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The effects of benefits on unemployment and wages: A comparison of unemployment compensation systems

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A well-established tenet of the theory of unemployment is that unemployment benefits tend to increase the unemployment rate. This prediction is based on two central pieces of labour economics, namely the job-search theory and the efficiency-wage theory. In the job-search theory, unemployment benefits cause an increase in the duration of unemployment by reducing the incentive of unemployed workers to search for and accept a job; in the efficiency-wage theory, they reduce the cost of being unemployed and induce workers to ask for higher wages, so the demand for labour decreases. Since the unemployment rate is a function of the duration of unemployment and its incidence, unemployment therefore increases with both the level and the duration of benefits.

Despite the strength of this theoretical prediction, the empirical evidence that supports it is not very strong. Those studies which have detected an effect of benefits on unemployment duration have found it to be rather small. Others have failed to detect any such effect at all. On average, estimates have implied that a 10 percentage point increase in the replacement rate (i.e. the ratio of unemployment benefits to earnings from employment) would be associated with an increase of about 1-1½ weeks only in unemployment duration (Lancaster and Nickell, 1980; Meyer, 1990). This suggests that the impact of benefits on unemployment probably depends on a set of factors wider than the one usually considered in labour economics. The aim of this article is to investigate the conditions under which the provision of unemployment benefits would leave the rate of unemployment unchanged.

The main argument brought forward in the following analysis hinges on the distinction between *unemployment assistance* and *unemployment insurance*. Although the distinction is not new in labour economics (see, for instance, Atkinson and Micklewright, 1991), previous discussions of unemployment insurance seem to have overlooked the following fundamental difference: while

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unemployment assistance is a scheme for the redistribution of income amongst individuals (i.e. from employed workers to unemployed ones), unemployment insurance is more a means for the transfer of a worker's earnings through time (i.e. from periods of employment to periods of unemployment).

Clearly, the actual unemployment compensation schemes of almost all industrialized countries lie in between these two "stylized" systems. The distinction is nonetheless crucial as most of the arguments validating the hypothesis that unemployment benefits could have negative effects on the labour market appear to be true for unemployment assistance but not for unemployment insurance. On the one hand, several models incorporating a richer specification of unemployment insurance schemes have shown that the duration of insured unemployment tends to be unaffected by the duration of entitlement to benefits. On the other hand — as will be argued in this article — the benefits provided under these schemes have no effect either on wage rates or on the demand for labour. This has evident policy implications because it indicates that it is theoretically feasible for national governments to offer some income compensation to unemployed workers without raising unemployment — provided that this is done under an insurance system.

The article begins with a brief review of the empirical evidence on the effects of unemployment benefits, followed by a discussion of the main features of the unemployment compensation schemes of some major industrialized countries. It then sets out the theoretical distinction between unemployment assistance and unemployment insurance and outlines the main theoretical features of each system. The next two sections compare the effects of unemployment benefits on the duration and incidence of unemployment under each of the two systems. The main policy implications of the analysis are then discussed. The conclusions of the article are summed up in the final section.

Unemployment compensation in the industrialized economies

Over the past two decades there has been increasing concern that the unemployment compensation programmes established in the large majority of industrialized countries may have unfavourable effects on their labour markets. Unemployment benefits would appear to reduce workers' incentives to search for and accept jobs, thereby lengthening the duration of unemployment. In particular, this argument has been one of the most influential explanations as to why unemployment rates are much higher in western Europe than in the United States, where unemployment compensation is less generous (Layard and Nickell, 1986). But despite the great academic and political influence of this view, the empirical evidence that supports it appears to be rather weak. A number of microeconomic studies have failed to detect any significant effect of the level of benefits on unemployment duration (for a survey, see Pedersen and Westergård-Nielsen, 1993). Other studies show this effect to be rather small. In the United Kingdom, for instance, the elasticity of unemployment duration to

the level of benefits was estimated to range between 0.3 and 0.6 (Lancaster and Nickell, 1980; Narendranathan, Nickell and Stern, 1985). For the United States, where the duration of unemployment insurance is shorter and its coverage narrower, most of the estimates were around 0.3-0.4 (Katz and Meyer, 1990; Moffit, 1985). In the Netherlands, the estimated duration elasticity to changes in the level of benefits was about 0.03 (van den Berg, 1990).

A somewhat stronger impact of benefits emerges from an OECD study which reports an elasticity of total unemployment rate above unity and an elasticity of the ratio between male and female unemployment rates equal to 0.53 (OECD, 1994). However, unlike the findings of the studies reported above, these estimates are based on macroeconomic data and, as the OECD study rightly points out, "in these correlations using aggregate data, coefficients could be biased by the omission of other variables, reverse causality, and errors in the data" (OECD, 1994, p. 179). Furthermore, the reported cross-section estimates are based on a small sample of observations (from only 14 countries) and the pooled cross-section time-series estimates are very sensitive to changes in the specification (in particular, benefits have no significant effect on the unemployment rate when country- and time-dummies are included in the regression).

The hypothesis that unemployment benefits tend to increase the reservation wage and reduce job-search intensity has thus received little empirical confirmation. In fact, evidence suggests that a large majority of the unemployed receive very few job offers (see Jones, 1989, for the United Kingdom, and Holzer, 1988, for male youths in the United States) and have a very high acceptance rate (see van den Berg, 1990, for evidence on unemployed Dutch men). Unemployment benefits do not seem responsible for low job offer rates either (Schmitt and Wadsworth, 1993; Gorter and Gorter, 1993). On the contrary, Blau and Robins (1990) and Wadsworth (1991) found that receipt of unemployment benefits increased job search intensity among the unemployed in the United Kingdom and North America.[1]

That the empirical evidence appears to be at odds with the sharp predictions of economic theory is probably due to the discrepancy between the hypotheses of the theory and the actual characteristics of the unemployment compensation schemes that operate in many countries. Indeed, when analysing the effects of unemployment benefits on the unemployment rate, most contributions assume that all unemployed individuals are entitled to benefits for an unlimited period. Yet in a large majority of countries entitlement to benefits is restricted to specific groups of unemployed and to a limited period of time.

Table 1 illustrates this point by setting out the main conditions of eligibility under the unemployment compensation schemes of 20 industrialized countries. In all of these countries, entitlement to benefits is subject to one or more of the

[1] This evidence is consistent with the argument that if there are binding restrictions on the capacity of the unemployed to finance search activity by borrowing, unemployment benefits may increase the resources devoted to search and thereby increase the probability of return to work (Tannery, 1983; Ben-Horim and Zuckerman, 1987).

Table 1. Main features of the unemployment compensation schemes in the industrialized countries

	Australia	Austria	Belgium	Canada	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Japan	Netherlands	Norway	Portugal	Spain	Sweden	Switzerland	United Kingdom	United States
Conditions of eligibility																				
Laid-off workers (excl. misconduct)	x	x	x	x	x	x	x	-	x	x	x	x	-	x	x	-	x	-	x	x
A minimum period of continuous contributions	-	x	x	x	x	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Monitoring of job-search efforts	x	x	x	x	x	x	-	-	-	-	-	x	x	-	-	-	-	x	x	x
Acceptance of suitable job offers	x	x	x	x	x	x	x	-	x	x	x	x	-	x	-	x	x	x	x	x
Limited duration of benefits	-	-	-	x	x	-	-	-	x	-	x	x	x	x	x	x	x	-	x	x
Source of funds																				
Contributions (% of total expenditures)	0	82	32	105	23	85	77	78	73	94	68	95	46	72	100	51	95	113	82	90

x indicates permanent disqualification for those individuals who do not meet the eligibility conditions;
- indicates temporary disqualification or none.
Notes: For France and Greece, the figures of contributions include sickness and maternity insurance.
For Germany, Ireland, Norway, Portugal, Switzerland and the United Kingdom they refer to all social insurance programmes.
Sources: Social Security Administration, 1999; ILO, 1999.

following conditions: a minimum period of continuous contribution before unemployment (in 18 countries); exclusion of those voluntarily unemployed or those dismissed as a result of industrial misconduct (16); monitoring of job-search (11); disqualification due to repeated refusal of suitable job offers (17); limited duration of benefits (18).

A second important aspect overlooked by the theory is the different ways countries have of financing unemployment benefits. The last row in table 1 reports the percentage of total unemployment compensation expenditures financed by the contributions of insured workers and their employers.[2] In the majority of countries, benefits are financed mainly by the accumulated contributions of participants in the schemes. In Austria, Canada, Finland, France, Germany, Greece, Ireland, Japan, Norway, Portugal, Sweden, Switzerland, the United Kingdom and the United States, the contributions of covered workers and their employers account for some three-quarters or more of total unemployment insurance expenditures. It is important to note that this group includes not only those countries typically regarded as having a low level of unemployment compensation (like Canada, Japan and the United States), but also countries with a more substantial coverage, such as Norway and Sweden. Only in Australia, Belgium, Denmark and Spain is unemployment compensation largely dependent on general revenues, while Italy represents an intermediate case.

Generally speaking, any theory is — to a certain extent — based on "unrealistic" assumptions of some kind. But in the present context the analytical cost of overlooking the real-world features of unemployment compensation appears to be too high. The following sections discuss the causality between the economic effects of unemployment benefits and the characteristics of the unemployment compensation schemes under which they are provided.

Unemployment assistance and unemployment insurance

In 1998, 88 countries reported having an unemployment compensation scheme (Social Security Administration, 1999). Although these schemes vary quite significantly from one country to another, they can be regarded as different combinations of two "ideal" systems: unemployment assistance and unemployment insurance. Each system is, in turn, characterized by two main features. The first is the set of conditions under which unemployed workers are eligible for benefits; the second is the method used for financing the schemes.

[2] In those countries in which unemployment benefits are financed by contributions from other social insurance schemes, the figures refer to the contributions and the expenditures of all social insurance programmes. As long as these programmes are financed by contributions from insured individuals and not from general revenues, their effects on wages are likely to be the same as those of unemployment insurance only.

Under an unemployment assistance scheme, benefits are granted to all low-income unemployed for the entire duration of unemployment, and they are financed out of general revenues. For an individual to be eligible for assistance benefits, it is therefore sufficient that she/he be unemployed with a non-labour income below a fixed threshold. In this case, neither the level nor the duration of benefits is dependent on a worker's past contributions. In most countries favouring this system, the level of benefits is based on an average sectoral wage or on the national minimum wage, and their duration is unlimited. For a given level of benefits, this financing method implies that the tax rate imposed on currently employed workers and on firms be proportional to the number of unemployed. In essence, unemployment assistance is therefore a scheme for the redistribution of income amongst individuals participating in the labour market.

In contrast, unemployment insurance is a scheme under which currently employed workers pay contributions to insure themselves against the risk of becoming unemployed in the future. In other words, it is a scheme for the transfer of income through time rather than across individuals. The fact that such schemes are compulsory and normally administered by a public institution does not change their insurance nature. Indeed, the compensation a worker receives when unemployed could more appropriately be regarded as an insurance indemnity than a benefit.

In principle, unemployment insurance should thus present all the characteristics of any other insurance scheme. First of all, this means that it should be self-financed. Though very few unemployment insurance schemes are entirely financed by the contributions of insured employees and their employers (see table 1), all of them define the value of benefits as a percentage of the worker's previous earnings (according to a fixed replacement rate), so as to ensure that the benefits provided to unemployed workers are tied to the contributions received from them when they were at work. Also typical of any insurance, the level of benefits and the level of contributions are connected through the probability of unemployment — not through the unemployment rate, as in the case of unemployment assistance. In fact, the flow of benefits must equal the discounted flow of contributions divided by the average probability of unemployment. A consequence of this financing rule is that eligibility for benefits under most unemployment insurance schemes is conditional upon a minimum period of continuous contribution, in order to prevent workers with exceptionally high unemployment probabilities from benefiting too much from the system. The same rule also explains why some occupations and some sectors — in which the unemployment probability is high or ill-defined — are usually not covered by unemployment insurance. Self-employed, agricultural and some service-sector workers are typically excluded. Also, in some countries civil servants and the public sector are covered by separate unemployment compensation schemes.

Another characteristic feature of any insurance scheme is that payment of compensation by the insurance company depends on the very behaviour of its clients, a situation known in economic theory as *moral hazard*. In the specific

context of unemployment insurance, moral hazard refers to the possibility that an individual may prefer to be unemployed and receive benefits rather than being at work. This would be the rational behaviour of any individual whose expected wage is below the level of benefits. Accordingly, all unemployment insurance schemes set at least one of the following eligibility conditions in order to minimize losses due to moral hazard. First, those workers who become unemployed voluntarily or because of industrial misconduct are excluded from benefits. Second, individuals have to prove that they have been actively searching for a job in order to preserve their entitlement to benefits. Third, under many schemes, refusal of suitable job offers beyond some specified number leads to disqualification from benefits. Finally, eligibility for benefits tends to be restricted to a limited period, and any worker who remains unemployed for longer than that period forfeits her/his entitlement to benefits.

To sum up, two principal characteristics distinguish unemployment insurance from unemployment assistance: (a) entitlement to benefits is not universal but contingent upon a set of specified conditions; and (b) the level and the duration of benefits are tied to the past contributions of insured employees and their employers in order to make the scheme self-financing.

Unemployment insurance and unemployment duration

The standard prediction of the theory of unemployment benefits is that such benefits tend to increase both the duration and the incidence of unemployment. However, if one looks at the hypotheses from which this prediction is derived, it becomes apparent that the type of unemployment compensation implicitly considered by the theory is unemployment assistance. In fact, both in the job-search and in the efficiency-wage models it is assumed that unemployment benefits are granted to all unemployed workers for an unlimited period. But this hypothesis is inconsistent with the first characteristic of unemployment insurance, defined as (a) above.

When the eligibility conditions that characterize unemployment insurance are taken into account, the standard results of the theory are modified. Indeed, if the specific features of insurance are introduced into the job-search models, the duration of insured unemployment tends to be unaffected by the duration of entitlement to benefits. The main results of these models are reviewed in the remainder of this section, while the effects of unemployment insurance on wages and labour demand will be considered in the next.

In the standard search model of unemployment (Lippman and McCall, 1979; Mortensen, 1977), the probability that an unemployed worker enters a job equals the probability that the worker receives a job offer times the probability that that job is acceptable to the worker. The probability of receiving an offer depends on the worker's effort in searching for a job, while an acceptable job is defined as one that pays a wage above the worker's reservation wage (i.e. the wage at which the worker is indifferent between working and remaining unemployed). In this model unemployment benefits raise the utility of unemployment relative to that of employment so that the worker's reservation

wage increases and the intensity of job-search decreases. Because of these two effects, the worker's probability of entering a job decreases and unemployment duration increases.

These results apply under the hypothesis that benefits are granted unconditionally to all unemployed workers, which is not the case under unemployment insurance schemes. As shown above, there are at least four categories of unemployed workers who are not entitled to benefits under such schemes: (1) those who become unemployed voluntarily or because of industrial misconduct; (2) those who were employed for too short a period; (3) those who failed to show evidence of effective job-search or who have repeatedly refused suitable job offers; and (4) those who exhaust their entitlement to benefits. To unemployed workers in these categories unemployment insurance makes it more attractive to accept a job because working is the only way to qualify for benefits in the future, a response known as the entitlement effect (Mortensen, 1977). The entitlement effect unveils the nature of the scheme as a form of insurance: if there is a risk of future unemployment the optimal behaviour for a worker wishing to insure herself/himself against this risk is to return to work and qualify for benefits. This implies that non-eligible workers will reduce their reservation wage and step up their efforts to find a job. As a consequence of the entitlement effect, unemployment insurance will raise the transition rates from unemployment to employment and reduce the duration of unemployment for those workers who do not qualify for benefits (Hey and Mavromaras, 1981; van den Berg, 1990). Furthermore, the entitlement effect also implies that the worker's reservation wage declines as she/he approaches the date at which entitlement to benefits expires — an effect reinforced in practice by the fact that many schemes provide for the level of benefits to decrease with the duration of insured unemployment.

Attempts to test directly the existence of an entitlement effect in relation to a limited duration of benefits have been quite successful. The value of the elasticity of unemployment duration to benefits seems to decrease with the duration of unemployment (Nickell, 1979a and 1979b); and rates of exit from unemployment seem to increase as insured unemployed workers approach the time when their entitlement to benefits is due to expire (Moffit, 1985; Meyer, 1990; Katz and Meyer, 1990; Ham and Rea, 1987, Carling et al., 1996).

The introduction into job-search theory of the eligibility conditions typical of unemployment insurance thus produces a different picture of the effects of unemployment benefits. On the one hand, unemployment benefits exert an adverse-incentive effect on the reservation wages and job-search efforts of unemployed workers who qualify for benefits; on the other hand, the existence of unemployment compensation makes work more attractive to those who do not. In general, the impact of unemployment insurance on the duration of unemployment and on the exit rate from unemployment to employment is thus ambiguous. This theoretical indeterminacy appears to be confirmed by the empirical evidence noted in the first section of this article. On the whole, however, this evidence gives significant support to the view that the effect of unemployment benefits on the unemployment rate depends on the characteristics

of the scheme considered, i.e. whether the benefits are provided under unemployment assistance or unemployment insurance. In particular, the eligibility conditions that characterize a large majority of the insurance schemes presented in table 1 appear sufficient to prevent benefits from causing an increase in the duration of unemployment.

Unemployment insurance and the incidence of unemployment

The second channel through which unemployment benefits may have an unfavourable impact on unemployment rates is via an increase in wages and a reduction in labour demand. Unlike the case of unemployment duration, there has so far been virtually no attempt to investigate whether the relationship between unemployment benefits and wages is affected by the specific features of different unemployment compensation schemes (the only notable exception being Atkinson, 1990). Furthermore, the distinction between unemployment assistance and unemployment insurance has been commonly based only on their different eligibility conditions (see, for instance, Atkinson and Micklewright, 1991). The reason why the difference in their financing rules has been overlooked in other studies is that they have generally examined only the impact of unemployment insurance on the duration of unemployment and, as shown above, eligibility conditions are sufficient to analyse this issue. When the effects of benefits on wages and labour demand are considered as well, both eligibility conditions and financing turn out to be very important. This section will discuss the main implications of the distinction between the two forms of unemployment compensation within the context of the efficiency-wage theory. A formal proof of the results derived in this section is shown in the Appendix.

To begin with, consider the determinants of employment and wages in equilibrium when no kind of unemployment compensation is provided. For the sake of simplicity, suppose that all workers and firms are identical and that the labour market is perfectly competitive. Demand for labour is then determined by the usual condition that labour productivity must equal the real wage so that the lower the unemployment rate, the higher the wage rate set by the firms. The real wage is set by firms in order to minimize labour costs per efficiency unit. This rule implies that the efficiency-wage is a negative function of the unemployment rate: any increase in the wage rate results in a reduction in employment.

A first justification for this trade-off between unemployment and wages is that unemployment acts as a discipline device, so that the lower the unemployment rate the higher the wage demanded by workers to perform their tasks (Shapiro and Stiglitz, 1984). In the shirking version of the efficiency-wage theory, each worker faces a choice between working and shirking. A worker who decides to work receives a certain wage in exchange for a customary level of effort. One who decides to shirk avoids the disutility of work, but faces some probability that she/he will be caught and sacked. Being unemployed involves a cost proportionate to the loss of wage: this cost will then be lower,

the higher the income in unemployment and the higher the probability of finding a new job immediately. Since this probability is lower the higher the number of unemployed people searching for a new job, it follows that the real wage that firms have to pay to induce workers not to shirk decreases as the unemployment rate rises.

A similar result applies when workers' decision is about the opportuneness of quitting their current job to search for a better one (Stiglitz, 1985). In fact, the lower the unemployment rate, the higher the probability that a worker will find a new job after quitting. For any firm, quitting represents a loss because replacing a worker involves some searching and training costs (turn-over costs). In this case also, the wage offered by the firm in order to reduce quitting will be higher the lower the unemployment rate.[3]

Consider now the effect of introducing some type of unemployment compensation. Under an assistance programme all unemployed workers receive some benefits, so that the cost of being unemployed decreases. At a lower cost of unemployment, workers have higher incentives to shirk and to quit, so that firms have to offer higher wages (see equation 7 in the Appendix). As a consequence of higher wages, the demand for labour will decrease until the unemployment rate is sufficiently high to restore the cost of unemployment to its pre-benefit level. This is precisely the standard prediction of the efficiency-wage theory, according to which the provision of unemployment benefits always causes an increase in the unemployment rate.

However, the outcome is radically different in the case of unemployment insurance. Under this type of scheme, workers who have become unemployed as a result of quitting or shirking are not entitled to unemployment benefits. As in the job-search model, restricted eligibility then generates an entitlement effect because, in deciding whether to shirk/quit or not, workers have to take account of the fact that they will not receive benefits. This implies that the convenience of shirking/quitting will decrease and that the firm may induce workers not to shirk/quit at a lower wage (equation 9). As a result of lower wages, the demand for labour increases.

The introduction of an eligibility condition based on the cause of unemployment thus reverses the standard prediction that benefits tend to raise the unemployment rate. Under an unemployment insurance scheme, however, benefits have to be financed by workers and firms, and this may have an unfavourable effect on employment. If the scheme were funded entirely from wages, workers would receive a lower net remuneration and this would induce more workers to shirk or to quit. In order to prevent this adverse-incentive effect firms would have to pay higher wages and the demand for labour would

[3] A negative trade-off between the wage rate and the unemployment rate also emerges within the wage-bargaining theory (see, for instance, Farber, 1986). This result, however, depends on the specific hypothesis formulated on the behaviour of the trade unions: i.e. that they represent only the interests of the currently employed workers rather than those of all workers. But the discussion of this hypothesis is beyond the scope of this article (for an analysis of this issue, see Pencavel, 1991).

decrease. Similarly, if benefits were financed by a tax on firms' payroll, higher labour costs would induce a reduction in labour demand and an increase in unemployment.

The effect of unemployment compensation on the wage rate is therefore theoretically ambiguous: benefits tend to reduce wages while the costs of funding the scheme push them in the opposite direction. Which of these effects will prevail crucially depends on how the scheme is financed, i.e. whether it is funded out of general revenues or by the capitalization of contributions from insured workers and firms.

Consider first the case in which benefits are financed by general revenues, as in an unemployment assistance scheme. When the scheme is financed by a tax on wages,[4] currently employed workers have to forego some of their earnings in order to pay a certain amount of benefits to those currently unemployed. The compensation for foregone earnings is that workers will receive the same level of benefits in case of future unemployment. In general, the disutility of receiving a lower after-tax wage will be greater than the utility of being entitled to unemployment benefits. This is so because any individual will always prefer to receive a given sum of money now than the same amount in the future, unless she/he receives some interest by way of compensation for this postponement. Since the disutility of the current taxes is greater than the utility of future benefits, firms have to pay a higher wage rate to induce workers not to shirk or quit (equation 13). As a consequence of higher wages the demand for labour will decrease.

Consider now the alternative scheme, under which benefits are financed by the accumulation of the contributions from the insured workers. In each period of employment, each worker pays a certain level of contributions to an insurance fund. These contributions are invested and earn some interest.[5] When a worker becomes unemployed she/he receives the equivalent of her/his contributions plus the accumulated interest. In other terms, this financing method acts as a mandatory saving scheme: each worker saves a certain amount of her/his current wage in order to secure a higher level of income in case of unemployment. Since the interest rate is precisely the price demanded for saving, each worker is indifferent between not paying contributions or having a lower after-contribution wage in exchange for a discounted level of unemployment benefits in the future. This implies that, under a contribution-based system, the opposing effects of benefits and contributions on the wage rate cancel each other out (equation 16). As a result, both the wage rate and the demand for labour are unaffected by unemployment insurance.

[4] As pointed out earlier, it is irrelevant whether benefits are financed by profits or wages because the effects of taxation will always be an increase in labour costs and a proportional decrease in labour demand. With no loss of generality, it can therefore be assumed that benefits are financed entirely out of wages.

[5] This is not so much a description of reality as a theoretical construct. Typically, in fact, unemployment insurance schemes do not invest contributions, though of course they do hold reserves of a certain size to help deal with fluctuations in revenue and expenditure. Nonetheless, this characterization appears appropriate since the comparison we are carrying on is between two "ideal" systems.

It is worth noting that, unlike the case of unemployment assistance, the duration of entitlement to benefits under an insurance scheme has no effect on unemployment incidence. As long as benefits are financed by the capitalization of workers' and employers' contributions, their impact on wages and labour demand will be nil. What matters is that both the features qualifying an unemployment compensation scheme as an insurance scheme are satisfied. In fact, eligibility conditions alone are not sufficient to ensure that unemployment insurance will be neutral with respect to wages and labour demand. For this to be true, it is also necessary that benefits be financed by the capitalization of workers' and firms' contributions.

Policy implications

Now go back to the actual features of the unemployment compensation schemes in table 1. As pointed out above, in most of the countries discussed here the individuals who have entered unemployment voluntarily or as a result of industrial misconduct are excluded from benefits. Only in four countries (Germany, the Netherlands, Spain and Switzerland) is entitlement to benefits granted independently from the cause of unemployment. In these countries the absence of a permanent sanction for shirking or quitting — i.e. ineligibility for benefits — might have induced an increase in the efficiency-wage rate and in the duration of unemployment.

The second factor that affects the wage rate is the financing of the scheme, i.e. whether benefits are financed out of general revenues or by the accumulation of contributions. As discussed in the previous section, a financing scheme based on general revenues is likely to increase the efficiency-wage rate that firms have to pay workers to induce them not to shirk or quit. To the extent that contributions are not sufficient to finance the unemployment compensation scheme, any deficit must be funded by general revenues through an increase in taxation. Therefore, the lower the percentage of expenditures that are self-financed by contributions, the stronger the unfavourable effect that an unemployment compensation scheme may have on wages and employment.

As shown in the last row of table 1, there are many countries in which workers' and employers' contributions cover a very large share of total unemployment insurance expenditures. In these countries the effect of unemployment compensation schemes on wages and employment is thus likely to be rather small or nil — with the exception of Germany and Switzerland, where those who enter unemployment voluntarily or as a result of industrial misconduct are also eligible for benefits.

In those countries where unemployment compensation is largely dependent on general revenues, this financing method may be responsible for a higher level of wages. Admittedly this group includes some countries — such as Belgium, Denmark and Spain — that are frequently criticized for having high wages as a result of overly generous unemployment compensation. According to this criticism, these countries should reduce both the coverage and the level of unemployment insurance and provide some assistance only to low-income unemployed workers.

However, the interpretation and the policy implications emerging from the present analysis are radically different. In countries where unemployment benefits appear to have an unfavourable impact on unemployment and wages, this does not seem to be due to the fact that the compensation provided is too generous but to the specific features of the schemes' administration. In particular, it is the assistance-like nature of some of these schemes that may be responsible for higher unemployment rates. As a consequence, there are no solid grounds for claiming that these countries should reduce the level of benefits provided to their unemployed workers. On the contrary, they can continue to offer the same level of unemployment compensation provided that they make their schemes less dependent on general revenues and more self-financed through contributions.

It should be stressed that this argument by no means diminishes the importance of social assistance for the weaker groups of the labour force. What it does highlight, however, is that a social security system based exclusively on unemployment benefits would be either inadequate or inefficient. Inadequate because unemployment insurance would exclude all those disadvantaged individuals who need assistance but who are not eligible for unemployment benefits; inefficient because pursuing social assistance through unemployment assistance would likely result in unnecessarily high rates of unemployment. This implies that unemployment insurance should be kept distinct from social assistance but that both types of programme are necessary to reconcile the objective of social equity with that of economic efficiency.

Concluding remarks

The analysis of the effects of two different unemployment compensation schemes reveals that while unemployment assistance tends to increase both the duration and the incidence of unemployment, unemployment insurance is likely to be without effect on the unemployment rate. This result depends on the specific features that characterize unemployment insurance schemes, namely eligibility conditions and self-financing. The eligibility conditions tend to prevent such schemes from causing a rise in the duration of unemployment; and, coupled with a contributions-based financing, they are also likely to counterbalance any adverse effects benefits may have on wages and employment.

A brief review of the unemployment compensation schemes of major industrialized countries shows that, in all of them, eligibility conditions are such that benefits are unlikely to be responsible for a longer duration of unemployment. The evaluation of those schemes in terms of their effects on wages and employment, however, appears less clear-cut. In about half the countries examined the financing of unemployment insurance seems to be heavily dependent upon general revenues. To the extent that benefits are not tied to contributions from insured workers and their employers, they may have an unfavourable impact on wages and employment. Yet the analysis developed in this article suggests that there is no need for these countries to reduce unemployment compensation. What does seem desirable by way of a policy recommendation would be to separate more neatly unemployment insurance

from social assistance. To preserve economic efficiency, unemployment benefits should be granted according to an insurance scheme, whereas the objective of social equity should be pursued through a separate assistance programme.

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Appendix

Consider an economy in which wages are determined according to some *efficiency-wages* rule. The following analysis is within the Shapiro-Stiglitz (1984) shirking model, but the same results apply to the Stiglitz (1985) turn-over model.

The standard no-shirking condition requires the expected present discounted utility of an employed non-shirker (V_E^N) to be no lower than the expected present discounted utility of an employed shirker (V_E^S):

$$V_E^N \geq V_E^S$$

The work utility for a shirker and a non-shirker are given by:

1) $$V_E^N = w - e - t + (1+r)^{-1}\left\{s V_u^N + (1-s)V_E^N\right\}$$

2) $$V_E^S = w - t + (1+r)^{-1}\left\{(s+q)V_u^S + \left[1-(s+q)\right]V_E^S\right\}$$

where: w = the real wage rate;
s = the (exogenous) probability of being laid off;
q = the (exogenous) probability of detection for a shirker;
e = effort on the job for a non-shirker;
t = the per capita tax (in a UA scheme) or contribution (in UI);
r = the discount rate, which, in equilibrium, equals the interest rate;
V_U^i = the expected present discounted utility of being unemployed for a shirker (i=S) and for a nonshirker (i=N).

The expected present discounted utility for a shirker and a non-shirker in unemployment are:

3) $$V_U^N = b^N + (1+r)^{-1}\left\{aV_E^N + (1-a)V_U^N\right\}$$

4) $$V_U^S = b^S + (1+r)^{-1}\left\{aV_E^S + (1-a)V_U^S\right\}$$

where a = the probability for an unemployed individual to find a job;
b = the level of unemployment benefits for a shirker (i=S) and for a non-shirker (i=N).

Regime I: Unemployed assistance (UA)

All unemployed individuals (either shirkers or non-shirkers) receive the same level of unemployment benefits for an unlimited duration. This implies:

$$b^N = b^S = b \quad \text{or, equivalently,} \quad V_U^N = V_U^S = V_U$$

The no-shirking condition ($V_E^N \geq V_E^S$) is satisfied for:

5) $$w \geq \left(\frac{r}{1+r}\right)V_U + \left[1 + \frac{r+s}{q}\right]e$$

Solving equations 1 and 3 for V_U:

6)
$$V_U = \left(\frac{1+r}{r}\right)\left(\frac{1}{(r+a)(r+s+a)}\right)\left[(r+a)(r+s)b + a(r+a)(w-e-t)\right]$$

and substituting the value of V_U into equation 5, the equilibrium real wage rate turns out to be:

7) $$w = b + t + e + \frac{e}{q}(r+s+a)$$

According to equation 7, UA raises the equilibrium wage rate for two reasons:

i) unemployment benefits reduce the disutility of unemployment;

ii) taxes reduce the utility of employment.

Since the demand for labour is a negative function of the real wage, this implies a reduction in employment.

Regime II: Entitlement to benefits is limited to the non-shirking unemployed

Unlike unemployment assistance, under an unemployment insurance scheme only the non-shirking unemployed are entitled to benefits. This implies:

$$b^S = 0; \qquad b^N = b \qquad \text{and} \qquad V_U^N - V_U^S = \frac{1+r}{r+a}b$$

The no-shirking condition then becomes:

8) $$w \geq t + e\left(1 + \frac{r+s}{q}\right) + \frac{1}{1+r}\left[rV_U^S - s\left(V_U^N - V_U^S\right)\right]$$

Solving equations 3 and 4 for *w*, we obtain:

9) $$w = -\frac{s}{r+a}b + t + e\left(1 + \frac{r+s+a}{q}\right)$$

from which it follows that unemployment benefits *reduce* the equilibrium wage rate, whereas contributions tend to increase it. Which of these two effects will prevail depends on how the scheme is financed.

Regime II (a): Benefits are financed by general revenues

Suppose that benefits are financed by a tax on the currently employed workers. For the scheme to be in equilibrium it is necessary that, in any period, the value of taxes be equal to the value of benefits:

10) $$Lt = Ub$$

Labour market equilibrium requires that the number of individuals entering unemployment in each period must equal the number of unemployed leaving it in the same period:

11) $sL = aU$

Conditions 10 and 11 jointly determine the equilibrium per-capita tax as a function of the level of benefits:

12) $t = \frac{s}{a} b$

Substituting equation 12 into equation 9 and differentiating with respect to b, one obtains:

13) $\frac{dw}{db} = \frac{dt}{db} - \frac{s}{r+a} = \frac{s}{a} - \frac{s}{r+a} > 0$ for $r>0$.

Therefore, unemployment insurance always causes an increase in the equilibrium wage rate (and a reduction in employment) for any positive value of the discount rate.

Regime II (b): Benefits are financed by the accumulation of workers' contributions

The financial equilibrium of the scheme requires that, for each worker, the discounted flow of contributions must equal the expected flow of unemployment benefits. For the sake of simplicity, suppose that one period of employment is sufficient for non-shirkers to qualify for benefits. If the duration of benefits is n periods, the equilibrium is given by:

14) $t(1+r)^{n-1} = sb\sum_{i=0}^{n-1}(1-a)^{i}(1+r)^{n-1-i}$

For $n \to \infty$, the previous condition becomes:

15) $t = \frac{s}{r+a} b$

so that

16) $\frac{dw}{db} = \frac{dt}{db} - \frac{s}{r+a} = 0$

Therefore, if shirkers are excluded from benefits and the scheme is financed by the accumulation of workers' contributions, the effects of contributions and benefits on the equilibrium wage rate cancel each other out and the scheme has no impact on the level of employment.