

# **The Institutional Determinants of Labour Market Performance**

## **Comparing the Anglo–Saxon model and a European–style alternative**

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### **1. Introduction**

Variation in work intensity is an important source of variation in per capita income levels. For the richest countries, it is a more important source than differences in labour productivity: whereas Americans are on average richer than Europeans, workers in the United States and in the richest European countries are by and large equally productive. Instead, the difference in the number of hours worked is mainly responsible for the huge difference in GDP per capita (see, for example, De Groot et al., 2004).

A cursory look at the data provides a first impression of the labour market performance in Europe as compared to the United States. Table 1 ranks the OECD countries according to the total number of hours worked per inhabitant. In addition, the table contains information on the average number of hours worked per worker, the number of employed workers per capita

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(i.e., the employment rate<sup>2</sup>) and the standardised unemployment rate. Clearly, the United States is on top in terms of hours worked per inhabitant. This mainly reflects long working days as compared to the other countries, most notably the European countries. Indeed, when countries are ranked according to hours worked per worker, the United States also comes out on top. The picture is less clear-cut, when the number of employed workers per capita is considered. The Scandinavian countries (but also the Netherlands and Portugal), the other Anglo-Saxon countries (Australia, Canada, New Zealand and the United Kingdom), Japan and Switzerland score about equally well (or even better) than the United States. Also the picture is not clear-cut, when the number of unemployed workers is considered. Although for most European countries, the unemployment rate exceeds the one of the United States, important exceptions exist, such as Austria, the Netherlands, Norway and Switzerland. The many exceptions make it difficult to as a rule that the European welfare states tend to discourage employment and to result in open and hidden unemployment.

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<sup>2</sup> We define the employment rate here as the share of employed in the total population. A more commonly used indicator for economic performance in this respect is the participation rate that is defined as the share of the labor force in the population aged between 15 and 65. Evidently, the employment rate is related to participation, but note that the latter also includes the unemployed in the numerator and disregards the people aged below 15 and above 65 in the denominator.

*Table 1. Hours worked (per worker and per inhabitant), employment and unemployment in the OECD in 2000 (USA=1)*

	Hours per inhabitant	Hours per worker	Employment rate	Unemployment rate
USA	1.00	1.00	1.00	1.00
Japan	0.99	0.96	1.04	1.18
Switzerland	0.93	0.85	1.10	0.65
Portugal	0.93	0.94	0.99	1.03
Australia	0.92	0.96	0.96	1.58
Canada	0.92	0.95	0.97	1.70
New Zealand	0.89	0.93	0.95	1.50
Denmark	0.84	0.82	1.03	1.10
Sweden	0.83	0.86	0.97	1.48
United Kingdom	0.83	0.88	0.95	1.33
Ireland	0.81	0.90	0.89	1.05
Finland	0.80	0.87	0.92	2.43
Austria	0.76	0.81	0.94	0.93
Italy	0.75	0.87	0.87	2.63
Norway	0.75	0.73	1.02	0.88
Germany	0.74	0.82	0.90	1.98
The Netherlands	0.72	0.72	1.00	0.70
Spain	0.71	0.97	0.74	2.83
France	0.66	0.82	0.80	2.33
Belgium	0.65	0.83	0.79	1.73

Source: employment rate and hours worked per worker/per capita are based on own computations using GGDC: Total Economy Database 2004 (University of Groningen and the Conference Board). The unemployment rate is based on information on the standardized unemployment rate from the OECD (2001), Nickell and Nunziata (2001) and Golden and Wallerstein. We refer to the Appendix for an extensive description of the data sources.

The contrast between Europe and the United States has led to a call for reform in Europe. Barriers to competition in goods, capital and labour markets – the result of too much and too diverse regulations across countries – are thought to reduce the incentive to work. The European Council has backed this call for reform. In Lisbon, it has drawn up an agenda for reform, which should make the European economy in 2010 the most competitive in the world. It has reaffirmed this agenda on later occasions. Nobel Prize winner Gary Becker (2002) sees a watershed in European economic policies: “Until recent years, most continental European politicians and intellectuals dismissed what they derisively called the British and American “Anglo–Saxon” model of competition and price flexibility. Yet a quiet but enormous change may be taking place in European attitudes toward competition in labour and other markets.” Yet, this change in attitude is cause for concern in Europe. The same institutions that are considered inefficient and rigid, reduce income inequality. A shift towards an Anglo-Saxon model does not necessarily imply that European countries adopt this model in full. Rather, they may adopt elements from the Anglo-Saxon, while at the same time aiming to arrive at a European-style alternative, in which not only efficiency but also equity is valued. Of course,

in a European-style alternative a difficult choice between efficiency and equity is nearly inevitable.

This paper aims to describe the variation in the labour market performance of OECD countries and to subsequently analyse the role of institutional factors in explaining this variation. When doing so, we do not only consider the effect on institutional factors on employment in persons and in hours, but also on the income distribution.

Much research on labour market institutions and economic performance is already available. Characteristic for most of this literature, though, is that it tends to analyse the measures of labour market performance more or less in isolation, focusing on unemployment, participation or hours worked separately. The most prominent example of this literature – which also provides a good account of previous contributions – is Nickell and Layard (1999).<sup>3</sup> Their analysis is closely related to ours. We contribute to this literature by analysing more dimensions of labour market performance in a unified framework. A second strand of literature takes up the question as to what institutional setting serves best the goal of optimising social-economic performance. An interesting example of this literature is Boeri (2002).<sup>4</sup> He considers the social-economic performance of four different ‘social policy models’, that he associates with groups of countries, viz. the Nordics, the Anglo–Saxon, Continental Europe and the Mediterranean countries. Performance is evaluated on the basis of income inequality, protection against labour market risk and rewards to labour market participation. Based on cross-country comparisons supplemented with micro-econometric evidence, Boeri concludes that both the Nordic countries as well as the Anglo-Saxon countries score well on all indicators and can compete with the USA. Our analysis supplements this approach by considering a wide range of institutional characteristics and their effect on efficiency as well as equity, using systematic econometric analysis exploiting both cross-sectional as well as time-series variation. Despite the attractiveness of cross–country analysis, the limitations of such approaches have to be acknowledged. These are concisely summarised in Freeman (1998).<sup>5</sup>

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<sup>3</sup> Other examples include Daveri and Tabellini (2000) and Scarpetta (1996).

<sup>4</sup> See also Andersen (2004) for a more in-depth analysis of the Scandinavian welfare model.

<sup>5</sup> Although Freeman acknowledges the usefulness of cross-sectional analyses as a complement to within-country studies that exploit changes in institutions over time and comparisons of groups of workers that are covered by different institutions, he points at two important drawbacks of cross-country analyses. Most importantly, he points at the possibility that countries differ in many institutional dimensions, implying that differences in outcomes can be explained in different ways. Furthermore, he points at the possibility that institutions that work in one country need not work in another country because of other differences in institutions that mutually interact. Acknowledging these drawbacks, we argue that macroeconomic cross-country studies extended with time series analysis are a useful complement to more microeconomic-oriented studies.

We proceed in the following manner. In section 2, we compare several dimensions of labour market performance across time and countries. Section 3 discusses trade-offs among various indicators for social-economic performance and characterises variation in the institutional context of the countries that we consider in our analysis. It subsequently presents a systematic econometric analysis of the determinants of variation in labour market performance. Section 4 concludes.

## **2. Labour market performance in the United States and Europe**

The work intensity in the United States (hours worked per inhabitant) is the largest in the OECD. It exceeds that of European countries by something close to 25%. Various factors can explain this lead. One of them is that workers in the United States simply have long working days. The title of a book by Juliet Schor – *The Overworked American* – is telling in this respect. A second possibility is that the United States is successful in mobilising the members of its working age population to participate in the labour market. If this goes hand in hand with successful matching of these people with jobs (and hence with low unemployment), effective use is made of the available people. A final explanation may be that the age structure of the US is such that many people are in their working age (being neither too young nor too old to participate in the labour market). Especially the rapid ageing process that several European countries go through may be relevant in this respect.

### **2.1 A decomposition of hours worked per inhabitant**

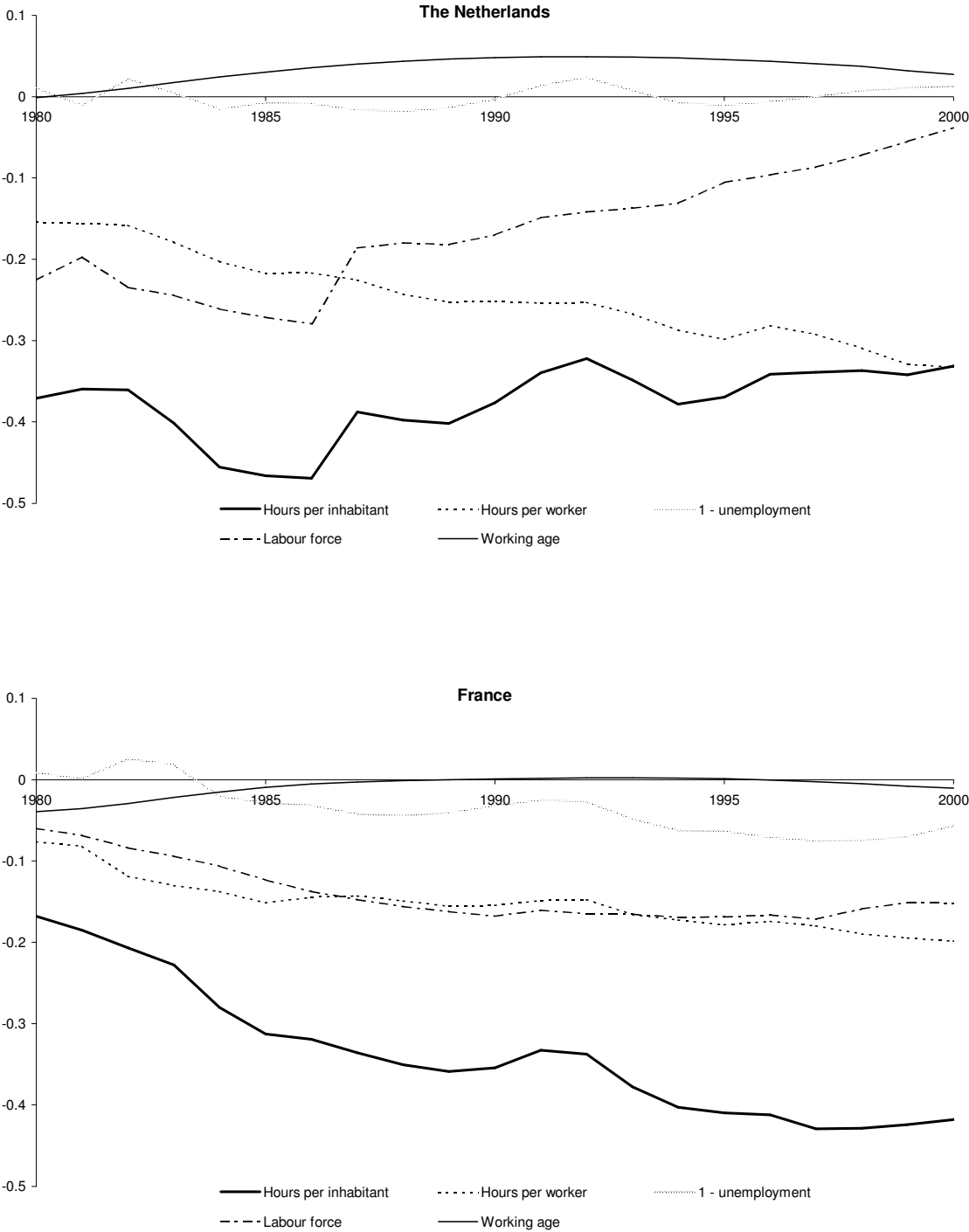
To see which explanation holds ground, we decompose for all countries in our sample the difference in the number of hours worked per inhabitant with the US into its four constituent factors, viz. hours per worker, the number of workers as a fraction of those that actively look for a job (viz. one minus the unemployment rate), the number of people that actively look for a job as a fraction of the population that is in its working age (viz. between 15 and 65), and the fraction of people in their working age as a fraction of the total population.<sup>6</sup> Figure 1 shows for four relatively contrasting European countries – the Netherlands, France, Ireland

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<sup>6</sup> More specifically, we use the definition  $H/P = (H/W)*(W/F)*(F/P_A)*(P_A/P)$ , where  $H$  is the total number of hours worked,  $P$  is the population,  $W$  is the number of people with a job,  $F$  is the size of the workforce (people with a job plus the unemployed), and  $P_A$  is the number of people aged between 15 and 65. Taking logs and differences with the United States, we arrive at relative differences between a country and the United States. Note that the empirical basis for this decomposition is slightly different from the information that was presented in Table 1. There we showed hours per inhabitant ( $H/P$ ), hours per worker ( $H/W$ ), workers per inhabitant ( $W/P$ ), and the unemployment rate ( $1 - W/F$ ).

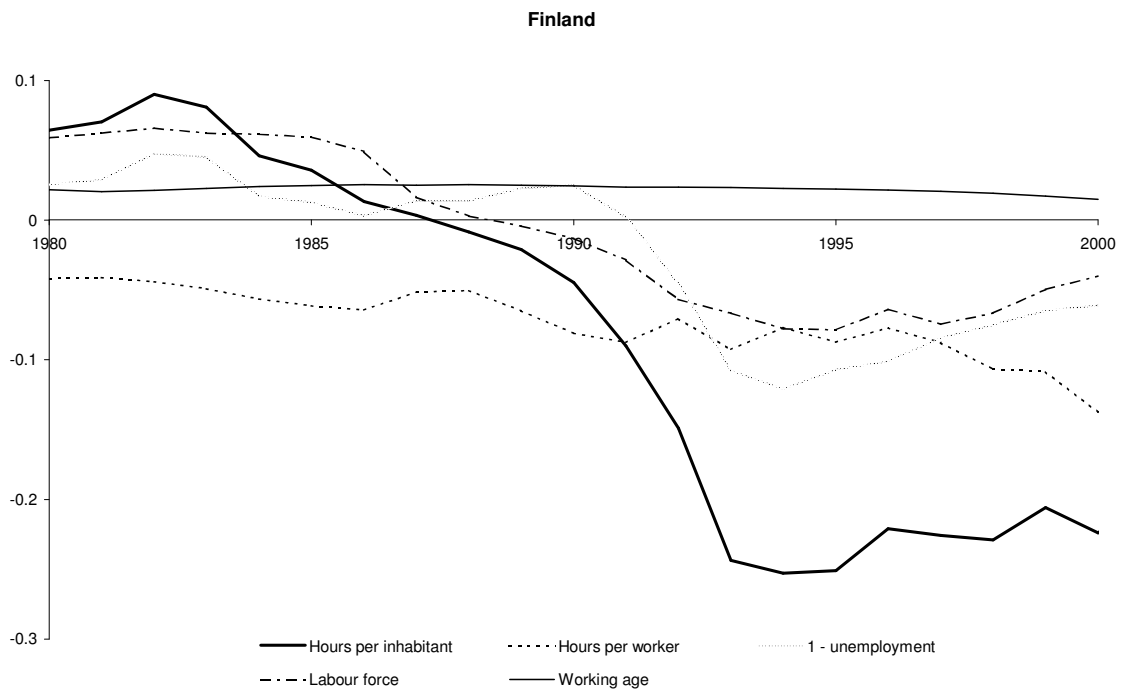
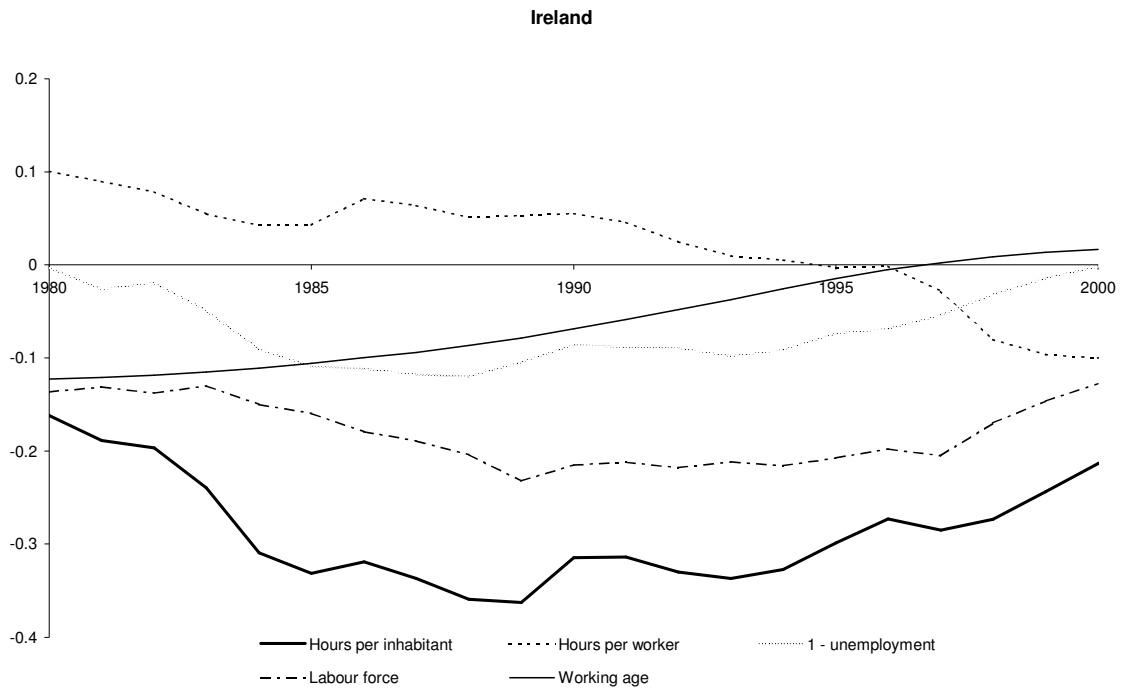
and Finland – to what extent these four factors have contributed historically to the relative difference in the number of hours worked per inhabitant with the United States.<sup>7</sup>

Figure 1. The hours gap of four European countries explained



<sup>7</sup> Similar figures for all other countries are available in an Annex to this paper, which is available at [www.henridegroot.net/downloads.asp](http://www.henridegroot.net/downloads.asp) (under 'notes and appendices').

Figure 1. Continued.



France is an example of a country facing a continuously increasing gap in terms of hours per inhabitant with the USA. This gap has doubled over the last 20 years, driven by a combination of a shrinking labour force and a gradual decline in the number of hours worked per worker (relative to the USA). The Netherlands was in the early 1980s characterized by a huge gap with the USA of about 40%. It has managed to slightly reduce this gap. The key success factor here is the increase in the labour force, which has partly been offset by a gradual decline in the number of hours worked per worker. Finland has experienced the most dramatic decline in hours per inhabitant. Starting in 1980 with a lead over the US of approximately 5%, it is now more than 20% behind. This development is driven by the combination of a huge increase in unemployment, a shrinking labour force and a decline in hours per worker. Finally, Ireland has gone through a period of decline, followed by catching up to the USA. Its initial decline was the result of reduced hours per worker, a shrinking labour force and increased unemployment. Since the late 1980s, the trends of increasing unemployment and a shrinking labour force have been reversed, resulting in an increase of hours worked per inhabitant (despite a declining trend of hour worked per worker).

Table 2 decomposes for a broader sample of (mainly European) countries the gap in hours worked with the United States for the year 2000. The countries are ranked from top to bottom according to their relative number of hours worked per inhabitant.<sup>8</sup> For most countries, the gap is largely explained by a relatively low number of hours worked per worker. On top of that, for countries such as Spain, France, Belgium and Ireland, the low number of hours worked is also to an important extent the result of a small labour force as a fraction of the working age population. Unemployment adds to the problem most notably for countries such as France, Italy and Spain. Variation in the pattern of ageing (or greening) of the population explains only a small part of the variation in hours per capita.

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<sup>8</sup> Note that the numbers in Table 1 and Table 2 are strongly related. In Table 1, we showed hours per inhabitant of a country relative to that of the US, whereas in Table 2 we decompose the difference between the log of the number of hours worked per inhabitant of a country and that of the US into its components (see footnote 6 for the definition of the number of hours worked per inhabitant resulting in our decomposition).

Table 2. The hours gap with the US explained: a decomposition, 2000

Percentage difference in	Hours per capita	Hours per worker	Workers as fraction of labour force	Labour force as fraction of working age population	Working age population as share of population
Japan	-0.6	-4.4	-0.7	1.3	3.2
Switzerland	-7.5	-16.8	1.4	5.7	2.1
Portugal	-7.8	-6.7	-0.1	-3.7	2.7
Australia	-8.3	-4.4	-2.4	-3.4	1.9
Canada	-8.4	-4.9	-3.0	-3.9	3.4
New Zealand	-12.0	-6.8	-2.1	-2.2	-0.9
Denmark	-17.1	-19.8	-0.4	2.1	1.1
Sweden	-18.1	-14.7	-2.0	1.1	-2.5
United Kingdom	-18.4	-12.8	-1.4	-3.3	-0.9
Ireland	-21.3	-10.0	-0.2	-12.7	1.6
Finland	-22.4	-13.8	-6.1	-4.0	1.5
Austria	-27.7	-21.3	0.3	-9.5	2.7
Italy	-28.1	-14.0	-7.0	-9.5	2.4
Germany	-30.5	-20.4	-4.1	-8.9	3.0
The Netherlands	-33.1	-33.3	1.2	-3.8	2.7
Spain	-33.6	-3.0	-7.9	-26.0	3.3
France	-41.8	-19.9	-5.7	-15.2	-1.1
Belgium	-42.5	-19.0	-3.1	-20.0	-0.4

## 2.2 How to close the hours gap?

The European Union has the ambition to close the income gap with the United States. Increasing work intensity is – apart from increasing productivity – an important means to this end. How can it achieve this ambition? The discussion thus far logically suggests two broad ways, viz. increasing the number of hours worked and increasing the number of workers (by either increasing participation or reducing unemployment).

### **Increase the number of hours worked**

As stated before, for the richest members of the European Union, the main source for the income gap with the United States is the number of hours worked (per worker). However, increasing this number has serious drawbacks and does not unequivocally improve welfare. One drawback is that increases in hours worked might partly be paid for with decreases in productivity per hour (although the empirical evidence for such an effect is not strong). A second, more important drawback is that more labour time means less leisure time. The value

of leisure does not appear in income and production statistics, but this does not make this value any less real. Similarly, official statistics ignore the value of household-production.

One needs to argue that the individual choice between labour and leisure (or household production) is distorted to make the argument that an extra hour work is socially more valuable than an additional hour of leisure.<sup>9</sup> Income taxes could be a reason for such a distortion, since they lower the financial revenue of extra work but not the benefits of extra leisure. However, this argument is not entirely clear-cut and convincing. Higher average income taxes not only induce substitution of labour for leisure, but also decrease (after-tax) income, which raises the incentive to work. Empirically the substitution and the income effect tend to cancel out; the estimated effects of average income taxes on hours worked are rather low.<sup>10</sup> On the other hand, marginal tax rates which are higher than average tax rates, i.e. progression in the tax system, could lead to significant distortion in the choice between labour and leisure.<sup>11</sup>

### **Increase participation**

In many European countries, the employment rate of the labour force is relatively low (and unemployment is relatively high).<sup>12</sup> As we saw in section 2.1, for most countries, participation and to a lesser extent unemployment are the driving factor behind changes in the employment rate. Labour market participation is particularly low and unemployment is particularly high among the low productive workers. Increasing participation of low-productive workers in the labour market is expected to reduce the overall average productivity per hour due to a composition effect. But more easily than with the choice between labour and leisure, one can argue that open and hidden unemployment is an important distortion. Unemployment is often involuntary. And even if drawing an unemployment benefit or other type of social benefit is voluntary, the social security arrangements do distort the individual choice. An example may help to clarify this. The participation of workers older than 55 is strikingly low in many

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<sup>9</sup> Of course, in many jobs hours worked is not a choice variable. Hours worked are often institutionally constrained. Workers whose constraint is binding might also face a different valuation at the margin.

<sup>10</sup> Kimball and Shapiro (2003) write that “One of the best-documented regularities in economics is that – when they affect all members of a household proportionately – large, permanent differences in the real wage induce at most modest differences in the quantity of labor supplied by a household. ... The standard explanation is that the substitution and income effects of a permanently higher real wage are of approximately the same size; (...)”.

<sup>11</sup> However, lowering tax progression is not without risks. It makes it more difficult to redistribute income but could also have important side effects on macroeconomic productivity, especially in Europe. For example, progressive taxes help to moderate wage demands (of trade unions) and in this way help to reduce unemployment.

<sup>12</sup> For 14 OECD countries the simple coefficient of correlation between the average participation rate and the average standardised unemployment rate in the period 1989–1994 is –0.83.

countries. The reason lies primarily in schemes for early retirement, which give little incentive to continue working. People who retire early hardly experience an income loss, while the close link between the last earned wage and old-age benefits makes elderly workers reluctant to accept lower wages when getting older – even though they are not as productive as they used to be. The social security system then provides firms and workers a way to escape the conflict of interests.

### **3. An empirical approach**

Institutional factors are commonly recognized as key determinants of labour market performance. These factors include, for example, the duration of unemployment benefits, active labour market policies and employment protection. In order to identify the effects of labour market institutions on performance, we resort to a multivariate analysis. Central in that analysis are regressions in which the hours worked per worker, the participation rate, the unemployment rate and a measure for income inequality are related to various institutional characteristics of national labour markets. Our data set covers 18 OECD-countries<sup>13</sup> and averages for seven five-year periods from 1960 to 1995 which yields (at most) 126 observations.

#### **3.1 Characterising the countries in the sample**

Before turning to the regression results, we characterise our data set. We do so by characterising the various dimensions of labour market performance for clusters of countries. In defining the clusters, we follow Esping-Anderson (1999) who breaks down the group of rich countries into three categories according to the social models that the countries have adopted: corporatist, social-democratic and liberal. Broadly speaking, the first category comprises continental Europe, the second Scandinavian countries and the third Anglo-Saxon countries.<sup>14</sup>

Figure 2 shows for each of the categories four efficiency indicators for labour market performance: participation, employment (defined as 1 minus the unemployment rate), income equality (defined as 100 minus the income inequality measure provided by Galbraith and Kum), and hours worked per worker. On the axes is the measure of economic performance of

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<sup>13</sup> These countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom and United States.

<sup>14</sup> More specifically, the corporatist countries are Austria, Belgium, France, Germany, Italy, the Netherlands and Japan; the social-democratic countries are Denmark, Sweden, Finland and Norway; and the liberal countries are Ireland, United Kingdom, United States, Switzerland, Australia, Canada and New Zealand.

the respective group of countries divided by the average measure of performance of all countries. A score of 100 thus means that the group of countries scores equal to the average of all countries. Figure 2 shows that the Anglo-Saxon model does not outperform the others on all counts: the participation rate is on average the highest in the Scandinavian countries, the differences in the employment rate are small, and income inequality is lower.

Figure 3 shows for the same three groups of countries several characteristics of labour market institutions. It is immediately clear that in the liberal countries the government intervenes less in the labour market than in the other (groups of) countries. For example, the level and duration of unemployment benefits are on average lower in the liberal countries than elsewhere. Figure 3 also illustrates an interesting difference among the European countries. The social-democratic countries have on average the highest benefit level (and the highest tax wedge). They have a higher benefit level than the corporatist countries and combine this with higher expenditures on active labour market policies, with a shorter benefit duration and less employment protection. This suggests that social security in the social-democratic countries is more geared towards reintegration in the labour market than in the corporatist countries, possibly explaining the difference in the participation rate between the two groups of countries. Let us now turn to the regression analysis to see whether it confirms these notions derived from a partial look at the data.

Figure 2. Performance in Esping-Anderson groups (average 1989–1994)

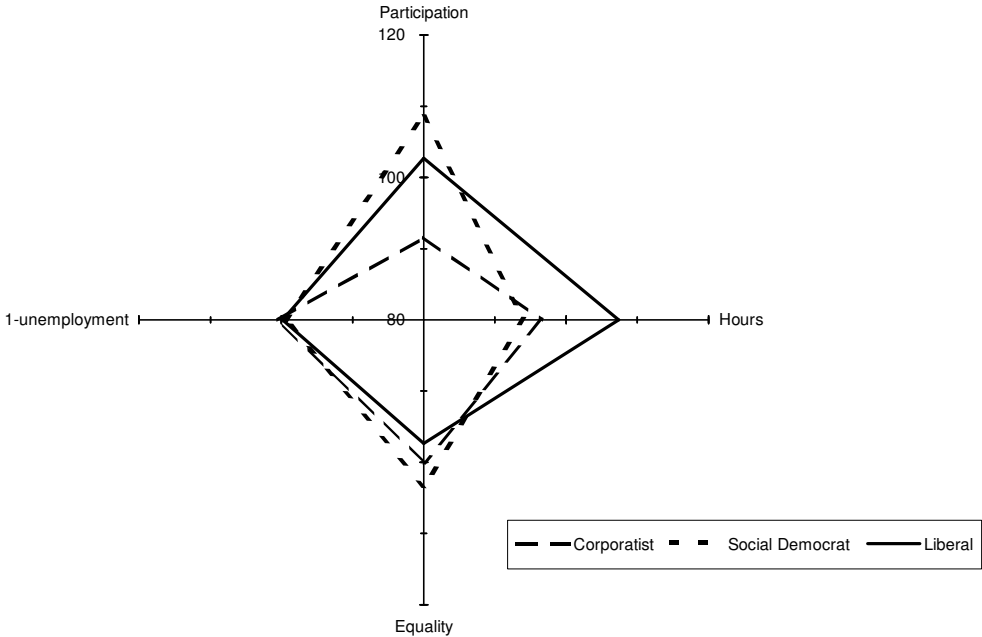
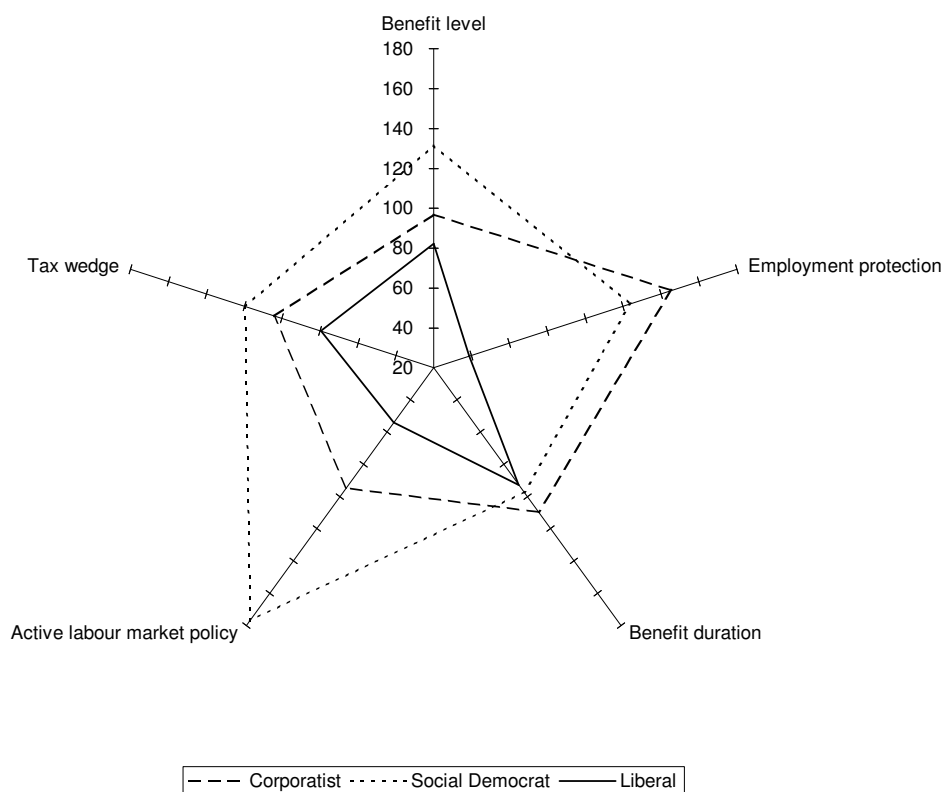


Figure 3. Labour market characteristics in Esping-Anderson groups (average 1989–1994)



### 3.2 A systematic econometric approach

A complication for a regression analysis is that the labour market characteristics are mutually correlated. The effect of a single factor is hard to isolate, since it affects not only the performance of the labour market directly, but also the other institutional factors. For example, a country with a strong position of trade unions is likely to have a high replacement rate and a progressive tax system.

We proceed therefore in different steps. In the first step we include in the equation only variables for which the mutual correlation is relatively limited. In doing so, we avoid potential problems of multi-collinearity. Table 3 reports the correlation among the explanatory variables for the average of the period 1989–1994. The correlation coefficients are below 0.5 for four variables: benefit level or replacement rate, benefit duration, a measure for employment protection and a measure for active labour market policies.<sup>15</sup> In the second step

<sup>15</sup> Even for these variables, the mutual correlation is not negligible.

the tax wedge between the labour costs for employers and the net wage for employees is introduced into the regression equation. This variable is a priori thought to have an important impact on the number of hours worked. By introducing the tax wedge separately, its interaction with other labour market characteristics becomes clear. The third and final step is to add measures for the unions' role on the labour market, i.e. the degree of centralisation in wage bargaining (called coordination) and the extent to which workers are covered by collective agreements (called coverage).

Of course, the potential problem with multi-collinearity calls for a careful interpretation of the results in the second and third step. The fact that the qualitative results (viz. the signs of the relationship) are not seriously affected by the inclusion of such variables gives confidence in the presented results.

*Table 3. Correlations between policy instruments*

	Benefit level	Benefit duration	Employment protection	Active LM policies	Union coordination	Union coverage	Tax wedge
Benefit level	1.00	-0.25	0.32	0.41	0.15	0.25	0.36
Benefit duration		1.00	0.03	-0.26	0.27	0.42	-0.07
Employment protection			1.00	0.47	0.55	0.52	0.55
Active LM policies				1.00	0.33	0.36	0.51
Union coordination					1.00	0.36	0.06
Union coverage						1.00	0.06
Tax wedge							1.00

### 3.3 The regression results

Table 4 reports the estimation results.<sup>16, 17</sup> We first discuss the results of the first step, in columns I, IV, VII and XX. Later we shift attention to the other columns. We discuss the

<sup>16</sup> Our data for active labour market policies are taken from Nickell (1997). Their availability is restricted to the periods 1984–1989 and 1989–1994. In order to optimally exploit the information in our dataset for the other variables and to avoid serious biases in the estimates for active labour market policies, we have filled the non-availables for active labour market policies in our dataset with expenditures on active labour market policies in the closest period for which data are available. We have analysed the robustness of our results by (i) performing the analysis without filling the series for active labour market policies (and accepting the loss of observations that results), (ii) using data on active labour market policies from the OECD that cover a longer time span, and (iii) using lags of active labour market policies to account for the possible problem of endogeneity. These sensitivity tests are reported in De Groot et al. (2004).

<sup>17</sup> The data on benefit duration are taken from Nickell and Nunziata and contain several zero's. We find these slightly suspicious. The results in Table 4 are based on information on benefit duration in which the zero's have been replaced by the value for benefit duration in the closest year for which information is available. As with active labour market policies, we have done sensitivity analyses to establish the robustness of the results for this change to the original data supplied by Nickell and Nunziata.

results presented in Table 4 horizontally, viz. we discuss the effect of each policy instrument on the various indicators of social-economic performance separately.

A higher replacement rate corresponds to less inequality (column XX) but to more unemployment (column IV). Furthermore, a higher rate is associated with less hours worked. This may reflect that a replacement rate gives rise to a more equal income distribution resulting in a smaller reward for working longer hours. Clearly, for this policy instrument a trade-off between equity and efficiency seems to result. The effect on the participation rate is positive although small and far from statistically significant.<sup>18</sup> One explanation is that the replacement rate has two opposing effects. A higher rate leads to less labour demand and, thus, to more unemployment. It also encourages labour supply. A better insurance against unemployment risk provides a higher incentive to enter the labour market. The net effect of the replacement rate on participation is hence ambiguous.

The duration of unemployment benefit has a similar impact on unemployment and inequality as the level. Specifically, duration is positively related to unemployment and negatively to inequality. In addition, it has a negative effect on participation, but not a clear effect on hours worked. In short, also for benefit duration a clear trade-off arises.

Employment protection also has a negative effect on participation and on hours worked. Since it tends to reduce inequality, a trade-off seems to arise. However, the effect on inequality is small and statistically insignificant. Interestingly, employment protection does not have a clear impact on unemployment. The main effect of employment protection is to reduce flows on the labour market, from employment to unemployment and vice versa. This probably makes it more important for the duration of unemployment than for the rate of unemployment.<sup>19</sup>

The results for active labour market policies are remarkable. Whereas the other three policy instruments give rise to a trade-off, spending on active labour market policies (per unemployed) does not. This type of spending boosts the rate of participation (column I), lowers the rate of unemployment (column IV), increases hours worked (column VII) and reduces income inequality (column X). These results show that some forms of active labour market policies are effective, helping those with a relatively bad position on the labour market

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<sup>18</sup> Nickell (1997) comes up with a similar result.

<sup>19</sup> Indeed, Nickell (1997) finds that employment protection has a positive effect on long-term unemployment and a negative effect on short-term unemployment.

and a relatively low income.<sup>20</sup> Of course, the results show only the benefits of these policies, but not their budgetary costs. Moreover, it remains unclear which forms of active labour market policies are effective.

The results of the second step in which the tax wedge is added seem to fit the rule that creating jobs comes at the expense of sharper inequality. The tax wedge mitigates income differences, reduces hours worked and increases unemployment (the effect on participation is insignificant). Including the variables in the second step does not alter the result that active labour market policies have allowed countries to achieve better combinations of equity and efficiency. The coefficient for spending on unemployed workers is hardly affected. Including the tax wedge reduces the effect of the replacement rate on unemployment and inequality. This may not seem surprising, given the fact that a higher replacement rate implies more expenditure (on unemployment benefits) and a higher tax burden. However, including the tax wedge magnifies the effect of benefit duration on unemployment as well as on inequality. The effect of employment protection gets even an unexpected sign.

The results of the third step are, one might say, reassuring. Even though the two union variables are strongly correlated with the other measures for labour market institutions, including them does not change the regression results much. Most affected is the coefficient for employment protection.

For policy making, the results are interesting. Most European countries aim to increase the employment rate. However, achieving that usually gives rise to a dilemma. As a rule, a trade-off between employment and inequality emerges. Reducing benefit duration, for example, has the effect of raising participation, but also brings about more income inequality. Not surprisingly, this and similar measures often meet fierce social and political resistance and fuel the fear for an American-style society in which everyone works – simply because they have to – but social-economic distinctions are sharp.

An exception to the rule is active labour market policy, which comprise among other things assistance with job search and schooling of (unemployed) workers. This type of instrument is effective in raising participation as well as reducing inequality. It seems to have allowed countries like Denmark and Sweden to combine relatively generous social security

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<sup>20</sup> We performed some additional robustness checks (see De Groot et al., 2004). The result in general and especially the impact of active labour market policies are robust to differences data sources, sample, time period that is considered, estimation technique, etc.

systems (when measured by the replacement rate) and limited inactivity among the labour force. The regression analysis provides no conclusive evidence, but it at least suggests that European countries can improve employment while maintaining the income equality by investing in active labour market policy. Not every form of active labour market policy is effective, though. The available evidence is scant, but already makes that clear (see, for example, Koning and Vollaard, 2000, and Martin, 2000). Systematic evaluations are therefore needed. The OECD (2001) concludes from the few available evaluations that some inexpensive policies, like job-search assistance, are among the most cost-effective ones for a substantial number of unemployed. De Groot et al. (2004) come to a similar conclusion on the basis of a regression analysis.

Finally, the income gap between the richest European countries and the United States stems mainly from a difference in hours worked. If reducing the gap is the aim, the regressions do not provide reassuring results. Hours worked in Europe are on average relatively low since the tax wedge is relatively high and income inequality is relatively low (as result of a high replacement rate). In other words, the reward for working longer hours is rather low in Europe. Changing this is one way to close the income gap with the United States, but at the expense of more income inequality, before and after taxation.

Table 4. Labour market policy and performance (1960–1995)

	Dependent variable, logarithm											
	Participation rate			Standardized unemployment rate			Hours per worker			Income inequality		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Replacement rate	0.012 (0.21)	0.016 (0.27)	-0.007 (-0.12)	1.281* (1.95)	0.722 (1.15)	0.864 (1.38)	-0.274*** (-5.26)	-0.215*** (-4.09)	-0.226*** (-4.30)	-0.080*** (-3.66)	-0.032 (-1.63)	-0.028 (-1.33)
Benefit duration	-0.060** (-2.08)	-0.032 (0.96)	0.006 (0.13)	0.456 (1.27)	0.818** (1.99)	0.878 (1.65)	-0.011 (-0.48)	-0.014 (-0.48)	-0.032 (-0.88)	-0.051*** (-3.10)	-0.109*** (-6.43)	-0.125*** (-5.61)
Employment protection	-0.042** (-2.59)	-0.040** (2.41)	-0.042** (-2.18)	-0.120 (-0.65)	-0.303** (-2.05)	-0.183 (-0.99)	-0.074*** (-4.01)	-0.034* (-1.80)	-0.047** (-2.53)	-0.006 (-0.65)	0.018** (2.17)	0.017* (1.71)
Active labour market policy	0.003*** (4.81)	0.003*** (4.71)	0.004*** (4.55)	-0.012* (-1.96)	-0.016*** (-2.66)	-0.010 (-1.57)	0.001 (1.53)	0.002** (2.68)	0.002* (1.97)	-0.003*** (-13.75)	-0.003*** (-10.61)	-0.003*** (-7.94)
Tax wedge		-0.021 (0.19)	0.125 (0.78)		2.518*** (2.66)	1.796 (1.28)		-0.408*** (-4.07)	-0.381*** (-3.57)		-0.287*** (-6.55)	-0.316*** (-5.21)
Coordination			0.007 (0.41)			-0.216* (-1.76)			0.015 (1.28)			0.002 (0.28)
Union coverage			-0.036* (-1.81)			0.085 (0.51)			0.005 (0.27)			0.008 (1.20)
Time trend	0.000 (0.15)	0.000 (-0.17)	-0.001 (-0.68)	0.055*** (7.18)	0.045*** (5.40)	0.046*** (4.67)	-0.004* (-1.70)	-0.003 (-1.63)	-0.003* (-1.71)	0.003*** (5.46)	0.004*** (7.19)	0.004*** (7.06)
Constant	4.209*** (154.52)	4.206*** (85.01)	4.209*** (77.03)	-4.715*** (-9.92)	-5.447*** (-8.40)	-5.148*** (-8.00)	7.712*** (127.79)	7.833*** (138.14)	7.813*** (129.72)	3.496*** (204.39)	3.599*** (185.59)	3.597*** (155.77)
R <sup>2</sup>	0.203	0.204	0.228	0.370	0.381	0.391	0.545	0.697	0.707	0.511	0.675	0.679
number of observations	126	118	118	126	118	118	50	47	47	95	89	89
F-statistic	6.113	4.753	4.021	14.071	11.368	8.750	10.533	15.328	11.473	18.607	28.393	21.196

Note: White t-statistics are reported in brackets below the parameter estimates. \*, \*\*, \*\*\* denote statistical significance at 10%, 5% and 1% level. All equations have been estimated without country-specific fixed effects.

#### **4. Conclusion**

US citizens are on average far richer than Europeans. Production per capita is on average more than 30% higher in the United States than in the European Union. This does not result from a general gap in technology. It does also not result from a general difference in participation on the labour market. In fact, some European economies are better in providing jobs than the American economy. Instead, the income difference arises from a difference in hours worked. Whereas the Americans work on average 1865 hours per year, Europeans only work around 1600 hours: there is difference in income per capita but not necessary in welfare, since the income statistics ignore the value of leisure and household production.

Behind the averages are important differences in Europe. In continental Europe (viz. Belgium, France, Italy and Germany) participation is far lower than at the other side of the Atlantic. The usual explanation is the extensive social security system in continental Europe. Making the systems more sober and austere would help to make Europe more ‘competitive’ and would help to raise the rate of participation. The fear is that this comes at the expense of larger, American–style income differences.

A panel-data analysis for OECD countries shows why different countries achieve different combinations of social-economic performance. Income redistribution (through a social security system) does not necessarily lead to lower participation and higher unemployment as long as countries supplement it with active labour market policies. These results are robust in a statistical sense. For hours worked a trade-off is more difficult to escape. The tax wedge has an important negative effect on the hours worked. Since it directly affects the choice between work and leisure, this is hardly surprising. At the same time, reducing the tax wedge probably requires reducing public expenditure and will lead to larger after-tax income differences.

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### **Appendix. Data sources**

This Appendix describes the sources of the data used in this study. We describe the various sources and the content.

#### *Hours per inhabitant, employment rate and hours per worker.*

These data are taken from GGDC Total Economy Database 2003 (University of Groningen and the Conference Board, <http://www.eco.rug.nl/ggdc>). The database contains series for real GDP, population, employment, annual working hours, GDP per capita, GDP per person employed and GDP per hour. It covers 74 countries from 1950 onwards.

#### *Details on the sources for Table 4*

- Participation: taken from Nickell and Nunziata (2001). Defined as total civilian employment normalised on the working age population (15–64) (from CEP OECD data, updated by authors).

- Hours worked per worker: Own computations based on data taken from GGDC Total Economy Database 2003 and 2004 (University of Groningen and the Conference Board; data are available at [www.eco.rug.nl/ggdc](http://www.eco.rug.nl/ggdc)).
- Inequality: Estimated Household Income Inequality taken from Galbraith and Kum (2003). We refer to Nahuis and De Groot (2003) for a more extensive discussion on available inequality measures. An alternative though less attractive variable available for long time spans is the Theil inequality measure provided by the University of Texas Inequality Project (UTIP). This measure is based on pay inequality in the manufacturing sector.
- Standardized unemployment rate: taken from Belot (2003).
- Replacement rate: taken from Nickell and Nunziata (2001). They use Benefit Replacement Rates data provided by OECD with one observation every two years for each country in the sample. The data refer to first year of unemployment benefits, averaged over family types of recipients, since in many countries benefits are distributed according to family composition. The benefits are a percentage of average earnings before tax.
- Employment protection: taken from Nickell and Nunziata (2001). They use information from Blanchard and Wolfers (2000) who an employment protection time varying variable from 1960 to 1995, each observation taken every 5 years. Range is {0,2} increasing with strictness of employment protection.
- Benefit duration: An index. See Nickell and Nunziata (2001) for details.
- Active–labour–market policy: taken from Nickell (1997).
- Coordination: Belot (2003).
- Union coverage: taken from Belot (2003).
- Tax measures: Data on average and marginal taxes are taken from the OECD. Our measure for tax progression is derived from the average and marginal tax data.