

The Economics of the Welfare State

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Professor Atkinson talked about the economic consequences of rolling back the welfare state at the NAKÉ workshop, 6-10 December 1999, Amsterdam. The welfare state has been attacked by some economists because it causes a big size of the government at the risk of inefficiency and it distorts the market system. Rolling back the welfare state is then proposed to be a solution. Prof. Atkinson defended the welfare state by demonstrating possible consequences if the welfare state were cut back.

The whole lecture includes five subtopics. He first introduced the current situation of the welfare state and raised his reservations. In the second lecture he focused on labour market and analysed some consequences of cutting unemployment benefits. In the third lecture, he took the state pension as an example to illustrate possible negative impacts of rolling back state pension expenditures. Empirical evidence on the relationship between the welfare state and economic performance is the topic of the fourth lecture. The fifth lecture concerns issues on policy design.

1. Introduction

Prof. Atkinson started with quoting main criticisms on the welfare state. He took a report of the European Union by Jacques Drèze and Edmond Malinvaud (1994) as an example. Three major objections to the welfare state are listed in the report:

- (1) measures of income protection or social insurance introduce undesired rigidities in the functioning of labour market.
- (2) welfare programmes increase the size of government at a risk of inefficiency; their funding enhances the amount of revenue to be raised, and so the magnitude of tax distortions.
- (3) welfare programmes may lead to cumulative deficits and mounting public debts.

Prof. Atkinson stated that rolling back the welfare state based on the above-mentioned criticisms seems not to be a reasonable solution. His first reservation concerns the balance view of the welfare state. The common criticisms on the welfare state are mainly raised based on the cost of the welfare state. Economic costs of the welfare state are easier to be measured. These criticisms, however, are ignoring the benefit side of the welfare state. The social objectives of welfare state programmes are diverse and some of them are not measurable, such as the reduction of uncertainty faced by individuals provided by the welfare state. To evaluate the welfare state one needs to consider the success of the welfare state in meeting its diverse social objectives. His second reservation is that when evaluating the welfare state one should also recognise the positive economic consequences of the welfare state. Thirdly, the institutional structure of the welfare state plays a role, which is neglected by the common criticisms. His fourth reservation concerns the public choice aspect of the welfare state.

2. Labour market and the consequences of cutting unemployment benefits

The first welfare programme discussed by Prof. Atkinson is unemployment benefit. He first analysed the consequences of cutting unemployment benefits using a particular model. After that he emphasised the role played by the institutional structure of the welfare state.

2.1. A labour market model

In this model, an employee in the modern sector is either engaged at wage w , unemployed with no wage, or self-employed with the home production of $(a + b')$ which is constant. The firm recruits from the unemployed. The rate of outward flow from unemployment is m . Any worker faces a probability d that his job will be involuntarily terminated. The discount rate faced by individuals is r . b is the expected unemployment benefit. An individual decides his supply of work to the modern sector by considering three possible situations he may involve:

— The present value of being at home production :

$$r\Omega_h = (a + b') \quad (1)$$

where Ω_h represents the value of being self-employed.

— The present value of being unemployed:

$$r\Omega_v = b + m(\Omega_E - \Omega_h) \quad (2)$$

where Ω_E denotes the value of holding a modern sector job and $(\Omega_E - \Omega_h)$ is the expected capital gain of being unemployed, Ω_v is the value of being unemployed.

— The present value of being employed:

$$r\Omega_E = w - d(\Omega_E - \Omega_v) \quad (3)$$

Solving the above three equations simultaneously, we obtain the equilibrium wage rate decided by the supply side of labour market:

$$w = (a + b') \left(1 + \frac{r + d}{m} \right) - \frac{r + d}{m} b \quad (4)$$

Considering trade unions bargain power over the wage rate, the wage rate set by the demand side of labour market is:

$$w = (a + b') \left(1 + \frac{b}{1 - b} \frac{1}{1 + x} \right) (a + b')(1 + m) \quad (5)$$

where x measures the relative bargaining power of employees. m is the wage mark-up factor.

Combining the supply and the demand sides of labour market, we can solve for the parameter that indicates the labour market condition:

$$m \left(\frac{U}{V} \right) = \frac{r + d}{m} \left(1 - \frac{b}{a + b'} \right) \quad (6)$$

where U, V are the employed and the unemployed in labour market. Therefore, in case of no unemployment benefits, i.e. $b = 0$, there is no impact of the welfare state on labour market. If $b = b'$, the welfare state does not matter either because b, b' are working in the opposite direction. When $b \neq b'$, cutting unemployment benefits increase the instantaneous probability for an unemployed person of finding a job. It

also increases the reserved wage rate as shown by the supply function (4). It is evident that these changes will lead to an increase in employment. However, there is another effect of cutting unemployment benefits if the labour demand side comes to the picture. If union wage negotiations are affected by the increased wage of the supply side, the net wage will rise. This causes labour demand curve shift to the left, which discourages the employment. Therefore, cutting unemployment benefits reduces queue unemployment on the one hand, and it reduces the demand for labour on the other. The net effect depends on the trade-off between these two opposite effects. This example illustrates that cutting unemployment benefits does not necessarily leads to an increase in employment.

2.2. The role of the institutional structure of the welfare state

In this section, a segmented labour market model is set up, based on which the consequences of cutting unemployment benefits taking account of its institutional structure is analysed. It is assumed that in the primary sector wages are determined by trade union bargaining. In the secondary sector, shirking-based efficiency wages are assumed. The firms in the secondary sector pay wage premia to reduce turnover or to attract higher quality workers. It is also assumed that the unemployed (due to the probability of job termination) in the primary sector is insured and the unemployed (due to being caught of shirking) in the secondary sector is not eligible to unemployment benefits because dismissal from shirking is an example of industrial misconduct. The assumption that the unemployed in the secondary sector is not eligible to unemployment benefits is an important feature of the model. This is the point based on which Prof. Atkinson emphasised the importance of the institutional structure of the welfare state. So in this model, unemployment benefits only enter the wage decision rule of the primary sector but do not present in the wage equation (no shirking condition) of the secondary sector. The equilibrium wage in labour market is decided by the interaction between the wage bargaining outcome in the primary sector and the no shirking condition in the secondary sector as shown by Figure 1. Noticing that the no shirking condition (NSC) is a vertical line in Figure 1, indicating that people being caught of shirking would be no entitlement to unemployment benefits. The wage bargaining curve (WB) in the primary sector is upward sloping, implying a positive relationship between the wage in the primary sector and the wage in the secondary sector. It suggests that a rise in the wage bargain outcome in the primary sector requires that secondary sector employers have to pay a higher premium to induce effort.

What is the consequence of cutting the level of unemployment benefits? Cutting unemployment benefits directly affects the wage bargaining outcome in the primary

sector. It shifts the wage bargaining curve to the left, because wage bargain outcome is negatively related with the present value of unemployment benefits. As the consequence, secondary sector employers have to pay a higher premium, leading the no shirking condition curve shifts to the right as shown by the dotted vertical line in Figure 1. The new market wage rate is higher as compared to the equilibrium wage rate before policy changes. What is not consistent with the common prediction is that a cut in unemployment benefits may increase unemployment but not the other way around. This example again illustrates that rolling back the expenditures on unemployment benefit does not necessarily lead to an increase in employment.

3. The state Pension and the consequences of its reform

The second example that Prof. Atkinson used to demonstrate the consequences of rolling back the welfare state is the retirement pension. He first analysed the impact of the state pension (pay-as-you-go) on economic growth. Then he pointed out the consequences on economic performance of the minimum income guarantee (the mean-tested pension) and private provisions of pensions. The latter two programmes are proposed to be the alternatives to the state pay-as-you-go pension.

3.1. The state pay-as-you-go pension and economic growth

The state pay-as-you-go pension requires the young generation (the working generation) of the society to pay tax out of the wage rate. In return they will obtain the retirement pension as they become the old generation. It is equivalent that the government takes out of the pension by tax from private savings and transfers the payment to the old generation. The state pay-as-you-go pension affects economic growth via savings because tax levied on the working generation reduces total savings in the economy. Nevertheless the impact of the state pay-as-you-go pension on the economy depends on how to model economic growth.

In the Solow neo-classical growth model:

$$g_y = \mathbf{b}g_k + (1 - \mathbf{b})(g_A + n) \quad (7)$$

where g_y , g_k , and g_A are the growth rate of output, the growth rate of capital, and the growth rate of technology. \mathbf{b} is the income share of capital in the aggregate Cobb-Douglas production function. n is the growth rate of population. Since savings decides g_k , the state pension affects the growth of the economy via g_k . By

definition $g_k = \frac{S}{K} = \frac{S/Y}{K/Y}$, where S, K, Y represent savings, the capital stock, and output, respectively. Obviously the reduction in savings immediately causes the reduction of the growth rate. However, the long-run effect is not clear. Because in the long-run, the capital output ratio also falls. Therefore a reduction in the savings rate lowers the level of output but does not affect the steady state rate of growth.

Nevertheless, the impact of the state pension on economic growth differs in the "AK" model. In the "AK" model (Arrow, 1962), the steady state growth rate of the economy is:

$$g = g_y = g_k = \frac{S}{K} = sa(L) \quad (8)$$

It shows that the reduction of the savings rate always causes the reduction of the growth rate. To further understand the impact of the state pension on economic growth, the overlapping generations (OLG) model is needed to explain individual's saving behaviour. From the OLG model, the optimal saving behaviour of an individual is:

$$s = \mathbf{s}(1-t) - t(1-\mathbf{s})(1+g)/(1+r) \quad (9)$$

where s is the savings rate. \mathbf{s} is the elasticity of the substitution of consumption between two periods. t is the pay roll tax for financing the state pension. r is the discount rate. Therefore, the impact of the state pension on economic growth depends on the comparison between the growth rate of the economy (g) and the discount rate (r) faced by individuals. If $g = r$, the state pay-as-you-go pension has no impact on economic growth since the state contributions displace private savings at the same rate. If $g \neq r$, it is evident that the existence of a state pension reduces savings, and the reduction in the savings rate reduces the growth rate in the long-run in a AK model.

The AK model shows that there is indeed a possible negative effect of the state pension on economic growth. However, rolling back the welfare state is not necessary a good solution because we have to evaluate the consequences of the alternatives to the state pay-as-you-go pension.

3.2. Is the minimum income guarantee better?

Replacing the state pension by the minimum income guarantee may not bring about better consequences although total expenditures on the welfare state are likely to be reduced. Since the state benefit is withdrawn progressively from those with other source of income, it will create savings trap. A fraction of the population saves sufficiently to be completely independent of the minimum income guarantee, on the other hand the other fraction of the population will not save at all and solely depends on the state benefit in old age. The net effect on aggregate savings is ambiguous. Figure 2 displays the effect of the minimum income guarantee on savings. The figure is drawn for the case of the Cobb-Douglas preferences. For people with wage rates above a critical value, savings are higher than the case of a universal pension. Because the tax rate is lower and it is a pure tax in the case of the minimum income guarantee. However, for the people who have wage rates below the critical value, savings are reduced to zero. Whether or not aggregate savings increase depends on the number of people above and below the cut-off, their relative wage, and other parameters. One undesirable outcome of introducing the minimum income guarantee is that it obviously creates dependence.

3.3. Will private pension funds do the job?

The private provision of retirement pensions is the second alternative to replacing the state pension. Since private pension funds are closely associated with the capital market, firms' behaviour is relevant to analysing the consequences of private pension funds on the economy. Prof. Atkinson adopted a corporate growth model to show the link between private pension funds and the growth of the firm, in which the rate of profit and the interest rate are distinguished.

In this corporate growth model, the dividend per unit of capital is: $(r - \frac{I}{K})$, where r is the gross profit per unit of capital, I, K are investment and the capital stock, respectively. The steady state value of a share is: $v = \left(\frac{r - I/K}{(i - g)} \right)$ or $iv = (r - I/K) + gv$, where i is the interest rate and g is the rate of capital gain. Assuming that the growth of the firm incurs cost and the cost function takes the form: $\frac{I}{K} = c(g)$, then the objective of the firm is to maximise its share value $v = \frac{(r - c(g))}{(i - g)}$ by choosing an optimal growth rate g .

Deriving the optimal growth rate from the first-order condition of the above-mentioned problem, we notice that the rate of growth is a declining function of the interest rate. Because replacing the state pension by private pension funds increases savings and hence lowers the interest rate, it raises the equilibrium growth rate of firms. This is good news for the private provision of pensions. However, there are two possible negative effects of private pension funds. First, private pension funds, implying monopoly power in supplying capital, distort the function of capital markets. As a consequence financially unhealthy firms, such as small firms will face more difficulties in accessing to external capital markets. This will retard the growth of these firms. Secondly, agency costs between the managers and the stockholders of the firm will be larger than that without private pension funds. An increase in the share of equity owned by private pension funds leads to increased monitoring on their part, which increases the risk of take-over bids. Managers of the firm will respond by reducing their chosen rate of growth. All in all, the net effect of private pension funds on the growth of firms is ambiguous.

4. Empirics of the impact of the welfare state on economic performance

Prof. Atkinson focused in this section on the evidence of the relationship between economic performance and the welfare state. The question to be answered by looking at the evidence is: whether there is enough and convincing evidence that lends a support to the call of rolling back the welfare state? His discussions on the evidence are at both the aggregate-level and the micro-level.

4.1. Aggregate evidence I: the growth of GDP

Prof. Atkinson first set up the framework that is commonly adopted in empirical studies. Focusing on the growth rate of GDP, the following specification is derived based on the neo-classical growth model:

$$g_y = \mathbf{b}g_k + (1 - \mathbf{b})g_n + (1 - \mathbf{b})g_a + \mathbf{a}Others \quad (10)$$

where g_y, g_k, g_n, g_a are the growth rate of GDP, the growth rate of capital, the growth rate of labour, and the growth rate of technology, respectively. \mathbf{b} is the capital share in the Cobb-Douglas production function. *Others* represent other variables that may explain the growth of GDP. He pointed out that the welfare state

might affect either the growth of factor supply (capital and labour) or the growth of productivity or both.

Many empirical studies adopted the empirical growth equation based on the above general framework (10). The measure of the size of social transfers can be included in estimations. The commonly used measure of the size of the welfare state is the ratio of spending on the welfare state to GDP. Among different empirical studies, Prof. Atkinson mentioned three in the lecture: Castles and Dowrick (1990), Weede (1986), and Korpi (1985). The evidence about the impact of the size of the welfare state on economic growth is mixed with respect to both the sign and the estimated magnitude of the impact.

4.2. Aggregate evidence II: unemployment

One problem of empirical studies on the impact of the welfare state on unemployment is the measurement of the size of the welfare state. The ratio of the welfare spending to GDP can be decomposed into the replacement rate, the wage share, and the dependency ratio. These three parts differ across countries. This means that using the ratio of the spending of the welfare state to GDP may be misleading. One distinguished feature of the study by Layard, Nickell, and Jackman (1991) is that they take care of this problem and contains measures of both replacement rates and of benefit duration that affects the dependency rate in their empirical specification. They find that both measures are significantly and positively related with unemployment. Although this piece of work provides some evidence on the negative impact of unemployment benefits on labour market, the evidence is not convincing. Another study by Nickell (1997) finds that unemployment benefits had little impact on employment to population ratios. Nickell's explanation is that while high benefits lead to high unemployment, they also lead to high participation because they make participation in labour market more attractive. Therefore, again there is no convincing evidence supporting the notion that the size of the welfare state increases unemployment.

4.3. Microeconomic evidence: unemployment

The research on the impact of the welfare state at the micro-level has been focusing on the impact of unemployment benefits on labour market. In general, there may be adverse effects on the incentive for the unemployed to leave unemployment but the micro-level evidence shows that this effect is smaller than that of aggregate analysis. Prof. Atkinson pointed out that some aspects are missing from the micro empirical research on the impact of the welfare state on labour market. For instance, exit from

unemployment may have quite different consequences depending on the destination. Little is known about the effect of unemployment benefits on people leaving the labour force or about their taking up marginal jobs. Finally, Prof. Atkinson utilised three examples to show the disadvantages of the existing micro-level studies. The first example was taken from UK about the married women going back to employment. The second example concerns activity rate of mothers of young children in France. The third example is about unused labour capacity.

To summarise, the evidence of the impact on economic performance of the welfare state is not consistent at both the aggregate and microeconomic levels. Therefore there does not exist convincing evidence proving that it is the welfare state that depresses economic performance. We can ask ourselves the question: if there is not reliable evidence proving that the size of the welfare state retards economic performance, then why should the welfare state be cut?

5. Policy design

Prof. Atkinson came to the issue of the optimal policy design after demonstrating some possible consequences of rolling back the welfare state. He emphasised that the optimal design of the policy requires us to first understand the 'grammar of the argument' i.e. the sources of arguments on the welfare state, while the sources of arguments depend on the objectives of the policy. Some economists attack the welfare state mainly based on the concern about the economic objective of the policy i.e. the economic costs of the welfare state. However, there are many aspects of social objectives of the welfare state. This point was emphasised by Prof. Atkinson throughout the whole lecture. Therefore, to understand 'the grammar of arguments' is in fact to understand the objective of the policy. Prof. Atkinson took Samuelson (1975) as an example here to illustrate how important it is to understand the 'grammar of arguments'. Samuelson (1975) argues that the state pension is not efficient because its distortion effect and hence the quantity of state pensions should be cut by allowing private pension funds. Prof. Atkinson pointed out that there may be an adverse effect. However, one cannot look at the burden of the welfare state ignoring the positive impact on the economy. For example, the positive impact of the welfare state on capital accumulation is often ignored. In addition, there are some questions on the choice of the social utility function. For instance, the utility function used in Samuelson (1975) does not necessarily express the real objective of the public choice.

The points made by Prof. Atkinson with respect of the policy design mainly concern: (1) the objectives of the welfare state are important. Optimal policy design requires

us to balance the economic costs with the social objectives of the welfare state. (2) the size (scale) of the welfare state is not relevant. (3) targeting is the key issue in policy design. Since the social welfare policy affects the individual decision-making through the budget constraint, some adverse effects might be avoided. With regard to the issue of targeting, Prof. Atkinson put forward some relevant issues that need further investigations: (a) how sharp are objectives? (b) heterogeneity across individuals, (c) different information required, (d) non-take up problem, and (e) work/other incentive.

6. Conclusions

Being an economist is not an easy job. Prof. Atkinson shared his honest views towards the reform of the welfare state with us during his lectures. The important message we obtained is that the call of rolling back the welfare state just based on its economic costs does not show the responsibility as an economist. Economic policies are interacted with social policies. Economic costs should be balanced by the social objectives of the welfare state. The consequences of rolling back the welfare state demonstrated by Prof. Atkinson are helpful in making up the minds of economists, although he said nothing about that the welfare state should not be cut. His attitude towards the attacks on the welfare state is modest.

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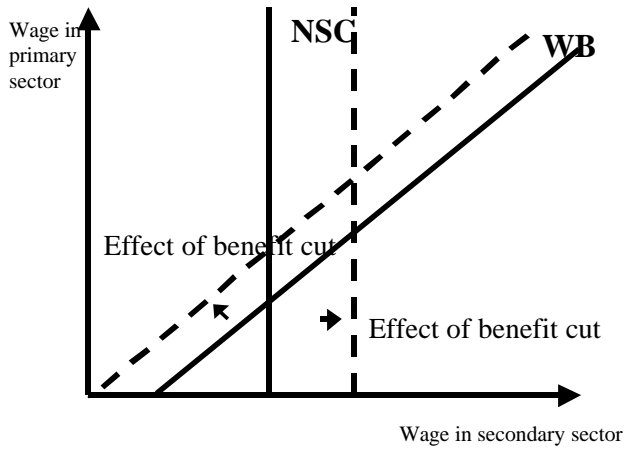


Figure 1. Effects of cut in unemployment insurance benefit

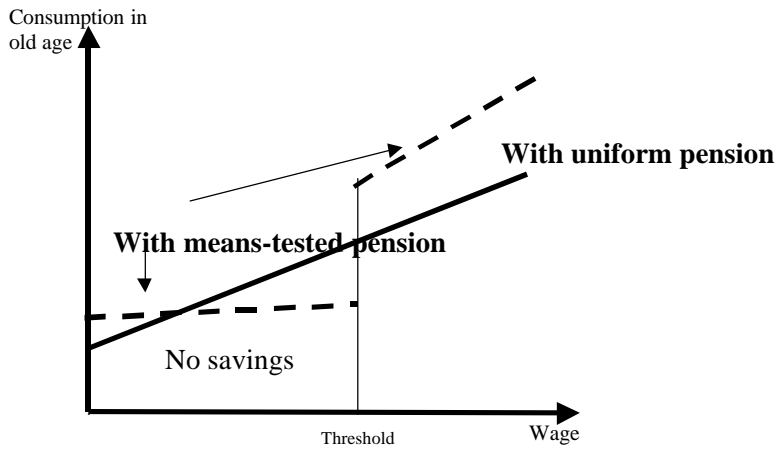


Figure 2. Effects on savings of mean test