levels and trends (see Freeman, 1990; Western, 1997; Ebbinghaus and Visser, 1999; Blaschke, 2000; Visser, 2002).

Other institutional factors assumed to foster unionisation are union security arrangements and practices of enforced membership such as the *closed shop* (Olson, 1965). Closed shop practices, once common in the US, the UK and Ireland, attempt to overcome the free-rider problem through coercion. But there is only weak empirical evidence that they are successful in raising union density (see Ebbinghaus and Visser, 1999, and Blaschke, 2000).[34]

Union access to the workplace, which may be secured by law or through collective agreements with employers, and the institutionalisation of employee representatives such as works councils should also play a role in recruiting and keeping union members. Mandatory and voluntary systems of union access or union-dominated workplace representatives exist in many countries, but they exhibit considerable variation (for details, see Ebbinghaus and Visser, 1999). The empirical evidence on

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[34] The effect of closed shop regulation can also be investigated in the federal system of the United States. While in the majority of US states the union shop is predominant (in which workers in a covered establishment must join the union), some states have passed right-to-work (RTW) laws that make mandatory union membership or dues collection illegal. Although on average these RTW states have lower levels of union density, most multivariate analyses indicate that RTW laws have little direct impact on union membership; see the surveys of empirical studies by Hirsch and Addison (1986) and by Fiorito and Greer (1982, p. 9) who conclude that '[t]he argument that RTW laws represent more symbol than substance, including the possibility of reverse causality, cannot be rejected.'

the impact of these institutions is mixed. According to Ebbinghaus and Visser (1999) and Visser (2002) union access to the workplace is a highly significant determinant of union density and membership growth, although Blaschke (2000) finds that statutory employee representation does not exert a positive influence on union development.

Some other institutional hypotheses that have been investigated in cross-national analyses also fail to receive clear empirical support. One of these concerns the (positive) relationship between unionisation and the level of collective bargaining or union centralisation, which is not very significant and probably not stable over time (see Western, 1997; Blaschke, 2000; Calmfors et al., 2001). The existence of leftist governments (which are sympathetic to union views on labour legislation and may enable or encourage unions to increase membership) is found to have a significant positive impact on unionisation in some cross-national studies (cf. Wallerstein, 1989; Western, 1997), but it is insignificant in others (cf. Calmfors et al., 2001). This mirrors the conflicting results of including political variables in the national time-series analyses discussed in section 5.

In general, the evidence from cross-national studies suggests that in addition to economic and social structural variables, institutional factors can play a distinct role in the unionisation process by affecting the framework in which individual decisions to join or leave a union are made. It should not be overlooked, however, that all cross-national analyses suffer from small sample sizes. They generally compare not more than 20 countries, and some of the institutions investigated – such as the closed shop and the Ghent system – only exist in two to four countries. This means that the econometric results should be taken with a pinch of salt, but it does not mean that institutions are unimportant.

8. CONCLUSIONS

This survey has shown that there exists a considerable body of theoretical and empirical research on the determinants of trade union membership. While the conventional supply and demand framework of economists provides a helpful starting point for any theoretical analysis of unionisation, the free-rider problem and social, psychological and political factors stressed by other disciplines of the social sciences must also be taken into account. Some of these potential determinants, which often can be interpreted in terms of costs and benefits, have been incorporated either into the traditional supply and demand framework or into new models of an individual's

decision to unionise such as social custom theory. Important insights of these models are that union membership and wages are determined simultaneously, and that there exists a minimum critical mass of membership or density below which union existence is not viable.

A review of the international empirical evidence on the determinants of union membership shows that while there are substantial differences in the design and the results of the empirical studies, some consistent patterns seem to emerge. Concerning the macro-determinants analysed in time-series studies, there is some evidence across countries that business cycle factors as well as structural developments play a significant role in explaining short-run changes and long-run trends in union membership. Individual-level cross-sectional studies have identified a number of micro-determinants such as personal, occupational and firm characteristics, earnings, attitudes and social variables that are associated with the unionisation decision. Cross-national analyses have pointed to the importance of some institutional determinants of unionism such as a union-affiliated unemployment insurance. What is often missing, however, are attempts to integrate macro- and micro-level findings and cyclical, structural and institutional explanations of unionisation.

Similarly, it has proved difficult to build a bridge between the variety of theoretical approaches and the empirical literature on the determinants of unionisation. Both strands of the literature have long developed separately, with empirical findings often preceding theoretical research. Those empirical studies that tried to relate to theoretical considerations, for instance by applying the conventional supply and demand framework, have been plagued by the lack of adequate data on key variables reflecting the costs and benefits of union membership. The gap between theoretical and empirical work seems to have narrowed with the emergence of social custom models which have prompted additional empirical research. While this research has improved our understanding of the unionisation decision by identifying social custom effects, it would be desirable to include also pure private good incentives in such empirical analyses and compare their impact with that of social custom effects. Here again the lack of adequate data is a major problem. Better and richer data sets (such as representative large-scale panel data of individuals and firms) also seem to be a prerequisite for successfully integrating macro and micro approaches to unionisation, but in most countries such data sets either do not exist or do not identify union members.

The impression that the strong international variation in union density as well as the substantial fall in membership and density recorded in many countries are phenomenons that are not yet fully understood and the fact that the relative importance of cyclical, structural and institutional factors is heavily disputed[35] underscore that further research is needed. This research should try to better integrate the different approaches of the various disciplines of social science, it should pay more attention to the process of joining or leaving a union and to union recruitment strategies, and it should attempt to provide a more comprehensive model in which individual workers' optimising decisions are seen in a wider perspective that pays more attention to the social and institutional background. Obviously important questions remain to be addressed before economists and other social scientists can claim a real understanding of what the determinants of union membership are.

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[35] See, for instance, the conflicting conclusions of the cross-national analyses by Ebbinghaus and Visser (1999), Blaschke (2000) and Calmfors et al. (2001), or the widely varying explanations of the substantial decline in union density in the UK provided, *inter alia*, by Disney (1990), Freeman and Pelletier (1990), Mason and Bain (1993), Andrews and Naylor (1994), and Machin (2000).

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Table 1: **Selected time-series studies of trade union growth**
(dependent variable is membership growth except for Booth (1983) where it is union density)

Authors and sample	significant (insignificant) influence of key explanatory variables								
	price inflation	nominal wage growth	employment growth	Unemployment rate	change	lagged density	politics (Labour friendly)	labour force composition	additional variables
Ashenfelter/Pencavel (1969) US 1904-1960	+		+			−	+		unemployment at the pit of the last recession: +
Bain/Elsheikh (1976) US 1897-1970	+	+			−	−			dummy for government actions 1937-47:+
Stepina/Fiorito (1986) US 1911-1982	(+)	+		(+)		−	(−)	−	dummies for special periods;business failures
Bain/Elsheikh (1976) UK 1893-1970	+	+		(−/+)		−			dummy for price rises > 4 %: −
Booth (1983) UK 1895-1980	(+)	+		(−/+)		+			
Carruth/Disney (1988) UK 1896-1984	+	−	+		−	(−)	(+)		
Armingeon (1989) Germany 1951-1987		+	+				+		

Schnabel (1989a) Germany 1955-1986	(+)	+	+	(−/+)				−	
Carruth/Schnabel (1990) Germany 1956-1986	+	+	+		−			−	
Sharpe (1971) Australia 1907-1969	real wage growth −		+	−		−			dummy for labour legislation: +
Bain/Elsheikh (1976) Australia 1907-1969	(+)	+		−	−	−			dummy for labour legislation: +
Borland/Ouliaris (1994) Australia 1913-1989	real wage growth −		+/−		−				lagged membership growth: +
Van Ours (1992) Netherlands 1961-1989				−	(−)	−			change in labour income ratio: +
Berg (1995) Netherlands 1948-1986				−		−	+		number of strikes: + social benefits rate: −

Note: +/− indicate that an explanatory variable exhibits a positive/negative influence on the dependent variable that is statistically significant at the 5 per cent level; insignificant results are put in parentheses

Table 2: Selected individual-level cross-sectional studies of union membership

Authors and sample	significant (insignificant) influence of key explanatory variables										
	sex	age/work experience	race/ nationality	education	white collar	part-time	public sector	establish-ment size	earnings	left-wing views	additional variables
Scoville (1971) US 1966; 1,535 individuals	f(−)	+	negro +	(−)					+		industry and regional dummies
Schmidt/Strauss (1976) US 1967; 912 full-time workers	m+	(−)	white (−)	−					+		regional dummies
Antos et al. (1980) US 1976; 38,132 blue-collar workers	f−	+	nonwhite +	−	−	−	+			+	SMSA: +; occupational and industry dummies
Bain/Elias (1985) UK 1975/76; 30,281 individuals	m+	+/−		−	−	−		+	+/−		union density in industry: +; regional dummies
Ingham (1995) UK 1992; 627 individuals		(−)	British (+)	(+)		−					relatives are unionised: +; perceived union density: +
Goerke/Pannenberg (1998) UK 1991; 517 workers		(−)	nonwhite (+)	−				(+)	+		partner prefers Labour: +
Germany 1993; 1,304 individuals		(−)	foreigner (+)	(−)	−			+	(+)		partner union member: +

Study											
Windolf/Haas (1989) Germany 1980s; 2,510 workers	f(–)	(+)		–		–	+	+		+	father is manual worker: (+); single: –; trust in union: +
Lorenz/Wagner (1991) Germany 1985; 2,454 full-time workers	f–	(+)	foreigner (+)	–	–			+	+/–	+	job satisfaction: (–)
Fitzenberger et al. (1999) Germany 1985/89/93; 2,403 workers	f(–)	+	foreigner (–)	(–)	–	(–)	(+)	+	(+/–)	+	married (–); industry dummies
Deery/De Cieri (1991) Australia 1987; 862 workers	m(+)	(+)		(–)	–	–	+			+	spouse in union: +; negative union image: –
Christie (1992) Australia 1984; 1,316 employees	f–	+		(+)	–		+				occupational and state dummies
Berg/Groot (1992) Netherlands 1988; 2,589 indiv. Netherlands 1987; 5,266 workers	m+ m+	+/– +/–	foreigner (–)	+ +		– –	+ +	+	+/–		temporary job: –; wage satisfaction: – Roman catholic: –; no. of children: –

Note: +/– indicate that an explanatory variable exhibits a positive/negative influence on the dependent variable that is statistically significant at the 5 per cent level; insignificant results are put in parentheses

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