DO SOCIAL POLICIES HARM EMPLOYMENT AND GROWTH?

F. VAN DER PLOEG

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Abstract

In economies with competitive labour markets social policies harm employment and output. In Europe, in particular, non-competitive labour markets with trade unions, efficiency wages and/or costly search and mismatch seem more realistic. Social policies such as progressive taxation or facilitating corporatism may well induce wage moderation and boost employment and output. Although unconditional unemployment benefits destroy jobs, conditional benefits may spur job growth. In a second-best world usual effects of social policies are thus overturned. In addition, the incidence of taxation and the effects of tax progressivity depend crucially on the specific features of the welfare state, e.g., whether benefits are indexed to wages or not. In a full political-economic equilibrium a more equitable distribution of income and assets leads to a median voter who is better off and thus votes for less 'populist' policies. Hence, employment and economic growth will be higher and inflation lower. In general the supremacy of 'laisser faire' is questioned also by international comparisons.

Keywords: social policies, conditional unemployment benefits, non-competitive labour markets, employment, growth, politics.

JEL Code: E6, H0, J0, O4.

F. van der Ploeg
Robert Schuman Centre
European University Institute
Badia Fiesolana, Via dei Roccettini 9
I-50016 San Domenico di Fiesole (FI)
Italy
Rick.vanderPloeg@iue.it

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1. Introduction

Many governments in Western Europe have been pursuing during the eighties and nineties a neoliberal political agenda of rolling back the welfare state and introducing better economic incentives. Typically, this has involved cutting public spending in order to reduce tax rates in the hope of boosting employment and output. It has also often involved massive overhauls of systems of income taxation by cutting marginal tax rates and scrapping all kinds of deductables. All of this is meant to reduce the progressivity of tax systems and improve incentives to work and to boost the economy. Part of this agenda has also involved trimming down the welfare state by cutting unemployment benefits or making the eligibility conditions tougher. It is interesting that this neoliberal political agenda has been condoned by many economists and has been adopted by a large number of conservative, christian-democratic and even 'Third-Way' (or 'Neue Mitte') social-democratic political parties throughout Europe. To the outsider it looks like the agenda of rolling back the welfare state and improving incentives is value free and makes good economic sense to implement whatever the political ideas of the government in office.

However, many of the above ideas have not been carefully analysed. In fact, they really only make sense in economies with competitive labour markets while anybody can see that the European labour markets are far from competitive. They are characterised by trade unions with sufficient power to set wages, firms who like to pay fair wages to boost morale, motivation and productivity, and mismatch between vacancies and unemployment.

In a second-best world social policies, for example, redistributive policies, may boost employment, since one distortion (a non-competitive labour market) may be partially offset by another distortion (a progressive tax system). A higher ratio of unemployment benefits to wages typically raises the rate of unemployment in competitive and non-competitive labour markets. However, if one takes account of the institutional details of the welfare state, benefits are neither indefinite nor unconditional. It is not clear at all that benefits destroy jobs in such situations.

Section 2 discusses the adverse effects of a higher burden of taxation and redistributive policies in the benchmark case of competitive labour markets. Section 3 investigates the effects of the tax burden, a more progressive tax system and a higher ratio of unconditional benefits to wages in non-competitive labour markets characterised by trade unions, efficiency wages and search frictions. It is pointed out that the incidence of taxation depends crucially on the properties of the welfare state, in particular on whether benefits are indexed or not to after-tax wages. If benefits are indexed, the unemployment rate is unaffected by changes in average income or payroll taxes. If benefits are not indexed, a higher tax burden pushes up

unemployment. More progressive taxes tend to induce wage moderation and boost employment in these non-competitive settings of the labour market. Section 4 extends the theory of shirking and unemployment to show that higher unemployment benefits may actually lower the unemployment rate and raise the vacancy rate if benefits are only granted to people who become involuntarily unemployed while voluntary quits and dismissed shirkers are not entitled to unemployment benefit. Conditional unemployment benefits may thus spur job growth. Section 5 briefly discusses why bashing trade unions may actually harm employment unless one can goes the whole way and get rid of them completely. It also highlights the potential merits of corporatism. Section 6 analyses the differential effects of various types of public spending cuts on employment and economic growth. In particular, the effects of higher public employment are contrasted with higher public spending on private goods. Section 7 discusses the political economy of redistributive policies. If the distribution of income and assets is more equal, the median voter outcome will lead to less populist policies which resort less to distortionary taxes on labour income and capital and the inflation tax. In such a political-economic equilibrium a more equal distribution of income and assets thus leads to higher labour supply, higher growth and lower inflation. Section 8 concludes and comments on the neoliberal policy agenda pursued by many governments in Europe.

2. The benchmark case: competitive labour markets

In order to assess the effects of social policies on employment and output in non-competitive labour markets, it is helpful to present the benchmark case of competitive labour markets with undifferentiated, homogenous labour. We first discuss labour supply and then look at labour demand and labour market equilibrium.

Each household derives utility U(C,V) from private consumption C and leisure V. We assume that the utility function is concave and homothetic. We normalise so that each household has one unit of time available, which can be used to work H hours or to enjoy leisure V=1-H. For simplicity, we assume that households only have wage income. Hence, their budget constraint is $C=W_A H$ where $W_A \equiv(1-T_A)W$ stands for the after-tax wage, W is the pre-tax wage and T_A denotes the average tax rate. Each household maximises utility by setting the marginal rate of substitution between leisure and consumption equal to the marginal consumer wage, that is $U_V/U_C = (1-T_M)W$ where T_M denotes the marginal tax rate on labour income. Loglinearising (ignoring constants and using $\log(1-T_i)\approx-T_i$, i=A,M) this first-order condition and the household budget constraint yields labour supply:

$$\log(H) = \varepsilon_U \log(W) - \varepsilon_C T_M - \varepsilon_I T_A,$$

where $\varepsilon_I \equiv -V<0$ is the income elasticity of labour supply, $\varepsilon_C \equiv \sigma V>0$ is the compensated wage elasticity of labour supply, $\varepsilon_U \equiv (\sigma-1)V = \varepsilon_C + \varepsilon_I$ is the uncompensated wage elasticity of labour supply and $\sigma \equiv -d\log(C/V)/d\log(U_C/U_V)>0$ denotes the elasticity of substitution between leisure and consumption goods.

A higher pre-tax wage has two effects. On the one hand, it makes leisure more expensive than consumption goods and thus encourages substitution away from leisure and each household to work more. On the other hand, it makes each household richer so they consume less leisure and less consumption goods and thus work less. If the former (i.e., the substitution effect measured by ε_C) dominates the latter (the income effect measured by ε_I), i.e., if $\sigma>1$, a higher wage increases labour supply. Otherwise, i.e., if $\sigma<1$, the labour supply curve bends backwards.

Only the income effect is relevant for changes in the *average* tax rate, hence a higher average tax rate makes people poorer and thus makes them work harder. In contrast, the substitution effect is relevant for changes in the marginal tax rate. In contrast, a higher *marginal* tax rate thus encourages substitution towards leisure and reduces incentives to work. It is helpful for the discussion to define the following measure of the progressivity of the labour income tax:

$$S \equiv d\log(W_A)/d\log(W) = (1-T_M)/(1-T_A).$$

This measure S is called coefficient of residual income progression and gives the percentage increase in the after-tax wage resulting from a one percent increase in the pre-tax wage. Because most tax systems are progressive and allow for many deductables, the marginal tax rate is typically higher than the average tax rate and thus $S<1$. A more progressive tax system for a given average tax rate corresponds to a reduction in S. This depresses labour supply, since

$$\log(H) = \varepsilon_U [\log(W) - T_A] + \varepsilon_C \log(S) = \varepsilon_U \log(W_A) + \varepsilon_C \log(S).$$

For a given degree of tax progressivity S, a higher average tax rate now only raises labour supply if the income effect dominates the substitution effect. It is the after-tax wage that matters for labour supply. There are N households, so aggregate labour supply equals NH.

In the competitive benchmark view firms maximise profits under perfect competition.

The optimal level of employment L follows from setting the marginal productivity of labour to the product wage, that is $F'(L)=(1+T_L)W$ where F(L) is a standard production function with diminishing returns to scale ($F'>0$, $F''<0$) and T denotes the payroll tax firms have to pay. Hence, labour demand falls if the pre-tax wage or the payroll tax rises:

$$\log(L) = - \varepsilon_D \ [\log(W) + T_L],$$

where $\varepsilon_D \equiv -(1+T)W/F''L>0$ is the wage elasticity of labour demand.

In a competitive labour market the wage adjusts until labour demand L equals labour supply NH. This yields the following expressions for the producer wage and the consumer wage:

$$\log((1+T_L)W) = [\varepsilon_U (T_A+T_L) - \varepsilon_C \log(S)]/(\varepsilon_U+\varepsilon_D)$$

$$\log(W_A) = [- \varepsilon_D (T_A+T_L) - \varepsilon_C \log(S)]/(\varepsilon_U+\varepsilon_D).$$

In an economy with a competitive labour market it does not matter for employment whether taxes are imposed on firms or workers. Hence, a higher payroll tax on firms is partially shifted onto workers by lowering the wage, particularly if labour demand is relatively elastic and labour supply inelastic. In that case, the fall in employment is relatively small. A higher average tax on workers depresses the after-tax wage, but not fully as firms have to pay a higher wage. Clearly, the burden of this tax rise is partially shifted to firms, especially if labour supply is relatively elastic and labour demand inelastic. In that case, the higher labour income tax causes a relatively large drop in employment. In fact, micro-econometric studies of labour supply suggest that labour supply for males is very inelastic ($\varepsilon_U \approx 0$), though for females the uncompensated wage elasticity may be small and positive. This would suggest that, in practice, producer wages, employment and output hardly change when the average income tax or the payroll tax changes and that the burden of taxation falls almost entirely on households.

A more progressive tax system (lower S) pushes up wages and depresses employment. The underlying disincentives operate through the substitution effect and are particularly strong if σ is large and people are already enjoying a lot of leisure.

Although it seems a bit strange to allow for unemployment benefit in a model in which there is no involuntary unemployment, one could analyse the effects of giving people an unconditional benefit (say, a tax credit or basic income), or, alternatively, a 'wage' for leisure.

Both of these will make people work less hours, drive up the wage and cut employment and output. If this benefit is paid for by distortionary taxes on labour, the fall in employment and output will be even greater. With competitive labour markets benefits give people an incentive to enjoy leisure rather than to work. Clearly, in an economy with competitive labour markets social policies such as a higher tax rate to pay for, say, education or public health or a more progressive tax system, on the one hand, push up pre-tax wages and damage employment, and, on the other hand, depress after-tax wages. Giving unemployed people a benefit in such an economy would hurt employment. We want to demonstrate in sections 3 and 4 that these results are not robust and may be overturned in economies with non-competitive labour markets.

3. Progressive taxation and unemployment benefits in non-competitive labour markets

The competitive view of the labour market is not very realistic. Many economies experience 'real' unemployment, not leisure or holidays disguised as unemployment. Although most people can buy consumption goods as long as they are prepared to pay the market price, this is not generally the case on the labour market. Many jobs are not available to outsiders offering to work at the going wage, so that jobs in contrast to most consumption goods are rationed. In fact, wages are typically set by trade unions, by firms or in negotiations between workers and firms rather than as the outcome of clearing labour markets. Also, macro-econometric evidence suggests that wages are not very sensitive to employment and that aggregate demand shocks induce large fluctuations in employment and output and almost no fluctuations in real wage. This evidence in favour of real wage rigidity is at invariance with micro-econometric evidence which suggests very low wage elasticities of labour supply. More realistic views of the labour market thus stress non-competitive features such as real wage rigidity - e.g., Layard, Nickell and Jackman (1991) and Heijdra and van der Ploeg (2002). This yields equilibria with involuntary unemployment where *effective* labour supply is below *notional* labour supply. In this section we thus examine the effects of changes in the tax burden and in the progressivity of the tax system on wages, employment and output within the context of non-competitive labour markets. In particular, we analyse the incidence of taxation and the effects of tax progressivity on employment in settings with trade unions, efficiency wages and search frictions where wages are set, respectively, by unions, by firms and jointly by firms and workers. In fact, our objective is to explain why in many econometric estimates of wage equations higher average tax rates give rise to upward wage pressure while higher marginal tax rate induce downward wage pressure - e.g., Lockwood and Manning (1994). The analysis also builds on Bovenberg and van der Ploeg (1994) and Pissarides

(1998). Although we do not consider insider-outsider explanations of unemployment - e.g., Lindbeck and Snower (2002), some of these results would carry over to such a setting as well. Insiders' positions are protected by rent-related labour turnover costs (mainly firing costs), and thus insiders will be able to bargain for higher wages than is necessary to recruit, retain or motivate them. They can also insist on seniority rules ('last in, first out'), severance pay, advance notices of dismissal and other terms of employment that diminish chances of outsiders. In a sense, the insider-outsider view explains the power of trade unions and thus a move towards more progressive taxation is likely to boost jobs in the same way.

3.1. Trade unions

Substantial parts of the labour force are unionised. In some countries trade union agreements are legally extended to all workers, thus making the power of trade unions even stronger. A competitive labour market obviously does not make sense then. One needs to allow for the power of trade unions to influence wages and employment. Although we could examine various right-to-manage and Nash bargaining models of trade unions - see, for example, Booth (1995), we will simple consider monopoly trade unions which have sufficient monopoly power in their sector of the labour market to set the wage for its members given knowledge of the labour demand curve. Firms subsequently take the wage set by the monopoly union as given when maximising profits.

Right-to-manage models allow the trade union to bargain with firms over the wage, but not the level of employment. This would not change the results very much, because the outcome will still be on the labour demand curve. We assume middle-sized trade unions, which are big enough to set wages but too small to internalise the adverse effects of higher wages on prices and thus on purchasing power of their members. The unions are also too small to engage in bargaining with the government over taxation, benefits, child care, pensions, training and other matters that may concern employees. In other words, trade unions do not internalise the government budget constraint and thus ignore the (small) effects of a rise in the wage on, say, taxes and unemployment benefits the government might set and thus indirectly on the welfare of trade union members; however, see section 5. The welfare of trade union members is captured by a utilitarian welfare function, or, equivalently, by an expected utility approach where L/N denotes the probability of being employed and $U \equiv 1-L/N$ the probability of being unemployed.

Firms face a concave production function $Y=F(L)$, where Y denotes output and L employment. Maximisation of profits requires firms to set the marginal productivity of labour equal to the real producer wage, i.e., $F'(L)=(1+T_L)W$, which gives the demand for labour as a

decreasing function of the producer wage. The monopoly trade union chooses the wage to maximise the welfare of its members, that is

$$W = \arg\max\ [L\ v(W_A) + (N-L)\ v(B)]$$

subject to the labour demand curve, where $v'>0$, $v''<0$ and B indicates the level of the unemployment benefit. This yields the following union wage mark-up:

$$[v(W_A) - v(B)]/[W_A\ v'(W_A)] \ = \ S/\varepsilon_D.$$

The left-hand side gives the difference in utility of an employed and an unemployed trade union member, converted from utils into production units, and expressed as a fraction of the after-tax wage. The right-hand side shows that this union wage mark-up is particularly large and thus unemployment is very high if the wage elasticity of labour demand ε_D is very low. Also, the union wage mark-up falls and employment rises if the tax system becomes more progressive (lower S). This result contrasts with that under competitive labour markets. If the coefficient of relative aversion is unity, the union wage mark-up yields $W_A=\exp(S/\varepsilon_D)$ B. In general, the unemployment benefit corresponds to a 'floor' in the after-tax wage so that a rise in the benefit immediately translates into a rise in the wage and a fall in employment. For a given progressivity of the tax system, a higher average tax rate on labour income T_A leaves the after-tax wage unaffected and thus the pre-tax wage rises. Clearly, the after-tax wage shows real wage rigidity in the face of this shock so that the whole burden of the labour income tax is borne by firms. An increase in the payroll tax to be paid by firms also leaves the after-tax wage unaffected, so labour costs rise and employment falls. The burden of taxation is again carried by firms not workers.

So far, we assumed that a laid off trade union member cannot find a job elsewhere in the economy and has to make do with an unemployment benefit. It may be more realistic, especially for the case of middle-sized trade unions, that unemployed members have a probability 1-U of finding a job and a probability U of being on the dole, where U denotes the unemployment rate. In that case, it is not the benefit B that is the relevant alternative income but the expected outside income, i.e., $W_O=(1-U)W_A+UB$ in symmetric equilibrium. Since $W_A-W_O=U(W_A-B)$, the income differential one can earn with a union job increases if the differential between the after-tax wage and the benefit is high and if the chance of having to make do with a lower income on the dole is high (if the unemployment rate is high). With risk-neutral preferences (linear v(.)) we obtain:

$$U = (S/\varepsilon_D) /[1 - (B/W_A)].$$

Equilibrium unemployment is high if the replacement ratio $\rho \equiv B/W_A$ is high, the tax system is not so progressive and labour demand is fairly inelastic.[2] If benefits are indexed to after-tax wages, this gives the equilibrium unemployment rate. If benefits are not indexed, the above gives a wage setting equation which shows the wage rising with both the level of employment and the benefit. Together with the labour demand curve, one can then solve simultaneously for employment and the wage. Although cuts in payroll taxes do not affect the unemployment rate if benefits are indexed to after-tax wages, they raise the wage, boost employment and reduce the unemployment rate if benefits are not indexed - cf.. Bovenberg and van der Ploeg (1994) and Pissarides (1998). Hence, if benefits are not indexed, the wage setting equation is flatter and payroll taxes boost employment by cutting the replacement rate and increasing the incentive to work - see Figure 1.

The result that a more progressive tax system moderates wages and raises employment and output also holds in a 'right-to-manage' model where the wage follows from a Nash bargain between trade unions and firms and employment is subsequently set by firms. The ratio of the wage bargaining outcome to outside income is then still high if labour demand is fairly inelastic and the degree of tax progressivity is small. In addition, the wage is high if the 'ability to pay' (as measured by the share of profits relative to that of wages) is high and the bargaining power of firms relative to that of unions is relatively weak. Also, imperfect competition in product markets lowers the wage elasticity of labour demand and bolsters the power of trade unions.

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[2] Similar expressions result if trade union members are risk averse. For example, if the coefficient of relative risk aversion is one, one obtains $U = [1 - \exp(-S/\varepsilon_D)]/[1 - (B/W_A)]$. In general, more risk aversion tends to make unions moderate wages in order to avoid the risk of unemployment for its members. Consequently, the unemployment rate is lower if union members are risk averse.

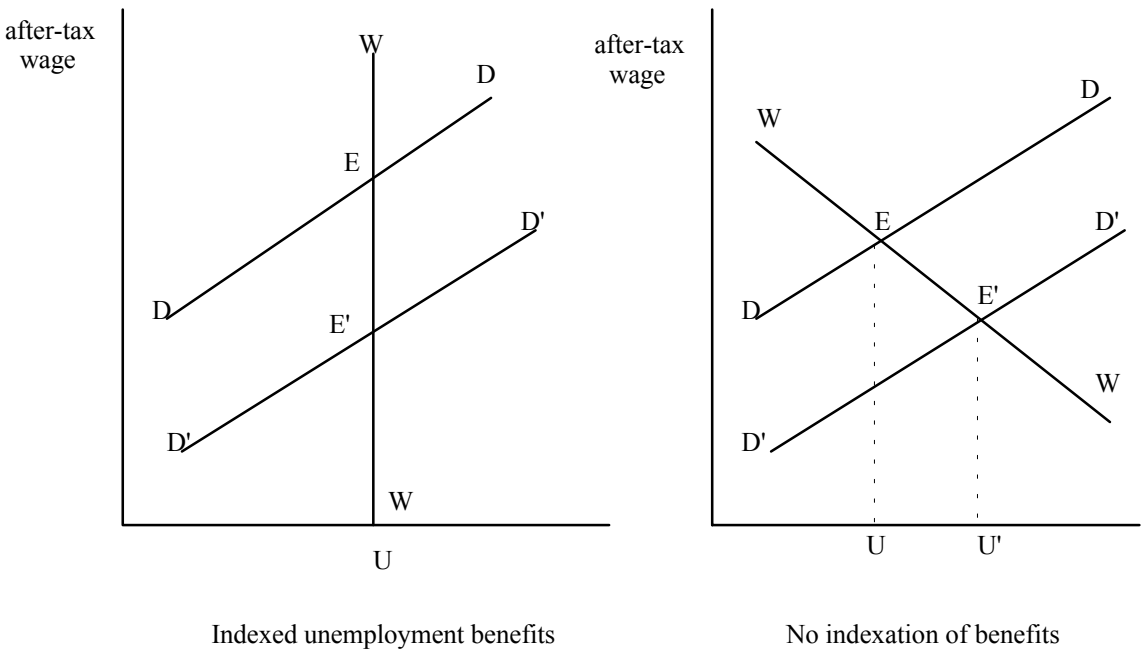

Figure 1: Indexation of benefits and incidence of taxes in non-competitive labour markets

3.2. Efficiency wages

The main idea behind efficiency wages is that workers will produce more output if they are paid more and thus that firms can increase their profits by paying their workers more than the market-clearing wage. Most stories of efficiency wages suggest that the efficiency of workers depends on the wages firms pay relative to opportunities in other firms and to income on the dole. This leads to leapfrogging, which is often observed in labour markets. With efficiency wages the wage is no longer determined by the marginal productivity of labour such as the capital stock and the state of technology, but by more sociological considerations. As a result, the 'law of one price' is repealed so that inter-industry wage differences occur even if abilities (resulting from education, experience, etc.) are the same and jobs are equally (un)pleasant.

Firms want to pay relatively high wages in order to recruit, retain and motivate workers. Typically, abilities and effort of workers are hard to monitor for a firm. However, by paying a bit more than elsewhere, firms can attack the problem of adverse selection by trying to improve the average quality of the workforce. This can work if workers' reservation wages and abilities are positively correlated. Paying a 'fair' wage makes people feel they are treated well, so it reduces work disruption and raises morale and work effort. Since high morale may be more important in some professions (pilots, firemen) than in others, it is quite possible that homogenous labour

earns different wages in different industries.

We thus assume that effort by workers in firm i depends on differences in indirect utility if one works and if one looses a job, so effort depends on relative wages:

$$E_i = [v(W_{Ai}) - v(W_O)]^{\varepsilon} \quad \text{with} \quad W_O \equiv UB + (1-U)\, W_A = [1 - (1-B/W_A)\, U]W_A$$

where $\varepsilon>0$, W_{Ai} is the after-tax wage of a worker in firm i, W_O is the outside income, B stands for the level of unemployment benefit, and U denotes the unemployment rate. The v(.) represent the indirect utilities as before. The outside income workers in firm i face are with probability (1-U) the after-tax wage elsewhere W_A if employed in another firm and with probability U the unemployment benefit B. Clearly, effort depends on relative wages (leapfrogging). Effort also increases if the chance of becoming unemployed and experiencing a large drop in income is high, that is if the unemployment rate U is high and the replacement rate $\rho \equiv B/W_A$ is low.

Firm i faces a simple linear production function, $Y_i = E_i\, L_i$, so that output increases if the efficiency or the volume of labour increases. Firm i sets the wage it pays its workers in such a way as to maximise profits, $[E_i - (1+T_L)\, W_i]\, L_i$, or equivalently to minimise the wage needed to ensure a given level of efficiency. This yields the wage mark-up set by firm i:

$$[v(W_{Ai}) - v(W_O)]/[W_{Ai}\, v'(W_{Ai})] \;=\; \varepsilon\, S,$$

where use has been made of $E_i=(1+T_L)W_i$ in equilibrium. This leapfrogging formula shows that firm i tries to set relatively high wages if the efficiency wage effect ε is strong and the tax system is not very progressive. Also, more risk averse workers means that firms have to pay less to recruit, retain and motivate workers. Again, in contrast to competitive labour markets, a more progressive tax system reduces the wage mark-up,. The reason is that firms have in the margin less incentive to offer higher wages in order to boost morale etc. if the government grabs a bigger slice of the wage rise and thus makes it less attractive for workers to exert effort. In (symmetric) equilibrium all firms pay the same, $W_{Ai} = W_A$, and the wage mark-up is $(1-\rho)U$. Leapfrogging thus causes a higher unemployment rate. With risk-neutral preferences one obtains:[3]

[3] If workers have a unit coefficient of relative risk aversion, one obtains $U=[1-\exp(-\varepsilon S)]/[1/(B/W_A)]$. In general, risk averse workers can be paid less in order to lower chances of layoffs and thus in equilibrium unemployment is lower than with risk-neutral workers.

$$U = \varepsilon\, S/[1 - (B/W_A)].$$

A bigger efficiency wage effect (higher ε), a higher replacement rate and a less progressive tax system (higher S) all lead to a higher unemployment rate. More risk aversion among workers also leads to a lower unemployment rate. A more progressive tax system boosts employment and output and reduces unemployment, since it is less attractive to pay high wages and to leapfrog other firms and for workers to do their best. Consequently, labour productivity and the pre-tax wage fall. This contrasts starkly with the outcome under competitive labour markets where more progressive taxes, destroy incentives to work more hours and thus lower employment and output. If we allow for optimal choice of hours worked and efficiency wages, it is not difficult to show that a more progressive tax leads to less hours worked per job and thus to even more jobs. This may be what many advocates of social policies have in mind.

To assess the effects on the unemployment rate, it is crucial to know what the characteristics of the welfare state are. If unemployment benefits are fixed automatically to after-tax wages (ρ fixed), an increase in the average income tax rate T_A or the payroll tax T_L does *not* affect the unemployment rate - cf., section 3.1. However, if benefits are not indexed to after-tax wages (B fixed), the unemployment rate is a decreasing function of after-tax wages and one needs to know the expressions for pre-tax and after-tax wages (ignoring constants) in order to assess the incidence of taxes and the effects on the unemployment rate:

$$\log(W) = [1/(1-\varepsilon)]\,[\varepsilon\,\{\log(S) - T_A\} - T_L] \quad \text{and} \quad \log(W_A) = [1/(1-\varepsilon)]\,[\varepsilon \log(S) - T_A - T_L].$$

If one considers an increase in taxation while keeping the degree of tax progressivity unchanged, the marginal and the average tax rates rise together and the pre-tax wage falls. After-tax wages then fall by more than 100 per cent and thus workers bear more than 100 per cent of the tax burden. Again, these results are very different from the standard ones for a competitive labour market. They are also different from the outcomes under a monopoly trade union, because there it was the firms rather than the workers who carried burden of labour income taxation. This is not very surprising given that under monopoly unions unions set wages and under efficiency wage firms set wages. To return to the question of what happens if unemployed benefits are not indexed to after-wages, an increase in average labour income or payroll taxes depresses after-tax wages more than 100 per cent, increases the replacement rate and thus increases the unemployment rate. The effect of taxes thus depends crucially on the properties of the welfare

state. Also note that the beneficial effects of more progressive taxes, i.e., wage moderation and a lower unemployment rate, are less if benefits are not indexed to after-tax wages as then the replacement rate is pushed up by the fall in after-tax wages. The various components of the welfare state can clearly not be seen in isolation.

3.3. Search and matching frictions

We shall now consider the effects of taxation and benefits in a non-Walrasian economy in which it is costly and takes time to match preferences, skill and needs. Unemployment results, since it takes time to match vacancies and unemployed. Jobs and workers are heterogenous. Each job corresponds to a match between a firm and a worker. The surplus of the match is divided up by bargaining between the worker and the firm. We abstract from on-the-job search. This economy with search frictions is based on Pissarides (1990).

Let N denote the number of workers, U the unemployment rate, V the vacancy rate and X the matching rate. The constant-returns-to-scale and concave matching function G(.) then shows the number of matches being made: $X\,N = G(U\,N, V\,N)$. The instanteneous probability of a job being filled thus equals $q \equiv XN/VN = G(U/V,1) \equiv q(\theta)$ where $\theta \equiv V/U$ denotes the vacancy-unemployment ratio ('labour-market tightness') and $q'<0$. We assume $0<-\theta q'/q<1$. Equilibrium in the 'bath tub' of unemployed requires that the expected inflow $s\,(1-U)\,N$, where s stands for the exogenous job separation rate, should equal the expected outflow of the bathtub $q(\theta)\,V\,N$. Use $V=\theta U$ to obtain the following expression for the Beveridge curve:

$$U = s/[s + \theta\, q(\theta)].$$

A low separation rate s or, alternatively, legal restrictions on firing a worker - cf. Saint-Paul (1996) - lowers the unemployment rate for a given level of labour-market tightness. A tighter labour market (higher θ) depresses the unemployment rate for a given separation rate.

Output follows from a concave, constant-returns-to-scale production function F(K,1), where K denotes the firm's capital stock. Free entry and exit of firms drives the value of a vacant job to zero, so in equilibrium firms do not make profits. This yields the zero-profit condition:

$$[F_L(K,1) - (1+T_L)\, W_A/(1-T_A)]/(R+s) = \gamma/q(\theta),$$

where R denotes the interest rate and γ indicates the constant search costs per unit of time. The

left-hand side shows that the value of an occupied job must equal the present value of the rents or surplus of a job, for as long the job is expected to last. This must in equilibrium equal the right-hand side, i.e., the expected value of search costs being the search costs γ times the expected duration of a vacancy $1/q(\theta)$. The demand for capital follows from the condition that the marginal productivity of capital must equal the user cost of capital, that is $F_K(K,1)=R+\delta$ where δ denotes the depreciation rate of the capital stock.

The surplus of a job match is divided between the worker and the firm by Nash bargaining. The wage thus follows from maximising the Nash product, i.e., the weighted average of the log of the surplus of the worker and that of the firm:

$$\beta \log(V_E - V_U) + (1-\beta) \log(V_O - V_V)$$

where V_E, V_U, $V_O=F_L-(1+T)W_L/(R+s)$ and $V_V=0$ denote, respectively, the value of an employed worker, the value of an unemployed worker, the value of an occupied job and the value of a vacant job. The weight β denotes the relative bargaining strength of the worker and $1-\beta$ that of the firm. The annuity value of an employed worker equals $RV_E=W_A-s(V_E-V_U)$, that is the after-tax wage minus the expected loss in value if the job is lost. V_U is taken as given. Hence, using $V_E-V_U=(W_A-RV_U)/(R+s)$, we obtain the optimal rent-sharing condition under the Nash bargain:

$$(1-\beta)\ (1+T_L)\ (V_E - V_U) = \beta\ (1-T_M)\ (V_O - V_V).$$

The value of an unemployed worker follows from the reservation wage:

$$R\ V_U = B + \theta\ q(\theta)\ (V_E - V_U)$$

which says that the reservation wage of an unemployed worker equals the unemployment benefit plus the expected increase in value if a job match occurs. Substitution of the expressions for the various value functions into the rent-sharing condition yields the following Nash bargaining outcome for the wage:

$$W_A = [(1-\beta)\ B + \beta\ S\ \{F_L(K,1) + \theta\ \gamma\}(1-T_A)/(1+T_L)]/[1 - \beta\ (1-S)].$$

Hence, the worker gets an average of the unemployment benefit and the surplus, where the

surplus is the sum of the marginal productivity of labour and the expected search costs that are saved if the deal is struck (i.e., average hiring costs per unemployed worker). The worker can ask more from the firm, since he knows the firm has to incur search costs if it has to look for another job match if the deal is not struck. Clearly, if the worker has most of the bargaining strength (β close to one), the worker will be able to extract most of the surplus. If the firm is very strong (β close to zero), the worker will have to make do with a wage close to the unemployment benefit.

A recursive solution is easily found by first solving for K from $F_K=R+\delta$, then solving simultaneously for W and θ from the zero-profit and Nash bargaining conditions, and finally computing U and V from the Beveridge curve. Some of the comparative statics are familiar. An increase in the unemployment benefit or an increase in the relative bargaining strength of the worker induce a higher wage bargain, but do not shift the zero-profit condition or the Beveridge curve. Hence, the new wage bargain pushes up the after-tax wage, diminishes labour-market tightness, reduces the vacancy rate and increases the unemployment rate - see Figure 2. A fall in the job destruction rate or tougher firing regulations, cf., Saint-Paul (1996), (lower s) shifts out the Beveridge curve in V-U space *and* shifts out the zero-profit condition in W_A-θ space. It can be shown to raise the power of workers and push up after-tax wages, make the labour market tighter, raise the vacancy rate and increase the unemployment rate. In this particular model the fall in the firing rate is thus outweighed by the fall in the hiring rate. The point is that, if it is more difficult to fire workers, firms react by hiring less workers. Conversely, more labour market flexibility lowers the unemployment rate.

Indexation of unemployment benefits yields a steeper wage bargaining locus (albeit not vertical as in sections 3.1 and 3.2). Hence, the adverse effects of , say, tougher firing regulations on the equilibrium unemployment rate are attenuated. A lower job destruction rate thus yields a bigger increase in after-tax wages of those lucky to keep their job.

A less progressive tax system (higher S given T_A) induces a higher wage bargain, since pushing for higher wages is no longer punished so severely by progressive taxes in the margin. Consequently, the wage is pushed up and the labour market becomes less tight. This results in a lower vacacy rate and a higher unemployment rate. Again the opposite of what happens in competitive labour markets. Conversely, a more progressive tax system encourages wage moderation and results in a higher vacancy rate and a lower unemployment rate - see Figure 2. If unemployment benefits are not indexed to after-tax wages, a higher average tax rate on labour income T_A and a higher payroll tax T_L shift down the wage equation, since higher taxes lower after-tax wages. They also shift back the zero-profit locus, because they reduce the ability to pay

a high wage. The net effect can be shown to lead to a fall in the after-tax wage and a less tight labour market with a lower vacancy rate and a higher unemployment rate.

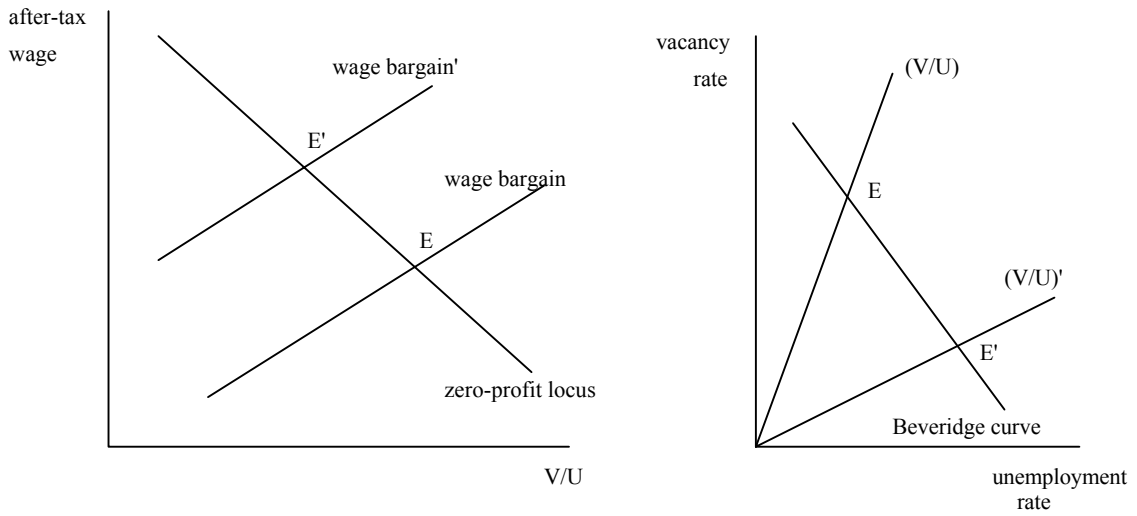

Figure 2: Effects of higher unemployment benefits, greater bargaining strength of workers or less progressive taxation in labour markets with search and matching

4. Unemployment benefits, shirking and the reserve army of unemployed

So far, unemployment benefits have been modelled in the way it is normally done in the literature. Atkinson (2002), however, rightly argues the case for properly allowing for the institutional details of the welfare state. In particular, it is unrealistic to model unemployment benefits as indefinite and unconditional 'income during unemployment'. Most countries require workers to have worked a certain period in order to qualify for the benefit and do not offer benefits for people who have become unemployed after voluntary quits or misconduct. Furthermore, one only gets an unemployment benefit if the claimant makes a serious effort to search and is available for employment if suitable job offers are made. Typically, one can reject job offers a number of times but eventually one must accept a job offer. In any case, the duration of unemployment benefits is often limited to a number of years. Afterwards, unemployed people may get welfare which is no longer related to the wage one once earned as an employee.

To understand the consequences of rolling back the welfare state, it is crucial to allow for these real-life features of unemployment benefit systems. If one merely treats unemployment benefits as indefinite and unconditional income, one is bound to over-estimate the adverse effects of unemployment benefits on unemployment. To make the point that conditional unemployment benefits may boost employment, we modify the no-shirking efficiency wages theory of

unemployment and moral hazard developed by Shapiro and Stiglitz (1984). In particular, we assume that workers who have been fired for misconduct (shirking) are not entitled to an unemployment benefit while people who get laid off without fault of their own do qualify for a benefit. For simplicity, we abstract from the effects of taxes. Unemployment arises in this view of the labour market, because the impossibility of monitoring workers precisely causes a moral hazard problem of workers having a potential incentive to shirk.

Let s be the exogenous separation rate, i.e., the instanteneous probability of a worker having to leave job without fault of its own and let h be the endogenous instanteneous probability of an unemployed person finding a job. This is a story of asymmetric information where firms are unable to perfectly monitor whether workers are doing what is expected of them or not. To capture this, let q be the instanteneous additional probability of a worker being detected and fired if caught shirking. We focus on steady-state analysis and flow equilibrium, so ignore the dynamics of unemployment. The inflow into the pool of unemployed (the 'bath tub') thus equals the outflow, so that $s(1-U)=hU$. The unemployment rate $U=s/(s+h)$ increases in the separation rate s and decreases with the probability of finding a job h.

We focus on the steady state, so abstract from capital gains in the (present) value of non-shirking and shirking workers and of unemployed individuals. This implies that the (expected) value of a worker who does not shirk can be written as:

$$V_W = [W - d + (1-s)\, V_W + s\, V_B]/(1+R) = (W - d + s\, V_B)/(R+s)$$

where R stands for the interest (discount) rate and V_B indicates the (expected) value of an unemployed person who is entitled to a benefit. Hence, the value of a worker this period is in steady state equal to the present value of his earnings W minus the disutility of work d plus his expected value next period. Next period he is employed with probability 1-s and then has value V_W and he is unemployed with probability s and value V_B. The (expected) value of a shirker V_S is, on the one hand, higher as he does not suffer the disutility of work, and, on the other hand, is lower as he has an additional probability q of being caught and dismissed and is then not entitled to unemployed benefit:

$$V_S = [W + (1-s-q)\, V_S + s\, V_B + q\, V_U]/(1+R) = (W + s\, V_B + q\, V_U)/(R+s+q)$$

where V_U denotes the (expected) value of an unemployed person who has been dismissed for

misconduct and is not entitled to a benefit. To make sure that employees have on average no incentive to shirk, $V_W \geq V_S$, firms pay workers just enough to prevent them from shirking:

$$W \geq R\, V_U + (R+s+q)\, d/q - s\, (V_B - V_U).$$

The last term on the right-hand side of this no-shirking condition does not appear in Shapiro and Stiglitz (1984). It shows that firms need to pay workers less to prevent them from shirking, since the penalty of misconduct is raised by denying dismissed shirkers an unemployment benefit.

To complete the model, we need to know the value of the two types of unemployed. The value of a person who got sacked through no fault of his known is:

$$V_B = [v + B + h\, V_W + (1-h)\, V_B]/(1+R) = (B + h\, V_W)/(R+h).$$

where v is the utility of leisure (or, alternatively, welfare or informal earnings in the shadow economy). The value of such a person this period must in steady state equal the present value of utility of leisure plus the benefit plus with probability h the value when he finds a job and with probability 1-h the value when he remains unemployed next period. The value of a dismissed shirker V_U is lower than the value of other unemployed, since he is not entitled to an unemployment benefit:[4]

$$V_U = [v + h\, V_W + (1-h)\, V_U]/(1+R) = (v + h\, V_W)/(R+h) < V_B < V_S \leq V_W.$$

We can use the expressions for V_W, V_B and V_U to solve for these values and substitute them into the no-shirking condition. If we also substitute h=s(1-U)/U from the flow labour-market equilibrium condition, we finally obtain the no-shirking condition:

$$W \geq v + d + (R + s/U)\, d/q - s\, B/[R + s\, (1-U)/U].$$

The first three terms on the right-hand side show that the wage a firm needs to pay to prevent shirking is higher if the utility of leisure (or informal earnings) and the disutility of work are high. The third term shows that, in addition, the firm has to pay workers to prevent them shirking if the job separation rate is high, the unemployment rate is low, and the additional probability of

being detected and dismissed q is small. Hence, if the chance of being caught shirking is small or the probability of finding another job is large anyway, the firm has to pay more to discipline workers given that they dislike work.

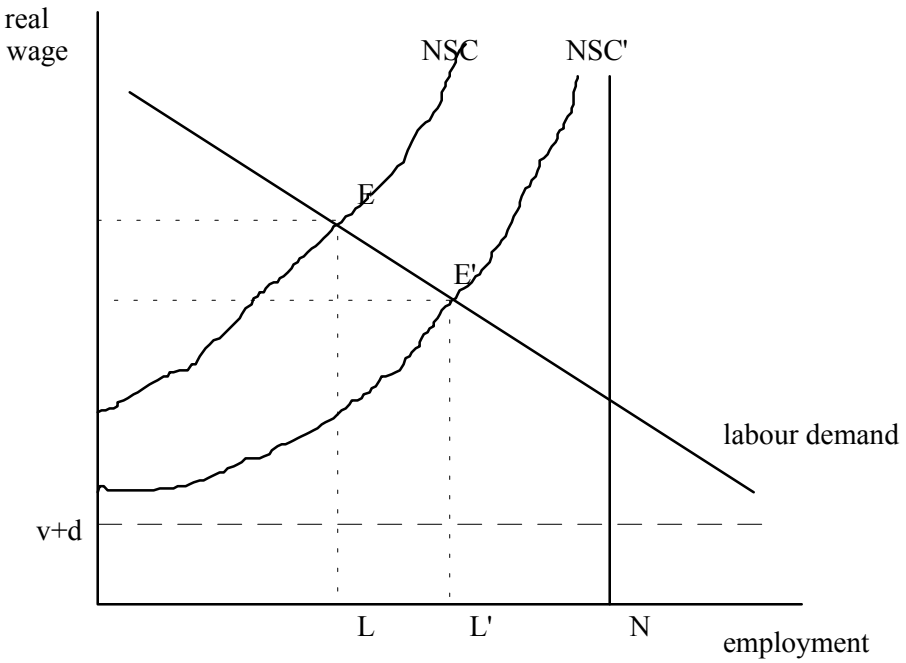

Figure 3: Conditional unemployment benefits reduce shirking and boost employment

The final term on the right-hand side of the no-shirking condition is new and is not in Shapiro and Stiglitz (1984). It shows, at first sight rather surprisingly, that a firm needs to pay less to prevent its employees shirking if the unemployment benefit is high. The point is that the unemployment benefit is now only given if the worker has lost his job without fault of his own. A higher benefit thus raises the effective penalty of shirking, so a firm can get away with paying workers less. This leads to the result that a higher level of the unemployment benefit boosts employment and output. Figure 3 shows that a higher benefit causes a downward shift of the no-shirking condition (NSC) leading to a fall in the wage and a rise in employment.

The fall in unemployment will be even larger if there is a shift from unconditional to conditional unemployment benefits (dB = - dv >0). The penalty for shirking increases for two reasons now: on the one hand, dismissed shirkers do not get the conditional benefit, and, on the other hand, the income from leisure (i.e., the unconditional benefit) they get falls and thus

[4] One extension is to have the probability of a dismissed worker finding a job again lower than h.

stimulates the incentive to work. This last incentive to work also increases for people who are unemployed without fault of their own. These extra two effects make that the fall in wages and unemployment are much greater than with a straight increase in the unemployment benefit. Of course, if the unemployment benefit is financed by distortionary taxes, there will be offsetting adverse effects on employment and output.

5. Corporatism

Many governments in the developed world have followed Mr. Reagan and Mrs. Thatcher in bashing trade unions. Trade unions are thus seen as interferences in the proper functioning of labour markets. They are according to this neoliberal view seen as a big public enemy, whose only interest is to push up wages for their members at the expense of employment and chances for outsiders to get a job. There is also the fear that a large number of trade unions engage in leapfrogging, so it is important to be tough. The danger is that, if one trade union succeeds in bargaining for higher wages, all the others will want higher wages as well. The question is whether this view of trade unions is a realistic one.

Some would argue that trade unions as long as they are big and powerful enough will become more concerned with the general interest. For example, they may try to internalise certain externalities by, for example, forsaking wage increases in favour of investment in training the workforce, childcare facilities, etc. Clearly, this may overcome free-riding problems such as a worker being trained in one firm leaving for another firm without a training programme for a higher wage. In fact, Calmfors and Driffill (1988) argue that there is a hump-shaped relationship between the degree of centralisation of trade union power and the unemployment rate. Countries with competitive labour markets (US, Canada and more recently the UK) have a lot of wage competition and thus drive down the unemployment rate. Conversely, countries with a few big trade unions, whose power is often increased by extending coverage of the bargaining agreements to non-unionised workers as well (Austria, Sweden and perhaps the Netherlands), show a lot of wage moderation and also have a low unemployment rate. Countries with middle-sized trade unions (rest of EC) suffer from upward wage pressure and have relatively high unemployment rates.

What are the reasons behind this hump-shaped relationship? The main reason is that centralised trade unions internalise the adverse effects of higher wages on aggregate prices and thus on the purchasing power of trade union members. A small union knows that an increase in the wage for its members hardly has any effect on the aggregate price level. Consequently, large

trade unions moderate wages more than middle-sized trade unions and engage less in leapfrogging. By the same reasoning big professionally organised trade unions are more likely to internalise such adverse effects than industrially organised trade unions.

Another reason for the hump-shaped relationship is that bigger trade unions are more likely to internalise the fiscal externalities implied by the government budget constraint. Hence, a big trade union realises that by pushing up the wage it causes more unemployment and thus increases the benefit bill for the government. If benefits are also indexed to wages, the price as well as the volume of benefits goes up so that the total cost to the government rises even more. In addition, if civil servants' salaries are indexed to market wages as well, the cost for the goverment goes up still more. Clearly, if the union pushes for a higher wage, the government will have to put up tax rates to balance the books (assuming that the tax base effect of a higher wage is relatively small to the three other effects just discussed). A big trade union realises that the consequences of pushing for higher wages is that taxes will have to be raised and this will adversely effect the purchasing power of its members. Consequently, a big trade union is more likely to moderate wages and this will keep the unemployment rate low.

Alesina and Perotti (1997) suggest a related hump-shaped relationship, namely that in very centralised labour markets the distortionary effects of fiscal policy are likely to be lower than in countries with intermediate degrees of labour market centralisation. Effectively, larger trade unions are again better able to internalise the fiscal externalities implied by the government budget constraint. Driffill and van der Ploeg (1993, 1995) show that globalisation and more international product market integration reduce the power of trade unions. Effectively, opening up to international trade implies that domestic trade unions are facing more indirect competition from foreign trade unions and this forces wages down and spurs job growth. This suggests that countries in Europe may have been moving more in the direction of less centralised trade unions. In general, deregulation and allowing for more competition on product markets reduces unemployment - cf., Blanchard and Giavazzi (2001).

6. Public employment and economic growth

Musgrave (1959) and Atkinson (2002) stress the importance of analysing the differential impacts on economic outcomes of the various categories of public spending. If one wants to cut back government, it matters *how* one rolls back the welfare state. Many governments have tried to this by scrapping jobs for teachers, nurses and policemen. Holmlund (1997), Finn (1998), Yann, Cahuc and Zylberberg (2002), Alesina et al. (2002) and van der Ploeg (2002) give an analysis of

the effects of public employment. The alternative to scrapping public employment is to cut government spending on goods produced by the private sector. Both options enable a reduction in the tax rate and are meant to boost employment and output. However, the effects of cutting back public employment on private employment, consumption, investment, wages and interest rates are very different from the macroeconomic effects of cutting back public consumption.

Alesina et al. (2002) find strong positive effects of cutting back public employment on private investment. A one percentage point cut in ratio of the public wage bill to GDP boosts the investment to GDP ratio by 0.48 percentage points on impact and by 2.56 cumulatively after five years. Rolling back the welfare state in this way reduces the demand for labour and exerts downward wage pressure. This induces firms to substitute away from capital towards labour. The lower capital intensity gives a higher return on private investment and raises the equilibrium interest rate. Both the substitution and the output effect tend to increase private employment. If the fall in public employees permits a fall in the income tax rate, wages fall and the interest rate rises even further, thus leading to even more private investment.

Van der Ploeg (2002) shows, within the context of a Ramsey model of economic growth with public and private employment, that it indeed matters how *one* rolls back the welfare state. If labour supply is inelastic, cutting public expenditures on private goods leads to immediate 100% crowding out of private consumption and thus leaves investment and capital accumulation, on the one hand, and wages and employment, on the other hand, unaffected. If labour supply is elastic, one has a temporary wage hike with a corresponding dip in the employment-capital ratio. The associated dip in the capital intensity and the interest rate depresses saving and leads to a fall in private investment. In the short run there is more than 100% crowding out of private consumption. In the long run the lower capital stock depresses labour demand and the extra wealth of households reduces labour supply, hence long-run employment falls. Conversely, if the government buys *more* goods from the private sector, employment and output rise.

Firing public employees leads, however, to temporary wage moderation and a lower capital intensity. The temporary hike in the interest rate boosts private saving and investment, thus raising capital in the long run. In the short run there is less than 100% crowding out of private consumption. In the long run the output effect boosts private sector labour demand while the wealth effect depresses labour supply. Hence, the fall in public sector employment is in the long run not fully offset by the rise in private sector employment. The results may be used to comment on the recent Dutch experience where the government desparately tried to hire more nurses, teachers and police personnel in a tight labour market. This contributed to higher wages

and lower interest rates, thus reducing the incentives to save and depressing private investment. In the end employment increases, because the fall in private sector employment did not fully offset the gain in public sector employment. These results for changes in public employment hold even if labour supply is inelastic. This suggests that changes in public employment have 'first-order' welfare effects, while changes in public expenditures on private goods have 'second-order' welfare effects. Cuts in public employment, in contrast to cuts in public spending on private goods, produce non-Keynesian effects in the sense that a fiscal contraction induces higher growth and more private sector employment. Conversely, the social policy of raising public employment reduces investment and harms employment and output.

If the savings in public revenue are handed back to the public in the form of a lower tax rate rather than lower tax credits, there is a further fall in the pre-tax wage and rise in the interest rate. This strengthens the investment boom resulting from a cut in public employment and attenuates the fall in saving and investment resulting from a cut in public spending on private goods. If a cut in public spending on private goods is associated with a cut in the tax rate, there is also an investment boom and increase in capital. The positive effects of the tax cut outweigh the negative effects of a cut in public spending on private goods.

The adverse effects of increasing public employment on investment and growth may be overturned in economies with endogenous growth - e.g., Barro and Sala-i-Martin (1999). If public employment raises productivity of private workers, more public employment may stimulate saving and investment sufficiently to offset the adverse effects discussed above.

7. Political economy of redistribution

The recent literature on modern political economy, surveyed by Persson and Tabellini (2000), also tells a tale about how social outcomes might affect the setting of economic policies and thus economic outcomes. It investigates the decisive role of the electorate on economic policy outcomes. Since the majority of the electorate decides in a democracy, attention is focused on median voter outcomes. A more unequal distribution of assets, incomes and productivities leads to a poorer median voter who is more likely to vote for three kinds of 'populist' policies. First, a poorer median voter will vote for more redistributive policies with higher marginal tax rates on labour, thus depressing employment and output - see Romer (1975), Roberts (1977), and Meltzer and Richard (1981). Second, a poorer median voter is more likely to resort to taxes on capital and thus to depress economic growth - see Alesina and Rodrik (1994), and Persson and Tabellini (1994). Third, a poorer median voter is more likely to resort to inflation taxes and to fuel

inflation - see Beetsma and van der Ploeg (1996). Each of these 'populist' policies harm the economy and illustrate the merits of a more equal distribution of income and assets.

To illustrate how the political process endogenises economic policy, consider the model of redistributive taxation put forward by Meltzer and Richard (1981) and discussed by Persson and Tabellini (2000). To keep matters simple, we assume a linear technology and normalise so that the pre-tax wage is equal to unity. Also, we abstract from income effects in labour supply and assume quasi-linear preferences of worker i, that is $U_i = C_i + u(V_i)$ where the concave function u(.) stands for utility of leisure. The budget constraint of worker i is $C_i = (1-T_M) L_i + A$ where A is the basic income or tax credit. A more distributive policy requires a higher tax credit A financed by a higher marginal tax rate T_M. Worker i has a time constraint, $L_i + V_i = 1 + \Pi_i$, which says that the time available for work and leisure is equal to 1 plus an individual-specific productivity Π_i. Hence, workers differ in their ability to work fast and to enjoy leisure. Leisure of each worker follows from the condition that the marginal utility of leisure should equal the after-tax wage, $u'(V_i) = 1 - T_M$, so that $V_i = v(T_M)$ with $v' = -1/u'' > 0$. Hence, leisure is increased if the marginal tax rate rises and consequently labour supply is reduced if the marginal tax rate rises, that is $L_i = 1 + \Pi_i - v(T_M)$. If Π denotes average productivity, average labour supply is given by $L = 1 + \Pi - v(T_M)$ and thus $L_i = L + \Pi_i - \Pi$. Hence, labour supplies of different workers differ to the extent that their productivities differ.

Given that the basic income A must be financed by taxes on labour $T_M L$, we can write the indirect utility of worker-household i as follows:

$$U_i = (1 - T_M) (\Pi_i - \Pi) + 1 + \Pi - v(T_M) + u(v(T_M)).$$

Since this utility function is single-peaked for each worker i, the median voter theorem holds. Hence, the median voter chooses the optimal tax rate (the Condorcet winner):

$$T_M = (\Pi - \Pi_{median})/v'(T_M).$$

Hence, the tax rate chosen in a democracy is higher if the adverse effect of the tax rate on labour supply v' is small. This is the usual Ramsey tax rule, which says that relatively price-inelastic activities should be taxed more than others. More interesting, for a given average productivity level Π, more inequality (proxied by a lower Π_{median}) leads in a democracy to a higher tax rate. More inequality implies that the median voter is relatively poor and thus votes for a relatively

large basic income and a large amount of redistribution. More inequality thus implies that the marginal tax rate is relatively high and thus that employment and output are relatively low. Conversely, a more equal distribution of productivities (and incomes) induces a political outcome with a lower tax rate and higher levels of employment and output. In general, the size of general redistributive programmes reflect the preferences of the middle classes.

Investing in long-term education may lead to a narrowing of productivities among workers in which case one obtains political outcomes with low tax rates and high levels of employment and output. In this sense, it may be better to reduce inequalities ex ante through the education system than ex post through the tax system.

The same political economy arguments can be used in other contexts as well. For example, if there is a relatively unequal distribution of financial asset holdings among the population, the median voter is likely to be relatively poor and vote for higher taxes on capital and thus to depress the rate of economic growth - see Alesina and Rodrik (1994) or Persson and Tabellini (1994). Conversely, a more equitable distribution of asset holdings is leads to less 'populist' policies and thus to higher economic growth. Perotti (1996) gives a good survey of the empirical evidence for this proposition. Due to the dearth of data, the empirical evidence is ambiguous. There is also some empirical evidence that countries with a more equitable distribution of nominal asset holdings are more likely to end up with political outcomes that support low inflation - see Beetsma and van der Ploeg (1996). The idea underlying this result is that with more an equal distribution the median voter is likely to be richer and thus less likely to vote for an unanticipated inflation tax that wipes out nominal asset holdings. In a sense, a more equal distribution of nominal assets reduces the time inconsistency and credibility problems of a government tempted to use the unanticipated inflation tax as a mode of government finance.

8. Concluding remarks

From the eighties onwards many governments in Europe have been trying, some more succesful than others, to push back the welfare state. Governments of different political persuasions have tried to do this by pursuing a neoliberal political agenda of reducing the size of the public sector by cutting public spending on private goods, cutting public employment, and cutting the level and the eligibility of various benefits. The hope was to start a virtual spiral of tax cuts followed by boosts to private sector employment and output. In addition, this agenda of cutting back the welfare state was complemented with a policy of reducing redistribution from the rich to the poor by overhauling income tax systems to make them less progressive. This objective was to improve

incentives to work and to better oneself. Since most of these policies were supported by acts of faith and there seems to be a certain backlash to the 'laisser faire' revolution that started in the eighties, there is need for theoretical and empirical analysis of the robustness of these claims.

The faith in the neoliberal agenda is justified for economies with competitive labour markets. It can then be shown that social policies, defined as those that pump up public sector employment, generate generous welfare benefits and lead to more income redistribution, harm employment and output. Although this may be reasonable for the US, non-competitive labour markets with the prevalence of trade unions, efficiency wages, and costly search and mismatch seem much more realistic for most economies of Europe. One then enters the realms of second-best economics and the faith in the neoliberal agenda is much harder to justify, especially if one distortion offsets another. Social policies such as progressive taxation, high conditional unemployment benefits, or facilitating corporatism may then actually induce wage moderation and boost employment and output. They may even reduce working hours, thus boosting employment and output further. In a second-best world the usual effects of social policies may thus be overturned. However, if dismissed shirkers and, more generally, unemployed people who were fired for misconduct receive unconditional benefits, unemployment is pushed up. Hence, eligibility conditions should be designed in such a way that benefits are temporary and conditional on work experience, search efforts, and having a lost a job by bad luck only. The Dutch experience shows that large reductions in unemployment can be achieved by switching from unconditional to conditional benefits even if the level of the benefit is not cut. The welfare state should thus have checks and balances and only by being tough on eligibility can society afford to be generous on the level of benefits.

High public spending on privately provided public goods boost employment, investment and output. However, more public employment pushes wages up and private employment down. In addition, it drives up interest rates and reduces private saving and investment. In a full political-economic equilibrium a more equitable distribution of income and assets leads to a median voter who is better off and thus votes for less 'populist' policies. Hence, employment and economic growth are higher and inflation lower in countries with more equitable distribution of income and assets.

In fact, coming from an international perspective, Rodrik (1997) argues more generally that markets and the state are complementary and also questions the supremacy of the idea that social policies are bad for the economy (the 'Washington consensus'). Of course, both governments and markets have their failures but they must interact to grapple with the problems

of conflicting information and offer the right incentives as first-best outcomes in the real world rarely occur. However, Dixit (1996) does not see this as proof of the inefficiency of government. Indeed, weak incentives and the various second-best constraints and prohibitions may even occur in a game equilibrium outcome. Rodrik (1997) thus stresses that the maintenance of social safety nets is not a luxury but an essential ingredient of a market economy - cf., Sinn (1995). Markets produce many benefits, but they also make life riskier and more insecure for many people. A reliable welfare state thus contributes to a proper functioning of the market economy. Rodrik (1998) shows that countries that are more exposed to the risks of international trade have bigger governments, possibly because governments offer social insurance to cushion the effects of exposure to external risk. De Grauwe and Polan (2002) show that countries that spend most on social security rank highest, on average, in the competitiveness leagues of Lausanne's IMD or of the World Economic Forum. The causation is very unlikely to run the other way round, so that the link going from strong competitiveness to a stronger economy and more funds for the welfare state is weak.. The general picture that emerges is that the 'laisser faire' advocates have some explaining to do, since neither theoretical nor the empirical evidence suggest that social policies must necessarily harm the economy.

In the future, we want to investigate whether any of these propositions hold up empirically. Of course, we know from the Dutch experience that it is possible to have a low unemployment rate and a generous welfare state, but this is not true for all countries. In empirical work it seems sensible to contrast Anglo-Saxon Europe characterised by its emphasis on Beveridge social assistance of last resort for people of working age, weak unions and lots of wage dispersion with continental Europe characterised by its emphasis on extending the coverage of trade unions and the Bismarckian tradition of insurance-based non-employment benefits such as disability and old-age pensions. It may also be necessary to distinguish Nordic Europe with the highest levels of social protection, universal welfare provision, high tax wedges and active labour market policy with Mediterranean Europe with its strong wage compression, strong unions supported by extended coverage, employment protection and early retirement provisions - see Bertola and Boeri (2001). It is no good to look for cross-country correlations between spending on social policies and unemployment rates, but one should see whether there exists correlations between the generousity of various welfare state provisions with wages and unemployment rates. To investigate this for the OECD countries, is a challenge for the future.

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