

Dreher, Axel; Gaston, Noel

**Working Paper**

## Has globalisation really had no effect on unions?

KOF Working Papers, No. 110

**Provided in Cooperation with:**

KOF Swiss Economic Institute, ETH Zurich

*Suggested Citation:* Dreher, Axel; Gaston, Noel (2005) : Has globalisation really had no effect on unions?, KOF Working Papers, No. 110, ETH Zurich, KOF Swiss Economic Institute, Zurich, <https://doi.org/10.3929/ethz-a-005104861>

This Version is available at:

<http://hdl.handle.net/10419/50836>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

**K O F**

Konjunkturforschungsstelle  
Swiss Institute for  
Business Cycle Research

# Arbeitspapiere/ Working Papers

Axel Dreher and Noel Gaston

Has Globalisation Really Had No Effect  
on Unions?

No. 110, November 2005

**ETH**

Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich



# HAS GLOBALISATION REALLY HAD NO EFFECT ON UNIONS?

**Axel Dreher and Noel Gaston**\*

This version: 30 November 2005

## **Abstract**

For a number of OECD countries, the deterioration of labour market outcomes for less-skilled workers since the early 1980's has coincided with a steady decline in union membership. Globalisation is commonly believed to have contributed to both developments. However, recent studies fail to find support for the presumption that globalisation adversely affects unions. Revisiting this issue by using a novel globalisation index we find that globalisation has indeed contributed to deunionisation. In delving further into the issue, we find that it is social integration, rather than economic or political integration, that has been the main contributor to the decline in union membership.

**Keywords:** Deunionisation; globalisation; integration; panel regressions.

**JEL classification:** F02; J50; O57; C82.

\* Dreher: *Department of Management, Technology, and Economics, Swiss Federal Institute of Technology, ETH Zentrum WEH, CH-8092 Zürich, Switzerland.* Gaston: *Faculty of Business, Bond University, Gold Coast, Queensland 4229, Australia.* Correspondence: [ngaston@bond.edu.au](mailto:ngaston@bond.edu.au). The authors are grateful to Michael Lamla, David Peetz, Sarah Rupprecht and Jan-Egbert Sturm for their comments. All errors, of omission and otherwise, are attributable to the authors alone.



## **I. Introduction**

One of the striking economic facts of the 1980s and early 1990s in many developed economies was the deterioration in the relative labour market outcomes for unskilled workers. Symptomatic of the deterioration was the increasing skilled wage premium. With the focus of academic and social concern turning to the welfare of the unskilled, institutional changes in developed country labour market, such as deunionisation, the decentralisation of collective bargaining and labour market deregulation, have understandably attracted considerable attention. Since the early 1980's, union membership has been declining in many OECD countries; in some cases the declines have been precipitous. The last two decades of the last millennium were relatively poor ones for unskilled workers and the link to deunionisation seems obvious. For instance, Blau and Kahn (1996) find that a lot of the difference in wage inequality between the United States and nine other OECD countries can be explained by what they term "union-pay levelling effects". Unions compress wage distributions.<sup>1</sup>

Changes in the relative demand for labour, reflected by the changing composition of product demand brought about, e.g., by falling trade barriers, and changes in the factor-mix driven by skill-biased technical change have been the most popular explanations for the deteriorating labour market outcomes for unskilled workers. In particular, increasing integration is likely to lead to both greater product market and labour market competition. International trade, the multinationalisation of production and international migration have been subject of an enormous economics literature attempting to link globalisation and the poor labour market outcomes for unskilled workers. Some of this research also finds that union workers have been the most vulnerable to global forces (e.g., Gaston and Trefler, 1995). Four channels through which this vulnerability is exposed are as follows. First, international competition reduces the economic rents for employers and workers to negotiate over. Secondly, the increasing mobility of capital shifts the threat points in the bargaining game over the dwindling economic rents. Thirdly, globalisation may encourage governments or

---

<sup>1</sup> Generally speaking, there is far more wage compression, measured by 50-10 log wage differentials for instance, in countries with centralised wage-bargaining structures, strong union movements and higher minimum wages (Davis, 1992). Interestingly, compared to the United States the 90-10 log wage differential is much smaller in other countries, but the 90-50 differential is quite similar (Blau and Kahn, 1996).

unions to adopt policies that weaken union bargaining strength (Gaston, 1992; Scruggs and Lange, 2002). Finally, unionisation may be adversely affected by social integration, i.e., the variety of non-economic and non-political factors which seemed to have simultaneously affected many economies. For example, Friedman (1999) equates globalisation with “Americanisation”. Hence, if globalisation implies institutional convergence to some common (U.S.) benchmark, then developed country labour markets are in the process of becoming less unionised and less regulated. The common element linking each of these factors is that they are all consistent with falling union membership.

In this paper we empirically examine whether union membership in OECD countries has been affected by globalisation. In addition to the covariates that are common in the literature, a novelty of our approach is the use of indices of globalisation that capture what some commentators argue to be the three distinct dimensions of globalisation – economic integration, political integration and social integration. The indices are developed in Dreher (2005, 2006) and are based on a large number of variables which relate to the different dimensions of globalisation. The variables have been combined to form six groups: actual flows of trade and investment, restrictions, variables measuring the degree of political integration, data quantifying the extent of personal contact with people living in foreign countries, data measuring trans-border flows of information and a proxy for cultural integration. These dimensions are combined to form three sub-indices and one overall index of globalisation with an objective statistical method – the same method as that applied by Gwartney *et al.* (2000) in the construction of their well-known economic freedom index.<sup>2</sup>

Focussing on the separate dimensions of globalisation seems appropriate because a common finding in recent studies investigating the determinants of deunionisation is that *economic* globalisation does not seem to have mattered. While this finding may strike many economists as somewhat surprising, we argue that a narrow focus on the effects of trade and

---

<sup>2</sup> Appendix A describes the method in more detail. More recently, the economic freedom index is constructed by simply averaging the data. Gwartney and Lawson (2003) provide a recent discussion of the concept and measurement of the economic freedom index. See also de Haan and Sturm (2005) who find that the relationship between economic growth and economic freedom is invariant to the aggregation procedure applied.

investment liberalisation on unions may involve adopting an insufficiently broad perspective on the effects of globalisation on unions.

The next section of the paper briefly describes the research linking deunionisation with globalisation, as well as some related empirical research. Section 3 contains our own estimates of the impact of the three dimensions of globalisation on unionisation in OECD countries. Section 4 concludes.

## **II. Deunionisation, globalisation and the labour market**

According to Wallerstein and Western (2000), two crucial longitudinal features of union organisation and the centralisation of wage setting are as follows. First, labour market regulation, unionisation and bargaining centralisation in industrialised countries steadily diverged over the three decades from 1950. Second, there was a convergent pattern of decline in union density and centralised wage setting during the 1980s. Falling unionisation was especially severe in the English-speaking countries, where union density fell by 15 points in the United Kingdom, by 12 points in Australia and by 10 points in Ireland and the United States (Wallerstein and Western, 2000, pp.357-358). They also highlight the fact that most “standard” models of union organisation failed to predict the large declines of unionisation that occurred during the 1980s.

There is now a sizable body of research examining the relationship between the institutional structure of the unionised sector of an economy (i.e., the extent and centralisation of organisation) and various measures of macroeconomic performance. Countries with encompassing labour market institutions (i.e., large unionised sectors with centralised bargaining) are characterised by: lower wage inequality (Rowthorn, 1992; Zweimüller and Barth 1994; OECD, 1997); lower unemployment (OECD, 1997); and higher growth (Calmfors and Driffill, 1988; Rowthorn, 1992; Calmfors, 1993; Danthine and Hunt, 1994). The usual explanation involves the ability of centralised bargaining institutions to internalise negative wage externalities (Calmfors, 1993; Garrett, 1998). That is, where strong sectoral unions pursue wage gains relative to some perceived market wage, resulting in cost-push inflation, reduced employment, lower growth and inter-sectoral inequality, the centralised union recognises these negative externalities and takes them into account in its bargaining.



Thus, as unionisation has declined, there is some evidence that wage inequality has increased (Freeman, 1998).

While the search for common factors in the trend of increasing earnings inequality in the last two decades has primarily focussed on the relative demand for less-skilled workers, explanations for cross-national differences in labour market outcomes have increasingly resorted to comparative institutional analysis. In an important paper, DiNardo and Lemieux (1997) conclude that the greater deunionisation of the workforce in the United States relative to Canada can explain much of the difference in male earnings inequality between the two countries. Likewise, Fortin and Lemieux (1997) find that deunionisation can explain about a third of the increased earnings inequality for U.S. male workers. These studies contrast with earlier studies that tended to dismiss the role of deunionisation, because in a similar fashion to deindustrialisation, the related process of deunionisation has been an ongoing one.

One of the essential claims in much of the popular writing on globalisation, and surely a major source of the pervasive social concern about globalisation, is its transformative nature. That is, globalisation is taken to transform institutional structures in ways that might be obscured when we apply the standard toolkit of economic theory. For example, increased globalisation may initiate changes to labour market institutions, such as collective bargaining practices, that have historically served to bolster the position of less-skilled workers in the labour market. Bluestone and Harrison (1982, p.170) argue that “... *large corporations ... can build, expand, or acquire facilities outside the [United States] altogether. In fact, all the strategic innovations devised by multiplant companies for playing off one group of workers against another ... have become standard operating procedure in the global economy.*”

Lindbeck and Snower (1996) show that in the age of the new global firm, which stresses multi-tasking activities by employees, that centralised wage bargaining is inefficient. Efficiency dictates the switch to less-centralised forms of wage bargaining and a greater reliance on individual employment contracts. Greater reliance on market-based contracts and movements away from centralised wage bargaining and union-employer negotiations would by themselves increase the dispersion of labour market earnings. Some recent evidence consistent with this line of argument is presented by Haskel *et al.* (1997) who show that

increasing labour market flexibility in the United Kingdom has resulted in labour input being more closely aligned to the business cycle.

Some authors have explicitly linked increased international competition and trade as a reason for a move towards more decentralised wage bargaining. For example, Marginson and Sisson (1988) note that British multinational corporations have been less likely to engage in multi-employer bargaining (see also Katz, 1993 and Ehrenberg, 1994).<sup>3</sup> Katz (1993, p.16) argues that the “... *increasing prevalence of multinational trade and multinational firms may ... help to explain the declines in multi-employer bargaining that have occurred in a number of countries.*”<sup>4</sup> Driffield and Taylor (2000) note, for instance, the insistence by Japanese corporations operating in the United Kingdom on single union deals. Standing (1997) argues that international trends towards increased labour market flexibility and deunionisation have been propelled by globalisation. In fact, the ‘erosion’ of labour security has been “*fuelled by the international division of labour*” (p.12).

Since countries with similar standards of living and economic development generally have access to labour and capital of similar quality, it is quite likely that the magnitude and nature of any technical change will also be similar. In fact, Katz *et al.* (1995) have argued that this must also be true for any changes on the demand-side, since European Union countries were also affected by import penetration from countries abundant in unskilled labour. Given the similarity in aggregate endowment, technology and shocks, it seems quite natural to investigate the different institutional forces operating in each country to understand cross-country differences in the trends and structure of earnings dispersion. In the United Kingdom and the United States, deunionisation has been a significant labour market development in economies in which bargaining structures are already relatively decentralised (see Layard *et al.*, 1994; Katz, 1993). Some authors have argued that these changes are explicitly linked to growing international competition (e.g., Freeman and Gibbons, 1995).

---

<sup>3</sup> Edwards and Podgursky (1986, p.46) argue that “[u]nions now find themselves negotiating with increasingly centralised corporations at an increasingly decentralised level”.

<sup>4</sup> Katz lists Sweden, Australia, the former West Germany, Italy, the United Kingdom and the United States as having bargaining structures that have to varying degrees experienced decentralisation of their collective bargaining structures. At the beginning of the 1980’s, Sweden and Australia had “extremely centralised” collective bargaining.

In short, globalisation is widely thought to have affected unions and the way in which workers' wages and employment are negotiated. On the one hand, globalisation is taken to imply increased competition that, even without any change in relative bargaining power, will squeeze sectoral rents and lead to reduced wages in post-globalisation bargains (see Abowd and Lemieux, 1993). In a closely related fashion, by raising the elasticity of demand for labour, imports can be seen to directly reduce the market power of unions (see, e.g., Dumont *et al.*, 2005). An alternative argument involves an expectation that firms and capital are globally more mobile than labour (e.g., Mezzetti and Dinopoulos, 1991). The existence of an exit option or threat, even if not actually exercised, may also change the relative bargaining power of the firm and the union (see Gaston, 2002). Each of these forces would likely lower the benefits of union membership for workers.<sup>5</sup>

In view of the rather strong theoretical presumption that globalisation has adversely affected unions, it is then somewhat surprising that recent empirical studies find so little evidence that globalisation has contributed to the decline of union membership. At the outset it should be noted that some authors argue that there is no crisis in contemporary trade unionism (see Golden and Wallerstein, 1995, 1999; and Wallerstein *et al.*, 1997). For instance, despite falling union membership in a number of countries, the majority of workers in Western Europe are still covered by collective bargaining agreements (Wallerstein and Western, 2000). Moreover, there are few common trends in contemporary trade unionism and no sustained decline of organised labour or the decentralisation of collective bargaining underway across all countries. More pointedly, Golden and Londregan (1998) and Golden (2000) find little or no evidence that increasing trade and financial openness is bad for labour or that it has had significant adverse effects on union organisation and membership. Scruggs and Lange (2002) also find insignificant effects of economic globalisation on union membership trends. In addition, Wallerstein and Golden (1997) argue that while there is no general decentralisation of wage setting underway in the four Nordic countries, that Swedish

---

<sup>5</sup> A contrary view is taken by Agell (1999, 2002) who presents cross-country evidence suggesting that more open economies have stronger unions and more centralised wage setting. He argues that bargaining institutions which compress the wage distribution are better at satisfying workers' demand for social insurance against wage risk, which is the stronger the more open an economy is.

decentralisation is largely the result of a deliberate, politically-motivated attack on the political power of organised labour.

### **III. Has globalisation affected unionisation?**

In this section we focus on whether the decline of union density can be explained by global factors. A first major task of any empirical study of the effects of globalisation is to have a workable, but not overly narrow, definition of globalisation. Many studies in the pertinent economics and political economy literatures often provide very detailed analyses of individual components of globalisation, but few studies examine the overall consequences of globalisation on economic outcomes and institutions. The effects reported for one dimension of globalisation might therefore appear only because other important aspects of globalisation are omitted from a regression analysis. Most dimensions of globalisation are strongly related to one other, so that including them separately in a regression analysis induces collinearity problems. Excluding dimensions which are not the primary focus of the analysis – the prevailing approach in the literature – can, however, severely bias the coefficient estimates.

Throughout our paper globalisation is taken to mean the process of creating networks of connections among actors at multi-continental distances, mediated through a variety of flows including people, information and ideas, capital and goods (Clark, 2000). It is a process that erodes national boundaries, integrates national economies, cultures, technologies and governance and produces complex relations of mutual interdependence (Norris, 2000). In the political economy literature, it is now common to distinguish the following dimensions of globalisation (see Keohane and Nye, 2000, e.g.):

- *economic globalisation*, characterised as the long distance flow of capital, goods and services as well as information and perceptions that accompany market exchanges;
- *political globalisation*, characterised by the diffusion of government policies; and
- *social globalisation*, as expressed by the spread of ideas, information, images and people.

To measure the degree of economic globalisation, two indices constructed in Dreher (2005, 2006) are employed. One index measures actual flows: trade, foreign direct

investment and portfolio investment. Income payments to foreign nationals and capital employed are included to proxy the extent to which a country employs foreign people and capital in its production processes. The second index measures restrictions on trade and capital using hidden import barriers, mean tariff rates, taxes on international trade and an index of capital controls. Given a certain level of trade, a country with higher revenues from trade taxes is considered to be less globalised. To proxy restrictions of the capital account most previous studies employed rather crude measures. Rodrik (1998) used the proportion of years for which the capital account was free of restrictions. Alesina *et al.* (1994) coded a dichotomous dummy variable. Since the degree of openness is likely to vary across countries and time, the more continuous index constructed by Gwartney and Lawson (2002) is used. It is based on the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* and includes 13 different types of capital controls. The data on actual flows and on restrictions are aggregated into two sub-indices and one overall index (Dreher 2005). All variables, their precise definitions and data sources are listed in Appendix B.

To proxy the degree of political globalisation, the number of embassies in a country, the number of international organisations in which the country is a member and the number of United Nations peace missions a country participated in are used.

Without a doubt, the aspect of globalisation which is hardest to pin down relates to the flow of information and ideas. According to Keohane and Nye (2000) these constitute the most pervasive form of globalisation. Thus, they are an essential component of any measure of globalisation. These flows are measured so as to distinguish between three categories: data on personal contacts, data on information flows and data on cultural proximity. To proxy flows of information and personal contacts, measures like international tourism, internet users, number of radios and other variables are used. Following Saich (2000), cultural globalisation is interpreted as the domination of U.S. cultural products. This is because the United States is the trend-setter in much of the global social-cultural realm (see Rosendorf, 2000, e.g.). Cultural proximity could be proxied by the number of English songs in national hit lists, English books or newspapers sold in a particular country, or movies shown in national cinemas that originated in Hollywood (Dreher 2005). However, the only proxy available is the number of McDonald's restaurants located in a country. Appendix table 1

reports the individual components of globalisation. As can be seen, economic, political and social integration obtain roughly equal weights.<sup>6</sup>

We estimate combined cross-section time-series regressions to analyse whether the various elements of globalisation have affected unionisation. We use panel data for 17 OECD countries and 20 years, 1980 to 1999.<sup>7</sup> As the index of globalisation is only available in five-year-intervals, all data are averages over five years.<sup>8</sup> One advantage of employing averaged data is that it allows us to focus on medium-term changes and our results are thus not driven by cyclical fluctuations in union membership. The obvious disadvantage is that we have to base our conclusions on only 58 observations. We found significant fixed country effects in all specifications.<sup>9</sup> However, the coefficients of the country effects are not reported in the tables. All standard errors are estimated robustly (i.e., the standard errors are heteroscedasticity-consistent). All variables, their precise definitions and data sources, are listed in Appendix B. Appendix C presents descriptive statistics.

Our model takes the following form:

$$DU_{i,t} = \alpha + \beta G_{i,t} + \gamma' X_{i,t} + \eta_i + \varepsilon_{i,t} \quad (1)$$

where  $i$  indexes countries and  $t$  time,  $DU$  is the change in union density,  $G$  represents the measure of globalisation,  $X$  is a vector of exogenous variables,  $\eta_i$  is a country fixed effect and  $\varepsilon_{i,t}$  is a normally distributed random disturbance.<sup>10</sup>

The explanatory variables, apart from the index of globalisation are: the effects of left-leaning parties in government, population density, the percentage of the workforce in

---

<sup>6</sup> The principal components analysis employed to construct the index attributes smaller weights to each individual component, the more components of one category there are. Comparing the results for McDonald's restaurants and foreign direct investment, for example, does not imply that restaurants are more important than foreign direct investment. If the analysis were to include a greater number of cultural indicators, the individual weights would be lower.

<sup>7</sup> The choice of countries is driven by data availability. We use data for Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Sweden, Switzerland, the United Kingdom and the United States.

<sup>8</sup> One reason for not constructing the index on a yearly basis is that some of the data included are unavailable (see Dreher, 2006).

<sup>9</sup> We also perform a Wald test for the presence of first order serial correlation (see Wooldridge, 2002). The null hypothesis of no serial correlation in the residuals is unable to be rejected at conventional levels of significance.

<sup>10</sup> We omit period fixed effects which turned out to be jointly insignificant.

industrial employment, inflation and the unemployment rate. All variables are measured as averages over the respective five-year-period. Wallerstein and Western (2000) argue that a strong economy should bolster union membership. Accordingly, higher inflation and low unemployment should be associated with higher union density. The percentage of workers in industry is intended to capture the underlying process of deindustrialisation. Left-wing governments are commonly thought to favour union rights and a legislative environment supportive of unions.<sup>11</sup> Population density is included to capture the costs of union organisation.

The results appear in table 1. Column (1) includes the overall index of globalisation. First, unsurprisingly, the level of unionisation rises with population density, with a coefficient significant at the ten percent level. At the one percent level, the rate of inflation and unionisation are negatively correlated. Bearing in mind our use of five-yearly data, this is not necessarily contradictory to the business cycle-based explanation of union membership growth (Western and Wallerstein, 2000). In fact, when we replace the inflation and unemployment rate with the growth in GDP in the regression specification, the effects of the business cycle on union density are statistically insignificant.

Most importantly for our analysis, the results of column (1) show that globalisation indeed affects unionisation. The level of unionisation significantly decreases with rising globalisation, which is in line with the hypothesis that *unionisation has been adversely affected by globalisation*. The magnitude of the coefficient is quantitatively relevant as well. An increase in the index by one point reduces unionisation by 0.73 percentage points. Given that the average five-period-change for union density across our sample is -0.28 and that the average globalisation index of 4.6, this represents a substantial impact. (As an example, the estimated impact mirrors the change in the union density of Switzerland's labour force from 1976-1980 to 1981-1985.) The standardised regression (beta) coefficient is -0.61.

---

<sup>11</sup> We use a dummy that equals one for left-wing governments according to the definition of Beck *et al.* (2001). To check our results, we also measure the political persuasion of governments as = 1 if there is right-wing domination in both government and parliament; = 2 if right-wing or centre parties make up between 33.3% and 66.6% of government; = 3 if centre parties make up 50% or more of government; = 4 if left-wing or centre parties make up between 33.3% and 66.6% of government; and = 5 if left-wing parties dominate the government. These data are from Woldendorp *et al.* (1998). As we lose one observation by employing the latter definition we employ former. The results are unchanged.

Column (2) employs the disaggregated globalisation indices and columns (3) to (5) include each sub-index one at a time. As can be seen, the most important determinant of deunionisation is social globalisation; the estimated coefficients for economic and political integration are insignificant – both when included individually and when employed at the same time.

Recall that the social globalisation index is intended to measure the spread of ideas, information, images and people. Boockmann and Dreher (2003) argue that the means of information and communication are important since they relay information about economic performance in other countries. Exposure to such information may provoke discussions which will result in the acceptance of new concepts, policies and institutions (Brown *et al.*, 2000). Successful technologies and institutions are adopted which promote competitiveness and better economic performance. Mayer-Schöenberger and Hurley (2000) argue that global communication networks promote international trade and economic integration because they lower cross-border transaction costs. In part, this speaks to the difficulty in completely distinguishing between economic and social integration. Marketing information can be accessed by customers worldwide, which implies a decline in the importance of geographic proximity. Given an increasing amount of information about economic policies in other countries, cultural proximity could reduce resistance against those ideas.<sup>12</sup>

Deunionisation is associated with social integration. As noted, for some commentators social integration is synonymous with “Americanisation” (e.g., Friedman, 1999; Rosendorf, 2000). Hence, social integration may imply that the labour market institutions of non-U.S. developed countries are converging to a non-unionised, deregulated U.S. counterpart. This is particularly the case for the management and labour relations practices in the other Anglo-Saxon countries (see Peetz, 1998).

Other, possibly more tangible, factors associated with the effects of social integration on labour market institutions are mentioned by Ebbinghaus (2002; 2003). First, longer-term

---

<sup>12</sup> In a similar fashion, it has been argued that globalisation increases the general credibility of orthodox (i.e., market-oriented) policy advice and solutions, thus reducing the plausibility of arguments supporting welfare state expansion and enhancing the credibility of arguments in favour of welfare state retrenchment (Evans, 1997; Krugman, 1999).



socio-economic changes, associated with deindustrialisation and the growth of the atypical and part-time work forces, as well as the growing normative orientation towards individualism rather than collectivism make collective organisation more difficult (Ebbinghaus, 2002). Secondly, the recent wave of immigration, particularly from non-EU countries to Western Europe, changes the composition of the supply of potential union members. Many of these immigrants came from countries where workers do not have the same propensity to unionise and/or migrated to countries where racism and xenophobia among native union workers made unionisation unattractive (Ebbinghaus, 2003). Further, given that many immigrants are, on average, younger than native workers in host countries, and to the extent that the young tend to view unions as old-fashioned and anachronistic institutions, also mitigates against the growth of union membership (Ebbinghaus, 2002).

Table 2 omits the fixed country effects as they are collinear with the dummy variables, *Ghent* and *Anglo*. The panel is estimated with random effects instead.<sup>13</sup> The *Ghent* dummy equals one for the four high union density countries in which unions play an active role in the administration of (publicly-financed) unemployment benefits. A standard argument is that the Ghent system enables unions to shelter their members from the effects of labour market competition (see, e.g., Wallerstein and Western, 2000). The *Anglo* dummy equals one for Anglo-Saxon countries. In contemporary times at least, Anglo-Saxon countries generally have more flexible labour markets and wage systems and have experienced greater growth in wage inequality (e.g., Cahuc and Zylberberg, 2004). The dummy variable is also included to capture any of the “Americanisation” influences discussed above (as in Peetz, 1998, e.g.), which are likely to be stronger for English-speaking countries.

As can be seen, the estimates of all the key coefficients are almost completely unchanged. In particular, the coefficient for the overall globalisation index is again negative and significant at the one percent level. Columns (2) and (5) again show that the results are driven by the effects of social integration alone. The dummy for Ghent countries is significant at the one percent level in all regressions, with a positive coefficient. This

---

<sup>13</sup> However, the Hausman test rejects random effects in favour of fixed effects at the one percent level of significance for the specifications appearing in columns (1) and (5).

suggests that the Ghent countries not only have higher levels of unionisation, but have also been the most successful in resisting the forces driving the process of deunionisation. The large and significant negative coefficient for Anglo-Saxon countries captures the very sharp declines in unionisation in those countries.<sup>14</sup> Quantitatively, being a Ghent country increases unionisation from 0.47 to 0.7 percentage points, while unionisation is between 0.74 to 1.0 percentage points lower in Anglo-Saxon countries. The fact that the size and significance of the coefficient for social integration did not become significantly smaller suggests that the effects of social integration on unions are not attributable to a simple Americanisation story.

Finally, to examine the sensitivity of our results to influential observations, we checked for the influence of outliers using robust regression.<sup>15</sup> The estimates indicate that the results are not driven by outliers, i.e., the impact of the overall globalisation index and the index of social integration remains significant (not reported in tables). Figures 1 and 2 further illustrate the relationship between the change in unionisation and globalisation. They depict partial leverage plots which show the correlation of the change in unionisation and the globalisation indices once the impact of the other independent variables has been controlled for.<sup>16</sup> The figures also indicate that the reported results above are not driven by any influential observations.

#### **IV. Discussion and concluding comments**

One of the striking economic facts of the 1980s and early 1990s in many Western economies was the deterioration in the relative labour market outcomes for unskilled labour. Over the same period, it has been argued, these same countries experienced an increase in a number of components of something widely called "globalisation". Globalisation has accelerated in recent decades, as evidenced by, among other things, the growth in the trade of goods and services and the growth in foreign direct investment. The driving forces seem to be

---

<sup>14</sup> Also note that the inflation effect present in table 1 disappears. This is at least partly attributable to the fact that Anglo-Saxon countries had relatively lower inflation rates in contemporary times (the correlation between *inflation* and *Anglo* is -0.27).

<sup>15</sup> The robust regression technique weights observations in an iterative process. Starting with OLS, estimates are obtained using weighted least squares where observations with relatively large residuals receive a smaller weight. This results in estimates not being driven by any specific observation.

<sup>16</sup> Figure 2 is based on the specification in table 1, column 2.

the decline in administrative barriers to trade, sharp falls in the costs of transportation and communication, and the fragmentation of production processes.

From an academic perspective, the labour market developments have stimulated research on a broad range of policy-related issues: from trade, macroeconomic and labour market policy coordination through to the internationalisation of non-border measures. The essential empirical issue is macroeconomic: accounting for the *economy-wide* rise of the skill-premium at a time when the share of skilled to unskilled workers is rising. The interpretation of the empirical results, as well as the appropriate implementation of the framework, is not without controversy, but the aggregate professional prior would seem to have settled on the conclusion that international trade has a small effect on the skill-premium, but that other factors, such as skill-biased technological change, are more important. The analysis of the effects of immigration on the skill premium has generally produced even smaller empirical estimates.

With a strong suspicion that globalisation still “matters”, some commentators have argued that it is useful to consider the possibility that the widespread concern with globalisation emerges as a result of changes that are, to some extent, obscured when we apply standard labour- or trade-theoretic methods to understand globalisation. In particular, the *indirect effects* of globalisation raise the possibility that institutions which have compressed wages in the past have been eroded or altered by the various elements of globalisation (see Gaston and Nelson, 2004). A prominent example is the possibility that deunionisation is to some extent explained by globalisation. Given the traditional role that unions have played in supporting the wages of less- and semi-skilled workers, the erosion of union bargaining power would lead to a widening in the skilled wage premium that would superficially appear to be unrelated to the direct effects of globalisation.

Since the early 1980s, union membership in most OECD economies has fallen. The process of deunionisation roughly coincides with the rapid globalisation of the very same economies. It has been common practice to associate these developments. Somewhat surprisingly previous studies have failed to find a systematic link between measures of union strength and the usual measures of economic openness. We revisited the issue of whether the decline of union density can be explained by global factors. In addition to the covariates that

are commonly used in the literature, our regression analysis employed an index of globalisation and its different components as independent variables. The globalisation index was developed in Dreher (2005, 2006) and is further decomposed into three sub-indices which represent the three different dimensions of globalisation – economic integration, political integration and social integration.

In a finding similar to that found in previous studies, we confirm that economic integration has *not* affected union membership. However, we found that social integration has been *very* important. This is our main contribution to what is already a large literature. That is, the social dimension of globalisation has adversely affected union membership. Social integration is concerned with the spread of ideas, information, images and people. Some authors have argued that social integration implies an Americanisation of institutions and policies. Regardless of whether this is considered to be a Race-to-the-Top or a Race-to-the-Bottom, the implication for many developed countries is that their labour markets are now less unionised with wage bargaining occurring at increasing decentralised levels.

**Table 1: Deunionisation and Globalisation, 17 countries, fixed effects**

	(1)	(2)	(3)	(4)	(5)
Index of Globalisation	-0.734 (3.10***)				
Economic Integration		-0.035 (0.14)	-0.156 (0.72)		
Political Integration		-0.140 (1.13)		-0.101 (0.76)	
Social Integration		-0.407 (2.77***)			-0.401 (3.08***)
Population density	0.045 (1.94*)	0.041 (1.68)	0.053 (2.14**)	0.058 (2.42**)	0.038 (1.55)
Left wing governments, dummy	-0.341 (0.94)	-0.362 (1.05)	-0.776 (2.03**)	-0.762 (2.03**)	-0.488 (1.55)
Unemployment rate	0.075 (1.24)	0.058 (0.87)	0.078 (1.10)	0.086 (1.20)	0.045 (0.70)
Inflation	-0.114 (3.00***)	-0.106 (2.57**)	-0.092 (1.94*)	-0.082 (1.71*)	-0.103 (2.49**)
Industrial percentage	0.094 (1.30)	0.082 (1.08)	0.156 (2.09**)	0.146 (1.86*)	0.098 (1.33)
Constant	-5.976 (1.05)	-5.999 (1.03)	-11.339 (1.92*)	-11.991 (2.17**)	-6.941 (1.23)
Number of observations	58	58	58	58	58
Hausman (Prob>chi2)	0.00	0.28	0.10	0.03	0.00
Adj R-squared	0.53	0.52	0.44	0.44	0.54

\* denotes significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

Hausman tests the hypothesis of no systematic difference in random and fixed effects specifications.

**Table 2: Deunionisation and Globalisation, 17 countries, random effects**

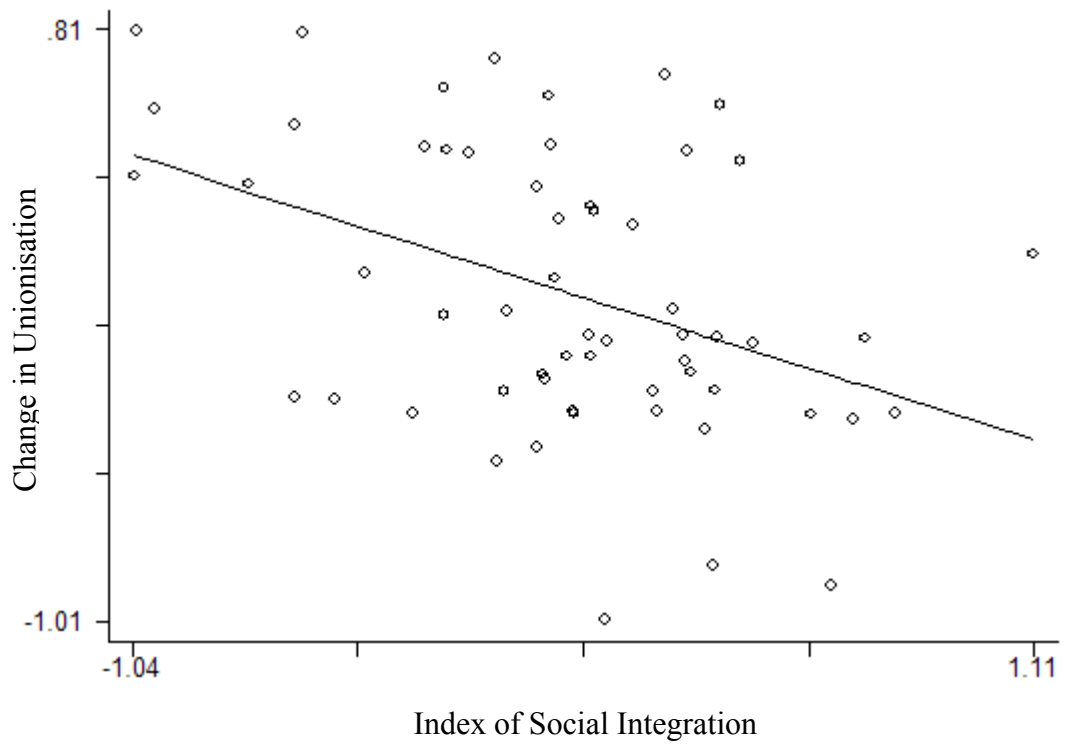
	(1)	(2)	(3)	(4)	(5)
Index of Globalisation	-0.456 (2.49**)				
Economic Integration		0.054 (0.32)	-0.145 (0.96)		
Political Integration		-0.085 (0.89)		-0.064 (0.65)	
Social Integration		-0.348 (2.71***)			-0.315 (2.82***)
Population density	-0.002 (1.90*)	-0.002 (2.24**)	-0.002 (1.66*)	-0.002 (2.32**)	-0.002 (2.38**)
Left wing governments, dummy	-0.325 (1.20)	-0.335 (1.19)	-0.519 (1.93*)	-0.452 (1.54)	-0.439 (1.71*)
Unemployment rate	-0.005 (0.16)	-0.032 (0.85)	-0.001 (0.03)	0.013 (0.36)	-0.042 (1.27)
Inflation	-0.039 (1.18)	-0.044 (1.35)	-0.006 (0.18)	-0.002 (0.06)	-0.037 (1.19)
Industrial percentage	-0.048 (1.88*)	-0.057 (2.13**)	-0.038 (1.57)	-0.034 (1.39)	-0.056 (2.19**)
Ghent, dummy	0.698 (2.46**)	0.687 (2.36**)	0.516 (1.92*)	0.466 (1.76*)	0.660 (2.43**)
Anglo, dummy	-0.801 (2.50**)	-0.811 (2.36**)	-0.825 (2.52**)	-0.954 (2.91***)	-0.736 (2.32**)
Constant	3.724 (2.83***)	3.459 (2.57***)	2.079 (1.75*)	1.547 (1.62)	3.183 (2.93***)
Number of observations	58	58	58	58	58
R-squared (overall)	0.46	0.48	0.43	0.42	0.48

\* denotes significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

**Figure 1: Change in Unionisation and Globalisation, Partial Leverage Plot**



**Figure 2: Change in Unionisation and Social Integration, Partial Leverage Plot**



## References

- Abowd, J. M., and T. Lemieux (1993). "The effects of product market competition on collective bargaining agreements: the case of foreign competition in Canada". *Quarterly Journal of Economics* 108, 983-1014.
- Agell, J. (1999). "On the benefit from rigid labour markets: norms, market failures, and social insurance". *Economic Journal* 109, F143-64.
- \_\_\_ (2002). "On the determinants of labour market institutions - rent seeking vs. social insurance". *German Economic Review* 3, 107-35.
- Alesina, A., V. Grilli and G. M. Milesi-Ferretti (1994). "The political economy of capital controls". In *Capital Mobility: The Impact on Consumption, Investment and Growth*, edited by L. Leiderman and A. Razin. Cambridge: Cambridge University Press, 289-321.
- Beck, T., A. Demirgüç-Kunt and R. Levine (2001). "New tools in comparative political economy: the database of political institutions". *World Bank Economic Review* 15(1), 165-76.
- Blau, F. D., and L. M. Kahn (1996). "International differences in male wage inequality: institutions versus market forces". *Journal of Political Economy* 104(4), 791-837.
- Bluestone, B., and B. Harrison (1982). *The Deindustrialization of America: Plant Closings, Community Abandonment, and the Dismantling of Industry*. New York: Basic Books.
- Boockmann, B., and A. Dreher (2003). "The contribution of the IMF and the World Bank to economic freedom". *European Journal of Political Economy* 19(3), 633-49.
- Brown, L. D., S. Khagram, M. H. Moore and P. Frumkin (2000). "Globalization, NGOs, and multisectoral relations". In *Governance in a Globalizing World*, edited by J. S. Nye and J. D. Donahue. Washington, DC: Brookings Institution Press, 271-96.
- Cahuc, P., and A. Zylberberg (2004). *Labor Economics*. Cambridge, MA: MIT Press, Chapter 10.
- Calmfors, L. (1993). "Centralisation of wage bargaining and macroeconomic performance – a survey". *OECD Economic Studies* 21, 161-91.
- \_\_\_ and J. Driffill (1988). "Bargaining structure, corporatism and macroeconomic performance". *Economic Policy* 6, 14-61.
- Clark, W. C. (2000). "Environmental globalization". In *Governance in a Globalizing World*, edited by J. S. Nye and J. D. Donahue. Washington, DC: Brookings Institution Press, 86-108.



- Danthine, J. P., and J. Hunt (1994). "Wage bargaining structure, employment and economic integration". *Economic Journal* 104, 528-41.
- Davis, S. J. (1992). "Cross-country patterns of change in relative wages". In *1992 NBER Macroeconomic Annual*, edited by O. J. Blanchard and S. Fischer. Cambridge, MA: MIT Press, 239-92.
- De Haan, J., and J.-E. Sturm (2005). "Is the IMF right? How robust is the relationship between market-oriented institutions and policies and economic growth?" unpublished paper.
- DiNardo, J., and T. Lemieux (1997). "Diverging male wage inequality in the United States and Canada, 1981-1988: do institutions explain the difference?" *Industrial and Labor Relations Review* 50(4), 629-51.
- Dreher, A. (2005). "The influence of globalization on taxes and social policy – an empirical analysis for OECD countries". *European Journal of Political Economy*, forthcoming.
- \_\_\_ (2006). "Does globalization affect growth? Evidence from a new index of globalization". *Applied Economics*, forthcoming.
- Driffield, N., and K. Taylor (2000). "FDI and the labour market: a review of the evidence and policy implications". *Oxford Review of Economic Policy* 16(3), 90-103.
- Dumont, M., G. Rayp and P. Willeme (2005). "Does internationalisation affect union bargaining power? An empirical study for five EU-countries". *Oxford Economic Papers*, forthcoming.
- Ebbinghaus, B. (2002). "Trade unions' changing role: membership erosion, organizational reform, and social partnership in Europe". *Industrial Relations Journal* 33(5), 465-83.
- \_\_\_ (2003). "Trade union movements in post-industrial welfare states: opening up to new social interests?" paper prepared for the *Conference on the Political Regulation of New Social Risks*, Lugano, Switzerland, September.
- \_\_\_ and J. Visser, editors (2000), *Trade Unions in Western Europe since 1945*. London: Macmillan.
- Edwards, R., and M. Podgursky (1986). "The unraveling accord: American unions in crisis". In *Unions in Crisis and Beyond*, edited by R. Edwards. Dover, MA: Auburn House, 15-60.
- Ehrenberg, R. G. (1994). *Labor Markets and Integrating National Economies*. Washington, DC: The Brookings Institution.
- Evans, P. (1997). "The eclipse of the State: reflections on Stateness in an era of globalization". *World Politics* 50(1), 62-87.

- Fortin, N. M., and T. Lemieux (1997). "Institutional changes and rising wage inequality: is there a linkage?" *Journal of Economic Perspectives* 11(2), 75-96.
- Freeman, R. B. (1998). "War of the models: Which labour market institutions for the 21<sup>st</sup> century?" *Labour Economics* 5, 1-24.
- \_\_\_ and R. S. Gibbons (1995). "Getting together and breaking apart: the decline of centralized collective bargaining". In *Differences and Changes in Wage Structures*, edited by R. B. Freeman and L. H. Katz. Chicago: University of Chicago Press, 345-70.
- Friedman, T. L. (1999). *The Lexus and the Olive Tree*. New York: Farrar, Strauss and Giroux.
- Garrett, G. (1998). *Partisan Politics in the Global Economy*. Cambridge: Cambridge University Press.
- Gaston, N. (2002). "Unions and the decentralisation of collective bargaining in a globalising world". *Journal of Economic Integration* 17, 377-96.
- \_\_\_ and D. Nelson (2004). "Structural change and the labour market effects of globalisation". *Review of International Economics* 12, 769-92.
- \_\_\_ and D. Trefler (1995). "Union wage sensitivity to trade and protection: theory and evidence". *Journal of International Economics* 39(1/2), 1-25.
- Golden, M. (2000). "Economic integration and industrial relations: is increasing openness bad for labor?" University of California-Berkeley Center for German and European Studies working paper 1.62.
- \_\_\_ and J. Londregan (1998). "Globalization and industrial relations". Paper delivered at the *American Political Science Association*, Boston, Massachusetts, September.
- \_\_\_ and M. Wallerstein (1995). "Unions, employers, and collective bargaining: a report on data for 16 countries From 1950 to 1990". UCLA Institute of Industrial Relations working paper 95-2.
- \_\_\_ and \_\_\_ (1999). "Postwar trade union organization and industrial relations in twelve countries". In *Continuity and Change in Contemporary Capitalism*, edited by H. Kitschelt, P. Lange, G. Marks and J. D. Stephens. Cambridge: Cambridge University Press.
- \_\_\_, \_\_\_ and P. Lange (1998). "Union centralization among advanced industrial societies". National Science Foundation.
- Gwartney, J., and R. Lawson (2003). "The concept and measurement of economic freedom". *European Journal of Political Economy* 19, 405-30.
- \_\_\_, \_\_\_ and D. Samida (2000). *Economic Freedom of the World 2000, Annual Report*. <http://www.freetheworld.com>.

- Haskel, J., B. Kersley and C. Martin (1997). "Labour market flexibility and employment adjustment: micro evidence from UK establishments". *Oxford Economic Papers* 49, 362-79.
- Katz, H. C. (1993). "The decentralization of collective bargaining: a literature review and comparative analysis". *Industrial and Labor Relations Review* 47(1), 3-22.
- Katz, L. F., G. W. Loveman and D. G. Blanchflower (1995). "A comparison of changes in the structure of wages in four OECD countries". In *Differences and Changes in Wage Structures*, edited by R. B. Freeman and L. F. Katz. Chicago: University of Chicago Press, 25-65.
- Keohane, R. O., and J. S. Nye (2000). "Introduction". In *Governance in a Globalizing World*, edited by J. S. Nye and J. D. Donahue. Washington, DC: Brookings Institution Press, 1-44.
- Krugman, P. (1999). "Domestic policies in a global economy". *Brookings Trade Forum – 1999*. Washington, DC: Brookings, 73-93.
- Layard, R., S. Nickell and R. Jackman (1994). *The Unemployment Crisis*. Oxford: Oxford University Press.
- Lindbeck, A., and D. J. Snower (1996). "Reorganization of firms and labor-market inequality". *American Economic Review* 86(2), 315-21.
- Marginson, P., and K. Sisson (1988). "The enterprises in profile". In *Beyond the Workplace: Managing Industrial Relations in the Multi-establishment Enterprise*, edited by P. Marginson, P. K. Edwards, R. Martin, J. Purcell and K. Sisson. Oxford: Warwick Studies in Industrial Relations, Blackwell, 21-50.
- Mayer-Schöenberger, V., and D. Hurley (2000). "Globalization of communication". In *Governance in a Globalizing World*, edited by J. S. Nye and J. D. Donahue. Washington, DC: Brookings Institution Press, 135-54.
- Mezzetti, C., and E. Dinopoulos (1991). "Domestic unionization and import competition". *Journal of International Economics* 31(1/2), 79-100.
- Organisation for Economic Co-operation and Development (OECD), (1997). *Employment Outlook*. Paris: OECD.
- \_\_\_ (2001). *OECD Historical Statistics 1970/2000*. Paris: OECD.
- Petz, D. (1998). *Unions in a Contrary World: The Future of the Australian Trade Union Movement*. Cambridge: Cambridge University Press.
- Rodrik, D. (1998). "Who needs capital account convertibility?" In *Should the IMF Pursue Capital-Account Convertibility? Essays in International Finance 207*, edited by S. Fischer,

- R. N. Cooper, R. Dornbusch, P. M. Garber, C. Massad, J. J. Polak, D. Rodrik and S. S. Tarapore. Princeton, NJ: Department of Economics, Princeton University, 55-65.
- Rosendorf, N. M. (2000). "Social and cultural globalization: concepts, history, and America's role". In *Governance in a Globalizing World*, edited by J. S. Nye and J. D. Donahue. Washington, DC: Brookings Institution Press, 109-34.
- Rowthorn, R. E. (1992). "Centralisation, employment and wage dispersion". *Economic Journal* 102, 506-23.
- Saich, T. (2000). "Globalization, governance, and the authoritarian state: China". In *Governance in a Globalizing World*, edited by J. S. Nye and J. D. Donahue. Washington, DC: Brookings Institution Press, 208-28.
- Scruggs, L., and P. Lange (2002). "Where have all the members gone? Globalization, institutions, and union density". *Journal of Politics* 64(1), 126-53.
- Standing, G. (1997). "Globalization, labour flexibility and insecurity: the era of market regulation". *European Journal of Industrial Relations* 3, 7-37.
- Wallerstein, M., M. Golden and P. Lange (1997). "Unions, employers associations and wage-setting institutions in North and Central Europe, 1950-1992". *Industrial and Labor Relations Review* 50(3), 379-401.
- \_\_\_ and \_\_\_ (1997). "The fragmentation of the bargaining society: changes in the centralization of wage-setting in the Nordic Countries, 1950-1992". *Comparative Political Studies* 30, 699-731.
- \_\_\_ and B. Western (2000). "Unions in decline: what has changed and why?" *Annual Review of Political Science* 3, 355-77.
- Woldendorp, J., H. Keman and I. Budge (1998). "Party Government in 20 democracies: an update (1990-1995)". *European Journal of Political Research* 33, 125-64.
- Wooldridge, J. M. (2002). *Econometric Analysis of Cross Section and Panel Data*. Cambridge, MA: MIT Press.
- World Bank (2002). *World Development Indicators, CD-Rom*. Washington, DC.
- Zweimüller, J., and E. Barth (1994). "Bargaining structure, wage determination, and wage dispersion in 6 OECD countries". *Kyklos* 47, 81-93.

### **Appendix Table 1: Components of the index of globalisation**

<b>A.</b>	<b>Data on economic integration</b>	<b>[35%]</b>
	i) Actual flows	(50%)
	Trade (% of GDP)	(23%)
	Foreign direct investment (% of GDP)	(29%)
	Portfolio investment (% of GDP)	(27%)
	Income payments to foreign nationals (% of GDP)	(22%)
	ii) Restrictions	(50%)
	Hidden import barriers	(20%)
	Mean tariff rate	(30%)
	Taxes on international trade (% of current revenue)	(24%)
	Capital account restrictions	(26%)
<b>B.</b>	<b>Data on political engagement</b>	<b>[28%]</b>
	Embassies in country	(34%)
	Membership in international organisations	(34%)
	Participation in UN Security Council missions	(32%)
<b>C.</b>	<b>Data on social globalisation</b>	<b>[38%]</b>
	i) Data on personal contact	(24%)
	Outgoing telephone traffic	(31%)
	Transfers (% of GDP)	(9%)
	International tourism	(1%)
	Telephone average costs of call to U.S.A.	(33%)
	Foreign population (% of total population)	(26%)
	ii) Data on Information Flows	(39%)
	Telephone mainlines (per 1,000 people)	(18%)
	Internet hosts (per capita)	(15%)
	Internet users (% of population)	(18%)
	Cable television (per 1,000 people)	(16%)
	Daily newspapers (per 1,000 people)	(16%)
	Radios (per 1,000 people)	(17%)
	iii) Data on cultural proximity	(37%)
	Number of McDonald's restaurants (per capita)	(100%)

Notes: The numbers in parentheses indicate the weights used to derive the indices. Weights may not sum to 100 due to rounding.

Source: Dreher (2006).

## **Appendix A: Construction of the index of globalisation**

To construct the indices of globalisation, each variable (in Appendix table 1) is converted into an index with a zero to ten scale. Higher values denote greater globalisation. When higher values of the original variable indicate greater globalisation, the formula  $((V_i - V_{min}) / (V_{max} - V_{min}) * 10)$  is used for transformation. Conversely, when higher values indicate less globalisation, the formula is  $((V_{max} - V_i) / (V_{max} - V_{min}) * 10)$ . This procedure is employed by Gwartney *et al.* (2002) in the construction of their economic freedom index. The weights for the sub-indices are calculated using principal components analysis. The base year is 2000. For this year, the analysis partitions the variance of the variables used. The weights are then determined in a way that maximises the variation of the resulting principal component, so that the index captures the variation as fully as possible. If possible, the weights determined for the base year are then used to calculate the indices for each single year back to 1970. Where no data are available, the weights are readjusted to correct for this. Dreher (2006) provides further details of the method employed.

## Appendix B: Sources and Definitions

Variable	Description	Source
Union density	Union density is measured by the total union membership (less self-employed) weighted by the total dependent workforce.	Ebbinghaus and Visser (2000) for European countries; Golden <i>et al.</i> (1998) for Australia, Canada, Japan and the United States
Index of globalisation	Index constructed with principal components analysis comprising 23 variables measuring globalisation.	Dreher (2006)
Economic integration	Sub-index comprising measures of actual economic flows and restrictions. Ranges from 1 to 10, with higher values representing greater globalisation.	Dreher (2006)
Political integration	Sub-index comprising data on political engagement. Ranges from 1 to 10, with higher values representing greater globalisation.	Dreher (2006)
Social integration	Sub-index comprising data on personal contacts, information flows, and cultural proximity. Ranges from 1 to 10, with higher values representing greater globalisation.	Dreher (2006)
Population density	Population density is mid-year population divided by land area in square kilometres. Population is based on the de facto definition of population which counts all residents regardless of legal status or citizenship - except for refugees not permanently settled in the country of asylum, which are generally considered part of the population of their country of origin.	World Bank (2003)
Left wing governments, dummy	Dummy that equals 1 if the chief executive is from a left-wing party and 0 otherwise.	Beck <i>et al.</i> (2001)
Unemployment rate	Unemployment rate in percent	OECD (2001)
Inflation	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a fixed basket of goods and services.	OECD (2001)
Industrial percentage	Calculated as the ratio of industrial employment to the total labour force.	OECD (2001)
Ghent	Dummy variable that equals 1 for Belgium, Denmark, Finland and Sweden; and equals 0 for the other countries in our data set.	
Anglo	Dummy that equals 1 for Australia, Canada, Ireland, United Kingdom and United States; and equals 0 for the other countries in our data set.	

### Appendix C: Descriptive Statistics

Variable	Mean	Minimum	Maximum	Standard Deviation
Union density (change)	-0.28	-1.72	1.58	0.76
Index of globalisation	4.53	3.29	6.00	0.61
Economic integration	5.10	3.53	6.98	0.78
Political integration	5.99	3.46	8.33	1.21
Social integration	2.92	0.90	5.24	0.97
Population density	140.79	1.87	463.67	129.79
Left wing governments, dummy	0.40	0.00	1.00	0.38
Unemployment rate	7.43	0.60	15.60	3.68
Inflation	4.27	0.35	13.77	2.96
Industrial percentage	27.68	19.64	38.28	4.63
Ghent	0.26	0.00	1.00	0.44
Anglo	0.22	0.00	1.00	0.42