

The role and influence of trade unions in the OECD

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Executive Summary

In this report the role of trade unions in the United States is compared with those in eighteen other OECD countries using micro-data at the level of the individual. The main findings are as follows.

1. The declines in union density experienced in the US in the last thirty years are not typical of the OECD.
2. There are a many similarities across countries in who belongs to a union.
3. The union-nonunion wage differential in the US is approximately 15%, which has remained roughly constant over time. Unions in most other countries appear to raise wages by less.
4. Unions reduce total hours of work. The size of the effect appears to be relatively small in the US.

In this report the role of trade unions in the United States is compared and contrasted with those in other OECD countries. The proportion of workers represented by unions fell dramatically in the US in the 1970s and 1980s and to a lesser extent in the 1990s. There are only a few other countries -- Japan, Austria and the United Kingdom are the main examples -- where this picture is replicated. There are quite a few countries where union density has actually *grown* sharply over the same time period, e.g. Finland, Denmark, Spain and Sweden. The most striking example of a country that has followed a very different path to that of the United States is its neighbor Canada. In 1993 Canadian union density was higher than it was in 1973 (37.4% and 32.8% respectively), even though many of the same firms and even the same trade unions operate in the two countries. Why has unionism the United States followed a different path from that followed in other OECD countries? What do unions do outside the US? To what extent and in what ways do trade unions impact on labor market outcomes elsewhere?

The availability of micro-data files at the level of the individual for a large number of OECD countries, which contain information on union membership plus a host of workplace and personal control variables, means it is now possible to compare the experience of these other countries with that of the US. This is new. A primary concern of this report is measurement. In what follows I attempt to measure the size and extent of union impacts across countries.

The following are the main questions that are examined in the report.

1. What are the characteristics of individuals who joins unions? How do they vary across countries and through time?
2. What effects do union have on the wages of their members compared to those of similar non-members?

comparisons between the two countries and to document any changes that have occurred through time. Perhaps unsurprisingly, there are more similarities than differences between these two countries. Then the exercise is repeated for each of the remaining countries. Due to the small size of the samples and the short number of years of data for these other countries, data are pooled across years, hence little can be said about time-series properties of the various phenomena examined. Indeed, in a few cases there is only one year of data available (e.g. Spain and Japan)

The main findings are as follows

1. The declines in union density experienced in the US in the last thirty years are not typical of the OECD. A few countries such as the UK, Austria and Japan had sharp declines in density whilst other countries experienced *increases* in density e.g. Canada, Denmark and Sweden.
2. There is only a weak relationship between movements in union density and macroeconomic performance.
3. There is some evidence that unions did better in countries with centralized as opposed to decentralized wage setting systems.
4. The predominant reason behind the rapid decline in US unionism appears to be employer resistance to unions and the highly adversarial electoral process that exists to determine union recognition.
5. There are a many similarities across countries in who belongs to a union. Men are more likely to be members than women but the gap appears to be narrowing over time, at least in the US and the UK. Public sector workers have a higher probability of membership than private sector workers as do manufacturing workers compared with those in private services. The probability of belonging to a union is an inverse U-shape in age maximizing at around 45 years. There is some

density are greatest in countries where the union wage differential is substantial. Examples are the US, the UK and Austria.

7. Unions reduce total hours of work. They tend to reduce standard hours and unpaid overtime hours but increase the number of paid overtime hours. Part-time work is less prevalent in union settings than it is in non-union settings. The size of the union-nonunion hours differential appears to be lower in the US than it is in most of the other countries that were examined earlier (e.g. the UK and Germany).

This report has five parts. First, it sets the scene by examining briefly the different structures of unionism across countries and how they impact on labor market outcomes. It also documents differences in union density and bargaining coverage across countries and through time. Second, it examines the determinants of who actually belongs to a trade union across OECD countries. Third it estimates the effects of unions on relative wages. Fourth, it explores the extent to which unions are able to influence hours of work. The final part presents some conclusions and policy recommendations.

1) Structures of unionism.

The union movement in the United States has been in retreat during most of the Post-war years. There are some difficulties in obtaining a consistent time series on the number of union members because of changes in how the data are collected. In the years prior to 1983 the numbers were derived from the National Directory Series and count the number of dues paying members reported by labor unions. From 1983 on they are based on survey estimates from the Current Population Survey. Table 1 presents the best time series available. The total number of workers who are union members in 1995 is lower than it was in 1955 (columns 1-3), despite the fact that

few of the member countries of the OECD². In a number of countries the opposite pattern emerges of rapid *growth* in union representation over the same period.

The rapidly changing economic and political environment of the 1970s and 1980s placed union movements in the OECD under pressure to an extent that is unprecedented since the depression of the 1930s. In general these pressures were not unique to the United States and were common to all OECD countries, to greater or lesser extents. The following were the major changes:³

1. A major slowdown in world economic growth and productivity and the increased inflation following the 1970s oil shocks, which created adverse labor market situations in virtually all Western countries. Unemployment rates soared, particularly in Europe; unemployment consistent with a given level of vacancies rose; real wages fell for blue-collar workers, particularly in the US, and unions in several countries took real wage cuts in the 1980s in order to stimulate employment⁴.
2. The composition of employment shifted from highly unionized to traditionally non-union sectors and workers. The share of employment in manufacturing dropped almost everywhere, while the share of employment in white-collar work grew, producing a labor force for whom many traditional union issues were irrelevant. The female proportion of employment rose as did the percentage of part-timers; the level of workers' schooling increased; and the age structure of the workforce changed as the baby boom generation entered the labor market. Since the workplace needs of white-collar workers, women and more educated and younger workers differ somewhat from those of prime-age male, blue collar workers, who built most union movements, new strategies were needed to attract these workers to the labor movement.

3. Labor markets became increasingly internationalized, as trade was liberalized, immigration increased, and capital markets took on a more global structure. The United States lost its lead in world technology, eliminating a source of potential economic rents for American workers.

4. Collectivist and socialist ideologies lost favor to individualistic market ideologies. Reagan broke the air-traffic controllers' strike in the US and Thatcher introduced tough labor legislation in the UK and defeated the mineworkers' union in a protracted dispute.

Thus in the 1980s and early 1990s, the social and economic environment became increasingly hostile to unionism internationally and to many traditional practices and policies. In this environment, U.S. unions suffered dramatic losses, comparable to those experienced in the 1920s and 1930s. From this scenario one might expect unions to be in decline everywhere in the OECD, but this is far from the truth. The available data on union density in the OECD paints a divergent pattern across countries. In an earlier paper (Blanchflower and Freeman, 1992) countries were classified into four groupings according to whether the country had sharp rises in density; rises in the 70s but stable in the 1980s; rises in the 1970s but declines in the 1980s and declining density. With the availability of data into the 1990s it is necessary to adapt that taxonomy a little. The categories of 'sharp declines' and 'sharp increases' in density are retained. However, two new categories of countries now need to be distinguished. First, a group of countries are identified that experienced increases in the 1970s but declines in the 1980s which continued into the 1990s e.g. the United Kingdom. The final grouping consists of countries that experienced declining density in the 1980s -- some with increases and some with increases in density in the 70s -- but by the 1990s the decline in density had stabilized or even reversed⁵. The new classification of countries used is thus as follows (see Table 2):

d) *declining density in the 1980s, stabilizing in the 1990s* -- the main examples are Belgium, Canada, Germany, Italy, Netherlands and Norway.

Figures 1-4 provide more detailed information on time series movements in union density in twenty countries from 1970-1994. (Appendix A -- which is taken from Visser (1996) who constructed the data series -- provides the raw data themselves)⁶. There are some problems in comparing the data because there are differences in how the data are collected: some are taken from administrative sources and some from surveys; some countries have unemployed and retired workers included in their estimates (e.g. Canada) and some do not⁷. Notwithstanding all of these caveats it is apparent that the United States decline in density and its overall level of density is atypical of the OECD. The only country that looks anywhere close to the US picture is Japan. It has experienced strong declines in density and by the mid-1990s less than a quarter of workers were in unions. Other countries with low densities such as the Netherlands and Spain have had very different trends and histories. Even in countries like the UK that have had considerable declines in density over the last two decades, the percentage of workers that are members is still considerably higher than it is in the United States (e.g. 14.9% in the U.S. in 1995 compared with 32.1% in the UK).

There have been a number of econometric attempts in the literature to explain the low and declining rate of unionization in the US. These have tended to concentrate on structural factors such as the decline in manufacturing and the emergence of a service economy (e.g. Farber, 1985, 1990), employer opposition (Freeman, 1990), inadequate support from the law (Weiler, 1990) and the lack of resources for organization given an exceptionally difficult legal environment (McDonald, 1990). Empirical evidence suggests that the various compositional factors have

part, the predominant factor is employer resistance to unions (Freeman, 1988). Compared to Canada, American employers face less legal constraints on their behavior and seem more willing to eliminate union representation or to shift to a non-union environment elsewhere. In comparison with other countries, the US decides union membership in a highly adversarial electoral process at plant level. Riddell (1993) has analyzed the divergence in the patterns of union density in Canada and the US. He examines five possible explanations: (1) changes in the industrial structure of employment that have split away from more heavily unionized sectors like manufacturing and toward less unionized sectors like services, (2) changes in the legal regimes that encourage unionization, (3) differences in the degree of management opposition (4) changes in the demand for union representation, and (5) differences in public attitudes and value systems towards collective actions. His main conclusion is that differences in the legal regimes and in overt management opposition is the primary cause of the quite separate paths in unionization rates that the two countries have followed⁸.

Outside of the US there have also been a series of econometric papers trying to explain the dynamics of union density within a variety of OECD countries. In general these have been based on aggregate time-series movements in union density. The papers include Hines (1964), Bain and Elsheikh (1976), Bain and Price (1983), Price and Bain (1983), Carruth and Disney (1988), Freeman and Pelletier (1990), Disney (1990) and Beaumont and Harris (1995) for the UK; Sharpe (1971) and Borland and Ouliaris (1994) for Australia; Carruth and Schnabel (1990) for Germany; Pedersen (1982) for Denmark; Freeman and Pelletier (1990), Roche and Larragy (1990) and Sapsford (1984) for Ireland; Sharma (1989b) for Malaysia and Singapore; Sharma and Sephton (1991) for Taiwan; Sharma (1989a) for South Korea; Swidinsky (1974) and Kumar and Dow

also some evidence for countries other than the US that the declines are also due to changes in the climate in which trade unions operate. Freeman and Pelletier (1990), for example, found that "the vast bulk of the observed 1980s decline in union density in the UK is due to the changed legal environment for industrial relations" (1990, P.156). Unemployment is likely to have the effect of decreasing unionization rates as unemployed workers stop paying membership dues. There is a lot of evidence across countries that suggests that high (local) unemployment weakens workers bargaining power (Blanchflower and Oswald, 1994). On the other hand inflation may encourage workers to join unions as they see price increases eroding their real earnings. Employers are more likely to concede wage rises because in times of high and or rising inflation, because these increases can be passed on more easily to customers.

Table 3 illustrates the fact that there is no simple relationship between unemployment or inflation and the growth or decline of unions across countries. It reports standardized unemployment rates and changes in consumer prices for 1978, 1986 and 1994 for countries classified, as in Table 2, according to changes in union density. With only four exceptions, all of the countries in Table 3 experienced increases in unemployment alongside declines in inflation between 1978 and 1994. This is true no matter what the profile of union density rates. Portugal had a decline in both unemployment and inflation; Turkey had an increase in both, despite the fact that both countries experienced declining density. The US had falling inflation and roughly constant unemployment, but a widening income and earnings distribution (see Katz et al, 1995). Germany also experienced rising inflation and rising unemployment, presumably driven by the short-run consequences of unification. On the basis of the evidence that is to hand, unemployment and/or inflation do not appear to be the dominant factors in explaining differences and changes in

whether you join or not. Hence non-union workers can free-ride on union agreements. Outside the US, Japan, and Canada, it is frequently the case that workers who are not union members are covered by the terms and conditions of union agreements. This can occur through extension and enlargement provisions both within and outside the bargaining unit. Thus it is necessary to look at coverage rates to get a true picture of the extent of union influence in many countries. Unfortunately it is often extremely difficult to obtain accurate information on coverage as individuals when asked in sample surveys are frequently uncertain, or report wrongly, whether or not they are covered by union agreements.

Table 4 presents union density and coverage rates for 1990 and 1994 for nineteen countries. The coverage rates were collected by the OECD using data from employers which tends to be more rather more accurate than that derived from individuals (see OECD, 1994, 1996 for sources etc.). In 1994 union bargains covered at least 90% of workers in Austria, Belgium, Denmark, Finland, France, Germany and Sweden and at least two-thirds of workers in 12 of the nineteen. There is little difference in membership and coverage rates in the US, Canada and Japan. In contrast, in France even though 9% of workers are union members, nineteen out of twenty are covered. Analogously in Austria, which has seen a decline in density from 61% in 1970 to 43% in 1993, coverage rates are nearly total. Only in the US, Japan, Canada, New Zealand and the UK -- the bastions of free enterprise -- are less than half of all workers in jobs that are *not* covered by union bargains.

Coverage rates tend to be lower in countries such as the US and Japan where bargaining is characterized by single employer bargaining. Rates are much higher in countries such as Austria, Sweden, Germany and Norway where bargaining is concluded at the sectoral level, or in countries

many countries is total (e.g. Finland, Germany, Spain and Sweden). Density rates in the public sector tend to be a good deal lower than coverage rates because of the fact that union membership in most countries is not compulsory.

In some countries bargaining structures have acted as an incentive to join unions (OECD, 1994). In Australia and New Zealand (until 1991) the system of arbitrated awards acted as an incentive to join unions. Similarly, in the UK the closed shop, where all employees were required to be a member of a union, and which was abolished by Margaret Thatcher in the 1980s, had the effect of raising density. In some cases union bargaining has acted as a disincentive for membership - in France and Spain collective agreements generally do not discriminate in favor of union members. Indeed, such discrimination is often illegal. However, employers are legally obliged to bargain with recognized unions no matter how large is membership. The practice of extending the provisions of collective agreements to both non-unionized employees and non-affiliated employers, even though it raises the coverage rate, can act as a disincentive to unionization. Thus union density rates are a much poorer guide to the influence of unions in Europe than they are in the US⁹. In Europe it is coverage rates that give the best indication of how widespread is the influence of the union movement.

It is sensible then to look to see if there is any relationship between a country's collective bargaining system, broadly defined, and its macroeconomic performance. The free-market view is to see non-market institutions such as unions as market rigidities which harm performance. Others such as Bruno and Sachs (1985) and Crouch (1985) hold that institutional arrangements exist to overcome various market failures and may therefore be expected to have positive effects on performance. They argued that so-called 'corporatist' countries, who had high levels of union

Netherlands). Recently the OECD (1996) have updated this analysis to include the period 1986-1994. The study concluded as follows

"Finally, the examination of changes in collective bargaining characteristics and changes in economic performance showed that countries which moved towards decentralization enjoyed greater falls in inflation and larger rises in GDP per employee, but also larger (rises) declines in the unemployment rate (employment rate), than countries which did not change the degree of centralization: the inverse relationship holds for countries whose collective bargaining system moved toward centralization. The characteristics of a country's collective bargaining system do seem to be correlated with its economic performance, but there is little evidence that any one system is either better or worse on all criteria than any other." OECD, 1996, p.23.

It is clear from the discussion above that there is no *simple* relation between a country's collective bargaining system and its macroeconomic performance.

2) Who belongs to a union?

What are the characteristics of individuals who belong to a trade union? The starting point for this analysis will be a comparison of the determinants of union membership in the United States and Britain using two large, broadly similar, data files. The next step will be to extend the analysis to a number of other countries using a variety of data sources.

Table 6 presents comparable data on union density rates for 15 countries in 1988/9 which suggests that union members tend to be disproportionately men. Public sector unionization is much higher than it is in the private sector. Union density in manufacturing is especially high and in Finance, Insurance, Real Estate and Business Services it is relatively low. Table 7 extends the areas of comparison for Britain and the US, the countries for which the best data are available for analysis. Blacks in both countries have a higher density than whites; full-timers have a higher density than part-timers. The young are also less likely to belong to a union than are the older age groups (Blanchflower, 1997). As is illustrated below these patterns remain even when one

Variable Uniform Extract Files of 1979-1993 prepared by Dan Feenberg¹⁰. For details of the data source see Appendix B. Information is available on the union status of approximately 173,000 workers in 1983 and 153,000 in 1993. The dependent variable is set to one if the individual is a union member, zero otherwise. Estimation of a union membership logit is equivalent to estimating the probability of an individual being a union member. As far as possible the same, fairly standard, group of controls is used in both years. It is necessary to change the schooling measure because the BLS switched from a schooling measure to a more credential oriented indicator. The only other major difference between the years is that a dummy for veteran status is included in 1993 but not in 1983 when the information was only available for men. In all equations age and its square, part-time status dummy, race dummies, a gender dummy plus controls to distinguish whether the individual worked in the public or private sector are included. In column 1 of the Tables there are neither industry nor region controls. In columns 2 and 3, industry and state dummies are added in turn. Columns 4 and 5 re-estimates the full specification of column 3 for the private and public sectors.

The probability of being a union member rises with age, reaching a maximum at 45.5 years in 1983, and 47.4 years in 1993 (column 3 in both cases). The same broad pattern in the signs and significance of the various coefficients occurs across the two years. Men have a higher probability of being members than women. Blacks are more likely to be members than whites, while Native Americans have lower probabilities than whites. Public sector workers have a relatively high propensity, with this being higher at the local than at the state level and higher for state workers than for federal workers. The self-employed have a particularly low propensity to belong to a union. The probability of being a union member appears to be negatively related to the

Even though the level of density in the US has declined from 19.5% in 1983 to 15.5% in 1993, the estimated equations in Table 8 for 1983 and Table 9 for 1993 look remarkably similar. There are few major differences in signs or on which variables are significant and which are not. A comparison of the logit coefficients suggests that overall the (positive) male and black effects are somewhat smaller, although still highly significant, in the later period than in the former¹¹. By 1993 however, there is evidence that there are neither gender nor veteran effects in the public sector. In the public sector in 1993 there are still race effects but these are smaller than they were in 1983. As noted above, the age at which the probability of membership maximizes has moved upward by nearly two years between 1983 and 1993.

The results reported here are broadly consistent with those of Bender (1996) who used individual level data from the 1972 and 1987 May CPSs to estimate separate union membership equations for each of these years¹², using a variety of estimation techniques. However, in contrast to the results reported here his sample was restricted to manufacturing only. He found some declines in the gender and age/experience terms over time but overall relatively few significant differences between the estimated coefficients over time. The results were broadly similar whichever estimation method was used. Changing socio-demographic characteristics did not have a large effect on the decline in density, which is consistent with the results reported here. Bender's central finding is that gains in educational levels, changing occupations, and reductions in the economies of scale of union organizing activity appear to have played a much more important role. These are interesting results that warrant further study.

b) United Kingdom

As a background it should be noted that in the 1980s the United Kingdom led the West in

the free market and to stimulate the powers of entrepreneurship and market competition. Many reforms focused directly on the labour market, or were expected to improve the economy by changing the labour market: industrial relations laws that weakened union power; measures to enhance self-employment; privatization of government-run or owned businesses; reduction in the value of unemployment benefits and other social receipts relative to wages; new training initiatives; tax breaks to increase use of private pensions; lower marginal taxes on individuals; elimination of wage councils that set minimum wages¹³.

A number of papers have modeled the determinants of union membership in the UK using micro-data at the level of the individual. Papers include Stewart (1983); Bain and Elias (1985); Booth (1986); Payne (1989); Green (1990); Cregan (1991) and Elias (1996)¹⁴. These papers have used data files taken well before the main labor market reforms of the Tory government had been implemented or taken effect¹⁵. The availability of data on union membership in the Labor Force Survey means it is possible to estimate a series of equations which are very similar to those reported above for the US. The Labor Force Survey is designed to be very similar to the CPS. Further details are contained in Appendix B. Here data from the 1993 and 1994 surveys are pooled, which generates a sample size of approximately 100,000. In addition a much smaller survey -- the General Household Survey (GHS) -- has equivalent data on individuals available for 1983. Although the GHS is a time series of cross-sections, 1983 is the only year when union status is reported.

Tables 10 and 11 report the results of estimating union membership logits for 1983 and 1993/4 respectively. There are 8565 observations for 1983 but 110,000 for 1993/4. The sample is restricted to employees only. In all cases the following controls are included - age and its

although only one is included in 1983. Similarly in 1993 seven variables to identify the type of public sector organization are used while only a single dummy for the public sector is available for 1983. These differences in specification are entirely minor. Both Tables are structured in a similar way: column 1 excludes region and industry controls. Both are added in column 2. Columns 3 and 4 in each table repeat the specification of column 2 but for the private and public sectors respectively.

There are many similarities with the results for the US reported in Tables 8 and 9 (men are more likely to be members than women; full-timers have a higher probability than part-timers etc.). Overall schooling and qualifications are related *negatively* to membership. As was reported earlier for the US the effect of education is quite different between the public and private sectors. In the private sector the relationship is negative (column 3) whereas in the public sector it is positive (column 4) but significant only in 1993/4. The probability of being a union member reaches a maximum at age 44.7 in 1983 and 46.6 and 1993. As for the US, the maximum of the age profile has risen over the ten year period 1983-1993 by approximately two years. The decline in the magnitude of the male effect over the decade mirrors the result for the US.

c) Other OECD Countries

To what extent is this picture repeated elsewhere in the OECD? A small literature does exist that estimates union membership equations for a number of other countries. These include Haberfeld (1995) for Israel and Mulvey (1986); Christie (1992); Deery and De Cieri (1991) for Australia. The difficulty generally has been a lack of suitable data. The availability of two new data sources -- the Eurobarometer Survey series and the International Social Survey Programme Survey series -- has meant it is now possible to do this for quite a large sample of countries.

Appendix B gives further details of the surveys and Appendix Table C1 reports the full set of responses by country and year.

Union membership data are only available for the years 1989-1992. Details of whether an individual is a union member is reported independent of their labor market status. Below the union density rate by country is presented along with the number of observations overall, and for a sample of the employed, averaged over the period 1989-1992. The estimate in the total row has the sample weights imposed to be representative of the European Community as a whole.

	All	N	Employed	N
France	7.42	6832	11.08	3584
Belgium	26.82	6884	35.61	3426
Netherlands	18.13	7125	28.90	3270
Germany	17.50	7201	24.68	3947
Italy	16.12	7102	27.70	3101
Luxembourg	32.37	2756	50.11	1349
Denmark	61.00	6967	80.51	4089
Eire	13.95	6863	28.42	2963
UK	18.21	9202	30.95	4588
Greece	10.05	6975	18.78	3242
Spain	5.45	6924	10.03	2870
Portugal	9.36	6873	16.49	3348
European Community	14.81	81704	42.49	39777

In total there are just over 80,000 individuals who reported whether or not they were union members compared with nearly 40,000 individuals in the employed subsample. For the European Community as a whole approximately 42.5% of the employed sample were union members. Union density rates are generally a bit lower than those reported in Table 1. The largest difference appears to be for Belgium where the rate here is a good deal lower (52.9% in Table 1), for which I have no explanation apart from the comparatively small sample size.

In Table 12 union membership logits are estimated pooling the four years and all twelve

restricted to the employed but which has additional controls to identify whether the individual works in the public or the private sector. The country dummies have the expected pattern in column 2. In comparison with the excluded country, France, all coefficients except Spain are positive and significantly different. Denmark has the highest coefficient followed by Luxembourg and Southern Ireland. Union membership increases with age up to a maximum of 45.3 (using column 2 estimates). Men are more likely to belong to unions than women; manual workers are more likely to be members than the self-employed or non-manuals. The probability of being in a union is low in services and high in the publicly owned nationalized industries. The schooling effects are now much weaker than in column 1 where there was evidence of a positive schooling effect. In column 3 the sample is restricted to the private sector and in column 4 to the public sector. There is, admittedly rather weak, evidence from column 3 that education is negatively correlated with membership in the private sector -- in particular note the coefficient of -.22 for those who left school at age 22 or older. There is no evidence of any significant relation in the public sector.

In Table 13 comparable equations to those in Table 12 are now reported separately for each of our twelve EEC countries. Apart from the UK there is little or no evidence of *any* significant effects from schooling. Males consistently have higher membership rates and, apart from Germany where there are only age effects in the public sector, there is an inverted U-shape in age, which generally maximizes around age 45¹⁶. Private sector union membership is lower in all countries than is public sector membership, with it being especially low in private services. The results from Table 12 which pools the countries seems to stand up pretty well. They suggest that broadly the same pattern of who belongs to union and who does not operates in both Europe and

1985-1993. The ISSP is a continuing program of cross-national collaboration, carried out by a group of national research institutes, each of which conducts an annual survey of social attitudes and values. They are not panels: separate cross-sections of individuals are interviewed each year. The topics in each year are: "role of government" (1985), "social networks" (1986), "social inequality" (1987); "work orientation" (1989); "the role of government" again (1990), "religion" (1991) and "social inequality" again (1992). It brings together pre-existing national social science surveys and coordinates their research to produce a common set of questions asked in identical form in the participating nations. As a condition of membership, each country undertakes to run a short, annual self-completion survey containing an agreed set of questions asked of a probability-based, nation-wide sample of adults. The topics change from year to year by agreement, with a view to replication every five years or so. The major advantage of the ISSP is that it produces a common set of questions asked in identical form in the participating countries. For further details of the surveys see the technical appendix in Jowell and Witherspoon (1989). Appendix B gives further details of the surveys and Appendix Table C2 reports the full set of responses by country and year.

Union membership data are available for sixteen Western countries. They include eight of the eleven countries that have already been examined (i.e. West Germany, the United Kingdom, USA, Netherlands, Italy, Southern Ireland and Spain), plus three further European countries (Austria, Switzerland and Norway) as well as Australia, New Zealand, Israel and Japan. For some countries the numbers of observations are small, being derived from a single survey e.g. Spain and Japan. In other cases such as Germany and the UK they are drawn from several years of surveys. Sample size for the US is small because information for the public sector is only

public sector dummy is included as an additional control. Because of the fact that there are a large number of missing cases for this variable our preferred specification is column 1. The patterns identified above also hold here -- men have a higher propensity to belong to a union than is found for women. The probability of joining a trade union is associated with an inverted U-shape in age. Membership is higher in the public sector. Years of schooling enter negatively in the private sector and positively in the public sector. The probability of any randomly picked individual being a member of a union is the highest if that person was from Norway and lowest if they were from the United States (column 1).

In Table 15 separate logit equations for thirteen countries are presented. In each case two equations are reported. The first equation includes age dummies, schooling, gender, self-employment, year dummies and public sector controls while the second has a slope intercept dummy where the public sector and schooling dummies are interacted to pick up any differences in the effects of schooling between the private and the public sectors. This is done to preserve degrees of freedom rather than the alternative of estimating separate equations for the public and private sectors. This interaction term is significant and positive in Australia, the UK, Israel, Italy, Norway, West Germany and the US. It is negative and significant in Austria but insignificant in Southern Ireland ($t=1.46$), Japan ($t=0.02$), Netherlands ($t=1.66$), New Zealand ($t=1.66$) and Switzerland ($t=0.1$). The table confirms once again across this diverse group of countries that there are age, gender, schooling and sector effects on the probability of being a union member.

In Table 16 data from another US data source, the General Social Survey - from which the US sample for the ISSP surveys is drawn - are used to estimate a union membership logit¹⁸. Even though there are only 12,000 observations they cover the period 1973-1995 and allow us to

age variables for the earlier period was 47.1 and 51.8 for the later period. The results broadly confirm those presented earlier for the US using both the CPS and the ISSP .

So what can be concluded from this evidence on the determinants of union membership? No deep structural model has been developed, rather what has been presented are a set of interesting -- and mostly new -- correlations across countries and over time. Despite the great differences that have been observed in the dynamics of union density with some countries showing sharp declines and others sharp increases, the same patterns in union membership seems to hold across countries. I wouldn't expect that any of these results would surprise Richard Freeman very much. What might surprise him is how similar the findings are across such a diverse group of countries.

1. Men are more likely to be members than women but the gap is closing.
2. There is an inverse U-shape in age which maximizes at around age 45.
3. The age at which the probability of membership maximizes appears to have been rising over time
4. Membership is higher in the public sector than in the private sector
5. Schooling effects are different in the public (-) and private sectors (+) .
6. Manual workers are more likely to be members than non-manuals
7. The self-employed don't belong to trade unions.
8. Part-timers are less likely to be union members than full-timers.
9. The US has the lowest probability of an individual being a union member, holding constant worker characteristics, while Norway has the highest probability.

3) Union Relative Wage Effects

growing literature on the effects of unions on various outcomes from a number of other countries - principally for Canada, the UK and Australia, with one or two studies from other countries e.g. South Africa (Moll, 1993) and South Korea (Park, 1991). The vast majority of this work has examined the effects of unions on relative wages/earnings. As a background to examining the effect of unions on wages across countries summary of the research findings for the US and elsewhere is as follows (see Blanchflower and Freeman (1992), Freeman and Medoff (1984) and Booth (1995). There appear to be relatively few differences in the directions of the various union effects although there is variation in the magnitudes through time and space. Unions tend to be associated with

- a) higher wages (Lewis, 1963, 1984; Blanchflower and Freeman, 1992),
- b) lower earnings dispersion (Blanchflower and Freeman, 1992 and Gosling and Machin, 1995),
- c) higher fringe benefits (Freeman and Medoff, 1984; Green, 1995),
- d) lower employment growth (Blanchflower, Millward and Oswald, 1991 and Leonard, 1992),
- e) a higher likelihood of pension coverage (Kornfeld, 1990),
- f) longer job tenure and lower quit rates (Kornfeld, 1993; Freeman and Medoff, 1984),
- g) mixed evidence on their impact on both the level and the growth in productivity (Freeman and Medoff, 1984; Blanchflower and Machin, 1996),
- h) new technologies are adopted as rapidly in union as in non-union settings,
- i) lower R & D and investment spending (Denny and Nickell, 1991),
- j) lower profitability (Blanchflower and Oswald, 1988),
- k) lower hours worked for full-timers (Earle and Pencavel, 1990; Oswald and Walker, 1994).

For a more detailed discussion of these and other effects see Freeman and Medoff (1984) and

evidence. In the 1986 volume Lewis examined approximately 200 studies that had used micro-data to estimate the effect of unions. He concluded that it was not possible to use "macro" data to estimate the union wage gap and that methodologically estimating an Ordinary Least Squares (OLS) equation with wages on the left, union status on the right with a group of controls, was probably the best way to estimate the size of the effect. Panel estimates had problems of misclassification and measurement error while simultaneous equation methods suffered from poor identification due to a lack of suitable instruments. Lewis (1986) argued that estimates obtained using OLS were likely to be upper bounds of the true effect because of the omission of controls correlated with the union status variable.

After an examination of the results of the US studies, many of which he re-estimated himself, Lewis concluded that during the period 1967-1979 the US the mean wage gap was approximately 15%. He found that the gap was greater for blacks than whites; in services than in manufacturing; for construction than for other non-manufacturing; for blue-collar workers than for white-collar; for private than for public sector workers. The estimates for men and women were approximately the same. The wage gap falls as years of schooling, establishment or firm size and industry unemployment rates rise. For age, years of experience and years of seniority the gap at first falls and then rises. The robustness of Lewis's results were broadly confirmed by Jarrell and Stanley (1990) using meta-analysis, although their mean estimate of the wage gap for the period was a little lower than that obtained by Lewis.

Over the last decade there has been a growing body of literature estimating the size of the union wage gap outside the US. In the UK there have been approximately twenty studies some based on establishment data¹⁹, and some on individual data²⁰. The mean union wage gap appears

estimate is available (Shah, 1984). The disaggregated pattern of results reported by Lewis (1986) for the US appears to be broadly repeated for the UK. The main exception is that the wage gap in the UK appears to be larger for females than it is for males (see Blanchflower, 1991 and Main, 1996). There is also evidence from a few studies for Canada that the union wage gap is in the range 10%-15% which appears to have remained fairly constant over time²¹. In Australia the estimated range is between 7% and 17% with most estimates at the lower end of the range²². Moll (1993) obtained estimates for South Africa in 1985 of 24% for black blue-collar workers (19% for black men and 31% for black women) and 13% for whites in 1985. For South Korea, Park (1991) obtained estimates of 4.2% men and 5% for women. Wagner (1991) found significant positive union effects for blue collar workers in Germany while Schmidt (1995) found small but significant wage differentials of under 6%. Neither Schmidt (1995) nor Schmidt and Zimmermann (1991) were able to find evidence of significant union wage gaps for men. Finally, in an earlier paper Blanchflower and Freeman (1992) reported estimates for four countries using data for the years 1985-1987 using data from the International Social Survey Programme. The wage gaps that were estimated by country, with very few control variables included, were as follows: Australia -- 8%; Austria -- 5%; West Germany -- 6% and Switzerland -- 4%.

Estimates across countries

In what follows a series of estimates for the union wage gap in the 1980s and 1990s are presented. What is the size of the union wage gap in the US in the 1990s? How much has it changed in the years since 1980 which were not studied by Lewis? How much do the estimates vary by gender, race and across the public and private sectors? How different is the story in other countries? In the following three sub-sections micro-data on individuals are once again used, this

influence the total compensation package including fringe benefits. Unfortunately relatively little is known about the extent to which unions are able to influence fringe benefits, primarily because of a lack of suitable data. Such literature as does exist - virtually all of which is for the USA -- suggests that these effects are large (see Freeman and Medoff, 1984). Unfortunately none of our data files contain information that allow us to examine this issue.

In section i) that follows, data from the 1983 and 1993 Outgoing Rotation Group files of the CPS are used to obtain estimates of the impact of trade unions on hourly earnings for the US. In section ii) data from the 1983 and 1993 and 1994 Labour Force Surveys are used for direct comparison with the British experience. Finally in section iii) data from the ISSP are used to obtain wage gap estimates for a further twelve countries plus the UK and the US. In addition data for the US from the General Social Surveys -- of which the ISSP data is a subset -- are also used.

i) Union wage differentials in the USA

In Table 17 the results of estimating a log hourly earnings equations for 1983 using data from the Outgoing Rotation Group files of the CPS are reported. Control variables are a union status dummy plus age and its square, a gender dummy, years of schooling, a part-time dummy, two race dummies, three sector of work dummies, two self-employment dummies plus fifty state and fifty industry dummies²³. In total there are just over 170,000 observations. The dependent variable is defined as the log of usual hourly earnings for hourly paid workers and for the remainder as the log of usual weekly earnings/usual weekly hours²⁴. The overall union wage effect is estimated at 15.5% (antilog of .1445 from column 1 minus one because the dependent variable is in logarithms). Columns 2-8 of the Table report disaggregated estimates. The union wage gap is higher in the private sector (16.9%) than it is in the public sector (8.8%). Results by

replaced by 15 schooling dummies to distinguish highest level of schooling attended. This change is necessary because of changes in the CPS survey design. Results are very similar to those for 1983 discussed above. The union wage differential remains unchanged at 15.5% - remarkably the estimates in columns 1 of both Tables 17 and 18 vary only at the fourth place of decimals. Once again there is little difference by gender or race. However, the differential in the public sector in 1993 is slightly higher than it was in 1983 (8.8% and 11.8% respectively). Overall the wage gap in the US is very close to that estimated in Lewis (1986), despite both a dramatic decline in density along with a large increase in earnings inequality that has occurred since then (see Katz et al, 1994).

Is the high differential in the US an artifact of sample selectivity? In Blanchflower and Freeman (1992) it was argued that this is not the correct way to interpret the data and this is still my view. The reasons given, which are still relevant, were as follows.

1. Evidence within the US tends to reject the notion that union wage effects are large when union density is small. Union wage differentials tend to be greater the greater the extent of unionization in the sector (see Lewis, 1986 and Freeman and Medoff, 1984), presumably because this gives unions greater bargaining power.
2. If selectivity were the major cause of the estimated large effects of unionism on wages in the US, similar differences in other market outcomes should be expected, which is not found.
3. Third, the fact that employers as well as workers affect union density makes the direction of the selectivity effect uncertain. One might well argue that selectivity operates to bias down union wage effects in the US as employers fight hardest against unions that have the most potential for raising wages and accept unions when they have the least potential.

A number of earlier studies have examined the extent to which the mean union wage gap has varied over time in the US. As discussed earlier, Lewis (1986) reported an average union wage gap for the period 1967-1979 of 15%. He further reported on time series movements in the differential, by taking the mean estimate by year from each of the 150 studies he surveyed. His results are reported in column 1 below. Subsequent work by Linneman, Wachter and Carter (1990), extending earlier work on the subject presented in Linneman and Wachter (1986), used the CPS to estimate wage gaps for full-time non-agricultural workers for the years from 1973-1986. The two sets of results are plotted in Figure 5. In addition the Figure also plots new estimates for the intervening years between 1983 and 1993 that were obtained from estimating nine further equations of the form presented in column 1 of both Tables 17 and 18. The data are drawn from the Outgoing Rotation Group files of the CPS for each year in turn²⁵. The union dummy is always highly significant with t-statistics everywhere greater than 40. The full results are below. The union wage gap is calculated as the natural antilog of the union coefficient minus one.

<i>Year</i>	<i>Union coefficient</i>	<i>Union wage gap</i>	<i>Number of observations</i>
1983	.1445	15.6	173,404
1984	.1519	16.4	172,970
1985	.1428	15.4	179,710
1986	.1435	15.4	178,969
1987	.1366	14.6	180,165
1988	.1360	14.6	172,813
1989	.1375	14.7	176,158
1990	.1300	13.9	184,731
1991	.1222	13.0	179,261
1992	.1330	14.2	176,492
1993	.1440	15.5	171,439

Where the three series in Figure 5 overlap, there is considerable agreement on both the size and movements in the mean wage gap -- the estimates are never more than one percentage point apart.

unemployment rate, which is also plotted in Figure 5. Unemployment was low in 1979 and high in 1983, for example. When unemployment is low the union wage premia appears to be low and vice versa. Despite some evidence of cyclicity the dominant impression from the figure is the relative constancy of the differential over this long time period, even though the labor market has, along other dimensions, experienced so much turbulence over same time period.

An obvious question to ask is why has union membership and union employment been in decline given the relative constancy of the union wage premium? As we shall see below, the level of the differential -- at around 15% -- is still very high by international standards. The United States decides union membership through an adversarial electoral process at plant level which has evolved into a system where management has a greater say in unionization outcomes than it does in other countries. The benefits to employers in removing unions from the workplace often outweigh the costs of doing so. The costs to unions in organizing recruitment drives is high²⁶. Bender (1996) has argued that the loss of economies of scale in union organizing is an important factor in explaining union decline. It is much harder for employers in other countries to get rid of unions than it is in the US. Even in the UK there are only a very few examples of union de-recognition. Employers are unable to hide from a union; they have no place to go.

The decline in US unionism seems to have been driven by employer opposition, fueled by more competitive product markets, increased international trade and a favorable legal environment, which has meant that there have been smaller economic rents to be shared with workers than was true in the past²⁷. It is unlikely to be a coincidence that the generally lower union-nonunion wage differentials that operated in the late 80s and 90s, as compared with those that existed in the 70s, were associated with a marked slowing in the rate of decline in US union density (see Figure 1).

p.51). High premium industries, they show, have been increasing their union wage premia and losing employment shares and hence membership of trade unions. Union wage premia in private services, they argue, have held constant or fallen. They argue that even though unions have been hurt by exogenous factors which have created shifts in demand from goods to service-producing industries, unions have been hurt most by the rising wage premia. Supporting evidence for this view is presented by Freeman (1986) who found a positive correlation between the union wage gap and a proxy for managerial opposition to unions -- the number of unfair labour practices per worker in NLRB elections. Farber (1990) also concludes that the decline is principally a result of increased employer opposition to unions along with lower demand for union services by workers.

The monopoly wage effects of US unions appear to be substantial and as we shall see below, exceeds those of unions overseas. The behavior of US unions on the wage front appears to have contributed to the precipitous decline in union density. What should be done about it? We return to this question in the final section.

ii) Great Britain

Table 19 reports the results of estimating a log hourly earnings equation for Great Britain using data from the General Household Survey for 1983. This is the same source used by Green (1988). When missing values are deleted data are available on only around 8000 individuals. A group of control variables similar to those used for the US (age and its square, gender, race, highest qualification, size of establishment, region and industry and month of interview) were included. Consistent with earlier studies which found estimates of around 10%, the estimated differential is approximately 11.2%. Results in the public and private sectors are very close. The differential for females is higher than for males (12.5% and 8.6% respectively) confirming earlier

1983 and 1993/4. Our estimate of the overall wage gap is little changed, and not significantly different, from the 1983 result; it is now estimated at 9.8%.

The evidence of a constant differential over time in the UK is consistent with earlier work presented in Blanchflower (1991), where union wage effects were estimated using data from the 1983-1987 and 1989 British Social Attitude Surveys. As is the case in the US with the General Social Surveys, the ISSP surveys are a sub-sample of the British Social Attitudes Surveys. I obtained estimates of 10% with little variation over years²⁸. When the equations were subsequently re-estimated adding the 1990 and 1991 surveys, the finding of the constancy of the differential at around 10% was unchanged (Blanchflower and Freeman, 1994). Indeed, the finding of relative constancy of the differential through time seems highly robust²⁹. In assessing the impact of unions at the macroeconomic level, it should be kept in mind that, even though the union wage differential appears to have remained roughly constant, it applies to a considerably smaller fraction of the workforce in 1993 than it did ten or twenty years ago. There are now fewer workers getting the ten percent union wage premium than there were.

iii) Other OECD countries.

The ISSP surveys of 1985-1993 contain both earnings and union membership data on a further thirteen countries -- Australia, Austria, Canada, Germany, Southern Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Spain and Switzerland. The survey also contains data on the UK and the USA that can be used for purposes of comparison. In some countries e.g., Japan and Spain there is only one year of data and hence very small sample sizes. In others such as Australia, Austria, Germany and the UK and the US there are at least six years of data and hence larger sample sizes of five or six thousand individuals³⁰. For each country the wage

include a control variable in the earnings regressions³². Additional controls are age and its square, a gender dummy, years of schooling (7 highest qualification dummies in the case of Canada) plus year dummies as appropriate. For each country an equation is also reported that controls for -- when available in our survey data -- self-employment status, working in the public sector and being a supervisor. Our estimated results are likely to be upper bound estimates of the true differential. The union coefficient is likely to be upward biased because of omitted variables (e.g. industry, establishment size, region etc.) that are correlated with union status. Because our methodology performs the same experiment in each country, it is to be hoped that the true rank ordering will be maintained. Results are reported in Table 21 for these thirteen countries plus the UK and the US³³. Mincerian age-earnings profiles with an inverted U-shape are apparent in every country. Schooling produces a positive return, being especially high in the UK, the US, Switzerland and Japan. The male premium is especially high in Japan.

Using the second column for each country from Table 15 which has the fullest set of personal controls, the estimated union wage gaps -- after taking antilogs and deducting one -- are set out below (*=not significantly different from zero). For purposes of comparison estimates for the UK from the earlier tables are also included.

	%
Australia	9.2
Austria	14.6
Canada	4.8*
Germany	3.4
Ireland	30.5
Israel	7.0*
Italy	7.2
Japan	47.8
Netherlands	3.7*
New Zealand	8.4
Norway	7.7

Spain	0.3*		
Switzerland	0.8*		
UK	14.7	--	ISSP 1985-93
	11.2	--	GHS 1983
	9.8	--	LFS 1993/4
USA	23.3	--	GSS 1985-93
	20.3	--	GSS 1973-84
	15.5	--	CPS 1983
	15.5	--	CPS 1993

Significant wage gaps are found in ten of these fifteen countries. Exceptions are Canada, Israel, the Netherlands, Spain and Switzerland. Surprisingly large wage gaps are found in Southern Ireland (31%) and Japan (47.8%), the latter effect being much larger than one would have expected on a priori grounds given that the Shunto offensive has set wage patterns for the entire country. The lack of controls for industry and particularly company size probably explains the Japanese result, which should not be taken too seriously. In a number of these cases (i.e. Spain, Japan, Switzerland and Israel) estimates are based on only a few hundred observations so care should be taken in interpreting these results.

In an earlier co-authored paper (Blanchflower and Freeman, 1992) union wage gap estimates were obtained of 8% for Australia, 5% for Austria, 6% for West Germany and 4% but not significant for Switzerland using ISSP data but with the time period restricted to 1985-1987³⁴. In the case of Switzerland only data for one year (1987) is available and the earlier insignificant result is confirmed -- here more controls were added and the coefficient is now very close to zero. The results for Germany (which now includes the former East Germany but which was excluded in the earlier study) and Australia in the two studies are reasonably close. The higher estimate for Austria obtained here is something of a surprise, although, as noted earlier, overall density in that

of to help us on this question. In the remaining three countries of Italy, New Zealand and Norway, estimates are all around 7%.

The estimates for the UK using the ISSP are about 50% higher than those reported earlier for Great Britain using GHS and LFS data³⁵. This is to be expected to some extent given the omission of controls correlated with union status (e.g. industry) in the equations estimated here and the slightly different span of years. The results for the US are also about 50% higher than the results obtained above using the CPS. These results give us some guidance as to the extent of upward bias in the estimates for the other countries which are based on a limited group of controls. The results for the earlier period of 1973-84 for the US in the final column of the table tend to confirm the finding of constancy of the differential over time.

It does appear that countries that have experienced rapid declines in union membership do have the highest wage differentials. As was shown above, the four countries that have seen dramatic declines in density are Austria, the UK, Japan and the US, all of which have estimated differentials in double figures. On the one hand this could be a batting average effect. As union density declines the more powerful unions are the ones that remain - the weaker batsmen are removed from the batting order so the team's average rises. Another possibility, of course, is that a high union-nonunion wage differential provides an incentive for employers to try and reduce union power. The fact that the differential has remained more or less constant in both the UK and the US is a puzzle, particularly given the rapid declines in union membership in both countries. The evidence is not consistent with the widely held view that union power has been emasculated. More research is required into the time-series properties of the union wage differential and its correlates.

no reason to alter the view expressed in the earlier paper that the decline in union density in the US is not an aberration but is structurally rooted in what unions do on the wage front. Whereas in the 1950s and 1960s the large differentials that US unions gained were probably economically justified given the United States' role as world economic leader, the increased differentials that emerged in the 1970s still appear to be a major liability to the future development of unionism in the US.

4. Unions and hours.

Relatively little work has been done on the effects of unions on employment or hours. There is a small literature that has examined the effects of unions on employment growth. This has generally used firm or establishment data. The main result is that unions have the effect of lowering employment growth. This result has been reported by Freeman and Kleiner (1990), Leonard (1992) and Lalonde et al (1996) for the US, Blanchflower, Millward and Oswald (1991) for the UK; Long (1993) for Canada; Rama (1995) for Jamaica; while Blanchflower and Burgess (1996) in a two country study found a negative union effect for Great Britain but not for Australia. Lewis (1986, Table 6.5) reported the union hours gap estimates for the US from only 16 different papers compared with nearly 200 he surveyed on union wage effects. In most cases he found that the effects were negative and were not negligible in size; the union-nonunion hours differential averaged -1.8%. Earle and Pencavel (1990) found that for white male employees in a cross-section equation, weekly hours for union members were approximately 1% lower than for non-union workers, holding constant worker and workplace characteristics. However, they found an insignificant negative effect in a time series regression on annual full-time hours. Perloff and Sickles (1987) found a union/non-union hours differential of -4% for construction workers. DiNardo (1991) used the 1976-1983 PSID and reported a differential of -3.6%. Trejo (1993)

conditional on receiving holidays, they tend to raise the length of holidays by nearly a week compared to individuals who work in the non-union sector. Lalonde et al (1996) using longitudinal data on establishments find a strong negative effect on annual hours worked at workplaces where unions have won certification elections. During the second year after the election, both worker hours and employment were 11% less than in plants where the union was unsuccessful.

As so little is known about the influence of unions on hours it seems appropriate to use our data files to compare and contrast the effects across countries and through time. In the usual way results are first presented for the US, then the UK, and finally for the sample of countries using the ISSP files. Care has to be taken to determine the appropriate specification. Assuming a labor supply curve is what is going to be estimated, then wages belong on the right hand side, but are clearly endogenous. The difficulty is that most data files do not contain appropriate instruments for the wage. Mroz (1987) has illustrated the difficulties of using inappropriate identification procedures. Here the approach taken by Oswald and Walker (1993) is followed. First a reduced form equation is estimated where the wage has been substituted out and then report an equation with an hourly earnings variable added. In the case of the UK the equation is re-estimated using IV methods, making use of the instrument for the wage suggested by Oswald and Walker -- a variable based on the fact that the British government raised the compulsory high-school leaving age which raised the education level and the wages of a cohort exogenously in both 1947 and 1973. Unfortunately, for the US and other countries no suitable instruments suggest themselves.

Overall, average hours worked tends to be higher in the union sector than they are in the non-union sector. This is primarily driven by the fact that part-time work is less prevalent in the

(35.8 and 31.2 respectively). In Table 22 weighted estimates of the proportion of part-timers and the average number of hours by union status and gender are reported³⁷. In both countries part-time work (i.e. less than 20 hours per week) is much less prevalent in the union sector than it is in the non-union. Once full-time status is conditioned on in part C), the positive union effect on total hours becomes negative. The size of the effect is a lot larger for men in Great Britain and slightly larger for women in the US. Table 23 reports similar findings across countries using data from the ISSP. In all countries part-time work is less prevalent in the union sector than it is in the non-union. In the case of full-time male workers, there is a negative union effect in all countries examined. The next task is to estimate a series of hours equations by country to measure *ceteris paribus* union effects.

a) The United States

For simplicity the sample is restricted to men who work at least 20 hours rather than have to deal with female participation issues as well as full-time versus part-time status. In Table 24 the CPS data is used again for the United States; in part 1 of the Table for 1983 and for 1993 in part 2. The data files provides information on both usual and actual hours. Results are reported separately for the two variables. In the reduced form specifications the union variable enters negatively. The union-nonunion hours differentials for usual hours in both years are approximately -.016 (taking antilogs and deducting one) and a little smaller for actual hours at -.013 and -.009, presumably reflecting the positive effect of unions on the amount of paid overtime. Unfortunately with the data to hand it is not possible to measure this explicitly. The inclusion of a (potentially) endogenous wage variable has little effect on the sign or significance of the coefficient on the union variable. In the overall equation the wage variable enters positively and significantly which is consistent with a

sector it is negative and significant for both actual and usual hours in 1983 but insignificant in both cases in 1993.

b) Great Britain

In Table 25 the results of estimating a series of hours equations for Great Britain for 1983 and 1993 are reported. In part a) of the table for 1983 there is a negative union effect on usual hours of $-.029$ in the reduced form specification and $-.0174$ when wages are included. The 1993/4 LFS surveys provides details that enables us to break up the working week into a) total hours b) standard hours excluding overtime, paid and unpaid overtime hours. This information is available separately for usual and actual hours. In part b of table 25 data for usual hours are used and in part c for actual hours. The results are broadly similar so I will concentrate my discussion on the usual hours results to ensure comparability with the 1983 estimates. There is a negative union effect of $-.031$ in the reduced form specification for total hours and an even stronger negative effect for standard hours excluding overtime. Unions reduce the length of the standard working week but increase the amount of paid overtime hours. This is apparent from the Tobit results in columns 5 and 6 where the union coefficient is positive. It is apparent from the tobit results of columns 7 and 8 that unions reduce the amount of unpaid overtime. The combination of a positive impact on paid overtime and a negative effect on standard hours produces a slightly smaller union effect on total hours than on standard hours. These results replicate directly the findings in Oswald and Walker (1994).

The inclusion of a wage variable has relatively little effect on the union coefficients. The interpretation of the coefficient on the wage is unclear given its potential endogeneity. Hence in part d of the Table the wage is instrumented using two instruments suggested by Oswald and

1993 but not 1983. The union hours differential in Great Britain is larger in absolute terms than it is in the US at both points in time.

c) Other OECD countries

In Table 26 reduced form log hours equations are reported using the ISSP sample for males who work at least 20 hours per week. Equations are not presented which include the wage because of the variation in the hours definitions and the problem of a lack of suitable instruments. An equation for Israel is omitted because of the small sample size and the fact that no significant coefficients were found in the equation estimated. In all cases the union effect is negative. It is only insignificant in Spain ($t=1.6$) and Switzerland ($t=0.3$). The union hours differential is particularly large in absolute terms in Ireland and Austria. The findings for the US and the UK are in line with the results reported above using other data sources, although the coefficients are larger. In part this arises from the omission of industry and region controls, and presumably in part from the small sample sizes involved. Because of omitted variable bias, these are likely to be upper bound estimates of the union-nonunion hours differential because the omitted variables are correlated with union status. If the equations estimated earlier for the US and the UK containing industry, region, and size of establishment controls are typical then the coefficients reported in Table 26 are likely to be about double their 'true' size.

To summarize, the estimated union hours coefficients for males who work at least 20 hours per week using reduced form estimates, with wages excluded, from Tables 24-26 are as follows.

USA -- usual hours	1983	-.0156
USA -- actual hours	1983	-.0132
USA -- usual hours	1993	-.0167
USA -- actual hours	1993	-.0086

Norway	1985-93	-.0773
Spain	1993	-.0482
Switzerland	1985-93	-.0049
UK	1985-93	-.0873
USA	1973	-.0261
USA	1973-93	-.0381
USA	1973-84	-.0367

In all cases the coefficients are negative and in only two cases (Spain and Switzerland) are they insignificantly different from zero. In the case of Switzerland it should be recalled that there was no evidence for a significant union wage effect. It does appear that the union hours differential is relatively low in absolute terms in the USA and relatively high in Ireland and Austria.

5. Conclusions and Policy Recommendations

The main findings are as follows.

1. The declines in union density experienced in the US in the last thirty years are not typical of the OECD. A few countries such as the UK, Austria, and Japan had sharp declines in density, whilst other countries experienced *increases* in density, e.g., Canada, Denmark and Sweden.
2. There is only a weak relationship across countries between movements in union density and macroeconomic performance.
3. There is some evidence that unions did better in countries with centralized as opposed to decentralized wage setting systems.
4. The predominant reason behind the rapid decline in US unionism appears to be employer resistance to unions, driven by a high union wage premium, and the highly adversarial electoral process that exists to determine union recognition.
5. There are a many similarities across countries in who belongs to a trade union. Men are more likely to be members than women, but the gap appears to be narrowing over time, at least in the

6. The union-nonunion wage differential in the US is approximately 15%. It is 10% in the UK. Unions in most other countries appear to raise wages by less. There is little evidence that the union wage premium or wage gap has changed much over the last decade in the US or the UK. The size of the differential appears to be (weakly) *positively* correlated with movements in the unemployment rate. Little time-series evidence is available on this for other countries. There is some evidence that declines in union density are greatest in countries where the union wage differential is substantial. Examples are the US, the UK and Austria.

7. Unions reduce total hours of work. They tend to reduce standard hours and unpaid overtime hours but increase the number of paid overtime hours. Part-time work is less prevalent in union settings than it is in non-union settings. The size of the union-nonunion hours differential appears to be lower in the US than it is in most of the other countries examined here (e.g. the UK and Germany).

There is a growing recognition that the US labor relations system is obsolete and is a potential barrier to future economic development. Although it should be said there is some agreement between the various parties that a problem exists, but little if any consensus on the way forward. As Rogers (1995) has emphasized in a very thoughtful and reflective paper, union decline contributes to declining company provision of private social benefits such as pensions and health care (Bloom and Freeman, 1992); it encourages federal regulations and court suits to resolve labor problems and protect workers (Weiler, 1990); it depresses the productivity gains that would come from worker involvement in enterprise management and job design (Blinder (1990) and Mishel and Voos (1992)) and contributes to a 'hire and fire' culture that discourages investment in human capital (Office of Technology Assessment, 1990). So what could be done to improve US

A second possibility would be to draw on foreign experience of plant or firm-level elected committees that give workers representation rights independent of their union status and of their negotiating rights over wages. In Western Europe and Canada (in the health and safety area), such committees -- called works councils -- seem to work reasonably well³⁸. They can impact positively on productivity and health and safety at work (Freeman, 1994), as well as on the level and quality of training at the workplace. In Germany, for example, the works council plays an important role in helping the company to operate an apprenticeship scheme as well as guaranteeing to apprentices the quality and marketability of their training (Soskice, 1994). Rogers (1995) argues that works councils can be effective in changing the power relations between workers and management. Works councils can help to develop collective voice by altering the way management and labor operate, creating a more cooperative and informative decision making process. There are benefits to workers because of

_"..their greater control over the use of information they provide to management that leads them to provide it in the first place. Without such control, workers are reluctant to provide the information useful to improving enterprise efficiency for fear that gains in efficiency will come at the expense of their security or compensation". (Rogers, 1995, pp. 384-385)

On the side of management there are advantages because

_"..knowing that workers will interrogate decisions that affect their jobs, management must consider more fully the costs and benefits of actions it proposes to take. This limits costly mistakes arising from simple lack of reflection. Second, a management that must discuss its labor decisions with employee representatives will invest more in knowing how workers currently fare, and the likely consequences to them of a change in action than a management concerned solely with stockholders". (Rogers, 1995, p. 385)

Labor law as currently constituted treats company-sponsored committees of workers as illegal anti-union devices. Given the rapid decline in union density over the last quarter century

employers to fight vehemently against unions. One of the great benefits of further experimenting and possibly even providing tax benefits for the establishment of works councils in the US is that there appears to be little low-side risk. It is hard to believe that there are any harmful consequences of such a strategy. Any policy that replaces confrontation with consultation is worthy of examination.

The contraction in U.S. union density appears to be driven by what unions do on the wage front. The substantial wage premia associated with unions in the US, which have exceeded those of unions overseas, is likely to have driven employer opposition. The benefits to employers in removing unions from the workplace outweigh the costs. Countries that have centralized wage-setting systems such as Germany have relatively small union wage premiums, which gives management less incentive to oppose unions. If US unions continue to pressure for higher wages which are not accompanied by self-financing increases in productivity, then US unionism is likely to continue to decline. If they are to survive in the next century U.S. unions are going to have to emphasize their collective voice role rather than their monopoly face.

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Table 1. Union Membership in the US, 1930-1995.

Year	Union membership ('000's)		(3)	Employment in non-agricultural establishments (4)	% non-agricultural employment that are union members		
	(1)	(2)			(5)	(6)	(7)
1930	3,401			29,424	11.6		
1940	8,717			32,376	26.9		
1945	14,322			40,394	35.5		
1950	14,267			45,222	31.5		
1955	16,802			50,675	33.2		
1960	17,049			54,234	31.4		
1965	17,299			60,815	28.4		
1970	19,381	21,248		70,920	27.3	30.0	
1975	19,611	22,361		76,945	25.5	28.9	
1980	19,843	22,377		90,564	21.9	24.7	
1983			17,717	88,290			23.3
1984			17,340	92,194			21.6
1985			16,996	94,521			20.5
1986			16,975	96,903			19.9
1987			16,913	99,303			19.2
1988			17,002	101,407			19.0
1989			16,960	103,480			18.6
1990			16,740	103,905			18.3
1991			16,568	102,786			18.2
1992			16,390	103,688			17.9
1993			16,598	105,067			17.7
1994			16,748	107,989			17.5
1995			16,360	110,058			16.7

Notes:

Column 1 uses data from the National Directory Series. Union members are the annual averages of dues paying members reported by labor unions. Data exclude members of professional and public employee associations. These data are not available after 1980.

Column 2 also uses data from the National Directory Series but here includes members of professional and public employee associations. These data are not available after 1980.

Column 3 is derived from annual averages reported by the Current Population Survey of the BLS. Membership includes members of labor unions and employee associations. Data for 1994 on are not directly comparable to earlier years due to revisions in the CPS. See "Revisions in the CPS effective January 1994", Employment and Earnings, February, 1994.

Column 4 is total wage and salary employment

Table 2. Union density across OECD countries, 1970-1994.

	1970	1980	1990	1993
Declining density				
Austria	61.3	56.2	45.9	43.2
France	22.0	17.5	9.5	8.8 ⁸
Greece	-	47.7 ²	34.1	31.8
Japan	34.7	30.8	25.2	24.2
Portugal	-	60.7 ⁵	31.8	-
Turkey	-	29.2	21.5 ⁷	-
United States	27.3	22.3	15.9	15.3
Sharp rises in density				
Denmark	60.0	76.0	73.0	76.3
Finland	51.4	69.8	72.0	80.1 ⁹
Iceland	-	68.1 ³	96.4	-
Spain	-	12.5	16.1	22.0
Sweden	67.7	80.0	84.0	90.5 ⁹
With 1970s rises - declines in 1980s and 1990s				
Australia	44.2	49.9	40.8	35.0 ⁹
Ireland	53.1	57.1	51.7	49.2 ⁸
Luxembourg	46.8	52.2 ⁴	49.7 ⁶	-
New Zealand	40.8 ¹	47.7 ⁴	45.5	30.1
Switzerland	28.3	30.7	26.6	25.7 ⁸
United Kingdom	44.8	50.7	39.1	36.3
Declining density in 1980s - stabilising in 1990s				
Belgium	47.1	55.9	51.2	52.9 ⁸
Canada	31.0	36.1	35.8	37.4
Germany	33.0	35.6	32.9	33.2 ⁹
Italy	36.3	49.3	38.8	38.8 ⁸
Netherlands	38.0	35.3	25.5	25.5 ⁹
Norway	54.9	56.9	56.0	58.1 ⁹

Source: Visser, 1996.

Notes: ¹=1972; ²=1977; ³=1979; ⁴=1981; ⁵=1984; ⁶=1987; ⁷=1989; ⁸=1992; ⁹=1994.

Data for Canada, Greece, Iceland, Luxembourg, New Zealand (1970-1986), Portugal and Turkey

Table 3. Unemployment rates and inflation rates, 1978-1994

	Unemployment rates (%)			Changes in consumer prices		
	1978	1986	1994	1978	1986	1994
Declining union density						
Austria	1.8	3.1	4.4	3.6	1.7	3.0
France	5.2	10.4	12.4	9.1	2.7	1.7
Greece	1.8	7.4	9.6	12.6	23.0	10.9
Japan	2.2	2.8	2.9	4.2	0.6	0.7
Portugal	7.9	8.6	6.8	22.5	11.8	5.2
Turkey	9.8	7.9	10.9	45.3	34.6	106.3
United States	6.1	7.0	6.1	7.6	1.9	2.6
Sharp rises in density						
Denmark	7.3	7.8	12.1	10.0	3.7	2.0
Finland	7.3	5.5	18.4	7.8	2.9	1.1
Iceland	0.4	0.6	4.7	43.8	22.2	1.6
Spain	7.0	21.0	24.1	19.8	8.8	4.7
Sweden	2.2	2.7	8.0	10.0	4.2	2.2
With 1970s rises - declines in 1980s and 1990s						
Australia	6.4	8.0	9.7	7.9	9.1	1.9
Ireland	8.2	17.4	14.8	7.7	3.8	2.3
Luxembourg	0.8	1.5	2.7	3.1	0.3	2.2
New Zealand	1.7	4.0	8.1	11.9	13.2	1.8
Switzerland	0.3	0.8	4.7	1.1	0.8	0.8
United Kingdom	4.5	11.0	9.2	8.3	3.4	2.5
Declining density in 1980s - stabilising in 1990s						
Belgium	7.2	11.6	12.6	4.5	1.3	2.4
Canada	8.4	9.6	10.4	8.9	4.2	0.2
Germany	3.7	7.7	9.6	2.7	-0.1	3.0
Italy	7.3	11.2	11.3	12.4	6.1	3.9
Netherlands	3.8	8.4	7.5	4.1	0.1	2.8
Norway	1.8	2.0	5.5	8.1	7.2	1.4

Source: OECD Economic Outlook, OECD, June 1995, Annex Table 21, p. A24.

Notes: unemployment rates are defined as persons of working age who are without work and actively seeking employment. It is expressed as a % of the labor force including all members of the armed forces. Consumer price aggregates were computed using the previous year's consumer expenditure expressed in private consumption purchasing power parities.

Table 4. Union density and union coverage

	1990 Union density rate	1990 Bargaining coverage rate	1994 Union density rate	1994 Bargaining coverage rate
Australia	40	80	35	80
Austria	46	98	43	98 ²
Belgium	51	90	53	90 ²
Canada	36	38	38 ¹	36
Denmark			76	90 ¹
Finland	72	95	81 ³	95 ¹
France	10	92	9 ³	95 ²
Germany	32	90	30	92 ¹
Italy			39 ¹	82 ²
Japan	25	23	24 ²	22
Netherlands	26	71	26 ¹	81 ¹
New Zealand	45	67	31	31 ¹
Norway	56	75	58 ¹	74 ¹
Portugal	32	79	32 ¹	50 ⁴
Spain	11	68	22	66 ¹
Sweden	83	83	91	93 ¹
Switzerland	27	53	26	50 ²
United Kingdom	39	47	36	47 ²
United States	16	18	16	18

Source: OECD, 1996

Notes: *=1993, **=1992, ***=1995, ****=1990

Table 5. Coverage Rates by Industry

	Manufacturing	Construction	Wholesale, retail hotels & restaurants	Finance, insurance etc.	Public Sector
Australia	80	72	72	68	98
Austria	100	100	100	90	
Canada	44	35	14	12	80
Finland	89	43	72	55	100
Germany	99	99	99	68	100
Great Britain	48	45	23	38	78
Japan	33	7	11	28	
Netherlands	76	96	65	61	
New Zealand	68	61	56	44	84

Table 6. Union density rates by gender and sector.

	Employed	Women	Men	Public	Private	Manufacturing	FIRE
Canada	34.6	30.2	39.4	63.0	27.9	38	6
United States	16.4	12.6	19.7	36.7	12.9	22	2
Japan	26.8	18.9	29.9	55.8	23.3	32	50
Australia	42.0	35.0	46.0	68.0	32.0	48	28
Austria	45.7	36.7	56.8	56.9	41.2	53	28
Denmark	73.2	71.6	78.0	70.0	72.0	100	36
Finland	71.3	74.9	68.6	85.7	64.6	80	-
France	12.0	7.0	13.0	26.0	8.0	4	-
Germany	33.8	21.6	46.7	44.9	29.9	48	17
Italy				54.1	32.2	47	22
Netherlands	25.0	13.0	35.2	49.0	20.3	25	9
Sweden	85.3	88.3	82.4	81.3	81.3	100	72
Switzerland	26.0	12.7	34.2	70.6	22.4	34	14
UK	41.5	33.3	44.0	55.4	37.8	41	25

Notes: FIRE=Finance, insurance, real estate and business services.Source: OECD (1991)

Table 7. Disaggregated union density rates for the USA and UK, 1995

	USA	UK
All	14.9	32.1
<i>Gender</i>		
Men	17	35
Women	12	30
<i>Race</i>		
White	14	32
Black	20	42
Hispanic	13	-
Indian	-	28
Pakistani/Bangladeshi	-	18
Other	-	29
<i>Employment status</i>		
Full-time	17	36
Part-time	8	21
Public sector	38	62
Private sector	10	22
<i>Age</i>		
16-24 (<20)	5.6	6
25-34 (20-29)	12.1	24
35-44 (30-39)	17.6	35
45-54 (40-49)	21.7	40
55-64 50	19.8	36
65	8.3	-

Notes: Figures in parentheses are age categories for Britain.

Source: Cully and Woodland (1996) and US Department of Labor, Bureau of Labor Statistics.

Table 8. Union Membership Logits, USA, 1983.

	(1)	(2)	(3)	(4)	(5)
				Private sector	Public sector
Age	.1574 (47.58)	.1251 (35.67)	.1274 (35.35)	.1183 (28.48)	.1360 (17.69)
Age ²	-.0017 (43.01)	-.0014 (32.14)	-.0014 (32.34)	-.0013 (25.61)	-.0015 (16.81)
Male	.6736 (49.62)	.4376 (28.24)	.4636 (29.25)	.6015 (30.65)	.1567 (5.37)
Years schooling	-.0748 (32.01)	-.0675 (25.33)	-.0845 (30.58)	-.1425 (42.27)	.0344 (6.42)
Federal government	.5934 (20.76)	.4176 (7.07)	.5490 (8.95)	-	-
State government	.8607 (32.20)	.6130 (15.92)	.7339 (18.46)	-	-.0391 (0.48)
Local government	1.4153 (76.33)	1.2510 (41.01)	1.3502 (43.77)	-	.5748 (7.30)
Self-employed (incorp)	-.2527 (0.51)	-.2230 (0.43)	-.2616 (0.50)	-	-
Self-employed (non-incorp)	.0133 (0.06)	.4672 (1.91)	.4843 (1.94)	-	-
Black	.3516 (16.88)	.3960 (17.85)	.5971 (24.46)	.7075 (23.99)	.4170 (9.31)
Other non-white	.0890 (2.50)	.2219 (5.96)	-.1277 (2.91)	.1090 (2.09)	-.6143 (7.20)
Part-time	-.7455 (33.64)	-.5866 (25.15)	-.6527 (27.35)	-.3099 (11.25)	-1.4759 (30.05)
Region dummies	-	-	50	50	33
Industry dummies	-	50	50	50	50
Constant	-4.2173	-5.5484	-5.3728	-5.1816	-3.9961
N	173585	173585	173585	141004	32285
Chi ²	16805.0	30844.1	37948.1	27537.2	8481.4
Pseudo R ²	.0976	.1791	.2203	.2218	.2015
Log likelihood	-77721.0	-70700.5	-67108.2	-48303.4	-16809.3

Notes: excluded categories are private sector, white and less than 1st grade education. Private sector excludes the self-employed
Source: CPS Outgoing Rotation Group File, 1993: NBER 50 Variable Uniform Extract 1979-1993. t-statistics in parentheses.

Table 9. Union Membership Logits, USA, 1993.

	(1)	(2)	(3)	(4)	(5)
				Private sector	Public sector
Age	.1573 (36.05)	.1256 (27.70)	.1327 (28.32)	.1281 (23.04)	.1352 (14.94)
Age ²	-.0016 (31.70)	-.0013 (23.91)	-.0014 (24.92)	-.0013 (19.15)	-.0015 (14.38)
Male	.5525 (32.55)	.3429 (18.07)	.3266 (16.67)	.5345 (21.53)	.0139 (0.40)
Veteran	.1012 (4.51)	.0410 (1.76)	.0906 (3.73)	.0917 (3.19)	.0453 (0.97)
1st-4th grade	.3777 (1.60)	.1560 (0.64)	.2326 (0.94)	.1783 (0.70)	.2191 (0.19)
5th or 6th grade	.4586 (2.05)	.1636 (0.71)	.2106 (0.90)	.0587 (0.25)	.8857 (0.81)
7th or 8th grade	.5901 (2.74)	.2128 (0.96)	.3724 (1.65)	.3105 (1.34)	1.0654 (1.01)
9th grade	.6262 (2.89)	.2449 (1.10)	.4407 (1.94)	.3101 (1.33)	1.4083 (1.34)
10th grade	.6876 (3.22)	.2942 (1.34)	.4471 (2.00)	.3170 (1.38)	1.4439 (1.38)
11th grade	.7235 (3.40)	.3280 (1.50)	.4501 (2.02)	.3206 (1.40)	1.3888 (1.33)
12th grade no diploma	.7004 (3.18)	.3188 (1.41)	.3226 (1.40)	.1640 (0.69)	1.5345 (1.46)
High school graduate/GED	.8113 (3.90)	.4105 (1.92)	.4520 (2.08)	.3475 (1.56)	1.5092 (1.46)
Some college no degree	.5287 (2.54)	.1607 (0.75)	.2150 (0.99)	.0630 (0.28)	1.4614 (1.41)
Associate degree - occupl.	.5508 (2.62)	.2113 (0.97)	.2661 (1.21)	.1202 (0.53)	1.5070 (1.45)
Associate degree - academic	.4381 (2.07)	.1177 (0.54)	.1053 (0.48)	-.1323 (0.58)	1.5023 (1.45)
Bachelor's degree	.1377 (0.66)	-.1718 (0.80)	-.1594 (0.73)	-.7813 (3.47)	1.5785 (1.52)
Master's degree	.3315 (1.58)	-.0379 (0.18)	-.0857 (0.39)	-1.3001 (5.55)	1.6721 (1.61)
Professional school degree	-.6360 (2.82)	-.8512 (3.66)	-.8636 (3.65)	-.9976 (3.71)	.4109 (0.39)
Doctorate	-.4455	-.9033	-.9465	-1.4486	.6395

	(2.00)	(3.94)	(4.06)	(5.04)	(0.61)
Federal government	1.1442	1.0630	1.2060	-	-
	(34.93)	(25.58)	(27.42)		
State government	1.5192	1.2915	1.4433	-	.3197
	(54.68)	(35.28)	(37.58)		(5.34)
Local government	1.9596	1.5694	1.6719	-	.6133
	(93.85)	(49.81)	(50.92)		(10.34)
Self-employed (incorporated)	-1.0846	-.7089	-.5596	-	-
	(2.11)	(1.36)	(1.07)		
Self-employed (non-incorp)	-.9081	-.5790	-.7227	-	-
	(3.39)	(2.10)	(2.53)		
Black	.3356	.3343	.5257	.6739	.2569
	(14.39)	(13.69)	(19.49)	(20.32)	(5.47)
American Indian	-.6958	-.6250	-.4774	.0003	-.7909
	(7.95)	(7.10)	(5.18)	(0.00)	(5.70)
Asian or Pacific Islander	.2812	.3834	-.1147	.0079	-.2934
	(6.87)	(8.98)	(2.27)	(0.13)	(3.06)
Other non-white	.2687	.3291	.1881	.3212	-.2910
	(2.50)	(2.96)	(1.63)	(2.47)	(1.17)
Part-time	-.6408	-.5480	-.6523	-.2546	-1.3109
	(22.98)	(18.76)	(21.58)	(7.08)	(24.64)
Region dummies	-	-	50	50	33
Industry dummies	-	50	50	50	50
Constant	-6.4171	-7.0360	-7.4036	-7.8153	-5.7489
N	153,275	153,275	153,275	125,644	27212
Chi ²	17163.28	26491.56	33542.60	18274.5	7983.4
Pseudo R ²	.1276	.1969	.2493	.2084	.2202
Log likelihood	-58690.9	-54026.7	-50501.2	-34705.0	-14139.4

Notes: excluded categories are private sector, white and less than 1st grade education. Private sector excludes the self-employed
Source: CPS Outgoing Rotation Group File, 1993: NBER 50 Variable Uniform Extract 1979-1993. t-statistics in parentheses.

Table 10. Union Membership Logits, Great Britain, 1983

	(1) All	(2) All	(3) Private	(4) Public
Age	.1226 (6.52)	.1073 (5.44)	.0914 (3.85)	.1574 (4.30)
Age ²	-.0014 (6.31)	-.0012 (5.15)	-.0010 (3.69)	-.0017 (4.08)
Male	.3422 (6.00)	.2406 (3.87)	.3044 (4.05)	.1264 (1.11)
Part-time	-1.2134 (15.87)	-1.1077 (12.70)	-.9742 (8.59)	-1.1007 (9.35)
Years of schooling	-.1759 (7.76)	-.1136 (4.68)	-.2201 (6.72)	.0391 (1.00)
Black	.5626 (3.09)	.5455 (6.67)	.6187 (3.50)	.4759 (1.47)
Public sector	2.0449 (35.74)	2.4176 (26.80)	-	-
Region dummies	-	10	10	10
Industry dummies	-	9	8	9
Constant	-1.2356	-2.7982	-1.4669	-3.6368
N	8565	8542	5450	3092
Chi ²	2176.0	2925.9	1107.6	484.9
Pseudo R ²	.1833	.2471	.1562	.1463
Log likelihood	-4848.3	-4457.3	-2991.5	-1415.1

Source: General Household Survey, 1983

Note: t-statistics in parentheses.

Table 11. Union Membership Logits, Great Britain, 1993-1994.

	(1) All	(2) All	(3) Private	(4) Public
Age	.1277 (28.39)	.1212 (25.99)	.1206 (21.99)	.1248 (13.90)
Age ²	-.0014 (24.87)	-.0013 (22.32)	-.0013 (19.31)	-.0013 (11.68)
Male	.2958 (15.37)	.1798 (9.71)	.3007 (13.89)	-.0134 (0.32)
Part-time	-1.0356 (47.68)	-.9225 (40.76)	-.5762 (18.98)	-1.2367 (37.41)
Years of schooling	-.0450 (14.63)	-.0302 (9.35)	-.0945 (19.96)	.0366 (7.38)
Black	.1877 (2.79)	.3104 (4.45)	.3149 (3.21)	.2421 (2.33)
Asian	-.1194 (2.13)	-.0875 (1.50)	.1282 (1.90)	-.6499 (5.90)
Other	-.3629 (4.40)	-.1600 (1.87)	-.0987 (0.84)	-.2411 (1.80)
Public sector - type nk	1.7478 (55.52)	1.9825 (53.57)	-	-
Nationalised industry	2.3751 (34.44)	1.8778 (25.67)	-	-.1722 (1.79)
Central government	1.5695 (41.08)	1.7697 (41.09)	-	-.2752 (4.45)
Local government	2.0296 (86.54)	2.2554 (75.08)	-	.2076 (3.62)
University	1.7358 (33.51)	1.9362 (34.88)	-	-.2022 (2.76)
Health authority	2.3867 (73.84)	2.5297 (66.62)	-	.5446 (8.68)
Other	.7753 (8.52)	.9218 (9.77)	-	-1.1410 (10.57)
1993 dummy	.2023 (13.49)	.1381 (8.89)	.1578 (8.74)	.0641 (1.94)
Region dummies	-	19	19	19
Industry dummies	-	12	12	12
Constant	-4.5287	-4.6763	-3.7117	-3.4302

N	110429	110407	81064	29458
Chi ²	21623.35	28018.0	9504.28	4864.51
Pseudo R ²	.1537	.1992	.1100	.1255
Log likelihood	-59510.0	-56300.9	-38462.8	-16952.2

Notes: excluded categories are private sector and white. t-statistics in parentheses.

Table 13. Union membership logit equations, 1989-1992

	France				Belgium			
	<i>All</i> (1)	<i>Employees</i> (2)	<i>Private Sector</i> (3)	<i>Public Sector</i> (4)	<i>All</i> (5)	<i>Employees</i> (6)	<i>Private Sector</i> (7)	<i>Public Sector</i> (8)
Age	.1777 (7.45)	.1749 (4.44)	.0942 (1.66)	.2412 (4.40)	.0893 (7.30)	.0800 (3.54)	.1384 (4.54)	-.003 (0.92)
Age ² * 10 ²	-.0017 (6.56)	-.0018 (3.72)	-.0006 (0.97)	-.0026 (4.00)	-.0011 (8.11)	-.0010 (3.52)	-.0017 (4.45)	.000 (0.07)
Self-employed professional	-.2308 (0.68)	-	-	-	-1.3970 (2.02)	-	-	-
Self-employed owner	-.7034 (1.83)	-	-	-	-.5114 (0.78)	-	-	-
Manual worker	-.2071 (0.75)	-	-	-	1.6870 (2.70)	-	-	-
White collar worker	-.1190 (0.39)	.0361 (0.19)	.3885 (1.23)	-.1203 (0.49)	1.3200 (2.10)	-.4322 (4.41)	-.4799 (3.47)	-.418 (2.91)
Executive	.1895 (0.68)	.3961 (2.58)	.2411 (0.96)	.4756 (2.40)	.9555 (1.51)	-.6805 (5.66)	-.9276 (5.67)	-.423 (2.30)
Retired	-.6650 (2.16)	-	-	-	1.1026 (1.75)	-	-	-
Housewife	-2.1677 (5.36)	-	-	-	-.2661 (0.42)	-	-	-
Student	-.2833 (0.49)	-	-	-	-1.1341 (1.51)	-	-	-
Unemployed	-1.4041 (3.38)	-	-	-	1.7094 (2.71)	-	-	-
15 years school	.2125 (0.80)	.0802 (0.21)	-.9662 (1.26)	.8161 (1.62)	.0020 (0.01)	-.0934 (0.31)	-.0483 (0.13)	.011 (0.02)
16 years school	.0822 (0.39)	-.1189 (0.40)	-.1057 (0.25)	-.0304 (0.07)	-.0269 (0.20)	-.0665 (0.30)	.1522 (0.58)	-.633 (1.51)
17 years school	.1957 (0.95)	.3437 (1.26)	.2135 (0.56)	.5153 (1.34)	.0673 (0.45)	-.0210 (0.09)	.1096 (0.39)	-.256 (0.59)
18 years school	.3836 (2.15)	.3226 (1.32)	.2084 (0.58)	.5092 (1.50)	-.0298 (0.26)	-.1906 (1.00)	.0365 (0.16)	-.540 (1.57)
19 years school	.2826 (1.22)	.2559 (0.86)	.0687 (0.16)	.4634 (1.12)	-.0399 (0.27)	-.3494 (1.58)	-.3957 (1.39)	-.352 (0.94)
20 years school	.2450 (1.22)	.2594 (0.87)	-.0971 (0.20)	.5717 (1.46)	-.0966 (0.67)	-.2698 (1.24)	-.0184 (0.06)	-.589 (1.63)

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21 years school	.3473 (1.36)	.1087 (0.33)	.1467 (0.28)	.2050 (0.47)	-.0194 (0.14)	-.1307 (0.61)	.1127 (0.40)	-.4501 (1.26)
22 years school	.1533 (0.90)	-.1992 (0.82)	-.6267 (1.65)	.0874 (0.26)	-.1955 (1.75)	-.3766 (2.01)	-.3678 (1.55)	-.4611 (1.41)
Still at school	-.2130 (0.37)	-	-	-	.2680 (0.66)	.2062 (0.32)	-.1216 (0.13)	.3970 (0.43)
Male	.3816 (3.73)	.4179 (3.12)	.5626 (2.37)	.3878 (2.34)	.3929 (6.08)	.1381 (1.58)	.3445 (2.90)	-.0481 (0.37)
Nationalized Industry	-	-.1549 (0.75)	-	-.1022 (0.49)	-	-.3486 (1.22)	-	-.4091 (1.43)
Private Industry	-	-1.1488 (7.47)	-	-	-	-.0015 (0.02)	-	-
Private Services	-	-1.2852 (6.55)	-.1224 (0.56)	-	-	-.5793 (5.22)	-.5474 (4.72)	-
Constant	-6.5869	-5.9064	-5.8401	-7.1619	-3.6757	-1.3228	-2.7537	.7341
N	6719	2794	1653	1138	6713	2603	1568	1031
Chi ²	317.89	181.61	40.2	61.87	1147.0	128.0	137.0	25.1
Pseudo R ²	.0884	.0914	.0511	.0562	.1457	.0359	.0642	.0181
Log likelihood 700.1	-1638.6	-903.2	-373.6	-519.2	-3363.6	-1717.1	-998.0	-

	<i>All</i> (1)	(2)	<i>Employees</i> (3) Private Sector	(4) Public Sector	<i>All</i> (5)	(6)	<i>Employees</i> (7) Private Sector	(8) Public Sector
		Netherlands				Germany		
Age	.1094 (7.53)	.0908 (3.27)	.0552 (1.57)	.1558 (3.29)	.0579 (4.80)	.0234 (1.09)	-.0090 (0.34)	.075 (2.06)
Age ² * 10 ²	-.0010 (6.47)	-.0009 (2.55)	-.0004 (0.94)	-.0017 (2.93)	-.0007 (4.76)	-.0002 (0.88)	.0002 (0.62)	-.001 (2.05)
Self-employed professional	.4063 (0.52)	-	-	-	.3694 (0.35)	-	-	-
Self-employed owner	.8795 (1.11)	-	-	-	.9465 (0.90)	-	-	-
Manual worker	2.1714 (2.92)	-	-	-	2.4849 (2.42)	-	-	-
White collar worker	1.8096 (2.42)	-.3920 (3.13)	-.3455 (2.23)	-.4914 (2.26)	2.3073 (2.23)	-.4453 (2.60)	-.3163 (1.43)	-.520 (1.89)
Executive	2.1166 (2.85)	-.0321 (0.30)	-.1438 (1.04)	.1262 (0.70)	2.1115 (2.06)	-.4549 (4.78)	-.5235 (4.38)	-.306 (1.87)
Retired	1.3557 (1.81)	-	-	-	1.8073 (1.76)	-	-	-
Housewife	.0427 (0.06)	-	-	-	.2223 (0.21)	-	-	-
Student	.4344 (0.53)	-	-	-	.5220 (0.47)	-	-	-
Unemployed	.8094 (1.07)	-	-	-	1.2305 (1.17)	-	-	-
15 years school	-.2349 (1.32)	-.1466 (0.50)	.1157 (0.35)	-.9258 (1.45)	-.0138 (0.12)	.1762 (1.08)	.0824 (0.44)	.426 (1.33)
16 years school	-.1793 (1.16)	-.0601 (0.24)	-.0455 (0.16)	-.1532 (0.28)	-.0974 (0.78)	.0353 (0.21)	-.0655 (0.33)	.362 (1.17)
17 years school	-.0886 (0.58)	-.0449 (0.18)	.1301 (0.46)	-.5609 (1.03)	-.1594 (1.13)	-.0351 (0.19)	-.2203 (1.01)	.456 (1.32)
18 years school	-.1631 (1.05)	-.1002 (0.40)	-.1038 (0.36)	-.2363 (0.45)	-.2880 (1.97)	-.3179 (1.61)	-.6396 (2.55)	.335 (0.98)
19 years school	.1814 (1.05)	.2419 (0.91)	.4249 (1.38)	-.2457 (0.45)	-.5273 (2.71)	-.4287 (1.83)	-.3734 (1.31)	-.341 (0.82)
20 years school	-.0832 (0.46)	-.2283 (0.81)	.0708 (0.21)	-.8544 (1.56)	-.2574 (1.10)	-.0874 (0.30)	-.4398 (1.19)	.598 (1.21)
21 years school	.0476 (0.26)	-.0510 (0.19)	.0821 (0.25)	-.4310 (0.80)	-.4177 (1.31)	-.6139 (1.58)	-.6311 (1.009)	-.378 (0.70)

22 years school	-.0465 (0.37)	-.2216 (0.98)	-.1239 (0.47)	-.5709 (1.18)	-.1726 (1.45)	-.2427 (1.47)	-.3595 (1.75)	.049 (0.17)
Still at school	-.5566 (1.68)	-.3262 (0.71)	-.2208 (0.38)	-.6400 (0.79)	-.7294 (1.64)	-.1823 (0.27)	-.2442 (0.35)	-
Male	.8080 (9.88)	.8503 (8.21)	.8247 (6.06)	.8856 (5.39)	1.0644 (13.99)	.8108 (8.75)	.9729 (7.87)	.609 (4.20)
Nationalized Industry	-	.3382 (0.91)	-	.4670 (1.22)	-	.1624 (0.73)	-	.233 (1.04)
Private Industry	-	-.6927 (6.22)	-	-	-	-.4587 (4.65)	-	-
Private Services	-	-.5872 (5.07)	.0909 (0.77)	-	-	-1.2193 (9.23)	-.7390 (5.94)	-
Constant	-5.9386	-2.8732	-2.1959	-3.9444	-5.0570	-1.3585	-1.2559	-2.551
N	7012	2518	1713	805	7100	3204	2209	99
Chi ²	1053.0	191.2	83.22	25.86	902.4	268.5	205.1	50
Pseudo R ²	.1578	.0610	.0415	.1029	.1366	.0711	.0835	.0392
Log likelihood 616.6	-2810.3	-1472.3	-956.0	-700.1	-2852.8	-1754.0	-1126.0	-

	<i>All</i> (1)	(2)	<i>Employees</i> (3) Private Sector	(4) Public Sector	<i>All</i> (5)	(6)	<i>Employees</i> (7) Private Sector	(8) Public Sector
			Italy				Luxembourg	
Age	.1845 (11.61)	.1906 (6.57)	.2267 (5.22)	.1555 (3.54)	.0905 (4.79)	.0915 (2.69)	.1168 (2.40)	.038 (0.76)
Age ² * 10 ²	-.0018 (10.59)	-.0021 (5.93)	-.0025 (4.52)	-.0017 (3.35)	-.0010 (4.66)	-.0010 (2.25)	-.0012 (1.85)	-.000 (0.74)
Self-employed professional	-.8781 (2.24)	-	-	-	-1.1309 (2.32)	-	-	-
Self-employed owner	-1.1922 (2.98)	-	-	-	-1.3022 (2.35)	-	-	-
Manual worker	1.0264 (2.85)	-	-	-	.9174 (2.49)	-	-	-
White collar worker	.7817 (2.17)	-.5256 (4.27)	-.7079 (3.98)	-.3823 (2.13)	.7800 (2.00)	-.0851 (0.43)	-.2918 (1.19)	.422 (1.15)
Executive	.6196 (1.66)	-.6266 (3.79)	-1.0193 (3.58)	-.4211 (1.92)	.7085 (1.91)	-.2460 (1.47)	-.5374 (2.29)	.073 (0.29)
Retired	-.0731 (0.20)	-	-	-	.2516 (0.65)	-	-	-
Housewife	-1.7428 (4.48)	-	-	-	-.9825 (2.53)	-	-	-
Student	-2.2709 (2.57)	-	-	-	-1.7081 (1.91)	-	-	-
Unemployed	-.8675 (1.98)	-	-	-	-2.2564 (2.07)	-	-	-
15 years school	.0567 (0.35)	.0415 (0.18)	.2153 (0.72)	-.1507 (0.43)	.4886 (2.15)	.5928 (1.61)	.8168 (1.77)	.303 (0.48)
16 years school	.1238 (0.65)	.3365 (1.34)	.6767 (2.12)	-.0819 (0.20)	.3076 (1.29)	.2316 (0.60)	.3351 (0.70)	.215 (0.31)
17 years school	.4434 (2.49)	.4305 (1.88)	.6675 (2.12)	.1318 (0.39)	.2397 (1.00)	.1842 (0.49)	.7828 (1.61)	-.436 (0.70)
18 years school	.0222 (0.16)	-.1270 (0.69)	-.1612 (0.55)	-.2120 (0.83)	.2951 (1.28)	.2634 (0.73)	.3083 (0.66)	.324 (0.54)
19 years school	.0720 (0.49)	-.0216 (0.11)	.2021 (0.73)	-.2417 (0.89)	.4433 (1.77)	.2109 (0.55)	.4396 (0.91)	-.051 (0.08)
20 years school	-.0605 (0.32)	-.0799 (0.34)	.2923 (0.86)	-.4357 (1.32)	.6587 (2.52)	.3127 (0.80)	.6182 (1.21)	.023 (0.04)
21 years school	.1293 (0.49)	.1917 (0.63)	1.4369 (2.92)	-.4896 (1.28)	.9546 (3.29)	.8769 (2.10)	.7267 (1.25)	1.064 (1.55)

22 years school	.0360 (0.33)	-.2208 (1.42)	.0592 (0.24)	-.4677 (2.18)	.1362 (0.61)	-.2451 (0.69)	-.5475 (1.14)	-.115 (0.20)
Still at school	.6152 (0.71)	-	-	-	-.1829 (0.21)	-	-	-
Male	.5657 (0.58)	.5714 (5.49)	.5455 (3.33)	.5842 (4.27)	.8069 (7.06)	.6742 (4.65)	.7322 (3.40)	.712 (3.46)
Nationalized Industry	-	.1211 (0.48)	-	.1265 (0.50)	-	.0734 (0.25)	-	.162 (0.54)
Private Industry	-	-.8708 (6.93)	-	-	-	-.6518 (3.92)	-	-
Private Services	-	-1.0427 (7.35)	-.1687 (1.11)	-	-	-.6038 (3.41)	.1878 (0.93)	-
Constant	-6.1715	-4.2307	-6.0558	-3.3196	-3.6645	-2.1712	-3.5281	-1.199
N	6929	2135	1116	1019	2672	1145	600	54
Chi ²	1235.5	245.9	111.5	61.7	711.2	93.8	68.0	32.4
Pseudo R ²	.1991	.0886	.0869	.0439	.2097	.0594	.0818	.0444
Log likelihood 348.0	-2485.1	-1265.3	-585.7	-671.6	-1339.8	-742.1	-381.6	-

	<i>All</i> (1)	(2)	<i>Employees</i> (3) Private Sector	(4) Public Sector	<i>All</i> (5)	(6)	<i>Employees</i> (7) Private Sector	(8) Public Sector	
		Denmark					Eire		
Age	.1840 (15.11)	.2013 (9.16)	.1943 (6.98)	.2392 (6.38)	.1736 (9.36)	.1682 (6.51)	.1589 (4.43)	.2014 (5.00)	
Age ² * 10 ²	-.0021 (15.34)	-.0023 (8.80)	-.0022 (6.64)	-.0027 (6.26)	-.0021 (9.16)	-.0021 (6.23)	-.0020 (4.34)	-.0024 (4.67)	
Self-employed professional	1.1468	-	-	-	1.5287	-	-	-	
Self-employed owner	.7836 (2.17)	-	-	-	1.4054 (2.54)	-	-	-	
Manual worker	3.1704 (10.01)	-	-	-	3.9867 (8.72)	-	-	-	
White collar worker	2.5087	-.5482	-.8431	.0407	3.6273	-.3390	-.3832	-.2064	
Executive	2.1903 (6.94)	-.8651 (7.17)	-1.3842 (8.84)	.1365 (0.64)	3.2583 (7.01)	-.3019 (2.08)	-.7933 (3.64)	.2584 (1.16)	
Retired	.6895	-	-	-	2.0182	-	-	-	
Housewife	.5227 (1.53)	-	-	-	.5706 (1.15)	-	-	-	
Student	.6215 (1.65)	-	-	-	1.4813 (1.98)	-	-	-	
Unemployed	2.2007 (6.70)	-	-	-	1.8524 (3.84)	-	-	-	
15 years school	-.0219 (0.11)	.1947 (0.50)	.1217 (0.24)	.2611 (0.42)	.3766 (1.97)	.2123 (0.82)	.2997 (0.93)	.0624 (0.14)	
16 years school	.3207 (1.67)	.2563 (0.74)	.2433 (0.53)	.2079 (0.38)	.3732 (2.12)	.0379 (0.16)	.2399 (0.78)	-.3564 (0.90)	
17 years school	-.0646 (0.33)	-.1810 (0.55)	-.0665 (0.16)	-.4339 (0.81)	.1943 (1.07)	-.1831 (0.76)	.0582 (0.19)	-.6924 (1.72)	
18 years school	.1138 (0.65)	.2473 (0.77)	.3987 (0.97)	.0423 (0.08)	.5206 (2.93)	.0065 (0.03)	.0708 (0.23)	-.0834 (0.22)	
19 years school	.5993 (3.55)	.6024 (1.99)	.6719 (1.72)	.4492 (0.88)	.6695 (3.00)	.2752 (0.95)	.0393 (0.10)	.6614 (1.39)	
20 years school	.5854 (3.81)	.4600 (1.60)	.5426 (1.45)	.2187 (0.47)	1.1397 (4.15)	.3100 (0.89)	.2647 (0.46)	.1994 (0.41)	
21 years school	.5707 (3.43)	.6009 (1.99)	.6081 (1.56)	.6104 (1.21)	1.2744 (5.31)	.2600 (0.82)	-.1612 (0.31)	.4114 (0.88)	
22 years school	.5179 (4.12)	.3789 (1.45)	.3439 (0.98)	.4806 (1.22)	.8992 (4.93)	.1917 (0.78)	.0633 (0.18)	.1074 (0.28)	
Still at school	.5670	-	-	-	.1828	-	-	-	

	<i>All</i> (1)	(2)	<i>Employees</i> (3) Private Sector	(4) Public Sector	<i>All</i> (5)	(6)	<i>Employees</i> (7) Private Sector	(8) Public Sector
		United Kingdom				Greece		
Age	.1681 (12.68)	.1886 (9.64)	.2127 (7.80)	.1617 (5.69)	.2203 (9.21)	.2987 (6.88)	.3483 (5.78)	.2403 (3.82)
Age ² * 10 ²	-.0019 (12.07)	-.0022 (9.16)	-.0025 (7.34)	-.0019 (5.45)	-.0025 (9.03)	-.0036 (6.63)	-.0043 (5.56)	-.0023 (3.66)
Self-employed professional	-.2356	-	-	-	.5336	-	-	-
Self-employed owner	-.7046 (1.55)	-	-	-	.2960 (1.22)	-	-	-
Manual worker	1.4853 (3.83)	-	-	-	1.3238 (6.83)	-	-	-
White collar worker	1.2209 (3.09)	-.2048 (1.92)	-.2474 (1.67)	-.0831 (0.53)	1.2527 (5.93)	-.1528 (0.95)	-.0739 (0.33)	-.2563 (1.07)
Executive	1.3978 (3.58)	-.0540 (0.58)	-.4367 (3.27)	.3179 (2.35)	1.2767 (6.21)	.0117 (0.07)	.0491 (0.18)	-.0853 (0.36)
Retired	.2584 (0.64)	-	-	-	.2088 (0.86)	-	-	-
Housewife	-1.2788 (3.04)	-	-	-	-1.4622 (4.66)	-	-	-
Student	.1292 (0.12)	-	-	-	-.6077 (0.93)	-	-	-
Unemployed	-.5801 (1.40)	-	-	-	-.2052 (0.59)	-	-	-
15 years school	.0478 (0.38)	-.2098 (1.12)	-.3694 (1.50)	-.0117 (0.04)	.2196 (0.89)	-.3635 (0.90)	-.6383 (1.32)	.4281 (0.55)
16 years school	-.1527 (1.17)	-.4600 (2.40)	-.5014 (1.97)	-.3862 (1.33)	.2351 (0.89)	.2083 (0.54)	.1393 (0.32)	.3657 (0.47)
17 years school	.0479 (0.31)	-.3537 (1.64)	-.2758 (0.96)	-.3970 (1.23)	.0728 (0.27)	-.0387 (0.11)	-.3962 (0.81)	.7177 (1.22)
18 years school	-.1753 (1.10)	-.5931 (2.69)	-.8987 (2.87)	-.2532 (0.79)	.2830 (1.90)	-.1090 (0.49)	-.2342 (0.87)	.3333 (0.82)
19 years school	.0466 (0.17)	-.5116 (1.43)	-.7282 (1.46)	-.3170 (0.59)	.3084 (1.25)	.3524 (1.11)	-.5301 (1.08)	1.4821 (2.87)
20 years school	.1429 (0.52)	-.3298 (0.88)	-.7026 (1.32)	.0680 (0.12)	.6560 (3.10)	.1481 (0.52)	-.0414 (0.10)	.6193 (1.39)
21 years school	.1491 (0.78)	-.4957 (1.93)	-1.0589 (2.45)	-.2350 (0.67)	.1602 (0.54)	-.1967 (0.54)	0.5464 (0.92)	.4123 (0.79)
22 years school	.1003	-.5198	-.8534	-.1686	.6538	.2528	-.0386	.805

	<i>All</i>	(2)	<i>Employees</i>		<i>All</i>	(6)	<i>Employees</i>	
	(1)		(3)	(4)	(5)		(7)	(8)
			Private Sector	Public Sector			Private Sector	Public Sector
			Spain			Portugal		
Age	.1526 (6.16)	.1462 (4.21)	.2049 (3.94)	.0989 (2.17)	.2016 (9.80)	.2765 (7.84)	.2217 (5.04)	.3411 (6.12)
Age ² * 10 ²	-.0016 (5.65)	-.0016 (3.77)	-.0023 (3.56)	-.0010 (1.98)	-.0020 (8.73)	-.0029 (6.94)	-.0024 (4.39)	-.0031 (5.51)
Self-employed professional	-.1580	-	-	-	1.1924	-	-	-
Self-employed owner	-1.6888 (2.02)	-	-	-	1.2857 (2.33)	-	-	-
Manual worker	1.3214 (2.19)	-	-	-	2.7748 (5.40)	-	-	-
White collar worker	1.0521 (1.69)	-.3243 (1.58)	-.2775 (1.03)	-.3343 (1.04)	3.0065 (5.71)	.1610 (0.94)	.2528 (1.06)	-.0391 (0.82)
Executive	1.2538 (2.04)	-.2033 (1.05)	-.3122 (1.08)	-.0708 (0.26)	3.1356 (6.04)	.3583 (2.27)	.4640 (1.96)	.1811 (0.82)
Retired	.1027 (0.16)	-	-	-	1.4642 (2.75)	-	-	-
Housewife	-.9630 (1.46)	-	-	-	-.3422 (0.57)	-	-	-
Student	-.1391 (0.17)	-	-	-	.3286 (0.41)	-	-	-
Unemployed	.9855 (1.57)	-	-	-	1.8561 (3.13)	-	-	-
15 years school	.1451 (0.54)	.0194 (0.06)	.1741 (0.45)	-.5872 (0.72)	-.2172 (0.82)	-1.3393 (2.96)	-1.7022 (2.30)	-.9861 (1.67)
16 years school	-.1015 (0.41)	-.0550 (0.19)	-.1363 (0.38)	.1824 (0.35)	.1851 (0.84)	-.2004 (0.73)	-.1614 (0.45)	-.1851 (0.44)
17 years school	.0840 (0.30)	-.4224 (1.13)	-.9085 (1.65)	.2862 (0.51)	.5321 (2.63)	.3703 (1.48)	.1946 (0.59)	.6841 (1.71)
18 years school	.5056 (2.39)	.4601 (1.81)	.1125 (0.34)	1.0674 (2.47)	.5076 (2.75)	-.0681 (0.28)	-.0117 (0.03)	.0461 (0.14)
19 years school	.1243 (0.37)	-.1865 (0.45)	-.0554 (0.11)	-.2321 (0.33)	.6863 (2.79)	.1966 (0.63)	.1068 (0.25)	.4271 (0.95)
20 years school	.2417 (0.81)	.3091 (0.93)	.1608 (0.37)	.6006 (1.09)	.1617 (0.56)	-.3408 (0.94)	.0205 (0.04)	-.3821 (0.78)
21 years school	.6087 (1.91)	.5287 (1.43)	.3074 (0.57)	.9544 (1.74)	.9117 (2.82)	.3892 (0.93)	-.7289 (0.68)	.9801 (1.89)
22 years school	.4881	.3806	.2622	.6469	.4179	-.1287	-.4871	.2261

Still at school	(2.78) -.1849 (0.36)	(1.64) -.6103 (0.79)	(0.87) - (1.99)	(1.65) - (3.75)	(3.01) .6832 (1.23)	(0.70) .6051 (0.86)	(1.67) .4884 (0.41)	(0.88) 1.0516 (1.16)
Male	.7064 (5.14)	.6571 (3.97)	.4314 (1.99)	.9707 (3.75)	.3466 (3.61)	.2923 (2.38)	.3113 (1.75)	.3136 (1.79)
Nationalized Industry	-	.9334 (2.04)	-	1.0198 (2.15)	-	.2499 (1.24)	-	.2736 (1.31)
Private Industry	-	-.7182 (4.15)	-	-	-	-.7518 (5.06)	-	-
Private Services	-	-.8906 (5.00)	-.1975 (1.06)	-	-	-1.0583 (6.11)	-.3146 (1.77)	-
Constant	-7.4324	-5.2341	-6.7077	-4.8868	-8.6827	-5.2341	-6.0403	-7.8566
N	6760	1978	1384	577	6332	1904	1206	696
Chi ²	461.7	121.8	52.6	42.2	799.9	121.8	79.9	96.1
Pseudo R ²	.1597	.0789	.0580	.0712	.1933	.0789	.0770	.1045
Log likelihood	-1215.1	-710.7	-427.1	275.2	-1669.0	-710.7	-478.6	

Source: Eurobarometer Surveys, 1989-1992.

Notes: Excluded category, self-employed farmer/fisherman. Equations all include 3 year dummies.

Table 14. Trade union logits - ISSP

	(1)	(2)	(3) Private sector	(4) Public sector
25-34	.5078 (12.70)	.4080 (9.07)	.3930 (7.28)	.4789 (5.78)
35-44	.7479 (18.93)	.5744 (12.91)	.5031 (9.36)	.7386 (9.01)
45-54	.8381 (20.44)	.6471 (13.96)	.6099 (10.86)	.7376 (8.72)
55-64	.8430 (18.01)	.6207 (11.64)	.5247 (7.99)	.8151 (8.52)
65-74	.6288 (7.80)	.3879 (4.19)	.1846 (1.58)	.8215 (4.93)
Years of schooling	.0080 (2.07)	-.0404 (8.90)	-.0659 (10.29)	-.0030 (0.44)
Male	.4031 (18.31)	.4888 (19.28)	.5905 (18.12)	.4034 (9.55)
Self-employed	-1.8521 (42.39)	-1.3703 (17.10)	-1.3197 (15.86)	-1.4631 (4.02)
West Germany	-.8215 (19.26)	-.7237 (14.66)	-.4919 (7.99)	-1.2373 (15.19)
Great Britain	-.2610 (6.18)	-.1945 (4.29)	-.3450 (5.94)	.1235 (1.59)
USA	-1.6332 (32.03)	-1.4000 (14.99)	-1.0247 (9.35)	-2.2294 (12.61)
Austria	-.0300 (0.59)	.0318 (0.51)	-.0379 (0.50)	.1162 (1.01)
Netherlands	-.7822 (13.51)	-.7285 (11.31)	-.5585 (6.97)	-1.0414 (9.82)
Italy	-.3740 (6.89)	-.6257 (9.41)	-.4481 (4.72)	-.7452 (7.77)
Eire	-.2420 (3.87)	-.1787 (2.56)	-.3655 (4.06)	.1133 (0.97)
Northern Ireland	.2767 (4.10)	.2454 (3.21)	.0899 (0.88)	.4929 (4.01)
Switzerland	-.3933 (4.01)	-.3629 (3.52)	-.5152 (4.21)	-.0985 (0.50)
New Zealand	-.4519 (7.13)	-.3285 (4.67)	-.4601 (4.99)	-.1300 (1.14)
Norway	.5166 (10.34)	.4527 (8.14)	.2152 (3.00)	.8578 (9.10)
Israel	.3504	.2448	.0554	.4674

			77	
Japan	(4.36) -.7422	(2.83) -.3864	(0.48) -.2765	(3.36) -.7057
Spain	(7.02) -1.4567	(3.49) -1.5475	(2.20) -1.3905	(2.62) -1.8239
Public sector	(9.83) -	(9.40) 1.2937	(6.75) -	(6.88) -
constant	-.8091	(48.07) -.7410	-.6289	.3289
Number of obs	42605	32278	20694	11584
Chi ²	5894.2	5468.1	1453.6	1390.1
Pseudo R ²	.1040	.1237	.0560	.0918
Log likelihood	-25391.0	-19364.2	-12247.8	-6876.3

Notes: all equations also include 8 year dummies. Sample consists of the employed. Excluded country=Australia.

Table 15. Union membership logits by country, ISSP -- 1985-1993

	Australia		Austria		Eire		United Kingdom		Israel	
25-34	.0984 (0.82)	.0818 (0.68)	.4338 (3.08)	.4314 (3.06)	.3674 (2.27)	.3547 (2.18)	.5938 (5.99)	.5963 (5.97)	.0593 (0.10)	.0845 (0.15)
35-44	.2286 (1.93)	.1906 (1.59)	.5350 (3.68)	.5652 (3.87)	.6993 (4.13)	.6600 (3.84)	.5771 (5.95)	.5628 (5.77)	.8181 (1.49)	.8481 (1.55)
45-54	.0802 (0.64)	.0383 (0.30)	.6347 (4.18)	.6464 (4.24)	.6132 (3.18)	.5411 (2.78)	.7278 (7.17)	.7089 (6.96)	.9591 (1.75)	.9852 (1.81)
55-64	-.0502 (0.34)	-.0973 (0.65)	.3988 (1.72)	.4127 (1.77)	.5869 (2.50)	.5536 (2.37)	.5700 (4.94)	.5543 (4.81)	1.4902 (2.67)	1.5038 (2.72)
65-74	-.3829 (1.25)	-.4677 (1.53)	.5612 (0.83)	.5937 (0.87)	-1.0465 (1.34)	-1.0266 (1.31)	.4301 (1.96)	.3833 (1.75)	1.8102 (3.04)	1.8067 (3.06)
Schooling	-.0735 (5.27)	-.1392 (7.23)	-.0902 (4.67)	-.0495 (2.07)	-.0110 (0.52)	-.0730 (2.47)	-.0723 (3.52)	-.0723 (3.52)	.0149 (0.66)	-.0500 (1.55)
Male	.4217 (6.13)	.4439 (6.41)	.5529 (5.75)	.5395 (5.60)	.3658 (3.17)	.3932 (3.39)	.5890 (10.28)	.6068 (10.55)	.1422 (1.07)	.1593 (1.19)
Self-employed	-.9974 (6.42)	-1.0213 (6.53)	-3.1176 (8.41)	-3.1190 (8.42)	-2.7771 (7.80)	-2.8294 (7.91)	-1.9548 (7.86)	-1.9517 (7.85)	-.6106 (2.03)	-.6436 (2.17)
Public sector	1.4760 (20.30)	-.1411 (0.44)	1.1893 (10.61)	2.2996 (5.34)	1.4985 (12.15)	-.0956 (0.18)	1.8058 (29.26)	-.4188 (0.90)	1.6499 (11.92)	.0010 (0.00)
Public*school	-	.1408 (5.18)	-	-.1033 (2.69)	-	.1316 (1.46)	-	.1939 (4.82)	-	.1275 (2.85)
Year dummies	4	4	3	3	3	3	7	7	-	-
constant	-.1424	.7014	-.1642	-.5852	-1.3122	-.5865	-.7670	.1863	-1.7258	-.9526
N	4265	4265	2183	2183	1718	1718	6607	6607	1225	1225
Chi ²	687.9	715.01	412.3	419.6	436.3	446.2	1441.9	1465.5	261.0	269.2
Pseudo R ²	.1163	.1209	.1370	.1394	.1882	.1924	.1578	.1604	.1559	.1608
Log likelihood	-2612.1	-2598.6	-1298.8	-1295.1	-941.2	-936.2	-3847.1	-3835.3	-706.4	-702.2

	Italy		Japan		Netherlands		New Zealand		Norway	
25-34	1.2364 (4.85)	1.2308 (4.81)	.2113 (0.29)	.2107 (0.29)	.4543 (2.46)	.4507 (2.44)	-.1367 (0.66)	-.1415 (0.68)	.6661 (4.95)	.6686 (4.95)
35-44	1.7297 (6.92)	1.7272 (6.89)	-.4872 (0.68)	-.4876 (0.68)	.7964 (4.38)	.7906 (4.35)	-.0626 (0.31)	-.0685 (0.34)	.8952 (6.60)	.8927 (6.58)
45-54	1.6519 (6.45)	1.6394 (6.40)	-.4644 (0.66)	-.4645 (0.66)	1.0024 (5.23)	.9898 (5.16)	.0451 (0.22)	.0357 (0.17)	1.1111 (7.54)	1.0970 (7.45)
55-64	1.6957 (6.07)	1.6784 (6.01)	-.6513 (0.92)	-.6517 (0.92)	1.1492 (5.18)	1.1378 (5.13)	.0276 (0.12)	.0218 (0.09)	1.1162 (6.56)	1.1072 (6.53)
65-74	1.6505 (4.16)	1.6721 (4.21)	-1.5213 (2.06)	-1.5234 (2.06)	1.3347 (3.35)	1.2983 (3.26)	.0656 (0.19)	.0484 (0.14)	.4007 (1.29)	.4049 (1.31)
Schooling	-.0425 (3.45)	-.0936 (4.52)	-.0268 (0.62)	-.0264 (0.57)	.0272 (2.45)	.0131 (0.93)	-.0225 (1.15)	-.0412 (1.47)	.0097 (0.57)	-.0193 (0.90)
Male	.5427 (5.29)	.5700 (5.29)	.6232 (3.15)	.6229 (3.14)	.4925 (5.03)	.4935 (5.03)	-.0767 (0.68)	-.0745 (0.66)	.3761 (4.47)	.3746 (4.45)
Self-employed	-	-	-	-	-1.0686 (2.83)	-1.0449 (2.78)	-	-	-	-
Public sector	.7952 (6.63)	-.1080 (0.34)	.8741 (3.13)	.9118 (0.58)	.6480 (6.69)	.1268 (0.39)	1.5699 (12.92)	1.1039 (2.16)	1.7498 (19.37)	.9113 (2.35)
Public*school	-	.0788 (3.13)	-	-.0028 (0.02)	-	.0381 (1.66)	-	.0366 (0.35)	-	.0716 (2.21)
Year dummies	4	4	-	-	3	3	2	2	3	3
constant	-1.9167	-1.3928	-.2602	-.2647	-2.2929	-2.1064	-.7813	-.1382	-1.2629	-.9253
N	1885	1885	560	560	2466	2466	1512	1512	3189	3189
Chi ²	212.2	222.2	40.2	40.2	157.8	160.62	198.4	199.2	581.6	586.6
Pseudo R ²	.0829	.0868	.0563	.0563	.0513	.0522	.0958	.0963	.1377	.1389
Log likelihood	-1174.0	-1169.0	-336.6	-336.6	-1460.8	-1459.4	-935.8	-935.4	-1821.0	-1818.5

	Switzerland		West Germany		USA	
25-34	.2448 (0.70)	.2456 (0.70)	.4261 (3.27)	.4261 (3.27)	.4617 (1.27)	.4701 (1.29)
35-44	.1501 (0.44)	.1516 (0.44)	.5398 (4.13)	.5398 (4.13)	1.0442 (2.89)	1.0534 (2.92)
45-54	.6060 (1.70)	.6053 (1.70)	.5750 (4.33)	.5750 (4.33)	.9088 (2.38)	.9221 (2.41)
55-64	1.2215 (3.07)	1.2215 (3.07)	.5525 (3.67)	.5525 (3.67)	.6409 (1.57)	.6062 (1.48)
65-74	.5306 (0.85)	.5295 (0.84)	.2009 (0.62)	.2009 (0.62)	-.5207 (0.64)	-.5408 (0.67)
Schooling	-.0202 (0.82)	-.0188 (0.63)	-.1169 (6.41)	-.1169 (6.41)	-.0592 (2.18)	-.0976 (2.92)
Male	.9458 (4.18)	.9454 (4.17)	.9342 (13.12)	.9342 (13.12)	.6980 (4.09)	.7028 (4.12)
Self-employed	.2659 (1.22)	.2657 (1.22)	-2.2569 (4.26)	-2.2569 (4.26)	-1.0919 (3.57)	-1.0730 (3.50)
Public sector	1.6857 (7.54)	1.7372 (2.67)	-.0127 (0.05)	-.0127 (0.05)	.6903 (3.66)	-.8240 (1.04)
Public*school	-	-.0044 (0.08)	-	.0534 (2.16)	-	.1127 (1.99)
Year dummies	-	-	6	6	2	2
constant	-1.8620	1.8769	-.6711	-.6711	-1.5091	-1.5091
N	606	606	4451	4451	1310	1310
Chi ²	98.08	98.09	354.2	354.3	79.02	79.02
Pseudo R ²	.1216	.1216	.0624	.0624	.0704	.0704
Log likelihood	-354.2	-354.2	-2663.8	-2663.8	-522.0	-522.0

Notes: Sample consists of the employed.

Table 16. Union Membership logits, USA, 1973-1993.

	(1)	(2)	(3)	(4)	(5) 1973-1984	(6) 1985-1993
Age	.1166 (9.46)	.1193 (9.38)	.0965 (7.31)	.0801 (5.93)	.0565 (3.36)	.1243 (5.35)
Age ²	-.0012 (8.41)	-.0012 (8.47)	-.0010 (6.54)	-.0008 (5.15)	-.0006 (2.99)	-.0012 (4.61)
Male	.7281 (14.41)	.7976 (15.13)	.5898 (10.13)	.5182 (8.79)	.5947 (7.62)	.4433 (4.86)
Self-employed	-1.8003 (14.97)	-1.7854 (14.52)	-1.5407 (11.99)	-1.5068 (11.70)	-1.5846 (9.38)	-1.4130 (7.06)
Years of schooling	-.0470 (5.57)	-.0718 (7.92)	-.0692 (7.01)	-.0736 (7.40)	-.0944 (7.27)	-.0423 (2.67)
Black	.3967 (5.61)	.5192 (6.90)	.5121 (6.57)	.5091 (6.51)	.5340 (4.88)	.5031 (4.42)
Other non-white	.0138 (0.08)	.0518 (0.30)	.0642 (0.37)	.0687 (0.39)	-.8211 (2.31)	.5328 (2.56)
Part-time	-	-	-	-.6763 (7.24)	-.6797 (5.59)	-.6730 (4.59)
Year dummies	14	14	14	14	7	6
Region dummies	-	8	8	8	8	8
Industry dummies	-	-	9	9	9	9
Constant	-3.4962	-3.1465	-2.3890	-1.8937	-1.1378	-3.7125
N	12120	11623	11587	11587	6358	5229
Chi ²	820.03	1214.8	1666.8	1728.3	1009.6	742.4
Pseudo R ²					.1551	.1622
Log likelihood	-5387.92	-4980.5	-4733.9	-4703.1	-2750.7	-1916.8

Source: General Social Surveys for years 1973, 1975-6, 1978, 1980, 1983-91, 1993.

Table 17. Log hourly earnings equations, USA, 1983.

	(1) All	(2) Private sector	(3) Public sector	(4) Men	(5) Women	(6) Whites	(7) Blacks	(8) Other –non whites
Union	.1445 (53.39)	.1564 (48.11)	.0841 (17.01)	.1312 (37.46)	.1469 (57.21)	.1469 (50.32)	.1359 (16.69)	.1440 (9.67)
Age	.0480 (109.29)	.0482 (99.94)	.0483 (44.97)	.0613 (94.71)	.0339 (57.21)	.0490 (105.18)	.0370 (24.72)	.0424 (15.64)
Age ²	-.0005 (91.34)	-.0005 (83.59)	-.0005 (37.44)	-.0006 (79.08)	-.0004 (48.49)	-.0005 (88.31)	-.0004 (20.23)	-.0004 (12.57)
Male	.2237 (103.27)	.2382 (97.42)	.1697 (37.38)	-	-	.2324 (100.37)	.1428 (20.08)	.1829 (15.42)
Years schooling	.0581 (144.28)	.0555 (120.54)	.0683 (82.97)	.0567 (107.22)	.0571 (92.00)	.0592 (135.89)	.0496 (37.73)	.0473 (23.90)
Black	-.0966 (26.66)	-.1059 (25.19)	-.0719 (10.41)	-.1390 (26.21)	-.0511 (10.61)	-	-	-
Other non-white	-.0689 (11.21)	-.0733 (10.42)	-.0565 (4.60)	-.0859 (9.97)	-.0452 (5.32)	-	-	-
Part-time	-.1658 (60.71)	-.1527 (50.87)	-.2302 (35.04)	-.2000 (42.70)	-.1373 (42.04)	-.1651 (56.83)	-.1609 (17.53)	-.1672 (10.82)
Federal government	.0483 (5.16)	-	-	.0545 (4.24)	.0474 (3.55)	.0373 (3.40)	.0509 (2.26)	.0949 (3.03)
State government	-.0257 (4.12)	-	-.0828 (7.00)	-.0577 (6.23)	.0078 (0.94)	-.0327 (4.82)	.0206 (1.11)	.0100 (0.32)
Local government	-.0339 (6.87)	-	-.0947 (8.25)	-.1028 (13.94)	.0213 (3.30)	-.0378 (7.03)	.0198 (1.45)	-.6807 (2.43)
Constant	-.4789	-.4564	-.4076	-.5455	-.0196	-.5187	.0134	-.1427
N	173404	140854	32298	92756	80648	152668	15204	5532
R ²	.4928	.4956	.4585	.4750	.4255	.4996	.4444	.4770
\bar{R}^2	.4925	.4952	.4568	.4744	.4247	.4992	.4404	.4666

Notes: Private sector subsample excludes self-employed. All equations include 50 state and 50 industry dummies + 2 self-employment dummies. Source: CPS Outgoing Rotation Group File, 1993: NBER 50 Variable Uniform Extract 1979-1993.

Table 18. Log hourly earnings equations USA, 1993.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All	Private sector	Public sector	Men	Women	Whites	Blacks	Other non-whites
Union	.1440 (45.99)	.1501 (38.25)	.1113 (20.63)	.1424 (33.68)	.1306 (27.91)	.1444 (42.05)	.1413 (16.01)	.1455 (9.94)
Age	.0430 (89.34)	.0433 (82.05)	.0444 (36.59)	.0507 (69.33)	.0473 (54.74)	.0444 (85.85)	.0340 (21.85)	.0357 (14.76)
Age ²	-.0004 (74.89)	-.0004 (69.01)	-.0004 (30.66)	-.0005 (56.17)	-.0004 (47.44)	-.0004 (72.11)	-.0003 (18.17)	-.0004 (12.54)
Male	.1423 (59.33)	.1524 (57.08)	.1032 (19.02)	-	-	.1537 (58.93)	.0576 (7.79)	.1093 (10.32)
Veteran	.0139 (4.01)	.0159 (4.04)	.0161 (2.19)	-.0201 (5.13)	-.0048 (0.36)	.0093 (2.50)	.0341 (3.04)	.0325 (1.54)
Federal government	.0975 (13.67)	-	-	.0859 (11.65)	.1187 (12.30)	.1002 (5.81)	.1012 (3.21)	.0873
State government	-.0194 (3.28)	-	-.1070 (12.27)	-.0411 (4.59)	.0128 (1.64)	-.0208 (3.15)	.0173 (1.08)	-.0469 (1.80)
Local government	-.0288 (5.73)	-	-.1278 (14.75)	-.0621 (8.09)	.0062 (0.95)	-.0381 (6.79)	.0183 (1.39)	.0281 (1.22)
Black	.1237 (33.63)	-.1343 (31.70)	-.0896 (12.36)	-.1674 (33.01)	-.0805 (16.80)	-	-	-
American Indian	-.0471 (4.34)	-.0683 (5.08)	-.0026 (0.14)	-.0459 (2.95)	-.0421 (2.83)	-	-	-
Asian or Pacific Islander	-.0919 (14.60)	-.0947 (13.60)	-.0738 (5.06)	-.1064 (11.85)	-.0731 (8.43)	-	-	-.0202 (1.19)
Other non-white	-.0900 (6.13)	-.1003 (6.28)	-.0247 (0.66)	-.0915 (4.58)	-.0797 (3.73)	-	-	-.0441 (2.06)
Part-time	-.1772 (61.29)	-.1674 (52.62)	-.2227 (32.04)	-.2280 (44.58)	-.1473 (42.97)	-.1755 (56.28)	-.1908 (20.20)	-.1550 (11.46)
Constant	.3428	.4444	-.5819	.2608	.6319	.2274	.5972	.7909
N	171439	140323	147479	87257	84182	147479	15969	7991
R ²	.4172	.4637	.4748	.4682	.4480	.4748	.4396	.4706
\bar{R}^2	.4708	.4632	.4743	.4675	.4471	.4743	.4352	.4622

Notes: All equations also include 15 schooling dummies, 50 state dummies and 50 industry dummies and 2 self-employment dummies.

Excluded categories are private sector and white. Private sector excludes the self-employed

Source: CPS Outgoing Rotation Group File, 1993: NBER 50 Variable Uniform Extract 1979-1993

Table 19. Log hourly earnings equations, Great Britain, 1983

	(1)	(2)	(3)	(4)	(5)
	All	Private sector	Public sector	Males	Females
Union	.1064 (10.23)	.0973 (7.20)	.0960 (5.86)	.0821 (5.78)	.1176 (7.89)
Age	.0646 (30.83)	.0670 (26.07)	.0543 (14.81)	.0842 (28.15)	.0449 (14.94)
Age ²	-.0007 (27.34)	-.0007 (23.03)	-.0006 (13.05)	-.0009 (25.28)	-.0005 (13.20)
Male	.2987 (27.63)	.3140 (22.43)	.2865 (17.28)	-	-
Part-time	-.0795 (6.30)	-.0981 (5.87)	-.0405 (2.18)	-.0480 (1.54)	-.0379 (2.71)
Black	-.1030 (3.91)	-.1387 (4.01)	-.0406 (1.04)	-.1199 (3.62)	-.0692 (1.63)
Public sector	.0509 (4.79)	-	-	.0219 (1.18)	.1046 (5.00)
Constant	-.3995	-.7158	-.5495	-.7316	-.0306
N	7951	5106	2845	4442	3509
R ²	.5260	.4992	.5493	.4586	.4617
\bar{R}^2	.5226	.4938	.5404	.4518	.4532

Source: General Household Survey, 1983.

Notes: equations include 17 highest qualification dummies, 4 size of establishment dummies, 11 month dummies, 10 region dummies and 10 industry dummies.

Table 20. Log hourly earnings equations, Great Britain, 1993-1994 (Source: 1993/4 LFS)

	(1)	(2)	(3)	(4)	(5)
	All	Private sector	Public sector	Male	Female
Union	.0934 (11.31)	.0990 (9.36)	.0806 (6.15)	.0584 (5.14)	.1177 (9.78)
Age	.0618 (31.22)	.0656 (28.40)	.0449 (10.91)	.0800 (28.17)	.0484 (16.33)
Age ²	-.0007 (26.69)	-.0007 (24.11)	-.0005 (9.48)	-.0009 (24.20)	-.0006 (14.48)
Male	.1812 (20.65)	.1814 (17.66)	.1782 (12.32)	-	-
Part-time	-.0974 (10.40)	-.1062 (6.88)	-.0979 (6.28)	-.0873 (3.89)	-.0728 (6.82)
Black	-.1006 (2.94)	-.0983 (2.08)	-.0948 (2.00)	-.1701 (3.28)	-.0695 (1.54)
Asian	-.1065 (3.77)	.0142 (0.26)	.0121 (0.22)	-.1810 (4.98)	.0042 (0.10)
Other	-.1151 (2.94)	-.0765 (1.26)	-.0803 (1.32)	-.1231 (2.19)	-.1170 (2.18)
Public sector - type nk	.0983 (5.48)	-	-	.0667 (3.18)	-.1862 (0.75)
Nationalised industry	.0900 (2.72)	-	.0509 (1.24)	.0948 (2.32)	.0890 (1.61)
Central government	.1607 (7.30)	-	.0246 (0.86)	.0787 (2.33)	.2276 (7.83)
Local government	.0902 (6.17)	-	-.0618 (2.39)	.0427 (1.52)	.1207 (6.91)
University	.0511 (1.85)	-	-.0902 (2.70)	-.0227 (0.46)	.0986 (2.98)
Health authority	.1616 (8.31)	-	-.0303 (1.04)	.0188 (0.41)	.2026 (9.16)
Other	.0496 (1.03)	-	-.0771 (1.50)	-.1413 (1.51)	.1174 (2.09)
Constant	-.3419	-.4160	.1436	-.5729	.7351
N	16159	11352	4807	8014	8145
R ²	.4108	.4077	.3669	.4055	.3656
\bar{R}^2	.4078	.4038	.3561	.3995	.3593

Notes: equations include 11 region dummies, 31 qualification dummies, 11 industry dummies, 6 size of establishment dummies and a year dummy.

Table 21. Log earnings equations by country, ISSP -- 1985-1993

	Australia		Austria		Canada*		Germany**		Ireland	
Union	.1029 (6.76)	.0884 (5.11)	.1993 (11.51)	.1364 (6.87)	.0725 (2.38)	.0468 (1.31)	.0444 (4.19)	.0339 (2.93)	.3258 (11.61)	.2659 (8.65)
Age	.0490 (11.67)	.0334 (7.56)	.0773 (16.57)	.0769 (15.01)	.0792 (9.58)	.0717 (8.26)	.0766 (25.54)	.0680 (20.52)	.0658 (9.47)	.0532 (7.66)
Age ² .0006	-.0005 (9.39)	-.0003 (5.54)	-.0009 (14.02)	-.0008 (12.33)	-.0007 (7.13)	-.0007 (6.00)	-.0008 (21.69)	-.0007 (17.37)	-.0007- (8.53)	
Schooling	.0575 (21.06)	.0502 (17.28)	.0668 (18.29)	.0535 (14.24)	-	-	.0406 (23.25)	.0388 (20.12)	.0823 (17.14)	.0664 (13.31)
Male	.3593 (20.87)	.3346 (18.94)	.3180 (17.41)	.2745 (13.80)	.2290 (7.98)	.2254 (7.40)	.2845 (25.38)	.2891 (23.75)	.2743 (8.93)	.2621 (8.67)
Log hours	.4839 (29.00)	.4489 (25.60)	.3018 (11.53)	.4060 (13.12)	.7239 (19.85)	.6860 (18.07)	.7129 (37.05)	.7219 (32.81)	.3817 (10.91)	.3750 (10.50)
Self-employed	-	.0472 (1.85)	-	-.4182 (10.78)	-	-.0800 (1.89)	-	.0230 (1.06)	-	-.0669 (1.74)
Public sector	-	.0375 (2.08)	-	.0134 (0.61)	-	.0953 (2.65)	-	.0591 (4.71)	-	.0889 (2.67)
Supervisor	-	.2228 (13.68)	-	.2397 (11.73)	-	.1798 (5.83)	-	-	-	.2953 (9.68)
Year dummies	5	5	6	6	1	1	7	6	3	3
constant	5.9968 5.4668	6.4396	5.4036	5.3863	5.1384	5.4066	2.5105	2.6789	5.1058	
N	6023	5549	3214	2355	1226	1115	6893	5422	1850	1843
R ²	.3727	.4000	.3807	.4484	.5204	.5376	.5220	.5441	.3546	.3895
\bar{R}^2	.3715	.3985	.3783	.4454	.5152	.5308	.5211	.5429	.3514	.3855
Years	<i>1985-7, 1990-1</i>		<i>1985-89, 1991-2</i>		<i>1992-1993</i>	<i>1985-7, 1989-1993</i>		<i>1988-1991</i>		

Notes: *Canadian equations include 7 qualification dummies. **Includes East Germany from 1991 - separate dummy identifies East Germany

*** UK includes Northern Ireland which is identified by a dummy variable.

	Italy		Israel		Japan		Netherlands		New Zealand	
Union	.0793 (3.62)	.0698 (3.21)	.0780 (1.68)	.0676 (1.32)	.3171 (5.54)	.3910 (6.81)	.0456 (2.32)	.0365 (1.81)	.1392 (4.57)	.0809 (2.35)
Age	.0598 (9.66)	.0544 (8.82)	.0054 (0.43)	.0097 (0.74)	.0419 (3.12)	.0342 (2.65)	.0552 (9.93)	.0459 (8.06)	.0589 (7.22)	.0549 (6.70)
Age ² .0006	-.0006 (7.32)	-.0005 (6.82)	.0001 (0.37)	.0000 (0.01)	-.0003 (1.96)	-.0003 (1.72)	-.0005 (7.24)	-.0004 (5.75)	-.0007 (6.57)	- (6.05)
Schooling	.0407 (15.60)	.0353 (12.98)	.0716 (9.34)	.0692 (8.57)	.0908 (7.47)	.0633 (5.13)	.0268 (12.04)	.0244 (10.61)	.0469 (10.27)	.0410 (8.95)
Male	.1519 (6.81)	.1365 (6.11)	.2965 (6.05)	.2904 (5.69)	.8212 (13.99)	.7258 (12.52)	.0812 (3.70)	.0836 (3.71)	.2439 (7.81)	.2270 (7.33)
Log hours	.4119 (11.43)	.3909 (10.18)	.6226 (11.13)	.5843 (9.69)	.4719 (6.30)	.4441 (6.17)	.4328 (12.82)	.4288 (12.22)	.7348 (21.84)	.7056 (19.99)
Self-employed	-	-	-	.3640 (1.58)	-	-	-	-.0192 (0.53)	-	-.0945 (2.46)
Public sector	-	.0756 (3.19)	-	-.0178 (0.35)	-	.2195 (2.71)	-	.0447 (2.08)	-	.1166 (3.32)
Supervisor	-	.1436 (5.72)	-	.1850 (3.88)	-	.6087 (6.30)	-	.1809 (8.87)	-	.1865 (6.25)
Year dummies	2	2	0	0	0	0	3	3	1	1
constant	3.6316 5.6534	3.8377	4.0078	4.0309	3.3316	3.9510	7.3567	7.0598	5.4753	
N	1080	1075	447	418	525	525	2494	2239	1341	1268
R ²	.4500	.4692	.4563	.4883	.5196	.5538	.4261	.4588	.4276	.4547
\bar{R}^2	.4459	.4642	.4489	.4770	.5140	.5478	.4240	.4559	.4246	.4503
Years	1989, 91, 93		1993	1993	1998-9, 1991, 1993				1992 & 1993	

Notes: *Canadian equations include 7 qualification dummies. **Includes East Germany from 1991 - separate dummy identifies East Germany

*** UK includes Northern Ireland which is identified by a dummy variable.

	Norway		Spain		Switzerland		UK***		USA - GSS****	
Union	.0688 (5.15)	.0741 (5.21)	.0517 (0.75)	.0032 (0.05)	.0103 (0.24)	.0083 (0.18)	.1647 (12.35)	.1371 (9.40)	.1849 (6.51)	.2098 (7.56)
Age	.0633 (17.88)	.0596 (16.93)	.0621 (4.01)	.0559 (3.67)	.1002 (9.25)	.0942 (8.54)	.0517 (14.58)	.0432 (12.22)	.0655 (13.50)	.0849 (17.53)
Age ² .0008	-.0007 (15.25)	-.0006 (14.35)	-.0006 (3.28)	-.0006 (2.98)	-.0010 (7.67)	-.0009 (6.99)	-.0005 (12.42)	-.0004 (10.31)	-.0006- (11.33)	- (14.96)
Schooling	.0384 (16.15)	.0340 (13.84)	.0490 (7.87)	.0360 (5.38)	.0477 (8.75)	.0470 (8.42)	.1482 (31.65)	.1319 (27.68)	.0702 (18.09)	.0772 (18.72)
Male	.2921 (20.79)	.2632 (18.44)	.2408 (4.13)	.2494 (4.44)	.3084 (5.97)	.2723 (5.18)	.3881 (25.80)	.3841 (25.65)	.3256 (14.80)	.4438 (18.37)
Log hours	.6375 (74.73)	.6271 (27.82)	.3997 (5.19)	.3799 (4.92)	.6176 (6.83)	.5817 (6.18)	.9603 (51.05)	.9109 (47.75)	.7445 (31.67)	.7733 (30.17)
Self-employed .1159	-	-.2098 (8.62)	-	-.0633 (0.86)	-	-.0587 (1.10)	-	-.0950 (4.29)	-.0751- (2.41)	- (3.28)
Public sector	-	-.0726 (4.89)	-	.1339 (1.97)	-	-.0408 (0.77)	-	.0415 (2.67)	-	-
Supervisor	-	.1329 (9.56)	-	.2412 (3.81)	-	.1973 (4.46)	-	.2455 (17.80)	-	-
Year dummies	4	4	0	0	0	0	7	7	7	5
constant	7.5991 3.0983	7.8478	8.0565	8.3064	2.7229	2.9389	2.1674	2.6050	4.4744	
N	3930	3798	282	271	576	565	6074	5964	5187	4673
R ²	.4737	.4962	.3691	.4199	.4646	.4846	.5939	.6140	.3967	.4707
\bar{R}^2	.4724	.4945	.3553	.3999	.4589	.4762	.5930	.6129	.3928	.4672
Years 1973-84	1989-1993		1993		1987		1985-87, 1989-93		1985-93	

Notes: *Canadian equations include 7 qualification dummies. **Includes East Germany from 1991 - separate dummy identifies East Germany

*** UK includes Northern Ireland which is identified by a dummy variable.

****US equation using the General Social Surveys includes 2 race dummies, 8 Census region dummies, 9 industry dummies

Table 22. Union status and hours worked - US and UK.

	USA	Great Britain
A) % part-time (<20 hours per week)		
Male union	0.8	1.1
Male non-union	4.6	4.6
Female union	2.8	11.7
Female non-union	9.3	27.8
B) Total hours		
Male union	40.6	44.4
Male non-union	39.9	45.0
Female union	37.6	34.9
Female non-union	34.1	29.6
C) Full-time hours (≥ 20 hours per week)		
Male union	41.6	44.7
Male non-union	42.2	46.7
Female union	39.1	37.6
Female non-union	37.8	36.6

Source: USA -- CPS ORG files 1993; UK - 1993 & 1994 pooled LFS.

Table 23. Part-time status, hours worked and union status in the OECD.

	% part-time*		Total hours		Male full-timers	
	Union	Non-union	Union	Non-union	Union	Non-union
Australia	6.7	12.8	38.7	39.1	42.4	46.7
Austria	1.2	3.4	41.4	44.8	43.4	48.7
Canada	4.9	8.7	37.5	38.4	40.7	43.5
Eire	1.4	6.2	40.4	45.7	42.8	52.1
Germany	0.7	2.8	40.8	41.1	42.3	45.4
Israel	5.8	8.2	39.0	40.3	47.1	48.1
Japan	2.1	3.9	45.5	43.7	47.7	49.1
Netherlands	4.1	7.6	37.4	36.4	40.4	41.8
New Zealand	5.7	8.6	40.3	41.1	44.7	47.3
Norway	4.9	10.3	37.6	38.1	41.3	44.7
Spain	1.4	5.5	38.6	39.2	39.8	42.8
Switzerland	0	1.3	46.9	45.4	48.1	48.0
UK	5.2	11.2	38.3	38.7	42.5	46.3
USA	2.3	7.4	42.7	41.2	45.2	46.4

Notes: part-time defined as less than 20 hours per week, full-time as 20 hours.

Source: International Social Survey Programme series, 1985-1993.

Table 24. Log hours equations, USA, Males, 1983 & 1993.

1) 1983

	Usual hours				Actual hours			
	(1)	(2)	(3) Union	(4) Non-union	(5)	(6)	(7) Union	(8) Non-union
Union	-.0155 (9.57)	-.0167 (10.23)	-	-	-.0132 (6.45)	-.0148 (7.17)	-	-
Log hourly wage	-	.0095 (6.08)	-.0250 (9.23)	+.0158 (8.48)	-	.0122 (6.21)	-.0106 (2.61)	.017 (7.50)
N	88526	88526	22343	66183	82825	82802	20146	62386
R ²	.1300	.1304	.0836	.1492	.0947	.0952	.0605	.1107
\bar{R}^2	.1290	.1294	.0793	.1478	.0941	.0557	.1093	

2) 1993

	Usual hours				Actual hours			
	(1)	(2)	(3) Union	(4) Non-union	(5)	(6)	(7) Union	(8) Non-union
Union	-.0167 (8.68)	-.0216 (11.79)	-	-	-.0086 (3.58)	-.0138 (5.72)	-	-
Log hourly wage	-	.0341 (21.50)	-.0043 (1.28)	.0390 (21.84)	-	.0371 (18.82)	.0062 (1.27)	.041 (18.92)
N	83747	83747	16023	67724	79343	79074	14749	64325
R ²	.1571	.1617	.0847	.1792	.1151	.1193	.0707	.1337
\bar{R}^2	.1559	.1605	.0778	.1777	.1179	.0630	.1321	

Notes: equations also include 50 industry and 50 state dummies, age and its square, years of schooling (1983) and highest level of schooling attended (1993), two race dummies and a constant.

Sample consists of males working at least 20 hours.

Source: CPS Outgoing Rotation Group File, 1993: NBER 50 Variable Uniform Extract 1979-1993

Table 25. Log hours equations, Great Britain, Males, 1993/4

a) 1983 - OLS (Usual hours)

	(1)	(2)
Union	-.0291 (6.18)	-.0174 (3.70)
Log hourly wage	-	-.0831 (16.20)
N	4839	4382
R ²	.0696	.1232
\bar{R}^2	.0627	.1157

Source GHS 1983. Equations also include controls for industry, region, age and its square, years of schooling and gender

b) 1993/4 - OLS (Usual hours)

	(1) ln total hours OLS	(2) OLS	(3) ln standard hours OLS	(4) OLS	(5) Paid overtime hours Tobit	(6) Tobit	(7) Unpaid overtime hours Tobit	(8) Tobit
Union	-.0326 (16.38)	-.0231 (4.79)	-.0591 (31.69)	-.0402 (9.70)	+5.2830 (37.48)	+4.5497 (12.80)	-1.15480 (9.68)	-2.720 (6.72)
Log hourly wage	-	-.0256 (5.48)	-	-.0218 (5.43)	-	-3.0083 (8.46)	-	3.275 (9.00)
N	61869	7749	61869	7749	61875	7749	61882	7751
R ²	.0434	.0539	.0895	.0440				
\bar{R}^2	.0428	.0493	.0889	.0393				
Log L					-91422.3	-13033.0	-75038.6	-10835.4

Notes: equations also include 11 industry and 18 region dummies, age and its square, years of schooling, three race dummies and a constant.

Sample consists of males working at least 20 hours.

Source: Labor Force Surveys, 1993/4

c) 1993/4 - OLS (Actual hours)

	(1) In total hours OLS	(2) OLS	(3) In standard hours OLS	(4) OLS	(5) Paid overtime hours Tobit	(6) Tobit	(7) Unpaid overtime hours Tobit	(8) Tobit
Union	-.0311 (10.38)	-.0298 (3.88)	-.0578 (20.49)	-.0494 (7.17)	6.4207 (30.85)	5.6341 (10.82)	-1.7194 (8.60)	-3.051' (6.51)
Log hourly wage	-	.0129	-	.0052	-	-2.2478	-	3.913
N	57135	7109	57104	7106	57346	7128	57359	7129
R ²	.0427	.0321	.0525	.0293				
\bar{R}^2	.0421	.0269	.0519	.0240				
Log L				-72065.6	-10396.6	-62071.9	-9140.4	

Notes: equations also include 11 industry and 18 region dummies, age and its square, years of schooling, three race dummies and a constant.

Sample consists of males working at least 20 hours. Source: Labor Force Surveys, 1993/4

d) 1983 and 1993 - Instrumental Variables

	1983			1993		
	All	Union	Non-union	All	Union	Non-union
Union	-.0323 (3.76)	-	-	-.0439 (5.26)	-	-
Log hourly wage	.0389 (0.68)	-.1641 (1.97)	.0787 (0.93)	+.1594 (2.37)	.4447 (0.54)	.1121 (1.57)
N	4382	2524	1858	7731	3095	4636
F	8.33	5.90	3.49	8.51	1.76	7.59
Root MSE	.1441	.1172	.1757	.2064	.2643	.2048

Notes: equations all include controls for industry, region, age and its square, years of schooling, and race.

Sample consists of males working at least 20 hours. Source: General Household Survey, 1983 & Labor Force Surveys, 1993/4

Table 26. Reduced form log hours equations by country, ISSP -- Males, 1985-1993

	Australia	Austria	Canada*	Germany**	Ireland	Italy	Japan	
Netherlands								
Union	-.0939 (13.44)	-.1115 (11.36)	-.0582 (4.13)	-.0674 (12.74)	-.1662 (9.96)	-.0309 (2.70)	-.0481 (2.38)	-.0353 (3.97)
Age	.0211 (10.49)	.0094 (3.63)	.0173 (4.32)	.0095 (6.12)	.0041 (1.00)	-.0060 (1.84)	.0167 (3.27)	.0104 (3.92)
Age ²	-.0002 (10.40)	-.0001 (2.55)	-.0002 (4.05)	-.0001 (5.37)	-.0000 (0.44)	.0001 (1.29)	-.0002 (4.00)	-.0001 (3.45)
Schooling	-.0007 (0.57)	-.0074 (3.55)	-	.0024 (2.93)	-.0049 (1.76)	-.0054 (4.06)	-.0033 (0.86)	-.0011 (1.15)
Year dummies constant	5 3.4167	6 3.7662	1 2.9767	7 3.6228	3 3.7950	4 3.8524	- 3.6826	4 3.5038
N	3794	2110	1217	4865	1206	1076	331	2087
R ²	.0678	.0848	.1274	.0621	.1058	.0907	.1019	.0173
\bar{R}^2	.0656	.0805	.1187	.0597	.1006	.0839	.0909	.0135
	New Zealand	Norway	Spain	Switzerland	UK***	USA	USA§	USA§§
Union	-.0486 (2.62)	-.0773 (9.86)	-.0482 (1.60)	-.0049 (0.28)	-.0873 (11.49)	-.0261 (2.08)	-.0381 (4.84)	-.0367 (3.62)
Age	.0195 (4.09)	.0108 (5.23)	.0025 (0.36)	.0065 (1.39)	.0209 (10.29)	.0255 (9.26)	.0244 (15.90)	.0245 (12.02)
Age ²	-.0002 (4.23)	-.0001 (4.60)	-.0000 (0.42)	-.0001 (1.39)	-.0003 (10.57)	-.0003 (8.98)	-.0003 (15.78)	-.0003 (12.00)
Schooling	.0014 (0.51)	.0059 (4.07)	-.0033 (1.20)	.0047 (2.25)	-.0111 (4.22)	.0079 (4.76)	.0070 (6.57)	.0066 (4.60)
Year dummies constant	1 3.4450	4 3.4871	- 3.7270	- 3.6612	7 3.5477	8 3.1833	14 3.2320	6 3.2415
N	730	2312	234	423	3501	2888	6247	3168
R ²	.0339	.1298	.0185	.0207	.0676	.0471	.0576	.0630
\bar{R}^2	.0272	.1268	.0014	.0113	.0644	.0431	.0548	.0600

Notes: *Canadian equations include 7 qualification dummies. **Includes East Germany from 1991 - separate dummy identifies East Germany

*** UK includes Northern Ireland which is identified by a dummy variable. § sample is GSS, 1973-1993. §§

Appendix A. Union Membership Data by Country -- source Visser (1996).

Method: A=administrative data, C=confederation data, S=survey data

Year; 1970-1994

Month: January =1, December=12 or annual average =0

AMT: reported membership without self-employed members, but including retired or unemployed members

AMT_GR: annual growth rate in % for AMT

AMD: adjusted membership without self-employed members, and excluding retired or unemployed members

AMD_GR: annual growth rate in % for AMD

WSEE: wage and salary earners in employment ('000s)

ADT: gross density rate (reported membership as a % of wage and salary earners in employment)

ADD: gross density rate (adjusted membership as a % of wage and salary earners in employment)

Sources: Employment data -- OECD Labour Force Statistics, annual for all countries except, Great Britain, 1989-1994, Labour Force Sample Surveys, Dept. of Employment, UK; New Zealand, 1989-1993, full-time equivalent employment data, defined as full-time plus one half of part-time. Switzerland, estimates by J. Visser (1989).

Country	Method	Year	Month	AMT	AMT_GR	AMD	AMD_GR	WSEE	ADT	ADD
Canada	A	1970	12	2173000				7004	31.03	
Canada	A	1971	12	2231000	2.7			7181	31.07	
Canada	A	1972	12	2388000	7.1			7451	32.05	
Canada	A	1973	12	2591000	8.6			7890	32.84	
Canada	A	1974	12	2732000	5.5			8224	33.22	
Canada	A	1975	12	2884000	5.6			8375	34.44	
Canada	A	1976	12	3042000	5.5			8543	35.61	
Canada	A	1977	12	3149000	3.6			8681	36.27	
Canada	A	1978	12	3278000	4.1			8948	36.63	
Canada	A	1979	12	3396721	3.7			9321	36.44	
Canada	A	1980	12	3487231	2.7			9651	36.13	
Canada	A	1981	12	3639494	4.4			9926	36.67	
Canada	A	1982	12	3562799	-2.1			9550	37.31	
Canada	A	1983	12	3650504	2.5			9565	38.17	
Canada	A	1984	12	3665688	0.5			9782	37.47	
Canada	A	1985	12	3730023	1.8			10051	37.11	
Canada	A	1986	12	3781455	1.4			10384	36.42	
Canada	A	1987	12	3841491	1.6			10693	35.93	
Canada	A	1988	12	3944327	2.7			11053	35.69	
Canada	A	1989	12	4030759	2.2			11309	35.64	
Canada	A	1990	12	4068000	1			11353	35.83	
Canada	A	1991	12	4089000	0.6			11110	36.8	
Canada	A	1992	12	4071000	-0.4			10993	37.03	

Canada	A	1993	12	4128500	1.5		11039	37.4	
United States	A	1970	0	21248000		19381000	70880		27.34
United States	A	1971	0	21327000	0.4	19211000	-0.8	71214	26.98
United States	A	1972	0	21657000	1.6	19435000	1.2	73675	26.38
United States	A	1973	0	22276000	2.9	19851000	2.2	76847	25.83
United States	A	1974	0	22809000	2.4	20199000	1.8	78460	25.74
United States	A	1975	0	22361000	-1.9	19611000	-2.9	77551	25.29
United States	A	1976	0	22662000	1.4	19634000	0.2	80519	24.38
United States	A	1977	0	22456000	-0.9	19695000	0.4	83481	23.59
United States	A	1978	0	22880000	1.9	20880000	6.1	87205	23.94
United States	A	1979	0	22579000	-1.3	20056000	-3.9	89674	22.37
United States	A	1980	0	22366000	-0.9	19843000	-1	89950	22.06
United States	S	1977	5			19335000		83481	23.16
United States	S	1978	5			19548000	1.2	87205	22.42
United States	S	1979	5			20986000	7.4	89674	23.4
United States	S	1980	5			20095000	-4.2	89950	22.34
United States	S	1983	0			17717000		91076	19.45
United States	S	1984	0			17340000	-2.1	95120	18.23
United States	S	1985	0			16996000	-1.9	97406	17.45
United States	S	1986	0			16975000	-0.1	99847	17
United States	S	1987	0			16913000	-0.3	102403	16.52
United States	S	1988	0			17002000	0.6	104642	16.25
United States	S	1989	0			16960000	-0.2	106924	15.86
United States	S	1990	0			16740000	-1.2	107394	15.59
United States	S	1991	0			16568000	-1	106193	15.6
United States	S	1992	0			16390000	-1	107236	15.28
United States	S	1993	0			16598000	1.3	108648	15.28
Australia	A	1970	12	2331400		2052676		4648	50.16
Australia	A	1971	12	2452200	5.2	2160545	5.3	4760	51.52
Australia	A	1972	12	2538800	3.6	2240125	3.7	4835	52.51
Australia	A	1973	12	2673600	5.4	2360343	5.4	4997	53.5
Australia	A	1974	12	2777300	3.9	2452708	4	5025	55.27
Australia	A	1975	12	2833400	2.1	2503686	2.1	5001	56.66
Australia	A	1976	12	2799800	-1.1	2474382	-1.1	5002	55.97
Australia	A	1977	12	2797700	0	2473395	0	5042	55.49
Australia	A	1978	12	2830800	1.2	2502301	1.2	5057	55.98
Australia	A	1979	12	2873600	1.6	2541785	1.6	5097	56.38
Australia	A	1980	12	2955900	2.9	2615641	3	5242	56.39
Australia	A	1981	12	2994100	1.3	2648746	1.3	5379	55.66
Australia	A	1982	12	3012400	0.7	2667030	0.7	5354	56.26
Australia	A	1983	12	2985200	-0.9	2642885	-0.9	5243	56.94
Australia	A	1984	12	3028500	1.5	2680932	1.5	5426	55.81

Australia	A	1985	6	3154200	4.2	2792800	4.2	5583	56.5	50.02
Australia	A	1986	6	3186200	1.1	2870500	2.8	5757	55.34	49.86
Australia	A	1987	6	3240100	1.7	2909200	1.4	5938	54.57	48.99
Australia	A	1988	6	3290500	1.6	2922300	0.5	6162	53.4	47.42
Australia	A	1989	6	3410300	3.7	2988400	2.3	6546	52.1	45.65
Australia	S	1976	11			2512700		4930		51
Australia	S	1982	4			2567600		5240		49
Australia	S	1986	8			2593900		5690		45.6
Australia	S	1988	8			2535900		6070		41.8
Australia	S	1990	8			2659600		6520		40.8
Australia	S	1992	8			2508800		6335		39.6
Australia	S	1993	8			2376900	-5.2	6320		37.6
Australia	S	1994	8			2283400	-3.9	6525		35
Japan	A	1970	6	11604770		11481206		33060	35.1	34.73
Japan	A	1971	6	11795570	1.7	11684263	1.8	34120	34.57	34.24
Japan	A	1972	6	11888592	0.8	11722008	0.4	34650	34.31	33.83
Japan	A	1973	6	12097848	1.8	11967333	2.1	36150	33.47	33.1
Japan	A	1974	6	12461799	3.1	12325147	3	36370	34.26	33.89
Japan	A	1975	6	12590400	1.1	12472974	1.2	36460	34.53	34.21
Japan	A	1976	6	12508731	-0.6	12374288	-0.7	37120	33.7	33.34
Japan	A	1977	6	12437012	-0.5	12293052	-0.6	37690	33	32.62
Japan	A	1978	6	12382829	-0.4	12232614	-0.4	37990	32.59	32.2
Japan	A	1979	6	12308756	-0.5	12173913	-0.4	38760	31.76	31.41
Japan	A	1980	6	12369262	0.5	12240652	0.6	39710	31.15	30.83
Japan	A	1981	6	12471270	0.9	12355372	1	40370	30.89	30.61
Japan	A	1982	6	12525529	0.5	12418347	0.6	40980	30.56	30.3
Japan	A	1983	6	12519530	0	12410988	0	42080	29.75	29.49
Japan	A	1984	6	12463755	-0.4	12358075	-0.4	42650	29.22	28.98
Japan	A	1985	6	12417527	-0.3	12319356	-0.3	43130	28.79	28.56
Japan	A	1986	6	12342853	-0.6	12280983	-0.3	43790	28.19	28.05
Japan	A	1987	6	12271939	-0.5	12195437	-0.6	44280	27.71	27.54
Japan	A	1988	6	12227223	-0.3	12157034	-0.3	45380	26.94	26.79
Japan	A	1989	6	12227023	0	12150089	0	46790	26.13	25.97
Japan	A	1990	6	12264509	0.4	12193296	0.4	48350	25.37	25.22
Japan	A	1991	6	12396592	1.1	12322884	1.1	50020	24.78	24.64
Japan	A	1992	6	12540691	1.2	12470958	1.3	51190	24.5	24.36
Japan	A	1993	6	12663484	1	12586964	1	52020	24.34	24.2
New Zealand	A	1970	12	378465						
New Zealand	A	1971	12	386275	2.1			947	40.79	
New Zealand	A	1972	12	394748	2.2					
New Zealand	A	1973	12	427692	8.4					
New Zealand	A	1974	12	436623	2.1					

New Zealand	A	1975	12	454991	4.3					
New Zealand	A	1976	12	464453	2.1		1052	44.15		
New Zealand	A	1977	12	473432	2					
New Zealand	A	1978	12	486533	2.8					
New Zealand	A	1979	12	506963	4.2					
New Zealand	A	1980	12	516297	1.9					
New Zealand	A	1981	12	519705	0.7		1089	47.72		
New Zealand	A	1982	12	527878	1.6					
New Zealand	A	1983	12	527683	0					
New Zealand	A	1984	12	485484	-7.9					
New Zealand	A	1985	12	490206	1					
New Zealand	A	1986	12	490154	0		1257	38.99		
New Zealand	A	1985	12	683006						
New Zealand	A	1986	12	679763	-0.4		1257	54.08		
New Zealand	S	1989	3	649600		649600	1336	48.62	48.62	
New Zealand	S	1990	3	611265	-5.9	611265	-5.9	1343	45.51	45.51
New Zealand	S	1990	3	603100	-1.3	603100	-1.3	1325	45.52	45.52
New Zealand	S	1991	12	514300	-15	514300	-15	1307	39.35	39.35
New Zealand	S	1992	12	428200	-17	428200	-17	1323	32.37	32.37
New Zealand	S	1993	12	409100	-4.4	409100	-4.4	1363	30.01	30.01
Austria	A	1970	12	1520259		1342863		2160	70.38	62.17
Austria	A	1971	12	1526364	0.5	1345431	0.2	2195	69.54	61.3
Austria	A	1972	12	1542042	1.1	1355901	0.8	2244	68.72	60.42
Austria	A	1973	12	1559513	1.2	1368504	1	2371	65.77	57.72
Austria	A	1974	12	1580357	1.4	1382642	1.1	2409	65.6	57.39
Austria	A	1975	12	1587500	0.5	1384131	0.2	2368	67.04	58.45
Austria	A	1976	12	1604668	1.1	1396258	0.9	2380	67.42	58.67
Austria	A	1977	12	1619103	0.9	1405421	0.7	2420	66.91	58.08
Austria	A	1978	12	1628803	0.6	1410277	0.4	2470	65.94	57.1
Austria	A	1979	12	1641475	0.8	1417556	0.6	2524	65.03	56.16
Austria	A	1980	12	1660985	1.2	1430956	1	2545	65.26	56.23
Austria	A	1981	12	1677265	1	1438033	0.5	2575	65.14	55.85
Austria	A	1982	12	1672509	-0.2	1426127	-0.8	2677	62.48	53.27
Austria	A	1983	12	1660453	-0.7	1408062	-1.2	2654	62.56	53.05
Austria	A	1984	12	1672820	0.8	1412324	0.4	2740	61.05	51.54
Austria	A	1985	12	1671381	0	1403909	-0.5	2751	60.76	51.03
Austria	A	1986	12	1671217	0	1396683	-0.5	2795	59.79	49.97
Austria	A	1987	12	1652839	-1	1374408	-1.5	2811	58.8	48.89
Austria	A	1988	12	1643586	-0.5	1359808	-1	2822	58.24	48.19
Austria	A	1989	12	1644408	0.1	1353702	-0.4	2866	57.38	47.23
Austria	A	1990	12	1644800	0.1	1343800	-0.7	2929	56.16	45.88
Austria	A	1991	12	1638200	-0.4	1331800	-0.8	2997	54.66	44.44

Austria	A	1992	12	1633500	-0.2	1328000	-0.2	3072	53.17	43.23
Austria	A	1993	12	1617000	-1	1314500	-1			
Belgium	A	1970	12	1588200		1329700		2925	54.3	45.46
Belgium	A	1971	12	1681900	5.9	1398300	5.2	2972	56.59	47.05
Belgium	A	1972	12	1791600	6.6	1467600	5	2981	60.1	49.23
Belgium	A	1973	12	1863300	4.1	1495100	1.9	3028	61.54	49.38
Belgium	A	1974	12	1953500	4.9	1565600	4.8	3094	63.14	50.6
Belgium	A	1975	12	2085100	6.8	1612000	3	3048	68.41	52.89
Belgium	A	1976	12	2194800	5.3	1690700	4.9	3034	72.34	55.73
Belgium	A	1977	12	2240000	2.1	1711500	1.3	3023	74.1	56.62
Belgium	A	1978	12	2237400	-0.1	1688100	-1.3	3021	74.06	55.88
Belgium	A	1979	12	2311700	3.4	1709300	1.3	3050	75.79	56.04
Belgium	A	1980	12	2337200	1.2	1705700	-0.2	3051	76.6	55.91
Belgium	A	1981	12	2365500	1.3	1671800	-1.9	2976	79.49	56.18
Belgium	A	1982	12	2370000	0.2	1618500	-3.1	2924	81.05	55.35
Belgium	A	1983	12	2348100	-0.9	1544700	-4.5	2879	81.56	53.65
Belgium	A	1984	12	2352300	0.2	1517700	-1.7	2867	82.05	52.94
Belgium	A	1985	12	2361900	0.5	1498900	-1.2	2883	81.93	51.99
Belgium	A	1986	12	2323100	-1.6	1475400	-1.5	2901	80.08	50.86
Belgium	A	1987	12	2325200	0.1	1470400	-0.3	2911	79.88	50.51
Belgium	A	1988	12	2300400	-1	1480700	0.8	2955	77.85	50.11
Belgium	A	1989	12	2307000	0.3	1506400	1.8	3005	76.77	50.13
Belgium	A	1990	12	2361900	2.4	1562200	3.8	3051	77.41	51.2
Belgium	A	1991	12	2397400	1.6	1576300	1	3051	78.58	51.67
Belgium	A	1992	12	2446600	2.1	1607200	2	3039	80.51	52.89
Denmark	A	1970	12	1143353		1101701		1837	62.24	59.97
Denmark	A	1971	12	1197204	4.8	1147338	4.2	1865	64.19	61.52
Denmark	A	1972	12	1227220	2.6	1180090	2.9	1923	63.82	61.37
Denmark	A	1973	12	1244346	1.4	1199258	1.7	1944	64.01	61.69
Denmark	A	1974	12	1310512	5.4	1210142	1	1926	68.04	62.83
Denmark	A	1975	12	1408878	7.6	1280138	5.8	1899	74.19	67.41
Denmark	A	1976	12	1507392	7	1341264	4.8	1919	78.55	69.89
Denmark	A	1977	12	1586559	5.3	1390007	3.7	1957	81.07	71.03
Denmark	A	1978	12	1688416	6.5	1461671	5.2	1957	86.28	74.69
Denmark	A	1979	12	1761136	4.4	1571608	7.6	2059	85.53	76.33
Denmark	A	1980	12	1796290	2	1585426	0.9	2085	86.15	76.04
Denmark	A	1981	12	1849578	3	1547849	-2.3	2023	91.43	76.51
Denmark	A	1982	12	1882794	1.8	1556056	0.6	2028	92.84	76.73
Denmark	A	1983	12	1921237	2.1	1572497	1.1	2037	94.32	77.2
Denmark	A	1984	12	1975054	2.9	1683274	7.1	2138	92.38	78.73
Denmark	A	1985	12	2006769	1.7	1730486	2.9	2209	90.85	78.34
Denmark	A	1986	12	2077905	3.6	1789222	3.4	2324	89.41	76.99

Denmark	A	1987	12	2036549	-1.9	1746747	-2.3	2337	87.14	74.74
Denmark	A	1988	12	2033632	-0.1	1730542	-0.9	2365	85.99	73.17
Denmark	A	1989	12	2050600	0.9	1745500	0.9	2317	88.5	75.33
Denmark	A	1990	12	2071300	1.1	1701300	-2.5	2330	88.9	73.02
Denmark	A	1991	12	2105000	1.7	1702900	0.1	2326	90.5	73.21
Denmark	A	1992	12	2131600	1.3	1725900	1.4	2326	91.64	74.2
Denmark	A	1993	12	2156200	1.2	1734400	0.5	2274	94.82	76.27
Finland	A	1970	12	950300		830500		1615	58.84	51.42
Finland	A	1971	12	1053100	10.9	913900	10.1	1628	64.69	56.14
Finland	A	1972	12	1174800	11.6	1014500	11.1	1661	70.73	61.08
Finland	A	1973	12	1234800	5.2	1066900	5.2	1739	71.01	61.35
Finland	A	1974	12	1334700	8.1	1160700	8.8	1816	73.5	63.92
Finland	A	1975	12	1399200	4.9	1203100	3.7	1836	76.21	65.53
Finland	A	1976	12	1461100	4.5	1219500	1.4	1809	80.77	67.41
Finland	A	1977	12	1504700	3	1213600	-0.4	1813	83	66.94
Finland	A	1978	12	1536300	2.2	1209700	-0.3	1802	85.26	67.13
Finland	A	1979	12	1588000	3.4	1271900	5.2	1855	85.61	68.57
Finland	A	1980	12	1646400	3.7	1339600	5.4	1920	85.75	69.77
Finland	A	1981	12	1678800	2	1355400	1.2	1952	86	69.44
Finland	A	1982	12	1702700	1.5	1358100	0.2	1980	85.99	68.59
Finland	A	1983	12	1732500	1.8	1374400	1.3	1994	86.89	68.93
Finland	A	1984	12	1764900	1.9	1399100	1.8	2025	87.16	69.09
Finland	A	1985	12	1783900	1.1	1411300	0.9	2066	86.35	68.31
Finland	A	1986	12	1816700	1.9	1422900	0.9	2061	88.15	69.04
Finland	A	1987	12	1819200	0.2	1422200	0	2041	89.13	69.68
Finland	A	1988	12	1865900	2.6	1463600	3	2052	90.93	71.33
Finland	A	1989	12	1895000	1.6	1506400	3	2094	90.5	71.94
Finland	A	1990	12	1915400	1.1	1509800	0.3	2098	91.3	71.96
Finland	A	1991	12	1997000	4.3	1485100	-1.6	1990	100.35	74.63
Finland	A	1992	12	2047200	2.6	1420400	-4.3	1838	111.38	77.28
Finland	A	1993	12	2120400	3.6	1383500	-2.5	1718	123.42	80.53
Finland	A	1994	12	2107700	-0.5					
France	C	1970	0	3720000		3500000		15941	23.34	21.96
France	C	1971	0	3857000	3.7	3617000	3.4	16200	23.81	22.33
France	C	1972	0	3839000	-0.4	3599000	-0.4	16478	23.3	21.84
France	C	1973	0	3912000	2	3674000	2.1	16879	23.18	21.77
France	C	1974	0	4017000	2.7	3768000	2.6	17166	23.4	21.95
France	C	1975	0	4095000	2	3833000	1.8	17060	24	22.47
France	C	1976	0	3972000	-3	3725000	-2.8	17274	22.99	21.56
France	C	1977	0	4019000	1.2	3581000	-3.8	17497	22.97	20.47
France	C	1978	0	3819000	-4.9	3401000	-5	17610	21.69	19.31
France	C	1979	0	3599000	-5.7	3340000	-1.7	17686	20.35	18.88

France	C	1980	0	3503000	-2.6	3105000	-7	17752	19.73	17.49
France	C	1981	0	3444000	-1.6	3022000	-2.6	17663	19.5	17.11
France	C	1982	0	3282000	-4.7	2920000	-3.3	17752	18.49	16.45
France	C	1983	0	3134000	-4.5	2941000	0.8	17737	17.67	16.58
France	C	1984	0	2954000	-5.7	2751000	-6.4	17605	16.78	15.63
France	C	1985	0	2758000	-6.6	2554500	-7.1	17578	15.69	14.53
France	C	1986	0	2516000	-8.7	2332000	-8.7	17649	14.26	13.21
France	C	1987	0	2369000	-5.8	2174000	-6.7	17740	13.35	12.25
France	C	1988	0	2209000	-6.7	2024000	-6.8	17940	12.31	11.28
France	C	1989	0	2110000	-4.4	1924000	-4.9	18251	11.56	10.54
France	C	1990	0	1991000	-5.6	1824000	-5.1	19169	10.39	9.52
France	C	1991	0	1830000	-8	1720000	-5.7	19292	9.49	8.92
France	C	1992	0	1800000	-1.6	1700000	-1.1	19242	9.35	8.83
Italy	A	1970	12	5224585		4646221		12811	40.78	36.27
Italy	A	1971	12	5652673	8.2	5059980	9	12959	43.62	39.05
Italy	A	1972	12	5949151	5.3	5327342	5.3	12955	45.92	41.12
Italy	A	1973	12	6275865	5.5	5630233	5.7	13191	47.58	42.68
Italy	A	1974	12	7002882	11.6	6183031	9.9	13555	51.66	45.61
Italy	A	1975	12	7482064	6.9	6519071	5.5	13735	54.47	47.46
Italy	A	1976	12	8018233	7.2	6930357	6.4	13888	57.73	49.9
Italy	A	1977	12	8193275	2.2	6957933	0.4	14125	58.01	49.26
Italy	A	1978	12	8474359	3.5	7045126	1.3	14107	60.07	49.94
Italy	A	1979	12	8579420	1.3	7069362	0.4	14338	59.84	49.31
Italy	A	1980	12	8772043	2.3	7142318	1.1	14499	60.5	49.26
Italy	A	1981	12	8699334	-0.8	6905729	-3.3	14495	60.02	47.64
Italy	A	1982	12	8663925	-0.4	6692445	-3	14472	59.87	46.24
Italy	A	1983	12	8605638	-0.6	6479780	-3.1	14360	59.93	45.12
Italy	A	1984	12	8726253	1.5	6407083	-1.1	14253	61.22	44.95
Italy	A	1985	12	8596699	-1.4	6060120	-5.4	14418	59.62	42.03
Italy	A	1986	12	8660430	0.8	5839559	-3.6	14460	59.89	40.38
Italy	A	1987	12	8896911	2.8	5790565	-0.8	14457	61.54	40.05
Italy	A	1988	12	9271990	4.3	5852337	1.1	14696	63.09	39.82
Italy	A	1989	12	9568162	3.2	5816716	-0.6	14766	64.8	39.39
Italy	A	1990	12	9867600	3.2	5872400	1	15133	65.21	38.81
Italy	A	1991	12	10130100	2.7	5906200	0.6	15297	66.22	38.61
Italy	A	1992	12	10326200	2	5894900	-0.1	15193	67.97	38.8
West Germany	A	1970	12	8251221		7167600		21747	37.94	32.96
West Germany	A	1971	12	8407273	1.9	7345521	2.5	22105	38.03	33.23
West Germany	A	1972	12	8539120	1.6	7455653	1.5	22311	38.27	33.42
West Germany	A	1973	12	8728909	2.3	7600868	2	22711	38.43	33.47
West Germany	A	1974	12	8993960	3.1	7830299	3.1	22509	39.96	34.79
West Germany	A	1975	12	8970711	-0.2	7810270	-0.2	21942	40.88	35.6

West Germany	A	1976	12	9106441	1.6	7949216	1.8	21980	41.43	36.17
West Germany	A	1977	12	9188130	0.9	8037895	1.2	22153	41.48	36.28
West Germany	A	1978	12	9345623	1.8	8196704	2	22431	41.66	36.54
West Germany	A	1979	12	9579405	2.6	8268282	0.9	22940	41.76	36.04
West Germany	A	1980	12	9645492	0.7	8327647	0.8	23366	41.28	35.64
West Germany	A	1981	12	9738567	1	8387327	0.8	22372	43.53	37.49
West Germany	A	1982	12	9632051	-1	8263462	-1.4	23107	41.68	35.76
West Germany	A	1983	12	9519265	-1.1	8133104	-1.5	22755	41.83	35.74
West Germany	A	1984	12	9438266	-0.8	8024275	-1.3	22827	41.35	35.15
West Germany	A	1985	12	9565960	1.4	8127408	1.3	23028	41.54	35.29
West Germany	A	1986	12	9523752	-0.4	8054596	-0.8	23381	40.73	34.45
West Germany	A	1987	12	9515962	0	8026583	-0.3	23610	40.3	34
West Germany	A	1988	12	9558400	0.5	8044065	0.3	23834	40.1	33.75
West Germany	A	1989	12	9635900	0.9	8081990	0.5	24226	39.78	33.36
West Germany	A	1990	12	9790400	1.7	8210500	1.6	24973	39.2	32.88
Germany	A	1991	12	13900000	42	11676000	42.3	32609	42.63	35.81
Germany	A	1992	12	13153000	-5.3	11048500	-5.3	31949	41.17	34.58
Germany	A	1993	12	12357000	-6	10380000	-6	31286	39.5	33.18
Germany	A	1994	12	11844000	-4.1	9949000	-4.1			
Greece	C	1977	0	556600				1553	35.84	
Greece	C	1985	0	650000				1770	36.72	
Greece	C	1990	0	664000				1947	34.1	
Greece	C	1993	0	630000				1981	31.8	
Iceland	C	1979	12	60600				89	68.09	
Iceland	C	1983	12	76000				101	75.25	
Iceland	C	1985	12	83000				106	78.3	
Iceland	C	1990	12	103133				107	96.39	
Ireland	A	1970	12	422932		380639		717	58.99	53.09
Ireland	A	1971	12	426325	0.9	383693	0.9	722	59.05	53.14
Ireland	A	1972	12	432614	1.5	389353	1.5	729	59.34	53.41
Ireland	A	1973	12	440433	1.9	396390	1.9	747	58.96	53.06
Ireland	A	1974	12	458171	4.1	412354	4.1	766	59.81	53.83
Ireland	A	1975	12	465309	1.6	418778	1.6	759	61.31	55.17
Ireland	A	1976	12	468555	0.7	421699	0.7	753	62.23	56
Ireland	A	1977	12	487146	4	438431	4	774	62.94	56.64
Ireland	A	1978	12	509983	4.7	458985	4.7	801	63.67	57.3
Ireland	A	1979	12	533297	4.6	479967	4.6	836	63.79	57.41
Ireland	A	1980	12	544493	2.1	490044	2.1	859	63.39	57.05
Ireland	A	1981	12	551287	1.3	496158	1.3	862	63.95	57.56
Ireland	A	1982	12	546137	-0.9	491523	-0.9	861	63.43	57.09
Ireland	A	1983	12	529429	-3	476486	-3	835	63.4	57.06
Ireland	A	1984	12	517092	-2.3	465383	-2.3	818	63.21	56.89

Ireland	A	1985	12	498657	-3.5	448791	-3.5	802	62.18	55.96
Ireland	A	1986	12	488200	-2	439400	-2	818	59.68	53.72
Ireland	A	1987	12	474400	-2.8	426600	-2.9	815	58.21	52.34
Ireland	A	1988	12	470600	-0.8	423500	-0.7	810	58.1	52.28
Ireland	A	1989	12	458600	-2.5	412700	-2.5	811	56.55	50.89
Ireland	A	1990	12	471000	2.8	433300	5	838	56.21	51.71
Ireland	C	1991	12	476000	1.1	437900	1.1	853	55.8	51.34
Ireland	C	1992	12	467200	-1.8	429800	-1.8	873	53.52	49.23
Luxembourg	C	1970	12	52370				112	46.76	
Luxembourg	C	1972	12	54500				121	45.04	
Luxembourg	C	1973	12	56000	2.8			124	45.16	
Luxembourg	C	1974	12	59000	5.4			129	45.74	
Luxembourg	C	1975	12	60438	2.5			132	45.79	
Luxembourg	C	1977	12	63400				133	47.67	
Luxembourg	C	1979	12	66432				134	49.58	
Luxembourg	C	1981	12	72000				138	52.17	
Luxembourg	C	1987	12	75000				151	49.67	
Netherlands	A	1970	12	1585386		1450600		3819	41.51	37.98
Netherlands	A	1971	12	1605766	1.3	1461800	0.8	3851	41.7	37.96
Netherlands	A	1972	12	1619807	0.9	1471700	0.7			
Netherlands	A	1973	12	1667258	3	1512600	2.8			
Netherlands	A	1974	12	1683855	1	1520300	0.6			
Netherlands	A	1975	12	1723304	2.4	1551100	2.1	4033	42.73	38.46
Netherlands	A	1976	12	1719635	-0.2	1533403	-1.1	4064	42.31	37.73
Netherlands	A	1977	12	1747655	1.7	1556747	1.6	4130	42.32	37.69
Netherlands	A	1978	12	1758807	0.7	1563525	0.5	4175	42.13	37.45
Netherlands	A	1979	12	1768213	0.6	1569646	0.4	4229	41.81	37.12
Netherlands	A	1980	12	1740821	-1.5	1538713	-1.9	4362	39.91	35.28
Netherlands	A	1981	12	1702924	-2.1	1485244	-3.4	4433	38.41	33.5
Netherlands	A	1982	12	1663454	-2.3	1438303	-3.1	4388	37.91	32.78
Netherlands	A	1983	12	1595200	-4.1	1364437	-5.1	4362	36.57	31.28
Netherlands	A	1984	12	1551105	-2.7	1314567	-3.6	4386	35.36	29.97
Netherlands	A	1985	12	1531499	-1.2	1290222	-1.8	4488	34.12	28.75
Netherlands	A	1986	12	1534200	0.2	1248800	-3.2	4571	33.56	27.32
Netherlands	A	1987	12	1555200	1.4	1261200	1	5075	30.64	24.85
Netherlands	A	1988	12	1586200	2	1292800	2.6	5235	30.3	24.7
Netherlands	A	1989	12	1637900	3.3	1346400	4.2	5364	30.54	25.1
Netherlands	A	1990	12	1701800	4	1409600	4.7	5538	30.73	25.45
Netherlands	A	1991	12	1773200	4.2	1464700	4	5721	30.99	25.6
Netherlands	A	1992	12	1810000	2.1	1429000	-2.4	5838	31	24.48
Netherlands	A	1993	12	1839700	1.7	1480400	3.6	5805	31.69	25.5
Netherlands	A	1994	12	1865200	1.4	1525600	3.1			

Norway	A	1970	12	759189		660104		1203	63.11	54.87
Norway	A	1971	12	776773	2.4	688632	4.4			
Norway	A	1972	12	787067	1.4	695818	1.1	1354	58.13	51.39
Norway	A	1973	12	806556	2.5	710899	2.2	1367	59	52
Norway	A	1974	12	845135	4.8	742933	4.6	1391	60.76	53.41
Norway	A	1975	12	870686	3.1	762769	2.7	1442	60.38	52.9
Norway	A	1976	12	887586	2	774376	1.6	1515	58.59	51.11
Norway	A	1977	12	927374	4.5	807356	4.3	1557	59.56	51.85
Norway	A	1978	12	959949	3.6	833219	3.3	1585	60.56	52.57
Norway	A	1979	12	999903	4.2	869963	4.5	1609	62.14	54.07
Norway	A	1980	12	1049100	5	913592	5.1	1607	65.28	56.85
Norway	A	1981	12	1072032	2.2	927786	1.6	1642	65.29	56.5
Norway	A	1982	12	1084877	1.2	936385	1	1649	65.79	56.79
Norway	A	1983	12	1087056	0.3	933909	-0.2	1658	65.56	56.33
Norway	A	1984	12	1113342	2.5	952391	2	1681	66.23	56.66
Norway	A	1985	12	1139449	2.4	971145	2	1742	65.41	55.75
Norway	A	1986	12	1169679	2.7	993408	2.3	1793	65.24	55.4
Norway	A	1987	12	1187801	1.6	997100	0.4	1847	64.31	53.98
Norway	A	1988	12	1194364	0.6	1011900	1.5	1832	65.19	55.23
Norway	A	1989	12	1203462	0.8	1014500	0.3	1777	67.72	57.09
Norway	A	1990	12	1169900	-2.7	989000	-2.5	1766	66.25	56
Norway	A	1991	12	1177100	0.7	997100	0.9	1760	66.88	56.65
Norway	A	1992	12	1191800	1.3	1011900	1.5	1761	67.68	57.46
Norway	A	1993	12	1207300	1.4	1026000	1.4	1765	68.4	58.13
Norway	A	1994	12	1226500	1.6	1042500	1.7			
Portugal	A	1978	0	1486800						
Portugal	A	1984	0	1669700				2752	60.67	
Portugal	A	1986	0	1434000				2791	51.38	
Portugal	C	1990	0	1000000				3144	31.81	
Spain	C	1977	12	1622900				8565	18.95	
Spain	C	1978	0	2457100	51.5			8418	29.19	
Spain	C	1979	0	2088200	-15			8254	25.3	
Spain	A	1980	12	1180800	-43	1000000		7986	14.79	12.52
Spain	A	1981	12	1085500	-8	885500	-11	7730	14.04	11.46
Spain	A	1982	12	1087100	0.2	949000	7.2	7676	14.16	12.36
Spain	A	1983	12	1128300	3.8	983000	3.6	7599	14.85	12.94
Spain	A	1984	12	1076100	-4.6	941000	-4.2	7276	14.79	12.93
Spain	A	1985	12	1103200	2.6	962000	2.3	7265	15.19	13.24
Spain	A	1986	12	1110500	0.7	972000	1.1	7608	14.6	12.78
Spain	A	1987	12	1244900	12.2	1083000	11.5	7946	15.67	13.63
Spain	A	1988	12	1373300	10.4	1204000	11.2	8320	16.51	14.47
Spain	A	1989	12	1515700	10.4	1328000	10.3	8843	17.14	15.02

Spain	A	1990	12	1697000	12	1485000	11.9	9234	18.38	16.08
Spain	A	1991	12	1962300	15.7	1709000	15.1	9332	21.03	18.31
Spain	A	1992	12	2124700	8.3	1852000	8.4	9030	23.53	20.51
Spain	A	1993	12	2166100	2	1901000	2.7	8634	25.09	22.02
Spain	A	1994	12	2126800	-1.8	1859000	-2.2			
Sweden	A	1970	12	2546395		2325300		3433	74.17	67.73
Sweden	A	1971	12	2655286	4.3	2328400	0.2	3467	76.59	67.16
Sweden	A	1972	12	2733072	3	2447200	5.2	3493	78.24	70.06
Sweden	A	1973	12	2810806	2.9	2542100	3.9	3521	79.83	72.2
Sweden	A	1974	12	2911274	3.6	2657700	4.6	3609	80.67	73.64
Sweden	A	1975	12	3049578	4.8	2754700	3.7	3715	82.09	74.15
Sweden	A	1976	12	3160309	3.7	2820400	2.4	3752	84.23	75.17
Sweden	A	1977	12	3282186	3.9	2924400	3.7	3770	87.06	77.57
Sweden	A	1978	12	3359469	2.4	2989600	2.3	3783	88.8	79.03
Sweden	A	1979	12	3407785	1.5	3042700	1.8	3843	88.68	79.18
Sweden	A	1980	12	3486353	2.4	3114500	2.4	3895	89.51	79.96
Sweden	A	1981	12	3527853	1.2	3137400	0.8	3890	90.69	80.65
Sweden	A	1982	12	3578645	1.5	3177200	1.3	3877	92.3	81.95
Sweden	A	1983	12	3647180	2	3227600	1.6	3891	93.73	82.95
Sweden	A	1984	12	3718343	2	3288900	1.9	3931	94.59	83.67
Sweden	A	1985	12	3754956	1	3340700	1.6	3986	94.2	83.81
Sweden	A	1986	12	3809658	1.5	3383700	1.3	3989	95.5	84.83
Sweden	A	1987	12	3832536	0.7	3403500	0.6	3940	97.27	86.38
Sweden	A	1988	12	3847616	0.4	3405300	0.1	4005	96.07	85.03
Sweden	A	1989	12	3855081	0.2	3415100	0.3	4059	94.98	84.14
Sweden	A	1990	12	3849600	-0.1	3387600	-0.8	4035	95.41	83.96
Sweden	A	1991	12	3898200	1.3	3340000	-1.4	3969	98.22	84.15
Sweden	A	1992	12	3904800	0.2	3300000	-1.1	3778	103.36	87.35
Sweden	C	1993	12	3936100	0.9	3200000	-3	3535	111.35	90.52
Sweden	C	1994	12	3925800	-0.2	3180000	-0.6			
Switzerland	A	1970	12	842941		758144		2678	31.48	28.31
Switzerland	A	1971	12	850583	1	764413	0.9	2541	33.47	30.08
Switzerland	A	1972	12	863457	1.6	775385	1.5			
Switzerland	A	1973	12	875971	1.5	786405	1.5			
Switzerland	A	1974	12	891531	1.8	799686	1.7			
Switzerland	A	1975	12	944584	6	850407	6.4	2639	35.79	32.22
Switzerland	A	1976	12	963574	2.1	866815	2	2573	37.45	33.69
Switzerland	A	1977	12	955123	-0.8	857077	-1.1	2603	36.69	32.93
Switzerland	A	1978	12	953319	-0.1	850410	-0.7	2625	36.32	32.4
Switzerland	A	1979	12	949586	-0.3	845231	-0.6	2661	35.69	31.76
Switzerland	A	1980	12	954290	0.5	849105	0.5	2769	34.46	30.66
Switzerland	A	1981	12	952915	-0.1	847049	-0.2	2778	34.3	30.49

Switzerland	A	1982	12	946550	-0.6	840363	-0.7	2774	34.12	30.29
Switzerland	A	1983	12	942048	-0.4	835338	-0.5	2754	34.21	30.33
Switzerland	A	1984	12	937790	-0.4	831025	-0.5	2763	33.94	30.08
Switzerland	A	1985	12	913767	-2.5	806362	-2.9	2803	32.6	28.77
Switzerland	A	1986	12	912093	-0.1	793918	-1.5	2824	32.3	28.11
Switzerland	A	1987	12	914468	0.3	793592	0	2845	32.14	27.89
Switzerland	A	1988	12	920724	0.7	799632	0.8	2947	31.24	27.13
Switzerland	A	1989	12	920285	0	799579	0	2994	30.73	26.7
Switzerland	A	1990	12	918300	-0.2	798300	-0.1	3000	30.61	26.61
Switzerland	A	1991	12	876400	-4.5	752700	-5.7	3000	29.21	25.09
Switzerland	A	1992	12	879000	0.3	754300	0.3	2930	30	25.74
Switzerland	A	1993	12	860000	-2.1	738000	-2.1			
Switzerland	A	1994	12	864000	0.5	740000	0.3			
Turkey	C	1975	12	973350				5387	18.07	
Turkey	C	1980	0	1800000				6162	29.21	
Turkey	C	1987	12	1434645				7031	20.4	
Turkey	C	1989	12	1493143				6942	21.51	
U K	A	1970	12	11178000		10060200		22479	49.73	44.75
U K	A	1971	12	11126000	-0.4	10013400	-0.4	22139	50.26	45.23
U K	A	1972	12	11351000	2.1	10215900	2.1	22137	51.28	46.15
U K	A	1973	12	11447000	0.9	10302300	0.9	22679	50.47	45.43
U K	A	1974	12	11755000	2.7	10579500	2.7	22804	51.55	46.39
U K	A	1975	12	12184000	3.7	10965600	3.7	22723	53.62	48.26
U K	A	1976	12	12376000	1.6	11138400	1.6	22557	54.87	49.38
U K	A	1977	12	12846000	3.8	11561400	3.8	22631	56.76	51.09
U K	A	1978	12	13112000	2.1	11800800	2.1	22790	57.53	51.78
U K	A	1979	12	13289000	1.4	11960100	1.4	23173	57.35	51.61
U K	A	1980	12	12947000	-2.5	11652300	-2.5	22991	56.31	50.68
U K	A	1981	12	12106000	-6.4	10895400	-6.4	21892	55.3	49.77
U K	A	1982	12	11593000	-4.2	10433700	-4.2	21414	54.14	48.72
U K	A	1983	12	11236000	-3	10112400	-3	21067	53.33	48
U K	A	1984	12	10994000	-2.1	9894600	-2.1	21238	51.77	46.59
U K	A	1985	12	10821000	-1.5	9738900	-1.5	21423	50.51	45.46
U K	A	1986	12	10539000	-2.6	9485100	-2.6	21387	49.28	44.35
U K	A	1987	12	10475000	-0.6	9427500	-0.6	21584	48.53	43.68
U K	A	1988	12	10376000	-0.9	9338400	-0.9	22258	46.62	41.96
U K	A	1989	12	10158000	-2.1	9142200	-2.1	22661	44.83	40.34
U K	A	1990	12	9947000	-2	8952300	-2	22918	43.4	39.06
U K	A	1991	12	9585000	-3.6	8626500	-3.6	22262	43.06	38.75
U K	A	1992	12	9048000	-5.6	8143200	-5.6	21906	41.3	37.17
UK	A	1993	12	8700000	-3.8	7830000	-3.8	21554	40.36	36.33
GB	S	1989	5			8565000		21800		39

GB	S	1990	5	8461000	-1.2		38
GB	S	1991	5	8191000	-3.1		37
GB	S	1992	5	7602000	-7.1		36
GB	S	1993	10	7440000	-2.1		35
GB	S	1994	5	7186000	-3.4	21775	33

Appendix B. Details of data files

1. Current Population Survey Outgoing Rotation Group File, 1993: NBER 50 Variable Uniform Extract for the United States, 1979-1993.

The CPS is the US governments' monthly household survey of employment and labor markets. It is the source of the unemployment rate announced each month in the popular press. Since 1968 public use micro data files have been available from the Bureau of Labor Statistics for external analysis. In the interest of ease of use, the NBER has prepared a CD-ROM with extracts of the files from 1979 to 1993. The CD includes a individual data for about 30,000 individuals each month for 180 months. The sample includes all employed respondents who were 16 years or older. The 50 or so variables selected relate to employment: hours worked, earnings, industry, occupation, education, and unionization. The extracts also contain many background variables: age, sex, race, ethnicity, geographic location, etc.

The Current Population Survey (CPS) is a monthly survey of about 60,000 households. An adult (the reference person) at each household is asked to report on the activities of all other persons in the household. There is a record in the file for each adult person. The universe is the adult non-institutional population. Each household entering the CPS is interviewed for 4 months, then ignored for 8 months, then interviewed again for 4 more months. If the occupants of a dwelling unit move, they are not followed, rather the new occupants of the unit are interviewed. Since 1979 only households in months 4 and 8 have been asked their usual weekly earnings/usual weekly hours. These are the outgoing rotation groups, and each year the BLS gathers all these interviews together into a single file called the Annual Earnings File, or the Merged Outgoing Rotation Groups File. Only persons 16 years of age or over are included in the CD-ROM.

The NBER 50 variable extract CD Rom includes individual data for about 30,000 individuals each month for 180 months. The sample includes all employed respondents who were 16 years or older. The 50 or so variables selected relate to employment: hours worked, earnings, industry, occupation, education, and unionization. The extracts also contain many background variables: age, sex, race, ethnicity, geographic location, etc. Every effort has been made to keep the variables consistent through time, however it should be noted that unionization becomes available 1983 and after, student enrollment status for 1984 and after, metropolitan/central city variables undergo changes in 1985, and education changes in 1992. Many variable definitions were changed in 1989 so that certain variables disappear and new variables appear (e.g. relationship to household head becomes relationship to reference person).

2. General Social Surveys, 1972-1993 for the United States.

The General Social Surveys have been conducted by the National Opinion Research Center at the University of Chicago since 1972. Interviews have been undertaken during February, March, and April of 1972 1973 1974 1975 1976 1977 1978 1980 1981 1982 1983 1984 1985 1986 1987

1988 surveys. In this report we make use of data from 1974, because of the unavailability of earnings data in 1972 and 1973.

The initial survey, 1972, was supported by grants from the Russell Sage Foundation and the National Science Foundation. NSF has provided support for the 1973 through 1978, 1980, and 1982 through 1987 surveys. NSF continued to support the project through 1991. Supplemental funding for 1984-1991 comes from Andrew M. Greeley.

The items appearing on the surveys are one of three types: Permanent questions that occur on each survey, rotating questions that appear on two out of every three surveys (1973, 1974, and 1976, or 1973, 1975, and 1976), and a few occasional questions such as split ballot experiments that occur in a single survey.

In recent years the GSS has expanded in two significant ways. First, by adding annual topical modules that explore new areas or expand existing coverage of a subject. Second, by expanding its cross-national collaboration. Bilateral collaboration with the Zentrum fuer Unfragen, Methoden and Analysen in the Federal Republic of Germany dates from 1982. In 1985 the first multinational collaboration was carried out with the United States, Britain, Germany, Italy, and Australia and subsequently with many more countries (see below for further details). We make use of these international data - known as the International Social Survey Program (ISSP) - in various of this report.

3. The General Household Survey, 1983 for Great Britain

The General Household Survey is a continuous multi-purpose national sample survey based on private households selected from the Electoral Register. It originated in 1971 as a service to various government departments. Departmental interests change, and therefore although there is substantial continuity in questions over time, new areas for questioning are introduced, eg. leisure in 1973 and 1977, and drinking in 1978, and the form of questions varies between years.

The sample remained largely unchanged between 1971 and 1974 and was designed to be representative of Great Britain in each calendar quarter. The 3-stage sample design involved the selection of 168 Local Authority areas as the primary sampling units (PSUs) by probability proportional to population size, after first stratifying Local Authority areas by (a) regions (b) conurbations; other urban areas; semi-rural areas; and rural areas, and (c) average rateable value. Each year 4 wards (in rural areas, groups of parishes) are selected from each PSU with probability proportional to population size. The selected Local Authority areas are rotated such that a quarter are replaced every 3 months. Within each ward, 20 or 25 addresses are selected. A maximum of 3 households are interviewed at each address (and to compensate for additional households at an address a corresponding number are deleted from the interviewer's address list). This yielded a total effective sample of 15,360 households in 1973, for example.

The data set is based on individuals (ie. all adults and children in the sample households); that is, the case unit is an individual, not a household. The GHS defines a household as 'a group of people living regularly at one address, who are all catered for by the same person for at least one meal a day'.

4. The Labor Force Surveys, 1993/4 for Great Britain.

The Labour Force Survey (LFS) series has been running in Great Britain since 1973. The LFS is a survey of households living at private addresses in the UK. It is carried out by the Social Survey Division (SSD) of the Office of Population Censuses and Surveys (OPCS) on behalf of the Education and Employment Department (EEF). The first LFS was conducted in 1973, under the terms of a regulation derived from the Treaty of Rome, and the provision of information for the Statistical Office of the European Communities (SOEC) continues to be one of the reasons for carrying out the surveys. SOEC co-ordinates information from labour force surveys in the member states in order to assist the EC in such matters as the allocation of the Social Fund.

Between 1973 and 1983 the British survey was conducted bi-annually. From 1983 and 1992 it moved to an annual basis; finally it became quarterly in the spring of 1992. Interviews cover about 150,000 people living at representative addresses throughout Britain every quarter, including students living away from home in halls of residence as well as people living in National Health Service accommodation. Details of the labour force characteristics -- employment, self-employment, hours of work, unemployment, redundancies, education and training -- of around 120, 000 people aged 16 and over are collected every quarter.

The design of the quarterly LFS involves an element of overlap between quarters. Each quarter's sample is made up of five 'waves', each consisting of about 12,000 households. Every sampled address in a wave is interviewed in five successive quarters, such that in any one quarter one wave will be receiving the first interview, one wave their second, and so on, with one wave receiving their fifth and final interview. Thus there is an 80% sample overlap between quarters. The response rate to first interviews is currently 83%.

Response rates in the LFS in recent years have averaged between 80 and 85%, somewhat lower than in the period 1973-1979, when 86% was normal. The survey tends to over-represent children aged 15 and under and under-estimate the numbers in the age-band 20-24. this pattern is repeated every year in the LFS, and it reflects the fact that those who live a more mobile lifestyle are harder to contact.

Questions about earnings and income have been asked of the 12,000 households in the fifth wave of each survey from winter 1992/3 in Great Britain. Questions are asked in the fifth sweep in order to combat the perceived threat to the response rates in the main body of the survey of asking questions which are traditionally problematic. The questions are asked of all respondents aged between 16 and 69 years inclusive, but exclude the self-employed as the 1989 pilot study indicated that there were high levels of non-response among this group. The LFS complements other

variables relating to hours worked, enabling the calculation of hourly earnings. Hourly earnings are generally calculated as actual gross weekly earnings divided by total usual paid hours worked. The reasons for this apparent mismatch, are as follows (see Laux and Marshall, 1994):

- a) most people are paid during their holidays, or during bank holidays. If actual hours worked were used as the denominator in this type of situation, the hourly earnings figures would be inflated.
- b) the reference period for actual earnings and actual hours of work may well not coincide -- the LFS records the actual earnings the last time the respondent was paid, while the reference period for the hours worked is the previous week. this means that the relationship between the two 'actual' figures is relatively weak.

If information on earnings is needed for detailed industry analysis then the New Earnings Survey (NES) would be an appropriate source as the large sample size of the survey enables a great depth of analysis of the information collected, while employers' assessments of their industry category are likely to be more accurate than those of employees. In contrast, while the data obtained from the LFS may not provide reliable estimates for small industry or occupation groups, unlike the NES it does enable us to relate the information that is collected about individuals' characteristics to information about their income. The LFS has the advantage that it is conducted quarterly, compared with the annual frequency of the NES. Furthermore, unlike the NES, the LFS has the added advantage that the raw data files are available on a relatively unrestricted basis through the Data Archive at the University of Essex. Access is available quite quickly -- for the purposes of this report the winter 1994 files were the most recent ones available for analysis.

5. Eurobarometer Survey Series, 1970-1993

The Euro-Barometer surveys are the fruit of a unique program of cross-national and cross-temporal social science research. The effort began in early 1970, when the Commission of the European Communities began to carry out simultaneous surveys of the member nations of the European Community. Early efforts continued with two more surveys of the member nations in 1971 and 1973. In 1974, the Commission of the European Communities officially launched the biannual Euro-Barometer series of surveys, conducted in the Spring and Fall of each year. These surveys are designed to provide regular monitoring of the social and political attitudes of the publics in the European Community member nations, now fifteen in number. Of primary concern are public awareness of, and attitudes toward the Common Market and other European Community institutions and policies. Special topics of interest, such as consumer attitudes, the environment, gender roles, energy problems and health related issues, have also been investigated intermittently.

The universe consists of people aged 15 and over residing in the 12 member nations of the European Community: Belgium, France, Italy, the Netherlands, West Germany (1970-1992), United Kingdom (1970, 1973- 1992), Denmark (1973-1992), Ireland (1973-1992), Luxembourg (1973- 1992), Greece (1980-1992), Spain (1981-1992), and Portugal (1982- 1992). Multistage probability samples and stratified quota samples are used. For further details of the surveys see Reif, Karlheinz, and Ronald Inglehart (eds.). Euro-barometer: the dynamics of european

- Euro-Barometer 7: Science and Technology in the European Community, April 1977 (ICPSR 7612)
- Euro-Barometer 8: Men, Women and Work Roles in Europe, October/November 1977 (ICPSR 7604)
- Euro-Barometer 9: Employment and Unemployment in Europe, April 1978 (ICPSR 7727)
- Euro-Barometer 10: National Priorities and the Institutions of Europe, October/November 1978 (ICPSR 7728)
- Euro-Barometer 10A: Scientific Priorities in the European Community, October/November 1978 (ICPSR 7807)
- Euro-Barometer 11: Year of the Child in Europe, April 1979 (ICPSR 7752)
- Euro-Barometer 12: European Parliamentary Elections, October/November 1979 (ICPSR 7778)
- Euro-Barometer 13: Regional Development and Integration, April 1980 (ICPSR 7957)
- Euro-Barometer 14: Trust in the European Community, October 1980 (ICPSR 7958)
- Euro-Barometer 15: Membership in the European Community, April 1981 (ICPSR 7959)
- Euro-Barometer 16: Noise and Other Social Problems, October 1981 (ICPSR 9022)
- Euro-Barometer 17: Energy and the Future, April 1982 (ICPSR 9023)
- Euro-Barometer 18: Ecological Issues, October 1982 (ICPSR 9057)
- Euro-Barometer 19: Gender Roles in the European Community, April 1983 (ICPSR 8152)
- Euro-Barometer 20: Aid to Developing Nations, October 1983 (ICPSR 8234)
- Euro-Barometer 21: Political Cleavages in the European Community, April 1984 (ICPSR 8263)
- Euro-Barometer 22: Energy Problems and the Atlantic Alliance, October 1984 (ICPSR 8364)
- Euro-Barometer 23: The European Currency Unit and Working Conditions, April 1985 (ICPSR 8411)
- Euro-Barometer 24: Entry of Spain and Portugal, October 1985 (ICPSR 8513)
- Euro-Barometer 25: Holiday Travel and Environmental Problems, April 1986 (ICPSR 8616)
- Euro-Barometer 26: Energy Problems, November 1986 (ICPSR 8680)
- Euro-Barometer 27: The Common Agricultural Policy and Cancer, March-May 1987 (ICPSR 8715)
- Euro-Barometer 28: Relations with Third World Countries and Energy Problems, Nov 1987 (ICPSR 9082)
- Euro-Barometer 29: Environmental Problems and Cancer, March-April 1988 (ICPSR 9083)
- Euro-Barometer 30: Immigrants and Out-Groups in Western Europe, October-November 1988
- Euro-Barometer 31: European Elections, 1989: Pre-Election Survey, March-April 1989
- Euro-Barometer 31A: European Elections, 1989: Post-Election Survey, June-July, 1989
- Euro-Barometer 32: The European Market, Drugs, Alcohol and Cancer, November, 1989
- Euro-Barometer 34: Perceptions of the European Community, and Employment Patterns and Child-Rearing, Oct-Nov, 1990
- Euro-Barometer 34.1: Health Problems, Fall, 1990
- Euro-Barometer 34.2: European Youth, Fall, 1990
- Euro-Barometer 35: Foreign Relations, The Common Agricultural Policy and Environmental Concerns, Spring, 1991
- Euro-Barometer 35.A: Working Conditions, Spring, 1991
- Euro-Barometer 36: Regional Identity and Perceptions of the Third World, Fall, 1991
- Euro-Barometer 37: Awareness and Importance of Maastricht and the Future of the European

respondents' opinions on topics such as the unification of Europe, elections to the European Parliament, nuclear power, income equality, terrorism, military defense, public ownership vs. private industry, and pollution. Three indices constructed by the principal investigators--cognitive mobilization, materialist/post-materialist values, and left/center/right vote--also are included. Demographic information supplied includes age, sex, marital status, household composition, occupation, religion, family income, age at which the respondent left school, town size, region, union membership of household members, size and supervision of the workplace, subjective social class, work sector, and housing source.

6. The International Social Survey Programme Series, 1985-1993

The International Social Survey Programme (ISSP) surveys for 1985-1992. The ISSP is a continuing program of cross-national collaboration, carried out by a group of national research institutes, each of which conducts an annual survey of social attitudes and values. They are not panels: separate cross-sections of individuals are interviewed each year. The topics in each year are: "role of government" (1985), "social networks" (1986), "social inequality" (1987); "work orientation" (1989); "the role of government" again (1990), "religion" (1991) and "social inequality" again (1992). It brings together pre-existing national social science surveys and coordinates their research to produce a common set of questions asked in identical form in the participating nations. As a condition of membership each country undertakes to run a short, annual self-completion survey containing an agreed set of questions asked of a probability-based, nationwide sample of adults. The topics change from year to year by agreement, with a view to replication every five years or so. The major advantage of the ISSP is that it produces a common set of questions asked in identical form in the participating countries. For a description of the technical details of the surveys see, for example, the Technical Appendix in Jowell, and Brook (1989).

Appendix Table C1. Euro-barometer Surveys, 1970-1992

	France	Belgium	Neths	Germany	Italy	Lux	Denmark	Eire	GB	N.Ireland	Greece	Spain	Portugal	Total
1970	2046	1296	1405	2014	1806	-	-	-	1975	-	-	-	-	10542
1971	2095	1459	1673	1997	2017	-	-	-	-	-	-	-	-	9241
1973	2227	1266	1464	1957	1909	330	1199	1199	1933	-	-	-	-	13484
1975	2432	2554	2099	2041	2153	621	2096	2000	2166	601	-	-	-	18763
1976	2587	2041	2028	2011	1975	570	1942	1987	2079	612	-	-	-	17832
1977	2266	1994	1993	2014	2180	648	2007	2005	2177	598	-	-	-	17882
1978	2143	2021	2076	2002	2205	613	1989	2010	2159	610	-	-	-	17828
1979	1996	1982	2115	2008	2348	598	2102	2003	2114	607	-	-	-	17873
1980	1977	2005	2095	2015	2224	600	2003	2014	2289	597	1000	-	-	18819
1981	1997	1920	2102	1966	2253	800	2015	1990	2149	615	2000	999	-	20806
1982	2138	2230	2284	2437	2326	699	2206	2188	2163	591	2199	2066	3780	27307
1983	2012	2033	2048	2106	2064	604	2027	1989	1997	628	2000	2004	3997	25509
1984	2014	2053	2033	2045	2157	599	1986	2008	2125	635	2000	2046	3950	25651
1985	2024	2027	2053	2036	2174	600	2017	2017	2177	650	2000	1003	1000	21778
1986	1998	2006	2027	2072	2200	600	2040	2009	2055	643	2000	2018	2000	23668
1987	2002	2015	1969	1950	2085	589	1994	2002	1974	640	2000	2014	2000	23234
1988	1994	2046	2029	2058	2079	600	2015	2004	2031	637	2000	2030	2000	23523
1989	4045	4029	4031	4443	4121	1207	4014	3967	3848	1174	4015	4000	4000	46894
1990	2024	1949	2115	2072	2085	601	2000	2034	2102	632	2011	2001	2000	23626
1991	2007	2067	2044	2073	2083	939	2000	2020	2127	602	2001	2001	2000	23964
1992	2010	2076	2005	2078	2098	996	2000	2009	2074	607	2006	2004	2000	23963
Total	46034	43069	43688	45395	46542	12814	39652	39455	43714	11679	2723224	1862872	7452187	

Appendix Table C2. ISSP Responses, 1985-1993

	1985	1986	1987	1988	1989	1990	1991	1992	1993	Total
Australia	1528	1250	1574		2398			2203		8953
Austria	987	1027	972	972	1997			1027		6982
Bulgaria								1198	1183	2381
Canada								1004	1467	2471
Czech Republic								1101	1005	2106
East Germany						1028	1486	1094	1092	4700
Eire				1005	972	1005	1005		957	4944
Great Britain	1530	1416	1212	1307	1297	1197	1257	1066	1261	11543
Hungary		1747	2606	1737	1000	977	1000	1250	1167	11484
Israel					1133	991	991		1198	4313
Italy	1580	1033	1027	1028	1028	983	983	996	1000	9658
Japan									1305	1305
Netherlands			1638	1737	1690		1635		1852	8552
New Zealand							1070	1239	1271	3580
Northern Ireland					780	772	838		767	3157
Norway					1848	1517	1506	1538	1414	7823
Philippines							1200	1200	1200	3600
Poland			3943				1063	1636	1641	8283
Russia								1983	1931	3914
Spain									1208	1208
Slovenia							2080	1049	1032	4161
Sweden								749		749
Switzerland			987							987
USA	677	1470	1564	1414	1453	1217	1359	1273	1557	11984
West Germany	1048	2809	1397	2994	1575	2812	1346	2297	1014	17292
Total	7350	10752	16920	12194	14773	14897	18819	23903	26522	146130

In this report the role of trade unions in the United States is compared with those in eighteen other OECD countries using micro-data at the level of the individual. The main findings are as follows. 1. The declines in union density experienced in the US in the last thirty years are not typical of the OECD. 2. There are many similarities across countries in who belongs to a union. 3. The union-nonunion wage differential in the US is approximately 15%, which has remained roughly constant over time. Why has unionism in the United States followed a different path from that followed in other OECD countries? What do unions do outside the US? To what extent and in what ways do trade unions impact on labor market outcomes elsewhere? In this report the role of trade unions in the United States is compared with those in eighteen other OECD countries using micro-data at the level of the individual. The main findings are as follows: 1. The declines in union density experienced in the US in the last thirty years are not typical of the OECD. 2. There are many similarities across countries in who joins unions. Unions in most other countries appear to raise wages by less. 4. Unions reduce total hours of work. The size of the effect appears to be relatively small in the US. The paper concludes that the contraction in US union density is driven by what unions do on the wage front. If unions wish to survive they will have to emphasize their collective voice role rather than their monopoly face. OECD (2000), *Economic Outlook*, Paris. OECD (2001), 'The New Economy: Beyond the Hype', Final report on the OECD growth project. The Role and Influence of Trade Unions in the OECD', Centre for Economic Performance: LSE, Discussion Paper no. 310. Testing for Quasi-market Forces in Secondary Education. Jan 1996. 357-390. Blanchflower, D. (1996), 'The Role and Influence of Trade Unions in the OECD', Centre for Economic Performance: LSE, Discussion Paper no. 310. Bradley, S., R. Crouchley, J. Millington and J. Taylor, (2000), 'Testing for Quasi-market Forces in Secondary Education', *Oxford Bulletin of Economics and Statistics*, 62, 3, 357-390. Institutions and Unemployment in OECD Countries', paper presented at the European Association of Labour Economists. Mar 1999.