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Long-term unemployment in the OECD-countries
The relevance of structural labour market
and labour market policy characteristics

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Abstract

The incidence of long-term unemployment differs widely among the OECD countries. Recent data show that in some countries (e.g. Belgium, Italy, Spain) more than 60% of all unemployed have been unemployed for more than one year, whereas in other countries (e.g. Sweden, Norway, the US) the share of long-term unemployment is less than 15%.

This paper presents a theoretical and empirical explanation of these differences. Relying on the predictions of the insider-outsider theory and the duration theory, it stresses the major role of structural characteristics of the labour market and labour market policy.

In a first part, evidence is found suggesting that in countries, facing a sequence of adverse economic shocks, rising unemployment tends to persist and become long-term unemployment when (a) labour turnover costs (e.g. hiring and firing restrictions) are extensive, (b) the unemployment benefit system is generous and (c) government is not actively engaged in labour market programmes, improving the skills and job prospects of the unemployed.

In a second part, the paper illuminates the relevance of structural labour market characteristics (in particular, the degree of centralization of wage bargaining). These do not only, to some extent, determine the stance of the labour market policy variables described. They also have a direct, independent influence on insider power and long-term unemployment.

1. Introduction

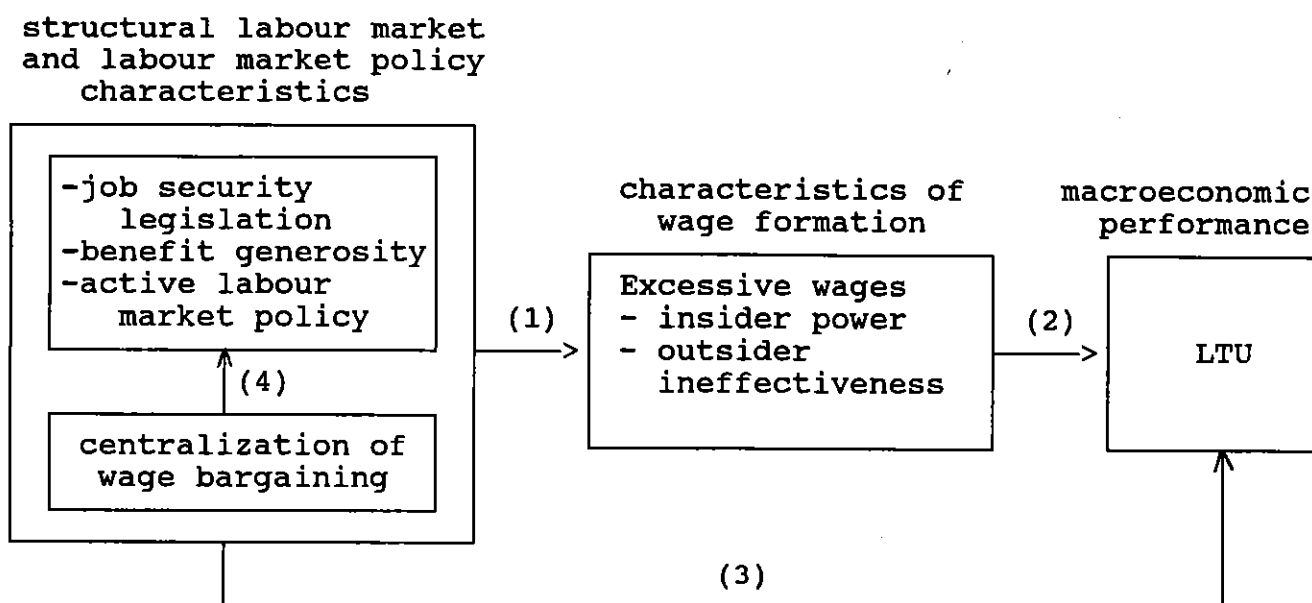
It is very well known by now that all OECD countries experienced a tendency of rising unemployment between 1973 and 1985. Less known is that in some countries this rise in unemployment tended to persist and resulted in a serious problem of long-term unemployment (LTU), whereas other countries were able to curb LTU at very low levels. The aim of this paper is to present a theoretical and empirical explanation of these differences.

In section 2 we have a look at the data, highlighting these differences. Section 3 tries to explain them from a theoretical point of view. We shall rely on the predictions of the insider-outsider and duration theories. Both consider the (long-term) unemployed's lack of influence on wage formation as the main cause of the occurrence of LTU. Further, these theories allow to generate some quite clear hypotheses explaining this lack of influence by referring to the characteristics of the labour market and labour market policy. As far as the former are concerned, we study the role of the degree of centralization of wage bargaining. As far as the latter are concerned, we go into the effects of job security legislation, the generosity of the unemployment benefit system and the extent of active labour market policy by the government.

Figure 1 summarizes the various lines of research that can be opted for. We shall mainly concentrate on (3). In section 4 we have a look at the empirical evidence in this respect.

In section 5 we put forward some basic theoretical ideas and empirical results explaining why labour market policy characteristics differ so strongly among OECD countries. Our hypotheses stress that the degree of centralization of wage bargaining is also highly relevant in this respect (relation (4) in figure 1).

Figure 1 Long-term unemployment and structural characteristics of the labour market and labour market policy



2. Long-term unemployment in the OECD countries : a look at the data

All OECD countries had to face a general tendency of rising unemployment between 1973 and 1985. With the exception of Finland, they all shared the latest upward jump of unemployment in the periode 1980-83. It is quite remarkable, however, to find out that in some countries this upward jump tended to persist and resulted in LTU (defined as unemployment for one year or more), whereas in other countries LTU never became a problem. Figure 2 and table 1 concentrate on these differences.

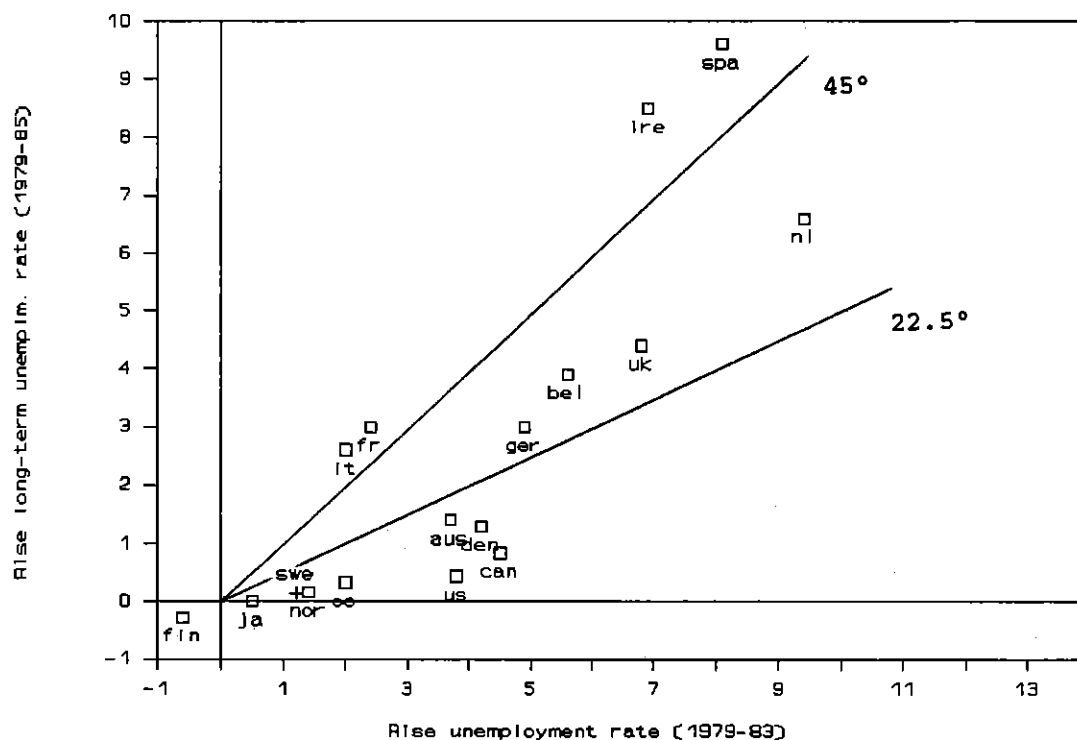
Figure 2 relates the rise in the long-term unemployment rate (Δu_{lt} , expressed as a % of the labour force) in the period 1979-85 to the rise in the actual unemployment rate (Δu) in 1979-83. Three groups of countries can be distinguished. Above the 45°-line, we find countries (Italy, France, Spain and Ireland) within which the rise in the unemployment rate between 1979 and 1983 persisted completely. In Belgium, Germany, the Netherlands, and

the UK (between the 45° and 22.5°-lines) the rise in ltu was relatively smaller, but remained highly significant: more than half of the rise in the actual unemployment rate showed up in ltu. Below the 22.5°-line we find the countries that successfully coped with ltu. The performances of Canada, the US and (to a lesser extent) Denmark and Australia are most remarkable. Though these countries had to face rises in unemployment almost comparable to Germany, they were able to maintain the rise in ltu at very low levels.

Table 1 includes data on the share of LTU in total unemployment (further SHLTU) since 1979. It presents broadly the same picture as figure 2¹. Concentrating on 1988, we notice that in Belgium, Italy, Ireland and Spain more than 60% of all unemployed had been unemployed for more than one year. By contrast, in Sweden, Norway, the US and Canada, SHLTU was less than 10%. The other countries took intermediate positions. The question rises how these differences can be explained. Why do persons who become unemployed tend to remain unemployed in some countries, whereas (under similar macroeconomic conditions) they have a fair chance of quickly leaving unemployment in other countries? Why does a rise in unemployment tend to persist in some countries, whereas it does not in others? Considering the favourable economic evolution and strong employment growth in recent years, these questions become highly relevant. Sections 3 and 4 try to answer them. In particular, our aim is to explain the differences among the OECD countries with respect to SHLTU.

¹ The correlation coefficient between the ratio $\Delta ltu/\Delta u$, representing the extent to which the rise in unemployment in 1979-83 became long-term unemployment (see figure 2), and SHLTU in 1985 in the various OECD countries (table 1) amounts to 0.85. The Spearman rank order correlation coefficient between the country rankings for both series takes a value 0.88.

Figure 2 Relation between the rise in the actual rate of unemployment (Δu , 1979-83) and the rise in the long-term unemployment rate (Δltu , 1979-85)



Data sources: OECD, Data base on unemployment by duration and age groups

OECD (1988, p. 28)

Data (ltu) for Austria: Altzinger & Weiss (1990, p. 284)

Note : Δltu for Norway: 1981-85
 Δltu for Finland: 1980-85

Table 1 Long-term unemployment (12 months and over) in the OECD countries

	Share of long-term unemployment (SHLTU)				
	1979	1983	1985	1988	1989
Belgium (bel)	61.5	66.3	69.8	77.5	76.3
Italy (it)	51.2	57.7	65.8	69.0	70.4
Ireland (ire)	38.2	36.9	64.7	66.0	67.3
Spain (spa)	29.5	52.3	56.7	61.5	58.5
Portugal (por)	.	.	.	51.2	48.3
Netherlands (nl)	35.9	50.5	60.7	50.0	49.9
Greece (gre)	.	35.0	46.2	48.1	52.4
Germany (ger)	28.7	39.3	47.9	46.7	49.0
France (fr)	30.3	42.2	46.8	44.8	43.9
United Kingdom (uk)	29.5	47.0	48.6	44.7	40.8
Denmark (den)	36.2	33.0	39.3	28.7	25.9
Australia (aus)	18.1	27.5	30.9	28.4	23.0
Japan (ja)	16.8	12.9	13.1	20.2	18.7
Austria (oo)	8.6	.	13.3	17.0	16.7
Finland (fin)	28.0 ^a	18.3	21.0	16.0 ^b	.
Sweden (swe)	6.8	10.3	11.4	8.2	6.5
Norway (nor)	.	6.5	10.2	7.6	11.7
Canada (can)	3.3	9.9	10.3	7.4	6.8
United States (us)	4.2	13.3	9.5	7.4	5.7

(a) data for 1980; (b) data for 1987

Data sources: see figure 2

Note: The data presented are taken from labour force surveys. While these make international comparisons easier (compared to data based on national registration practices), they are not perfect and must be interpreted with care (OECD, 1988, p. 12, 77, 86-89). First, national registration practices also have an influence on survey results. Registration data may suffer from the error that people who are not eligible for an unemployment benefit are not registered as unemployed (cf. our BEN-variable in section 2.2.2.). In survey data this error will be smaller, but certainly not inexistent. People who are not eligible for benefits, may decide to leave the labour force as soon as they lose their job. (They will thus not be counted in surveys).

Further, even in surveys, some people will not be counted as long-term unemployed, though fundamentally their actual situation is not less unfavourable, e.g.

- they involuntarily retire from active life
- their spell of unemployment is only temporarily interrupted by short periods of low paid employment.

3. Explanations of long-term unemployment

Various economists' work suggests that a high SHLTU can only occur if the long-term unemployed have no real influence on wage formation (see e.g. Blanchard & Summers, 1986; Layard & Nickell, 1986; Lindbeck & Snower, 1988). In that case, the downward pressure of unemployment on wages is reduced, no "funds" are generated within firms to create new jobs (and to give a chance to less skilled workers). Unemployment remains high. In the opposite case, wages would fall and new jobs be created.

Two particular types of theories try to explain the long-term unemployed's lack of influence on wages: insider-outsider theories, which concentrate on the behaviour of the employed, and duration theories, which concentrate on the behaviour of the unemployed. Moreover, these theories allow to generate clear hypotheses explaining this lack of influence by referring to the characteristics of the labour market and labour market policy.

In what follows, we briefly go into both theories and the hypotheses that can be derived from them. A more general and formal treatment is presented in appendix 2 where we develop a model of wage formation in which the role of insider power, duration effects, as well as labour market policy can be analyzed explicitly.

3.1. Insider-outsider theories

The insider-outsider theory asserts that wages are largely determined by incumbent workers (insiders), who set wages with the only aim to assure their own employment. The unemployed workers' (outsiders) interests are not taken into account. They have no influence (e.g. Blanchard & Summers, 1986; Lindbeck & Snower, 1986, 1987, 1988; Gottfries & Horn, 1987).

Figure 3 makes clear the consequences of insider wage setting. It is assumed that insiders set the nominal wage (W), whereas the employer determines employment (N), according to a negatively sloped labour demand schedule. As far as labour demand is

concerned, we allow for the possibility of favourable and unfavourable (random) shocks, which may shift 'normal' demand (N_{dn}) to unexpected high (N_{dh}) or low (N_{dl}) levels.

Initially (period 0), the economy is in point a: the insiders have set the nominal wage at W_0 ; labour demand is at the normal level (N_{dn}), employment (and thus the number of insiders) is N_0 . If the insiders want to safeguard their employment in the first period, obviously expecting demand to remain normal, they will again set the wage at w_0 . If, however, labour demand turns unexpectedly low (N_{dl}) in the first period (e.g. due to an unfavourable productivity shock), employment will fall to N_1 . The number of insiders is reduced, unemployment rises (point b). Under the assumptions of the extreme insider-outsider model, these newly unemployed people have no more influence on wages². As a consequence, at the end of the first period, wages will be set at W_2 , so that the jobs of the (lower number of) insiders are maintained (assuming demand returns to normal). Clearly, if demand is unexpectedly low again (e.g. because government reduces demand to cope with the inflationary pressure, generated by the unfavourable productivity shock), employment and the number of insiders falls again, to N_2 (point c). The further reduced number of insiders will then set the wage at W_3 . As a consequence N_2 becomes permanent (assuming N_{dn})³.

Summarizing, if wages are set by insiders, wages will be set so as to assure current employment. Unemployment will have no wage depressing influence and, consequently, tends to become permanent (LTU). A reduction of unemployment requires labour demand to be unexpectedly high (N_{dh}).

² If the newly unemployed still had an influence on wages, the wage would remain at W_0 , so that, under normal demand, they would again get a job.

³ Clearly, there is an upper limit to the wage the insiders can ask. The insider wage must not exceed the reservation wage of the outsiders plus marginal hiring and firing costs (cf. infra). If this condition is violated, it becomes profitable to the firm to replace insiders by outsiders.

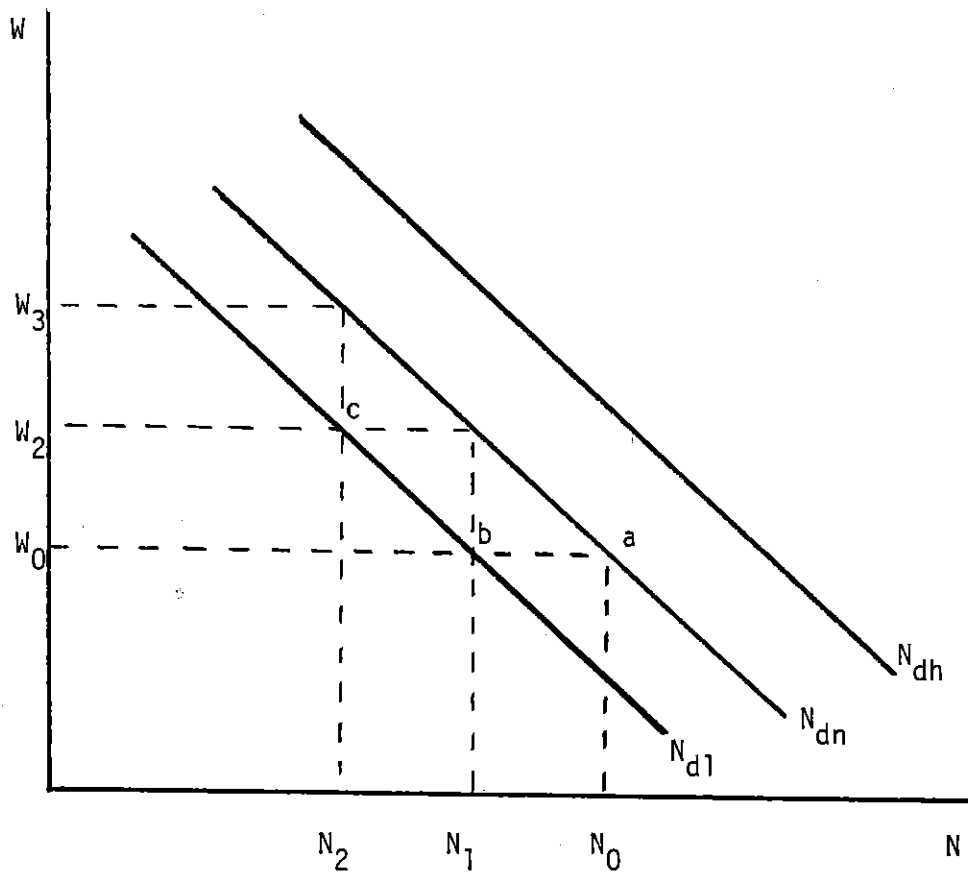


Figure 3 Insider wage setting

Clearly, the story as it has been presented here, is rather extreme. First, risk averse insiders will take into account the possibility of low demand and, consequently, the possibility of becoming an outsider. This will generate lower wages and, under normal demand, higher employment. It remains, however, that even then, a sequence of two or three unexpected negative shocks (cf. the period 1979-82) may permanently reduce the number of insiders and employment. Second, if unemployment rises and more people (and families) have to face it, the assumption that the working insiders only care about their own individual situation becomes hard to maintain. Moreover, taking into account the situation of the outsiders may also serve the insiders' interests. Indeed, the larger the number of unemployed outsiders, the smaller is the probability that an insider who loses his job, finds another one. Third, it must be explained how the insiders get the power to set the wage. Why do the employers let the insiders 'play the game' presented in figure 3. Why don't they replace the insiders by much cheaper unemployed outsiders?

The latter question is central in the insider-outsider theory. The idea is that the insiders are experienced workers whose positions are protected by labour turnover costs, i.e. costs generated by hiring and firing of workers.

Three kinds of labour turnover costs can be distinguished. First, (skilled) insiders cannot just be replaced by (less skilled) outsiders because of productivity differences. Screening and training costs must then be incurred. The implication is that outsiders can only get a job if they are willing to work at lower pay, so that the employer is compensated for the productivity difference. (Minimum wages may make this impossible). Second, insiders are protected by job security legislation: even if there is no productivity difference, it is costly to replace (i.e. fire) them. Last but not least, insiders may engage in harassment activities (i.e. refuse to cooperate with workers who took their earlier colleagues' jobs).

The idea that the insiders derive their power from labour turnover costs in general and the costs related to job security

legislation in particular, generates an empirically testable hypothesis: the SHLTU is higher in countries where labour turnover costs are higher. Table 2 presents two sets of data allowing to test this hypothesis.

JOBSEC is a ranking, derived by G. Bertola (1990), of ten OECD countries, according to the extent of hiring and firing procedures. Job security legislation is the most extensive in Italy (rank number 1), followed by Belgium and France. Hiring and firing is the least difficult in the US (rank number 10)⁴. Our hypothesis expects countries with a low JOBSEC ranking to show a higher SHLTU. In these countries, insiders will have more power and there will be less employment opportunities for the unemployed outsiders (especially the long-term unemployed). To some extent, figure 4 confirms this expectation. The correlation coefficient between SHLTU and JOBSEC is -0.61.

A second indicator of labour turnover cost is given by EMP. This variable, taken from Bean, Layard & Nickell (1986), represents the coefficient of lagged employment in an estimated employment equation⁵. It can be considered to be an indicator of employment persistence in the broadest sense. Compared to JOBSEC, it does not only depend on hiring and firing procedures, but also reflects e.g. screening and training costs. Further, EMP has the advantage that data are available for more countries. (The Spearman rank order correlation coefficient between JOBSEC and a ranking for the same countries based on EMP, amounts to 0.45). According to EMP labour turnover costs are high in the Netherlands, Belgium, France and Ireland. They are low in the US,

⁴ Bertola (1990) relies on Emerson (1988), who provides a careful qualitative description of various countries' job security provisions.

⁵ Bean, Layard & Nickell estimate the following employment equation (with annual data for 1953-83)

$$\Delta n = \alpha_0 + \alpha_1(k-n_{-1}) + \alpha_2(w-p) + \alpha_3\sigma + \alpha_4\Delta n_{-1} + \alpha_5t + \alpha_6t^2$$

with : n: employment, k: capital stock, w-p: real wage,
 σ : index of aggregate demand, t: time trend

All variables, except t and σ , are expressed in logs. EMP is derived as $1-\alpha_1$ and restricted to be non-negative.

Australia, Norway, Sweden and Canada. Figure 5 relates EMP to SHLTU. The correlation between both variables takes a value 0.72, which supports our hypothesis.

Table 2 Structural labour market and labour market policy characteristics for various OECD countries

Country	SHLTU	JOBSEC	EMP	GALMP	BEN	CENT
Italy (it)	69.0	1	0.65	0.221	.	12
Belgium (bel)	77.5	2	0.76	2.412	6.94	8
France (fr)	44.8	3	0.72	1.268	2.12	10
Sweden (swe)	8.2	4	0.16	13.426	1.97	3
Germany (ger)	46.7	5	0.36	2.624	5.86	6
Japan (ja)	20.2	6	0.65	1.491	0.86	13
UK (uk)	44.7	7	0.37	1.427	3.86	11
Netherlands (nl)	50.0	8	0.90	0.931	6.38	7
Denmark (den)	28.7	9	0.26	2.974	4.79	4
US (us)	7.4	10	0.00	1.082	0.48	14
Canada (can)	7.4	.	0.17	1.710	.	15
Austria (oo)	17.0	.	0.56	1.931	1.54	1
Norway (nor)	7.6	.	0.07	2.888	1.98	2
Finland (fin)	16.0	.	0.32	3.493	4.10	5
Spain (spa)	61.5	.	.	0.640	4.24	.
Ireland (ire)	66.0	.	0.71	1.222	3.66	.
Australia (aus)	28.4	.	0.00	0.843	.	9

. : data not available

Data sources :

SHLTU : see table 1 (data for 1988, except Finland 1987)

JOBSEC: Bertola (1990, p. 853)

EMP : Bean, Layard & Nickell (1986, p. 9)

GALMP : calculated from OECD (1988, p. 93); OECD, National Accounts (GDP), Labour Force Statistics (U) and Main Economic Indicators (Purchasing power \$-value) (data for 1987, except Denmark and France 1986) (in thousands)

BEN : Burda (1988, p. 406) (data for 1985, expressed in 1000 percent-weeks)

CENT : Calmfors & Driffill (1988, p. 18)

Figure 4 Job security legislation and long-term unemployment

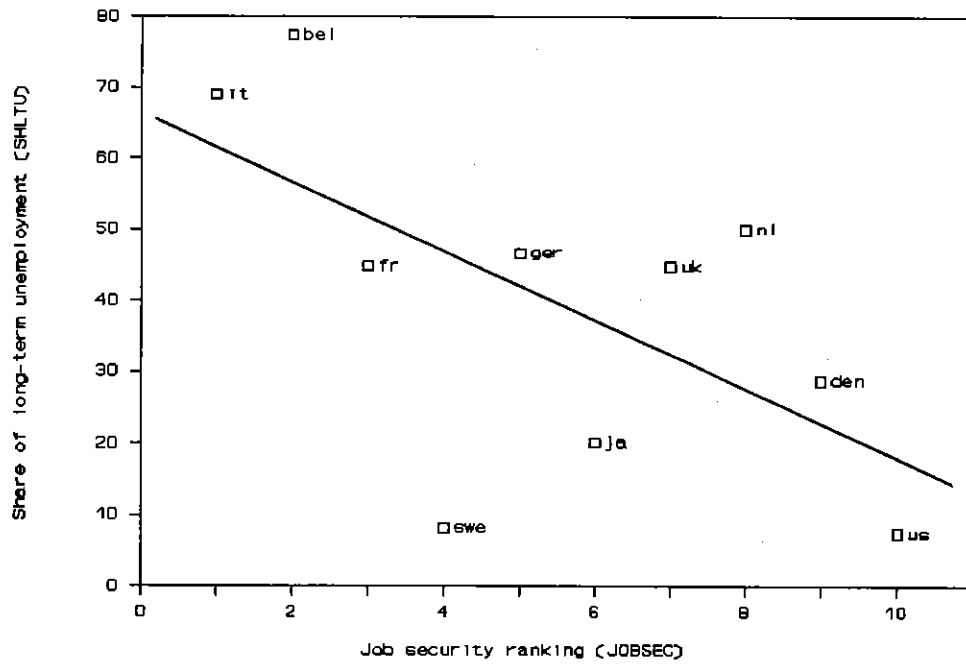
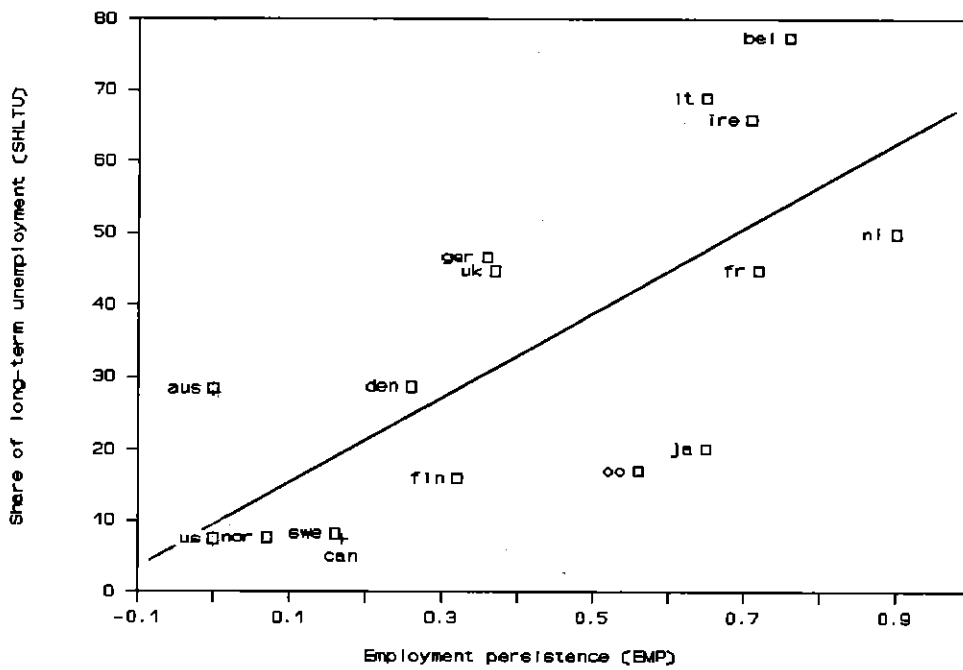


Figure 5 Employment persistence and long-term unemployment



3.2. Duration theories

Duration theories concentrate on the behaviour and the characteristics of the long-term unemployed (e.g. Blanchard et al, 1985; Layard & Nickell, 1986; Franz, 1987). Several reasons are put forward for the lack of power of the long-term unemployed to exert downward pressure on wages. Being unemployed, they are unable to maintain and update their skills (human capital). Their search intensity and motivation may decline as their unemployment spell continues: they may become addicted to living on unemployment insurance benefits, or become discouraged about the prospects for re-employment. Moreover, the mere fact of having to present themselves as (long-term) unemployed, may generate the reluctance of employers (They may assume low productivity and lack of motivation).

Like we did with respect to the insider-outsider theory, we can also derive some hypotheses from the duration theory, explaining why the SHLTU differs so strongly among countries.

Clearly, the sooner unemployed workers lose their skills, the faster will they lose the ability to present themselves as a valuable alternative to the currently employed. (The faster will they also lose the ability to force the employed to moderate wages). This suggests a first hypothesis: the SHLTU is lower in countries where the government is actively engaged in labour market programmes to increase the skills and job prospects of the unemployed in general and the long-term unemployed in particular.

Second, the more and the longer the unemployed are protected by unemployment benefits, the lower and less intense will probably be their search activity. This has a negative influence on their chances of finding a job and on the downward pressure they exert on wages. Thus, the second hypothesis says that the SHLTU is higher in countries where the unemployment benefit system is more

generous⁶.

Table 2 presents data which allow to test both hypotheses. In this table GALMP stands for government active labour market policy; BEN represents the generosity of the unemployment benefit system. Let us go into these policy variables a little deeper.

3.2.1. Active labour market policy (GALMP)

Government labour market policy can fight unemployment 'actively' (i.e. actively help unemployed people to find a job) and/or 'passively' (i.e. fight the financial consequences of unemployment by benefits and early retirement schemes). In its definition of active labour market policy the OECD (1988) includes:

- a) measures to facilitate contacts between employers and job seekers (the collection of information on job opportunities, the provision of an employment exchange network to which employers are encouraged to notify vacancies, the provision of assistance to the unemployed, etc.).
- b) training programmes for adults, i.e. for people who have in general had some employment experience, but became unemployed and whose prospects for finding another job are poor because of a fall in demand for the skills they offer (payments to unemployed people attending courses, subsidies to employers who provide training to unemployed people, etc.).
- c) direct job creation and employment subsidies (government support to public works organized by local authorities or other agencies, provided that unemployed people are hired, subsidies to employers in the private sector for hiring unemployed people, assistance to unemployed people who set up their own

⁶ The relationship between the generosity of the benefit system and long-term unemployment may also be explained by the insider-outsider theory: more generous benefits increase the expected welfare of the wage setting insiders in case they would lose their job (due to unfavourable demand). This may reduce the insiders' 'prudence' and generate higher wages.

- business, etc.).
- d) measures in favour of the young (expenditures for youth training, facilitating first participation in professional life, direct job creation for the young, etc.).
- e) measures in favour of the disabled (creation of protected jobs, expenditures for professional reintegration, etc.).

Our policy variable GALMP is calculated as total government expenditure on a), b) and c) per unemployed person in 1987, expressed in purchasing power dollar values⁷. If government expenditures on active labour market policy rise, for a given number of unemployed, this is expected to increase the skills and quality of the unemployed. Consequently, their chances of finding a job should rise and LTU should be avoided.

Table 2 shows the differences between the OECD countries with respect to the engagement of their governments to combat unemployment actively. Compare e.g. the US, Italy, Spain, Japan and the Netherlands with the Scandinavian countries. Figure 6, in which 'outlier' Sweden is left out, illuminates the relationship between the SHLTU and government active labour market policy. This is not straightforward. A clear negative relation (as put forward by our hypothesis) is however suggested when we concen-

⁷ Jackman et al. (1990) measure the extent of active labour market policy as the ratio of government expenditure on active labour market programmes per unemployed person (G/U) to per capita output (GDP/Pop). This may, however, involve a problem. (We thank A. Van Poeck for raising this point). It can easily be shown that two countries for which the same Jackman-result $(G/U)/(GDP/Pop)$ is obtained, may spend strongly different amounts per unemployed person. Consider two countries A and B (with a common currency), defined as : A : $G_a=100$ (billion), $GDP_a=1000$ (billion), $U_a=10.000$ (persons), $Pop_a=100.000$ (persons); B : $G_b=100$, $GDP_b=1000$, $U_b=20.000$ and $Pop_b=200.000$. According to the Jackman-indicator there is no difference between A and B. Our indicator correctly generates a double GALMP-value for A, compared to B. A does indeed spend twice the amount of B per unemployed person. Though this remark is not unimportant, reality shows that obtaining differences as large as in this example only seems to be a theoretical possibility. The correlation between Jackman's indicator (for 1988) and our GALMP (for 1987) amounts to 0.93. Excluding Sweden this is 0.85.

trate on the European countries. The correlation coefficient between SHLTU and GALMP in Europe amounts to -0.57. Including the non-European countries, this is -0.39. In the non-European countries a combination of both low LTU and low GALMP can be observed.

A few remarks must still be made with respect to our definition of GALMP. First, as also stressed by the OECD (1988) and Lambert, in a comment on Jackman et al. (1990), GALMP does not cover policies which do not have a direct budgetary implication, but which may also improve the job prospects of the unemployed (e.g. changes in legislation regarding working hours or minimum wages). Similarly, if countries prefer to fight LTU by specific macroeconomic (e.g. tax) policies, this does not show up in the data. In this paper, the last point remains unanswered; the first is, to some extent, however, taken up by JOBSEC and EMP.

Second, the question must be answered why government spending on the categories d) and e) is not taken into account. In this respect, we follow Jackman et al. (1990) and Calmfors & Nymoén (1990). Jackman et al. argue these expenditures should not be included because of severe definitional problems. Differences among countries in spending on youth training may very well be a reflection of differences in the staying-on rates in full-time education. Including these expenditures may be "unfair" to countries with well-developed education systems⁸. Similarly, programmes in favour of the disabled may in some countries be taken care of by well-organized health services.

Third, in their article, Calmfors & Nymoén (1990) expressed doubts about the effectiveness of active labour market policies.

⁸ Clearly, this argument is not free from criticism. As also stressed by Jackman et al (1990), it can, however adequate the education and training system is, still be difficult to place young persons in their first job (e.g. because of the emphasis employers place on work experience). Special government programmes for the young may then have their own particular value and deserve to be included in GALMP.

These, they claim, may have strong wage raising effects and thus generate more unemployment: active labour market policies reduce the expected welfare loss in the event of a layoff and thus take away the incentives for wage moderation by the employed workers. This argument sounds correct, but we believe it is highly incomplete. Obviously, since special employment programmes reduce open unemployment, wages will be higher. Calmfors & Nymoen do not recognize, however, our main point that labour market programmes improve the quality and 'competitiveness' of the unemployed. As such, these programmes can force the insiders to more flexible wage formation. Though open unemployment falls, the impact of a given amount of unemployment on wages rises (see appendix 2)⁹.

3.2.2. Generosity of the unemployment benefit system (BEN)

The following considerations underly the benefit variable (BEN). When a worker becomes unemployed he receives a benefit, which represents a certain percentage of his earlier wage (the replacement ratio). In most cases there is a limitation with respect to the time a benefit can be received. Moreover, when the period that a person is unemployed becomes longer, his benefit may fall. (Appendix 1 highlights the differences among the OECD countries in these respects). Clearly, the higher the replacement ratio and the longer the period during which benefits are paid, the more generous is the insurance system.

Data on BEN have been taken from Burda (1988). In more technical terms it has been calculated as the actual discounted value of future replacement, expressed in terms of percent-weeks, and

⁹ In an earlier paper (Heylen & Verhulst, 1990) we presented empirical evidence in this respect. We showed that the impact of unemployment on wages is stronger in countries where active labour market policy is relatively well developed.

multiplied by the coverage ratio¹⁰. The coverage ratio stands for the percentage of all unemployed who receive unemployment insurance. The data presented by Burda are based on the situation of a single male earning the average manufacturing wage. The coverage ratio can be interpreted as a proxy for the probability that an arbitrary unemployed worker will get a benefit.

Again, big differences can be observed between the various OECD countries. The benefit system is the most generous in Belgium, the Netherlands and Germany. Sweden, Norway, Austria, Japan and the US have the least generous benefit systems (due to a low replacement ratio and/or short periods) (see also appendix 1). As has also been found by Burda, the relationship between the generosity of the benefit system and the SHLTU is quite convincing (see figure 7, correlation coefficient 0.72). This confirms our hypothesis.

An important remark must again, however, be added (see also Lambert in his comment on Jackman et al. (1990)). To some extent, the relationship found between BEN and SHLTU may be due to mere registration practices. If people who are no longer eligible for unemployment benefits are no longer registered as unemployed, countries with short benefit periods will automatically have lower (long-term) unemployment. This point deserves particular attention before policy conclusions are drawn.

¹⁰ BEN can thus be conceived as follows:

$$\text{BEN} = \text{cov} * \sum_t^n (1/1+r) \text{rep}_t$$

with: n : number of weeks benefits
can be received

rep_t : replacement in week t
(benefit in % of wage)

r : discount rate

cov : coverage ratio

Figure 6 Active labour market policy by the government and long-term unemployment

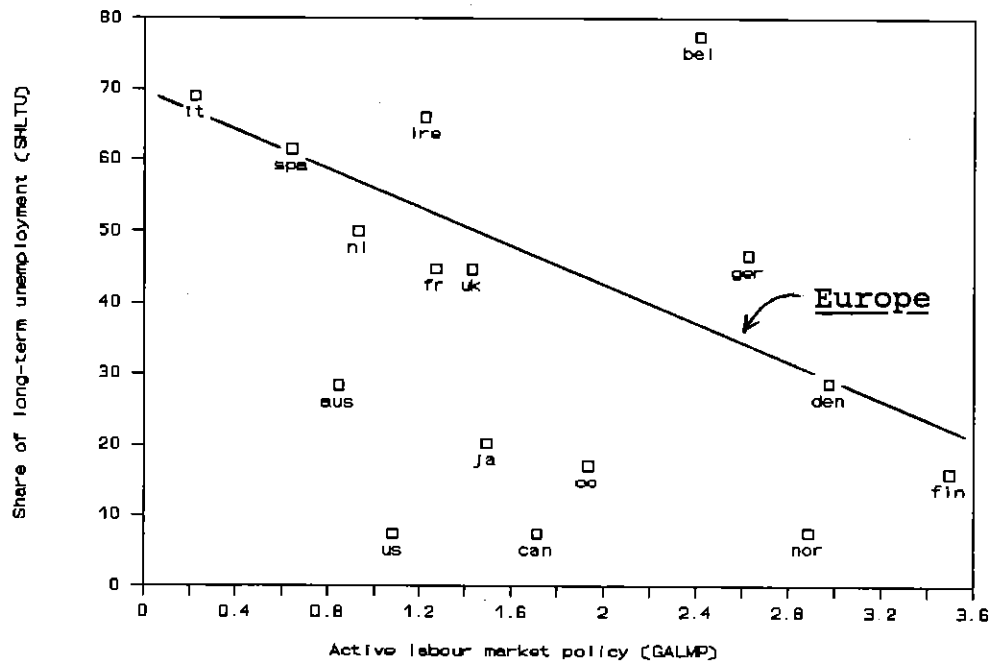
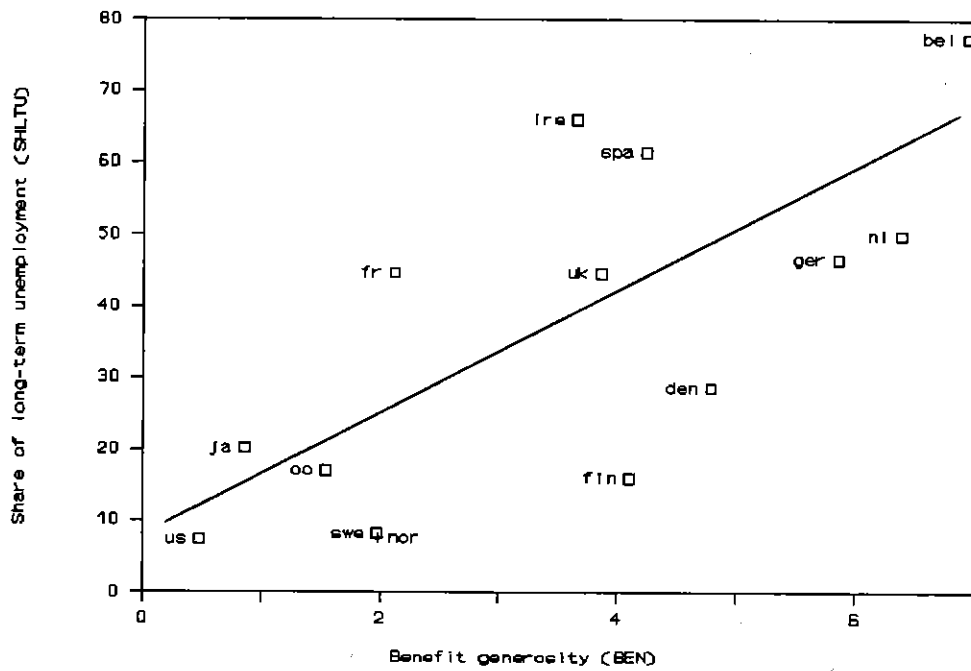


Figure 7 Generosity of the benefit system and long-term unemployment



4. Explaining cross-country differences in SHLTU: the relevance of labour market policy characteristics

Section 2 presented theory and first (graphical) evidence on the relationship between labour market policy characteristics and the extent of LTU. In this section we go into the results of some basic multiple OLS-regression exercises.

The basic equations underlying these results are

$$\text{SHLTU} = a_0 - a_1 * \text{GALMP} + a_2 * \text{BEN} - a_3 * \text{JOBSEC} \quad (1)$$

and

$$\text{SHLTU} = a_0' - a_1' * \text{GALMP} + a_2' * \text{BEN} + a_3' * \text{EMP} \quad (1')$$

with $a_i, a_i' > 0$

A problem was, however, the lack of sufficient data observations. For only nine countries we have observations on all explanatory variables. In order to increase the number of observations and degrees of freedom, we mostly excluded one of the explanatory variables¹¹.

Table 3 presents the regression results. The dependent variable is the SHLTU in total unemployment. The number of observations is always equal to the number of countries for which data on all explanatory variables are disposable.

Basically, these results confirm the hypotheses we put forward. The explanatory variables always get the correct sign and are significant in most cases. Only as far as GALMP is concerned, the outcome is less convincing. The t-value for the estimated coefficient on this variable falls with rising numbers of degrees

¹¹ We are aware that this procedure has the disadvantage that specification errors and biased parameter estimates may result.

of freedom.

Table 3 Regression analysis of the share of long-term unemployment (SHLTU): explaining differences among OECD countries

Equation	Estimated coefficients					nob	\bar{R}^2	SER
	const	GALMP	BEN	JOBSEC	EMP			
(1)	48.2 (6.7)	-2.65 (5.1)	5.85 (7.1)	-4.21 (5.5)	-	9	0.94	5.4
(2)	78.6 (6.8)	-3.43 (2.6)	-	-5.33 (3.2)	-	10	0.58	15.2
(3)	28.0 (2.1)	-	6.91 (3.8)	-2.85 (1.8)	-	9	0.71	12.2
(4)	-0.1 (0.1)	-0.87 (0.7)	5.64 (2.8)	-	37.1 (2.3)	13	0.67	13.2
(5)	14.4 (1.5)	-1.28 (0.8)	-	-	54.0 (3.4)	16	0.47	17.3
(6)	-4.2 (0.5)	-	5.59 (2.9)	-	41.2 (2.9)	13	0.69	12.9
(7)	14.6 (1.5)	-2.25 (1.6)	7.72 (3.5)	-	-	14	0.54	16.0

(nob: number of observations)
(between brackets stand absolute t-values)

5. Centralization of wage bargaining, the characteristics of labour market policy, insider power and long-term unemployment

This section assesses the role of the degree of centralization of wage bargaining as a relevant variable explaining differences among OECD countries as far as the incidence of long-term unemployment is concerned. This role is double.

First, we believe that referring to the degree of centralization of wage bargaining allows to explain labour market policy characteristics and the important differences that exist in this respect among OECD countries (relation (4) in figure 1). Second, as also suggested by Blanchard & Summers (1986), the degree of centralization of wage bargaining also exerts a direct influence

on the extent of insider power, and thus long-term unemployment, independent of its influence on labour market policy.

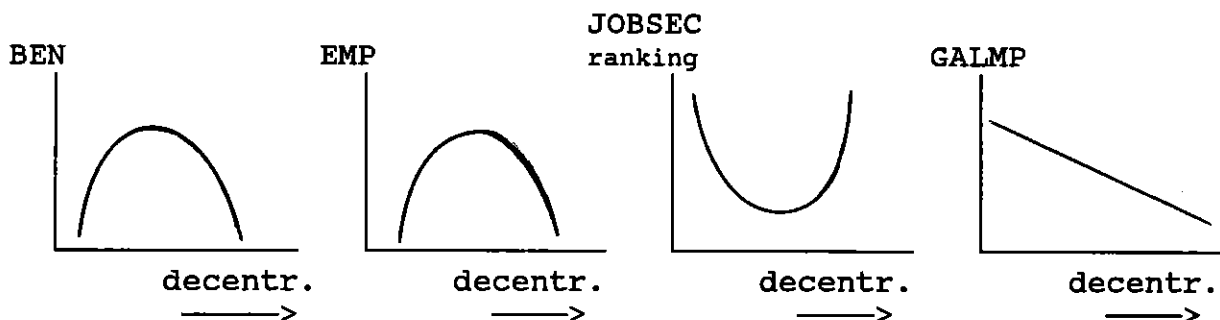
4.1. Centralization of wage bargaining and the characteristics of labour market policy

Two major hypotheses are put forward on the relation between wage formation and labour market policy characteristics (figure 8).

First, generous unemployment benefit systems (BEN) and extensive job security legislation (JOBSEC, EMP) are typical features of countries in which industrial relations in general and wage formation in particular are characterized by rivalry and lack of coordination between (a limited number of) bargaining units (e.g. the various industries). Countries with highly centralized labour markets (i.e. wage bargaining at the level of the national economy between powerful, highly encompassing unions and employer associations), as well as countries with highly decentralized labour markets (i.e. wage bargaining at the level of the individual firm) are expected to opt for less extensive job security legislation and unemployment insurance policies.

Second, we hypothesize that the extent of active labour market policy by the government (GALMP) falls with the degree of decentralization of wage bargaining.

Figure 8 Labour market policy characteristics and the degree of decentralization of wage bargaining



Theoretical support for the first hypothesis takes as a starting point the prisoner's dilemma that is inherent in intermediate (i.e. neither highly centralized, nor highly decentralized) industrial relations and systems of wage formation. Assume e.g. that wages are bargained at the level of the various industries without explicit coordination. Since in this setting bargaining units are strong enough to generate macroeconomic effects, each unit is vulnerable to the others' policies without being able to influence these policies¹². Evidently, in such an environment all kinds of government protection programmes will be demanded.

In this respect, the OECD (1987, chapter 3) explains the recourse to wage indexation in most of the countries with multiple, uncoordinated levels of wage bargaining. Roubini & Sachs (1989) consider government income maintenance programmes to be the fiscal counterpart to wage indexation schemes in the private labour market. They hypothesize that these programmes will be highly prevalent in intermediately centralized countries. It is our assumption that the relative generosity of unemployment insurance policy and the relative extent of job security legislation (especially firing rules) can be analyzed in the same framework of income maintenance programmes.

In countries with wage determination at the firm level, bargaining units are too small to generate macroeconomic effects. In centralized bargaining systems the number of 'players' is limited and, as a consequence, coordination and mutual control are possible. In both cases the prisoner's dilemma can be solved and the need for government income maintenance programmes reduced.

As far as the second hypothesis is concerned, it is important to notice that highly centralized unions, representing all workers

¹² The steel workers' (hypothetical) aggressive wage policy may e.g. generate higher inflation and thus affect all other workers' real income and real aggregate demand in the economy.

and fixing the wage for the whole economy, have a (relatively) strong interest in seeing the skills and job prospects of the unemployed improved. By contrast, unions which only represent the workers of one individual industry or, even more, individual firm, will have no such interest. A comparison of the costs and benefits for the unions concerned of training and improving the job prospects of the unemployed can make this clear.

The main cost of training unemployed workers consists of the stronger downward pressure that better trained and skilled job seekers put on insider power and wages. Consequently, employed insiders (with similar qualifications) will have to moderate their wage claims. The main benefit consists of the long-run improvement of the budget situation of the government and, thus, potential tax reductions. On the one hand, training programmes require (temporary) government expenditures and have a negative influence on the budget. On the other hand, these programmes imply (permanent) budget improvements to the extent that the people trained find a job, no longer need unemployment benefits and start themselves paying taxes. It is our assumption that the latter effect dominates the former. Another benefit of training unemployed workers worth mentioning is the rise in potential output in the economy.

Returning to the situation of the various union organizations considered, the following conclusions can be drawn. If the union is highly centralized, its members will not only bear the full cost of training programmes, they will also enjoy the entire benefit. By contrast, if the union operates at the level of the industry or (even more) the firm, its members will bear the cost (wage moderation), without adequate compensation in terms of potential tax reductions and output rises. Indeed, this benefit cannot be internalized but has to be shared with the employees of all other industries or firms. Consequently, the pressure on the government to engage in active labour market policy will be (relatively) stronger as the number of bargaining units falls and the degree of centralization rises. The costs and benefits of

such policy are then more equally distributed.

In order to test the two hypotheses advanced in this section, we make use of Calmfors & Driffill's (1988) centralization ranking (CENT in table 2). As is well known by now, this ranking considers Austria and the Scandinavian countries to be the most centralized economies (low rank numbers). Canada, the US and Japan are the most decentralized (high rank numbers).

Empirical evidence consistent with the theory put forward, is found in the regression results presented below¹³. The positive coefficient on the centralization variable (CENT) and the negative coefficient on squared centralization (CENT²), both significantly different from zero, confirm that unemployment benefits (BEN) tend to be lower when wage bargaining becomes either highly centralized or highly decentralized. Further, higher degrees of centralization are indeed found to go along with more active labour market policy by the government (GALMP). As far as job security legislation and labour turnover costs are concerned, the results are not fully convincing: the explanatory variables get the correct sign, but the corresponding t-values in the JOBSEC equation are not satisfying. Given the limited number of observations (and the fact that there are no data on Austria, Norway and Canada, which take extreme centralization rank numbers), this is not really surprising¹⁴. The results for EMP were better¹⁵

¹³ For completeness it should be mentioned that we redefined the centralization ranking (CENT) in the JOBSEC and the BEN equation in order to cope with the fact that in these equations data were missing for e.g. Canada, Italy and Australia (BEN) and Canada, Austria, Norway, etc. (JOBSEC). As a consequence, CENT takes values from 1 to 12 in the BEN equation and from 1 to 10 in the JOBSEC equation. The same procedure was followed for the estimation of the GALMP equation when Sweden was excluded.

¹⁴ The adjusted R² for this equation was negative.

¹⁵ This equation was estimated without constant. When included this constant was estimated to be 0.08 (with t=0.31).

BEN = -1.44 + 2.16*CENT - 0.17*CENT ² (1.05) (4.47) (4.69)	\bar{R}^2 0.65 SER 1.32 Numb. of observ. 12
JOBSEC = 8.72 - 1.73*CENT + 0.16*CENT ² (2.38) (1.13) (1.20)	R^2 0.17 SER 3.12 Numb. of observ. 10
EMP = 0.13*CENT - 0.008*CENT ² (3.95) (2.82)	\bar{R}^2 0.07 SER 0.28 Numb. of observ. 15
GALMP = 5.21 - 0.33*CENT (3.3) (1.91)	\bar{R}^2 0.16 SER 2.87 Numb. of observ. 15

Excluding 'outlier' Sweden, the latter equation becomes

GALMP = 2.93 - 0.13*CENT (6.44) (2.77)	\bar{R}^2 0.35 SER 0.77 Numb. of observ. 14
---	---

On the basis of the relations found in this and the previous section, a further step can be to link the degree of centralization of wage bargaining to SHLTU directly (figure 9). Not unexpectedly, extremes perform better.

4.2. Centralization of wage bargaining and insider power

In section 4.1. we analyzed the indirect effects of wage bargaining characteristics on long-term unemployment, running via labour market policy. There may, however, also be direct effects.

When discussing insider wage setting in section 3.1. (figure 3), we made the rather extreme assumption that only the workers who were employed in the previous period had an influence on this period's wage bargain. Blanchard & Summers (1986) suggest that this assumption becomes less realistic if wage bargaining occurs at more centralized levels. They argue that laid-off workers show a larger tendency to drop out of local than out of industry or national unions. Consequently, the probability that unemployed workers' interests are represented in wage bargaining is expected to rise together with the level of centralization of bargaining.

Nickell and Wadhvani (1989) present empirical evidence for the British firms supporting this argument. They show that insider effects are smaller in firms that take account of national/industry-wide wage agreements in their own bargaining activities. Similarly, Layard & Bean (1989) suggest that corporatist behaviour by unions could achieve the same results (i.e. a reduction of unemployment persistence) as measures to reduce trade union power at the work-place.

With respect to empirical work these arguments suggest that the centralization ranking (CENT) should be included as an independent explanatory variable in the estimation of table 3's equations. A positive sign is expected. Re-estimating the better equation (6), we obtained (6'), which confirms our expectations¹⁶

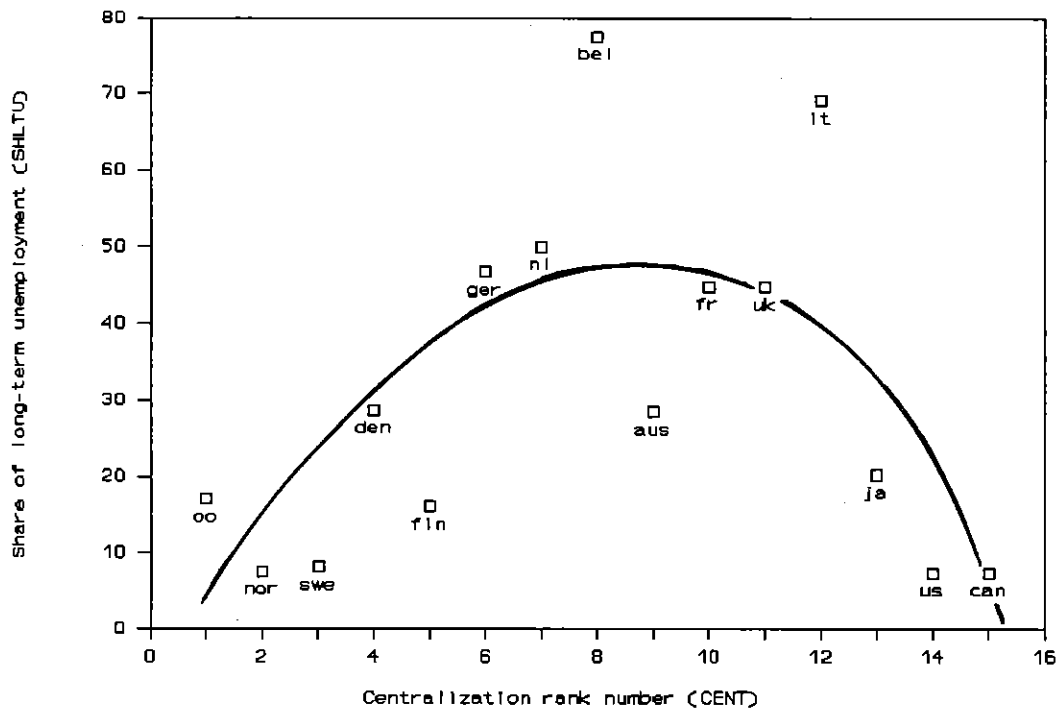
$$\text{SHLTU} = -14.1 + 6.45*\text{BEN} + 27.7*\text{EMP} + 1.7*\text{CENT} \quad (6')$$

(1.8) (4.3) (2.3) (2.0)

\bar{R}^2 0.80 SER 9.89 Numb. of observ. 12

¹⁶ In order to estimate (6') the centralization ranking was again redefined (cf. footnote 13). If included, GALMP again showed up with a highly insignificant coefficient. So did CENT².

Figure 9 Centralization of wage bargaining and long-term unemployment



6. Conclusions

This paper provides a basic theoretical framework and empirical evidence, explaining differences among the OECD countries as far the extent of long-term unemployment (expressed as a percentage of total unemployment) is concerned. From the insider-outsider and duration theories follows the hypothesis that in countries, facing a sequence of adverse economic shocks, rising unemployment tends to persist and become an even more serious problem of long-term unemployment when (a) job security legislation (hiring and firing restrictions) is extensive, (b) the unemployment benefit system is generous and (c) government is not actively engaged in labour market programmes, improving the skills and job prospects of the unemployed in general, and the long-term unemployed in particular.

Further, the paper illuminates the relevance of structural characteristics of the labour market (in particular, the degree of centralization of wage bargaining). These do not only, to some extent, determine the stance of the labour market policy variables mentioned. They also have a direct, independent influence on insider power and long-term unemployment.

The empirical results we obtained are consistent with the theoretical analysis presented. It must be stressed, however, that these results do not allow us to conclude whether the insider-outsider theory and/or the duration theory are valid in general, or in any particular country. (Only their predictions were tested). That kind of conclusions require a direct and thorough study of wage setting practices, which was not our objective.

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Appendix 1 Unemployment benefit systems in the OECD countries
(1985)

Country	UI benefit	Max. duration (weeks)	Labour force coverage (%)
US	50% earnings	34 (+ extra 13 in selected regions)	34
Japan	60-80% earnings	52	40
France	42% earnings +FF40/day	130 (156 for special allowance)	66
West Germany	63% earnings (then 54%, means-tested, indefinitely)	indefinite	63
UK	£28.50 (then means-tested, indefinitely)	indefinite	81
Belgium	60% earnings (then 40%, second year; then 50% minimum wage, indefinitely)	indefinite	94
Netherlands	70% earnings (daily max. 262 Fl.), then 70% with means test, up to 2 years	130	89
Denmark	90% earnings (335 Kr. daily max.)	130	79
Norway	73% earnings (310 Kr. daily max.)	40	85
Finland	75% earnings or 70 mark/day	450 days in 156 weeks	96
Sweden	80-100 Kr/day	52	87
Switzerland	75-80% earnings	21.5	87
Austria	50-100% earnings, inversely with wage	30	73
Ireland	£39.50 week + 20-40% earnings; 85% max.	56	70
Spain	80% earnings (then 70% to 12th month, 60% to 18th month, 50% thereafter)	indefinite	44

Source: Emerson (1988), Burtless (1988) for US and Dolado *et al.* (1986) for Spain.
Note: Coverage defined as the percentage of all unemployed receiving unemployment insurance or assistance.

Table taken from Burda (1988, p. 423).

Appendix 2 Insider power and outsider ineffectiveness
A model for the determination of wages

Our model is mainly based on Alogoskoufis & Manning (1988) and Nickell (1989). We assume identical firms facing identical unions (or groups of insiders) and concentrate on the wage formation process in the representative firm.

The wage outcome is the result of the confrontation of two basic determinants: inside forces (the wage ambitions of the group or union of insiders) and outside forces (the wage the employer must pay to attract outside workers). We shall model both.

a. Insider wage setting

Following Alogoskoufis & Manning (1988), the group of insiders (N^I in number) is assumed to set the nominal wage in order to minimize a one-period quadratic loss function, defined in terms of deviations of expected real wages and employment from target.

$$L = (1/2)[n^e - n^I]^2 + (\delta/2)[(w - p^e) - \omega]^2 \quad (1)$$

with : n^e : expected employment
 n^I : employment target (number of insiders)
 w : nominal wage, set by the insiders
 p^e : expected price level
 ω : target real wage
 δ : marginal cost of deviations of expected real wages from target, relative to employment deviations.

All variables are expressed in logs (except δ).

The group of insiders sets the wage ex-ante, i.e. before it knows the realization of shocks to the economy (represented by θ). The employer chooses employment (n) ex-post, i.e. for a given w and θ , according to a negatively sloped labour demand schedule.

$$n = n_0 - \alpha(w - p) + \theta \quad (2)$$

with : θ : represents random (demand and productivity) shocks to the economy and is uniformly distributed between $[-r, +r]$

From equation (2) we derive that $n^e = n_0 - \alpha(w - p^e)$ (3)

The first-order condition for a minimum of (1), subject to (3), gives

$$\alpha [n^e - n^I] = \delta [w - p^e - \omega] \quad (4)$$

The employment target (N^I or, in logs, n^I), is specified as in Nickell (1989)

$$N^I = N_{-1} + (1-\gamma)U_{-1} \quad (5)$$

with : $0 \leq \gamma \leq 1$

$(1 - \gamma)$ represents the weight the employed workers attach to the interests of the recently unemployed workers from the firm (U_{-1})

Along the lines of the extreme insider-outsider theory of Blanchard & Summers (1986), one could opt for $\gamma = 1$, and thus $N^I = N_{-1}$. This is what we do in our figure 3. Here, we allow for a more general specification.

Equation (5) implies that $N^I = L_{-1} - \gamma U_{-1} = L_{-1}(1 - \gamma u_{-1})$ where L is the labour force associated with the firm and u is the related unemployment rate. Taking logs, it follows that

$$n^I = l_{-1} - \gamma u_{-1} \quad (6)$$

As far as the wage target (ω) is concerned, we assume that in the long-run workers want their real wage to reflect productivity. Algebraically,

$$\omega = \mu(w - p)_{-1} + (1 - \mu)q \quad (7)$$

with : q : labour productivity (in logs)

μ : reflecting persistence in the real wage ($0 \leq \mu \leq 1$)

Substituting (6) and (7) into (4), we obtain our equation for the insiders' wage ambitions (w^I).

$$w^I = p^c + \mu(w - p)_{-1} + (1 - \mu)q + (\alpha/\delta)(n^c - l_{-1} + \gamma u_{-1}) \quad (8)$$

If we further assume that the labour supply attached to the firm follows a random walk (i.e. $l = l_{-1} + z$, where z is a white noise component) and if we also recognize that due to the randomness of θ , $n^c - n$ is random with zero mean, the insider wage equation becomes

$$w^I = p^c + \mu(w - p)_{-1} + (1 - \mu)q - (\alpha/\delta)(u - \gamma u_{-1}) + z' \quad (9)$$

with : $z' = (\alpha/\delta)(n^c - n + z)$

Insiders aim at full adjustment in the long-run of their wages to prices and productivity. Unemployment has a negative effect on wage ambitions. The short-run responsiveness of wages to unemployment depends negatively on the relative weight wage setters put on wages (δ) and positively on the wage elasticity of employment (α). If the relative importance of the wage goal goes to infinity (i.e. if wage setters do not care about the employment consequences of their wage ambitions), unemployment has no negative effect on wages. The same conclusion follows if the wage elasticity of employment tends to zero. In that case, wages will not fall as a response to rising unemployment, simply because wage moderation has no restoring effect on employment. For a given short-run effect, the long-run impact of unemployment on wages, depends crucially on the degree of concern of the employed for the unemployed. If the employed workers do not care about their unemployed colleagues (i.e. $\gamma=1$), unemployment has no long-

run effect on wages.

b. Employer wage offers and outside forces

Analogous to Nickell (1989) we model employer influence on the wage by specifying an 'outside wage' which can be defined as the wage (w^o) that must be paid to attract outside workers.

Modelling the outside wage requires modelling the expected income from search (i.e. from being unemployed) to a newly unemployed worker. If the expected income from search to a newly unemployed worker exceeds the employer's wage offer, vacancies will only be answered by less qualified, long(er)-term unemployed workers. This puts upward pressure on the wage offer. If the wage offer is higher than the newly unemployed worker's expected income, these workers will be anxious to get a job. Wage offers will then fall.

The expected income from search to a newly unemployed worker is equal to the average wage paid elsewhere in the economy (\bar{w}), modified by the chance of finding a job and the relative attractiveness of being unemployed. We consider the newly unemployed worker's chances of finding a job within the relevant period to be negatively related to the effective unemployment rate (u_e) in the economy. The relative attractiveness of being unemployed is assumed to depend positively on the generosity of the unemployment benefit system (BEN) (equation 10)¹⁷.

$$w^o = \bar{w} - \beta_1 u_e + \beta_2 \text{BEN} \quad (10)$$

$$\text{with: } u_e = e_0 + e_1 \bar{u} \quad (11)$$

$$\partial u_e / \partial \bar{u} = e_1 = e_1(\bar{u}_1 / \bar{u}, \text{BEN}, \text{GALMP}) \quad (12)$$

¹⁷ All the variables related to the right hand side of this equation concern the aggregate economy. We put a bar on some of these variables (\bar{w} and \bar{u}) in order to avoid confusion with firm-related variables. As far as u_e and BEN are concerned, confusion is not possible. Further, equation (10) represents the nominal wage the employer must pay to attract newly unemployed outsiders. Clearly, since these outsiders still have to be hired and trained, the employer's wage offer to his incumbent employees will be higher, compensating for the fact that these have already been trained. Assuming constant marginal hiring and training costs, the wage offer can, however, also be represented by equation (10), if a constant is added. Similarly, the insiders benefit from firing costs. These allow the insiders to ask more than is represented by equation (9), without threatening their employment. However, also assuming constant marginal firing costs, nothing changes fundamentally to (9).

\bar{w} : average wage in the economy
 u_e : aggregate effective unemployment rate
 \bar{u} : overall unemployment rate
 BEN : unemployment benefit generosity (see main text)
 GALMP : extent of government active labour market policy
 (see main text)
 $\beta_1, \beta_2, e_1 > 0; \partial e_1 / \partial \bar{u}_1, \partial e_1 / \partial \text{BEN} < 0; \partial e_1 / \partial \text{GALMP} > 0$

What determines the effective unemployment rate? First, effective unemployment increases, and thus the newly unemployed worker's chances on the labour market fall, if current unemployment rises, i.e. if the number of other people looking for a job is higher (equation 11). Second, however, not only the number of these other people, but also their quality or 'competitiveness', represented by the parameter e_1 , is highly relevant. The latter depends on various elements (equation 12). First, effective unemployment will be lower if a larger share of the currently unemployed were also unemployed last year (i.e. if \bar{u}_1 is higher)¹⁸. A larger share of the actual unemployed will then have experienced a loss of skills. Second, effective unemployment is also expected to be lower, the longer unemployment benefits are payable and the less benefits decline with duration (i.e. higher BEN). More generous unemployment benefits may reduce the unemployed's motivation to search. Further, the government can increase the quality and competitiveness of the unemployed by means of active labour market policy (GALMP).

In what follows we shall for simplicity assume a linear relation behind e_1 .

$$e_1 = e_{10} - e_{11}(\bar{u}_1/\bar{u}) - e_{12}\text{BEN} + e_{13}\text{GALMP} \quad (13)$$

Equation (11) then becomes

$$u_e = e_0 + e_2\bar{u} - e_{11}\bar{u}_1 \quad (14)$$

with : $e_2 = e_{10} - e_{12}\text{BEN} + e_{13}\text{GALMP}$

c. The wage outcome

The actual wage outcome will reflect both insider and outsider forces. Following Nickell (1989), the bargaining result can simply be represented as

$$w = \lambda w^I + (1-\lambda)w^O \quad (15)$$

with : λ reflecting the insiders' bargaining power ($0 < \lambda < 1$)

¹⁸ Clearly, in this respect labour turnover is of crucial importance (cf. our JOBSEC and EMP variables in the main text).

Substituting for w^l and w^o , dropping the error term z' and making use of equation (14), yields

$$w = \lambda [p^e + \mu(w - p)_{.1} + (1 - \mu)q - (\alpha/\delta)(u - \gamma u_{.1})] \\ + (1 - \lambda) [\bar{w} - \beta_1 e_0 - \beta_1 e_2 \bar{u} + \beta_1 e_{11} \bar{u}_{.1} + \beta_2 \text{BEN}] \quad (16)$$

Applying the identical firms assumption and extending the microeconomic relation obtained for the representative firm to the aggregate economy level, we obtain that $\bar{w}=w$, $\bar{u}=u$ and

$$w = c_0 + p^e + \mu(w - p)_{.1} + (1 - \mu)q - c_3 u \\ + c_4 u_{.1} + c_5 \text{BEN} \quad (17)$$

with :

$$c_0 = - \beta_1 e_0 (1 - \lambda) / \lambda$$

$$c_3 = (\alpha / \delta) + \beta_1 e_2 (1 - \lambda) / \lambda$$

$$c_4 = (\gamma \alpha / \delta) + \beta_1 e_{11} (1 - \lambda) / \lambda$$

$$c_5 = \beta_2 (1 - \lambda) / \lambda$$

Returning to the main issue of this paper, we considered long-term unemployment to be due to a lack of influence of the unemployed, and especially the long-term unemployed, on wages. A country will show more long-term unemployment the smaller is $|\partial w / \partial u|$ and the more $\partial w / \partial u_{.1}$ tends to $|\partial w / \partial u|$. Equation (17) allows to indicate some basic causes. The incidence of long-term unemployment is expected to rise if:

- α is low (employment is wage inelastic)
- δ is high (wage-setters do not care about the employment consequences of their wage ambitions)
- λ is high (the bargaining power of insiders is high)
- β_1 is low (the amount of unemployment has little influence on the wage claims or reservation wage of the unemployed)
- e_2 is low (the unemployed quickly lose their skills and motivation)
- γ tends to one (the employed insiders do not care about their unemployed colleagues)
- e_{11} tends to e_2 (the negative effect of lagged unemployment on effective unemployment equals the positive effect of current unemployment).

Finally, the model we developed also allows to derive the crucial role of labour market policy variables. We indicated the negative influence of the generosity of the unemployment benefit system (BEN), as well as the positive influence of the extent of government active labour market policy on the responsiveness of wages to unemployment (e_2). BEN also generates higher wages as an independent explanatory variable since it improves the welfare,

and thus reservation wage of the unemployed. Further, the bargaining strength of the insiders (λ) can be considered a positive function of the extent of hiring and firing regulations, i.e. of job security legislation (JOBSEC, EMP).

In an earlier paper (Heylen & Verhulst, 1990) we did empirical work explaining differences among the OECD countries with regards to $|\partial w/\partial u|$. The results obtained there perfectly fit in the framework developed here. Countries that mainly fight unemployment actively instead of passively (i.e. countries within which the share of government expenditures on labour market policy going to active measures is high, or, in this paper's terms, in which GALMP is high for given BEN) were shown to have more flexible wages.

Further, we also found countries with highly centralized as well as countries with highly decentralized labour markets to have more flexible wages. In the latter group of countries, a high price elasticity of product demand and, thus, a high wage elasticity of employment (α) may contribute to this flexibility (see also Calmfors & Driffill, 1988). (Alogoskoufis & Manning, 1988, and Jackman, 1989, do, however, express doubts about this explanation.) In countries with centralized labour markets, unions are expected to care relatively more about the employment consequences of their wage ambitions (δ is expected to be low). The reason is that these unions, organizing all workers, internalize the external effects (unemployment queue and fiscal externalities) of their wage setting behaviour (see Jackman, 1989, and the evidence of Alogoskoufis & Manning, 1988). Countries with an intermediate degree of centralization are expected to show both a relatively high δ and low α .

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