THE WELFARE STATE AND ECONOMIC PERFORMANCE

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***Abstract** - The Welfare State has come under attack from economists, particularly in Western Europe, who argue that it is responsible for poor economic performance, and that public spending should be reduced. The present paper seeks to clarify the nature of the charges leveled against the Welfare State and the mechanisms by which it may adversely affect economic performance. The first section considers the aggregate empirical evidence. Not only is the evidence mixed, but also such an argument is difficult to establish. The second section of the paper describes a number of the problems with aggregate cross-country evidence. In particular, the interpretation depends on the underlying theoretical framework. The third and fourth sections of the paper examine a selection of the theoretical mechanisms, distinguishing between those that affect the level of output, taking a model of the labor market, and those that influence the rate of growth, drawing on recent developments in growth theory. An important role is played by the institutional structure of benefits, which can significantly change their impact on economic behavior.*

> "The size of government has become a major issue in many parts of the Western world. In the United States, the movement to halt and, if possible, reverse the upward trend of government spending has gathered strength in recent years. . . . In Great Britain [the Thatcher government] has committed itself to a gradual reduction in the share of national income taken by public expenditure. . . . Pressures to restrain the growth of government spending . . . seem to be intensifying in other European countries too" (Morris Beck, Preface to *Government Spending*, 1981, p. ix).

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INTRODUCTION

What Morris Beck wrote remains as valid today as it was 15 years ago, and in no field of public spending is the pressure for reductions greater than that of the Welfare State. In many OECD countries there are calls for the Welfare State to be scaled down. It is argued that the size of transfer programs is responsible for a decline in economic performance, and that cuts in spending are a prerequisite for a return to the golden age of full employment and economic growth.

The critique of government spending has been especially forceful in Europe, where

the Welfare State has traditionally played a major social role. In Sweden, the Economics Commission, chaired by Assar Lindbeck and including distinguished economists from other Nordic countries, has referred to "the crisis of the Swedish model," arguing that it has

> "resulted in institutions and structures that today constitute an obstacle to economic efficiency and economic growth because of their lack of flexibility and their one-sided concerns for income safety and distribution, with limited concern for economic incentives" (Lindbeck *et al.*, 1994, p. 17).

They seek cuts in social security benefit levels in order that

> "the social-security (or social insurance) system should not overburden the economy through distorted incentives or large deficits" (Lindbeck *et al.*, 1993, p. 238).

In the European Union, a particularly influential document has been the paper on "Growth and Employment: The Scope for a European Initiative," prepared by Jacques Drèze and Edmond Malinvaud, on the basis of discussions with a group of Belgian and French economists. This report emphasises the positive functions of the Welfare State but lists three major objections:

> "(i) measures of income protection or social insurance introduce undesired rigidities in the functioning of labour markets;
> (ii) 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;
> (iii) . . . welfare programmes may lead to cumulative deficits and mounting public debts" (Drèze and Malinvaud, 1994, p. 95).

They conclude that

> "the agenda should be to make the Welfare State leaner and more efficient" (Drèze and Malinvaud, 1994, p. 82).

While recognizing the diversity of national circumstances within Europe, and that in some countries spending may be too low, their overall recommendation is to

> "reduce expenditure in some countries, perhaps by 2 percent of GDP or so" (Drèze and Malinvaud, 1994, p. 98).

The present paper does not attempt to determine whether or not spending should be cut. The aim is rather to clarify the nature of the charges leveled against the Welfare State, and specifically against social transfers, and the mechanisms by which it may adversely affect economic performance. I consider in the first section of the paper the aggregate empirical evidence which appears to underlie much of the case against the Welfare State. Countries with high spending, it is alleged, have a poorer economic performance. However, not only is the evidence mixed, but also, such an argument is more difficult to establish than it may at first appear: the second section of the paper describes a number of the problems with aggregate cross-country evidence. In particular, the interpretation of such studies depends on the underlying theoretical framework. Aggregate empirics of the relation between the Welfare State and economic performance are open to the objection of being "measurement without theory." The third and fourth sections of the paper examine a selection of the theoretical mechanisms, distinguishing between those that affect the level of output and those that influence the rate of growth.

I should stress at the outset that my concern in this paper is with the impact of the Welfare State on economic performance and not with the success of social transfers in meeting the objectives which they are intended to perform, such as the alleviation of poverty, the redistribution of income across the life cycle, and the provision of a sense of security. The positive contribution of the Welfare State clearly forms part of the overall balance sheet. A cut in government spending may well reduce the extent to which social objectives are achieved, but here I am concentrating on what may be the "cost" of the Welfare State in terms of reduced economic success.

It should also be noted that I concentrate solely on social transfers (social security and welfare) and do not consider other elements of the Welfare State such as education or health care. In view of the direct role that the latter may play in human capital formation, I am intentionally tackling the areas where the critique seems most likely to apply.

AGGREGATE EMPIRICS

It has been argued that a large Welfare State has depressed economic performance, causing output to fall below potential or for the annual growth rate to be lower than in countries without such a level of transfers. This argument is often supported by reference to measures of the size of the Welfare State, typically measured as a proportion of Gross Domestic Product (GDP), as illustrated in Figure 1, which shows the ratio to GDP of spending on social security transfers.[1] For the United States, the ratio in 1990 was around ten percent; in Sweden it was twice that amount. Transfers increased as a percentage of GDP in all countries shown in Figure 1, although the rate of increase differed noticeably between countries: in 1960 West Germany had the highest spending of the countries shown, but it was overtaken by Sweden around 1975.

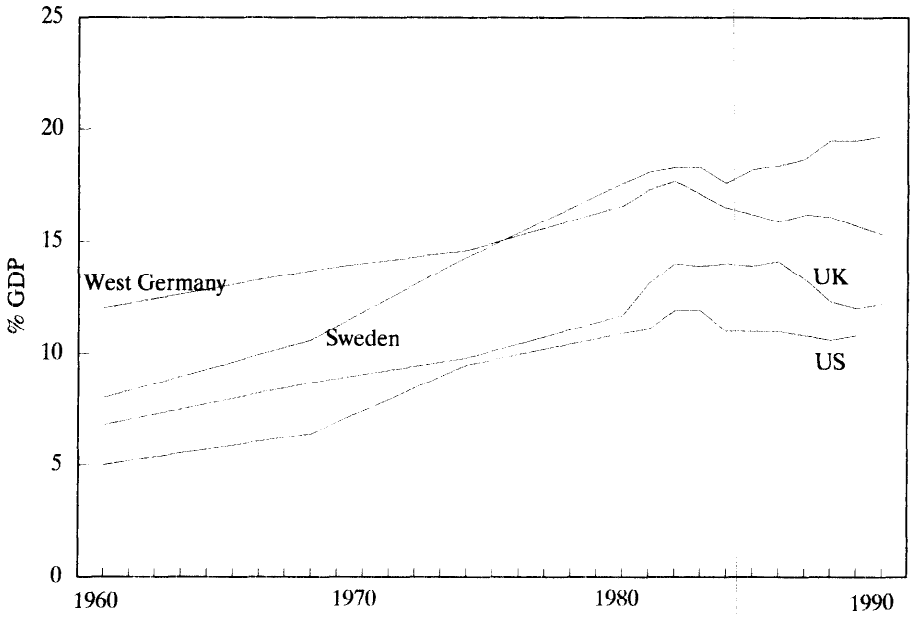
The availability of such aggregate data on a comparable basis for different countries means that it is tempting to see how far there is an association with differences in economic performance. It would be possible to regress the level of GDP, denoted below by Y, on the size of the welfare state, relative to GDP, denoted by WS. This kind of relationship is referred to below as a *levels equation*. Alternatively, the rate of growth of GDP, denoted by g_Y, could be regressed on WS. This kind of relationship is referred to as a *growth-rate equation*. [The distinction between these two hypotheses is discussed by Bourguignon (1993), who shows graphically the difference.]

There have been many such empirical inquiries. Some simply carry out a bivariate analysis of economic performance against the size of the Welfare State. For example, the European Commission has examined the relationship between growth and social protection expenditure (percent of GDP) in the 12 member states. On the basis of a graphical plot of the change in employment between 1980 and 1990 and the average social protection expenditure 1980–91 (alternatively, the *change* in social protection expenditure), they conclude that

> "It is clear that there is little sign of social protection having a negative effect on employment creation. The graph shows a wide variety of combinations between employment growth and level of social protection . . . The same lack of relationship is also apparent if the change in social expenditure is taken" (European Commission, 1993, p. 86).

In a much earlier study, Smith (1975) found that the growth rate of real GDP

FIGURE 1. Social Security Transfers as Percent GDP



Note: linear interpolation before 1980.

per capita 1961–72 was negatively related to public spending excluding transfers but that the effect was smaller and less significant when public spending included transfers:

> "it is less economically harmful for the state to raise taxes and make transfer payments than to consume resources directly" (1975, p. 29).

Other investigators have argued that we need to control for other influences on economic performance, embedding the statistical analysis within a fuller model, as in the work on growth empirics by Barro (1991) and Mankiw *et al.* (1992). There have been a number of studies examining the role of social transfers, and a selection are summarized in Table 1. The table shows that part of the findings of these studies that relates to social security or other government transfer payments; it should be stressed that the authors cited are not concerned solely with the impact of social transfers, and that in some cases it represents only a minor part of their results.

The results of this kind of aggregate analysis are mixed. Of the nine studies shown in Table 1, two (Landau, 1985; Hansson and Henrekson, 1994) find an insignificant effect of the Welfare State variable on annual growth rates, four (Weede, 1986; Weede, 1991; Nordström, 1992; Persson and Tabellini, 1994) find that transfers are negatively associated with average growth, and three studies (Korpi, 1985; Castles and Dowrick, 1990; McCallum and Blais, 1987) find a positive sign to the coefficient of *WS*, although the last of these authors finds evidence of a nonmonotonic relationship.

TABLE 1
STUDIES OF GROWTH RATE AND SOCIAL TRANSFERS

Study	Landau (1985)	Korpi (1985)	Weede (1986)
Dependent variable	Real *per capita* GDP	Real *per capita* GDP	Real GDP and real *per capita* GDP
	Pooled time series/cross section	Mixed time series/cross section	Pooled time series/cross section
Period	Annual growth rates 1952–76	Period 1950–73 and subperiods 1950–9, 60–6, 67–73, 73–9	Period 1960–82 and subperiods 1960–8, 68–73, 73–9, 79–82
Countries	16 OECD (incl Japan)	17 OECD (excl Japan)	19 OECD (incl Japan)
Model and variables	Controls for investment and education. GDP, terms of trade, country intercepts	Total effect, but controls for percent labor force in agriculture or GDP *per capita* (catchup variable)	Total effect, but controls for percent agricultural employment. Age of democracy
Estimation method	IV and HS corrected; weighted and unweighted by population	OLS unweighted	OLS; *WS* measured at start of period. Also applies Cochrane–Orcutt and Hildreth–Liu.
Definition of *WS* variable	General government transfers (OECD national accounts)/GDP (different deflators)	ILO social security expenditure/GDP	OECD social security transfers/GDP (from historical statistics)
	Measured in percentage points	Measured in percentage points	Measured in percentage points
Coefficient on *WS* (standard error)	0.004 OLS unweighted (0.031) or 0.012 IV, HS corrected (0.037) or 0.054 OLS weighted (0.035)	1950–73: 0.193 (0.050) Table 2, equation 1 1973–9: 0.182 (0.064) Table 5, equation 2 (*WS* measured at start of period)	−0.21 (n/a) or −0.19 (n/a) excl Japan and Switzerland
	Table 1, panel C	Similar with catchup variable	Table 4, col 2
Effect of five percentage point reduction in *WS*	Not significant at five percent level	0.9 percentage point reduction in annual growth rate	One percentage point increase in annual growth rate

TABLE 1 CONTINUED

Study	McCallum and Blais (1987)	Castles and Dowrick (1990)	Weede (1991)
Dependent variable	Real GDP	Real *per capita* GDP	Real GDP, *per capita* GDP, and per person employed
	Pooled time series/cross section	Pooled time series/cross section	Pooled time series/cross section
Period	Subperiods 1960–7, 67–73, 73–9, 79–83	Subperiods 1960–8, 69–73, 74–9, 80–5	Subperiods 1960–8, 68–73, 73–9, 79–85
Countries	17 OECD incl Japan	18 OECD or 17 excl Japan	19 OECD incl Japan
Model	Controls for employment growth (IV)	Controls for investment and employment (or not)	Total effect and productivity per person employed
	Catchup (log GDP *per capita*), modernization, growth of govt exp/GDP, subperiod dummies	Catchup (log GDP *per capita*), sclerosis, subperiod dummies	Percent agricultural employment, age of democracy
Estimation method	OLS; *WS* measured at start of period.	OLS and test for endogeneity	OLS; *WS* measured at start of period. Also Cochrane–Orcutt and Hildreth–Liu
Definition of *WS* variable	OECD social security transfers/GDP (from historical statistics) adjusted for percent aged 65+	OECD social expenditure less health and education at constant 1970 prices, extended 1982–5 using OECD national accounts	OECD social security transfers/GDP (from historical statistics)
	Measured in percentage points	Measured as fraction of GDP	Measured in percentage points
Coefficient on *WS* (standard error)	0.12 for 1960–79 (0.03) $0.31WS - 0.0092\ WS^2$ (0.09) (0.0031) for 1960–83 Table 1	Controlling for emp and inv 5.24 or 7.45 (3.54) (3.53) Not controlling −1.01 or 1.93 (3.74) (3.45) Table 5, second estimate excl Japan 1960–8	Productivity results: −0.11 (n/a) or −0.084 (n/a) excl Japan
Effect of five percentage point reduction in *WS*	0.5 percentage point reduction in annual growth rate (1960–79 estimate) zero at *WS* = 16.8 percent with 1960–83 estimates	Controlled estimates: 0.3–0.4 percentage point reduction in annual growth rate of total factor productivity	0.5 percentage point increase in annual growth rate of productivity

TABLE 1 CONTINUED

Study	Nordström (1992)	Hansson and Henrekson (1994)	Persson and Tabellini (1994)
Dependent variable	Real GDP	Real private output in 14 industry/service sectors	Real per capita GDP
	Cross section	Cross-country/cross-industry	Cross section
Period	1977–89	1970–87	1960–85
Countries	14 OECD incl Japan or 13 excl Japan	14 OECD incl Japan	13 OECD excl Japan
Model and variables	Total effect Growth rate related to different types of government spending/GDP	Controls for investment and employment Catchup variable	Total effect GDP *per capita* (catchup variable), percent attending primary school
Estimation method	OLS; *WS* measured at start of period	OLS	IV unweighted
Definition of *WS* variable	Other current transfers in OECD National Accounts	OECD social security transfers/GDP (from historical statistics)	OECD social expenditure series/GDP (pensions plus unemployment comp. plus other social exp)
	Measured as fraction of GDP	Measured in percentage points	Measured as fraction of GDP
Coefficient on *WS* (standard error)	−0.120 (0.034) Table 1, col 2 (and similar results for other specifications) −0.119 (0.039) excl Japan Table 2, col 2	−0.063 (0.036) Table 4, equation xi for *WS* average 1965–82 or −0.050 (0.035) equation xii for *WS* average 1970–87	−6.723 (5.396) Table 8, equation iii
Effect of five percentage point reduction in *WS*	0.6 percentage point increase in annual growth rate	Not significant at five percent level (but significant negative coefficient for *total* transfers)	0.3 percentage point increase in annual growth rate

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The most recent (Persson and Tabellini) study is primarily concerned with the relation between income inequality and growth, but the authors also examine the relation between average growth (percentage points) in real GDP *per capita* 1960–85, denoted by GROWTH, and social transfers (fraction of GDP), denoted by TRANSF, in 13 OECD countries. They conclude that there is

> "some weak evidence of a negative effect from TRANSF on GROWTH" (1994, p. 617).

This is based on an instrumental variables estimate of the coefficient on TRANSF of −6.7 with a *t*-statistic of −1.2, which is not significant at the five percent level. The point estimate implies that a reduction in spending from 20 percent to ten percent of GDP, approximately equal to the difference between Sweden and the United States, would increase the annual growth rate by about 0.7 percentage points, but the 95 percent confidence interval is from −0.4 to +1.7 percentage points. In contrast, the earlier study by Korpi (1985), not dissimilar in structure, but covering the period 1950–79, concludes that

> "social security expenditures . . . show positive and significant relationships with economic growth" (1985, p. 108).

This is based on an estimated coefficient on the *WS* variable of around 19.0 (in terms of percentage points) with a *t*-statistic of 3.9. This implies that a reduction in spending from 20 percent to ten percent of GDP would reduce the annual growth rate by 1.8 percentage points, with a 95 percent confidence interval of 1.0 to 2.9 percentage points.

There are a number of reasons for such discrepancies. Several authors have sought to reconcile the differences in findings, including Korpi (1985), Saunders (1986), McCallum and Blais (1987), Castles and Dowrick (1990), and Weede (1991).[2] Among the points identified are the following:

(1) sensitivity in some, but not all, cases to the country coverage, notably the inclusion or exclusion of Japan,

(2) differences of view as to whether it is appropriate to include dummy variables shifting the intercept for different subperiods,

(3) different definitions of the *WS* variable, in particular the inclusion in some cases of other government transfers apart from social security,[3]

(4) distinction between studies seeking to explain the total growth rate, and those explaining the growth of factor productivity, controlling for the contribution of factor input growth (investment and employment), and

(5) different right-hand variables apart from *WS*, and factor input growth, including the age of democracy or "institutional sclerosis" variables.

The next generation of aggregate empirical studies will no doubt build on this earlier work, and a systematic exploration of the different dimensions should reduce the degree of variety in the results. At the same time, there are potentially problems with any empirical analysis of this kind.

PROBLEMS WITH AGGREGATE EMPIRICAL EVIDENCE

Aggregative empirical evidence may be questioned in principle on a number of grounds, as illustrated by the following.

Causality

As it was put in an OECD study,

> "in the assessment of the relationship between the public sector and economic performance, it might be thought useful to investigate whether or not

> [country differences] bear any systematic relation to differences in the size and growth of public sector activity. It is difficult to believe, however, that analysis undertaken at this level of aggregation will shed much light on what are clearly very complex underlying relationships. . . . statistical correlations between economic performance indicators and public sector involvement are not likely to be easy to establish, and even harder to ascribe to underlying causal mechanisms" (Saunders and Klau, 1985, p. 122).

It may be poor economic performance that leads to high Welfare State spending, rather than *vice versa*. Slow growth, or output below trend, may cause reduced employment and hence higher spending on unemployment benefit and other transfers. Alternatively, it may be successful countries, with high income per head, that can "afford" a more generous social security system. Or it may be that industrialization of the economy leads both to higher living standards and to the need for social security. The modern employment relationship, with its risk of catastrophic income loss, creates the role for social insurance. We might therefore expect more advanced countries to have larger Welfare States. This would predict a positive relation between *Y* and *WS*, although again the causation would run in the reverse direction.

The same applies to the growth rate version of the relationship. Suppose that the growth rate is fastest during the industrialization period, approaching its steady-state value from above (as predicted by a number of growth models), and that state spending grows as the social insurance scheme matures. The higher level of Welfare State spending is then associated with a slowing of aggregate growth, again without there being any causal connection.

Dynamic Specification

The potential difficulties in interpreting the findings have been recognized in a number of the studies, which have applied a variety of solutions. Some use the initial period value of the *WS* variable (see Table 1) on the grounds that regressions of growth rates of GDP on initial levels of *WS* would not be subject to simultaneity. This, however, raises a fundamental issue concerning the dynamic specification of the estimated relationship. Suppose that there is a negative relationship between social transfers (measured by *WS*) and the level of GDP. In an econometric equation with GDP as the left-hand variable, we might want to include both current and lagged values of the *WS* variable in order to allow for delayed responses to changes. For instance, if higher pensions were to reduce aggregate savings, then the capital stock, and hence output, would fall gradually to its new long-run level. But what long-run restrictions do we want to impose on the estimated relationship? As has been stressed in time-series econometrics, it is here that economic theory has an important role to play.

There are indeed two different theoretical predictions. The first is that described above as the levels equation, where GDP depends on the size of the Welfare State. A cut in social spending induces a temporary rise in the growth rate, as GDP rises to its new equilibrium level, but there is no permanent increase in the rate of growth. Cast in growth-rate terms, the growth rate is related to the *change* in the level of *WS*. The alternative theoretical model is that where the *level* of transfers affects the long-run rate of growth, referred to above as the growth-rate equation. In this case, a cut in the Welfare State is predicted to raise the growth rate permanently.

These two kinds of equation have quite

different implications. Figure 1 shows social transfers (as percent of GDP) as being broadly similar in Sweden and West Germany in 1975. In the next 15 years, they did not change greatly in West Germany, but they increased in Sweden. Suppose that in the 1990s transfers stabilize in Sweden at a higher (constant) percentage than in Germany. On the basis of the levels equation, we predict that GDP in Sweden would, when the adjustment is complete, grow at the same rate as in Germany. The growth-rate equation, on the other hand, predicts that growth in Sweden would be lower forever. Most of the empirical studies are concerned with the growth-rate version but the frequent references to "leaky buckets" (loss of efficiency) appear to have in mind a levels interpretation.[4]

Measuring the Size of the Welfare State

A third problem concerns the measurement of the size of the Welfare State, a question that has been extensively discussed in the literature on "welfare effort." Writers on social policy have sought to relate this variable to the success of different countries in reducing poverty or income inequality (for example, Mitchell, 1991); writers on political science have attempted to explain differences in the ratio of transfer spending to GDP by the existence of governments of different political complexions and other variables (see Wilensky, 1975, and the subsequent literature).

But, it has been recognized in this literature that there are serious problems with measures of the size of the Welfare State. Statistics like those shown in Figure 1 can be quite misleading. To begin with, the level of spending relative to GDP does not necessarily provide an indication of the level of benefit per recipient, as is demonstrated in the following decomposition:

(1)

spending/GDP =

(average benefit/average wage)

× (average wage/GDP per worker)

× (recipients/workers)

The first term is usually referred to as the *replacement rate*, the second is the *wage share*, and the third is the *dependency ratio*. Therefore, a spending ratio of 15 percent of GDP may correspond to a replacement rate of 75 percent with a wage share of 60 percent and a dependency ratio of one third or to a replacement rate of 30 percent with a wage share of 75 percent and a dependency ratio of two thirds. Put another way, countries may differ in the extent of needs: one may have a high spending ratio on account of a large dependent population, not on account of a generous social security program. This is relevant if it is the generosity of benefit levels that is believed to have an adverse impact on economic behavior, since a high level of *WS* does not necessarily imply a high level of generosity.[5]

Of course, it may not be the amount of benefit per recipient with which we are concerned; it may be the cost per *contributor* which is considered the relevant variable. It may simply be the total cost of the Welfare State that is a burden. But in this case, a second objection comes into play, which is that the effective cost to contributors is the *net* effect after allowing for taxation. In many countries, part or all of social transfers are subject to income tax, and while many beneficiaries may be below the tax threshold, some part of the gross outlay returns to the government *via* increased income tax receipts—to different degrees in different countries.

Taxation also comes into the picture on account of *tax expenditures*. Allowances

against income taxation may play the same role as cash transfers. A higher tax exemption for the elderly transfers income to those above a certain age with the same effect (although a different distribution) as a pension scheme. Replacing child income-tax allowances by a cash child benefit may leave the net financial position of a family unchanged. This is a further reason for considering the *net* position, and a number of studies have added tax expenditures to direct social security payments when calculating welfare effort (Gilbert and Moon, 1988). Moreover, we may want to take account of other "off-budget activities" (Saunders, 1986) such as the regulation of the private sector or minimum-wage legislation.

What both of these examples demonstrate is the need to consider *the purpose* for which the *WS* variable is to be used.

Need to Examine the Fine Structure

The welfare effort literature has equally argued that the effectiveness of social transfers depends on the form of the programs, and that one cannot base the analysis on a single aggregate spending variable. Reduction of poverty depends on the distribution of social spending, and the same is true if our concern is with the impact of transfers on economic performance.

We have therefore to examine the fine structure of social transfers, to which economists have in the past paid too little attention. Unemployment benefit provides an illustration, where economic models regularly assume that the only relevant condition for the receipt of benefit is that of being unemployed. In fact, in the typical unemployment insurance program, benefit is subject to contribution conditions, is paid for a limited duration, and is monitored to check that the person is making genuine efforts to seek employment. Benefit may be refused where the person entered unemployment voluntarily or as a result of industrial misconduct, and a person may be disqualified for refusing job offers.

Not only do these conditions reduce the coverage of unemployment insurance, but also they affect the relationship between transfers and the working of the economy. The standard job-search model, for example, assumes that workers can reject job offers that offer less than a specified wage. Such a reservation wage strategy may, however, lead to their being disqualified from benefit. This institutional feature needs to be incorporated and may change the predicted impact. A second example is provided by the contribution conditions, which may induce people to take jobs in order to requalify for subsequent benefit. Again these are often neglected.

Disregard of institutional detail may of course be justified when it has no real consequence. Thus it may be argued that the limited duration of unemployment insurance is irrelevant in many European countries, since the person simply moves on to unemployment assistance. However, unemployment insurance differs from assistance in important ways, such as the role of the contributory principle in providing an incentive for people to take insured employment. Another difference is that receipt of assistance depends on the income of other household members. This means that assistance payments affect the incentives not just of the unemployed person but also of his or her partner. Where a person moves from insurance to assistance benefit, there may be little financial advantage in the partner continuing to work.

The significance of the fine structure is that the same level of social transfers

may have quite different economic implications depending on the form of the transfer programs. Just what the relevant differences are depends in turn on the determinants of economic behavior.

Conclusion

In his review of the lessons to be drawn from the aggregate empirics research for the future of the Swedish Welfare State, Klevmarken concludes that

> "regardless of what result a cross-sectional regression would arrive at, it does not say much about how changes in the size of the public sector would affect growth in Sweden . . . it must be difficult to see different countries as experimental units which can provide information about one and the same process. At any rate, comparability must be clarified on a considerably more detailed level" (1994, p. 16).

It is, however, not just the cross-section, but also the time-series, analysis which is open to the objections sketched in this section.

In my view, we have to look inside the "black box" and provide an explicit theoretical structure and sufficient institutional detail. Without such a framework, it is not possible to interpret observed aggregate relationships. Theory is necessary to specify the form of econometric relationships; the choice of indicators of the scale of the Welfare State depends on the purpose for which they are to be used; and it is theoretical models of economic behavior that identify the relevant institutional features of the transfer system.

WELFARE STATE AND THE LEVEL OF OUTPUT

In considering the theoretical structure, I follow the distinction drawn earlier between *levels* and *rate of growth* relationships. In this section, I explore a selection of models of the determination of the level of output.

The simplest model of transfer payments is perhaps that of a recipient group, fixed in size, and a working population on whose earnings is levied an employer payroll tax at rate t in order to finance the transfer. Firms produce a single output, and for purposes of illustration, I take the Cobb–Douglas production function:

2

$$Y = K^{\beta}[AL]^{1-\beta}$$

where K denotes capital, L labor, and A the level of labor productivity, both K and A assumed constant at present, and β is the (constant) competitive share of capital. The price of the output is taken as unity. Firms employ people up to the point where the value marginal product is equal to the wage cost ($w[1 + t]$), which generates a labor demand function:

3

$$L_D = c[w(1 + t)]^{-1/\beta}$$

where c is a constant.

Workers are all equally productive in market work but differ in their productivity in home employment (home output is valued at the same price as market output). There is a maximum total labor force, N, but a fraction of potential workers prefer home employment. If this latter decision is based on whether the value of home output, h, is greater or less than the wage rate, w, and the distribution function of home output is $F(h)$, then the labor supply is

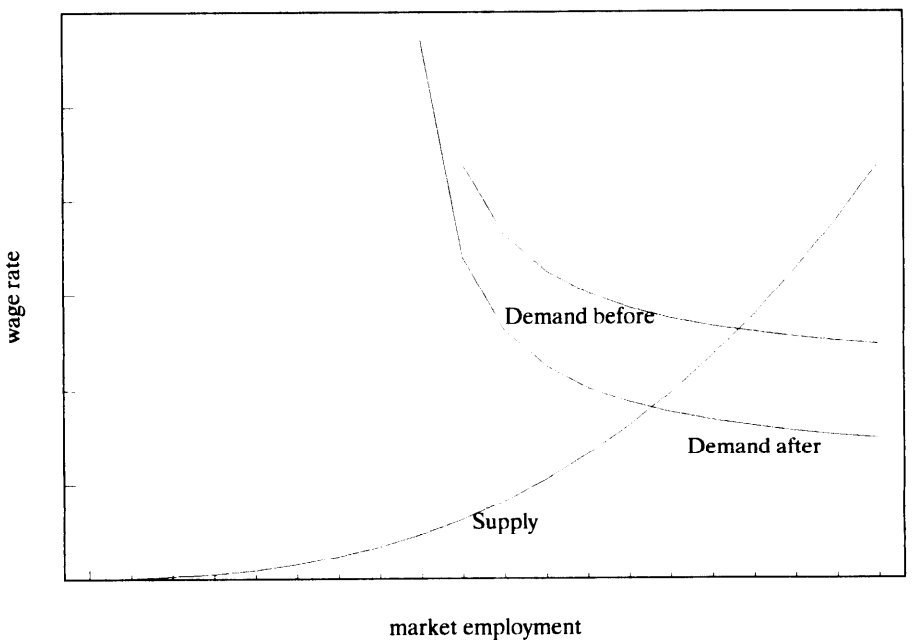
4

$$L_S = F(w)N$$

In this situation, we have a simple supply and demand model of the aggregate labor market—see Figure 2. The effect of the social security payroll tax is to shift the demand curve to the left at every w and there is a fall in the equilibrium level of market employment, and hence output (the same would happen if the tax were levied on the employee). An increase in the transfer to the dependent population (whether on account of a rise in the replacement rate or a rise in the dependency ratio), which raises the necessary tax rate, leads to a fall in measured output. In this case, we have a negative levels relationship between *WS* and GDP.

It is of course open to question whether GDP is really the appropriate measure in this context. Along with the reduced labor supply comes increased home production. The Scandinavian professors who paint their own houses rather than write books are still contributing to output. This is not just an accounting point. Much of public debate confuses the potential damage that taxes may do by (1) distorting the working of the market and by (2) reducing output (or employment, or investment, or some other target economic variable). The distortion arises, in the simple model set out above, from the "wedge" between the cost of labor to the employer ($w[1 + t]$) and the opportunity cost to the employee (h). Distortion would be eliminated if t were zero. On the other hand, this would not maximize market output. It may be convenient to use observed GDP as an aggregate indicator of well-being, ignoring nonlabor time, but the distinction is important. If it is being argued that the Welfare State is driving

FIGURE 2. Competitive Labor Market and Payroll Tax



people out of the market economy, then we should be told whether this is undesirable because it leads to an inefficient allocation of resources or because it reduces GDP. The numerical measure of the cost may be very different (the distortionary loss from a small tax, for example, is only second order, whereas the output effect is first order).

This example is highly stylized but captures, I believe, the kind of relationship that people have in mind when considering the economic burden of the Welfare State. At the same time, it raises a number of issues, in addition to the obvious one of the quantitative magnitude of the costs.

Tax Cost versus Specific Impact

First, the cost in lost output, or reduced welfare, arises in the model described on account of the existence of taxation. The fact that the tax is necessary to finance transfers is not, as such, material. The Welfare State may represent a particularly large item in the budget, but the tax cost is the same dollar for dollar as if the spending were on overseas aid or defence.

It is important to distinguish this general tax cost argument from arguments that are specific to the particular form of spending. Going back to the quotation from Drèze and Malinvaud at the start of this paper, we can see that their second criticism of Welfare State programs is that they

> "increase the size of government at a risk of inefficiency; their funding enhances the amount of revenue to be raised" (1994, p. 95)

(and that the third is that they increase public deficits). Cuts in benefits would allow the tax rate to be reduced, but the same would be true if other forms of government expenditure or tax expenditures were contracted. A tax concession to encourage private pension provision may have the same consequences for the public-sector deficit as the direct payment of pensions. A switch from state to private provision would in this case have no impact.

More interesting in the present context are arguments pointing to specific features of Welfare State spending that have an impact on economic performance, as illustrated by Drèze and Malinvaud's first criticism of the Welfare State that

> "(i) measures of income protection or social insurance introduce undesired rigidities in the functioning of labour markets" (1994, p. 95).

We are now concerned with the relative desirability of different types of government spending. The question is one of *differential expenditure* analysis, to use Musgrave's terminology (Musgrave, 1959).

In order to explore such specific features of social transfers, we need to elaborate the model. Suppose that the size of the dependent population is now influenced by the payment of the transfer. More precisely, let us suppose that a fraction of people can receive the transfer while engaged in home production. (As already emphasized, the rules of transfer programs may place obstacles in the way of such behavior.) As a result, the supply curve shifts to the left, the level of market output falls further than if there were simply the tax cost. The wedge between the value of market output and the net benefit to the worker widens for those able to claim while working at home, and there is a further cost in reduced welfare.

As soon, however, as we begin to analyze the specific impact of transfer programs, we discover the inadequacy of

the economic model for the task since it does not incorporate the contingencies toward which transfers are directed. Benefit is indeed paid to people of working age but in order to provide for sickness, disability, unemployment, and other contingencies, none of which are modeled. The whole purpose of such provision is missing from the theoretical framework. This is related to a second objection to the theoretical model—that it incorporates none of the imperfections that characterize actual economies. The simple model is a miniature Arrow–Debreu general equilibrium system in which the no-government state corresponds to a first-best situation. The Welfare State must necessarily have an economic cost since it has only a distributive function to perform. The choice of model itself precludes the possibility that social transfers may be justified on efficiency grounds. This is a major limitation on much welfare economic discussion of the redistributive role of the state.

An Imperfect Labor Market

Let us now introduce two features that have so far been missing from the story: unemployment, which provides a rationale for social insurance, and trade unions, who represent a departure from the assumption of perfect competition. The assumed structure is necessarily highly simplified. Unemployment takes one of two forms: frictional unemployment resulting from imperfect matching of jobs and vacancies, and wait unemployment as people queue for jobs at the union wage rate. Trade unions have a stylized objective function, and bargaining is assumed to take a specific form. Nevertheless, the model is undoubtedly closer to a real-world labor market.

Unions and employers bargain over the wage rate, w, in the market economy, in the knowledge that the labor demand function is given by equation 3. (This is a "right to manage" model where firms determine employment.) At the same time, unions look further ahead than the wage; they recognize that there is a probability, δ, that a job will be involuntarily terminated. The value of a job, denoted by Ω_J, takes account therefore of the probability that the worker will become unemployed. Workers are assumed to be risk neutral and to have an infinite horizon (both unsatisfactory assumptions) and to discount future income at an exogenously fixed interest rate, r. In a stationary equilibrium, the expected present value of a job paying wage w is such that

$$r\Omega_J = w - \delta(\Omega_J - \Omega_U) \tag{5}$$

where Ω_U is the value placed on the state of being unemployed. Equation 5 shows that the value of a job is attenuated by the risk of job termination.

If not in market work, the person may be engaged in home production or may be unemployed. In order to simplify the analysis, strong (and not necessarily realistic) assumptions are made about the possible labor market transitions. It is assumed that recruitment by firms takes place only from the stock of unemployed; there is no recruitment of those engaged in home production (who are out of the labor force). People may move out of home production into unemployment, so that the present value of home production (equal to w_h/r in stationary state for the marginal person) is equal to the value placed on being unemployed:

$$\Omega_U = w_h/r \tag{6}$$

The value of being unemployed, in the

absence of unemployment benefit, is the expectation of being recruited into a market job at the union wage. There is equilibrium wait unemployment. The probability of moving from unemployment to paid work is equal for all unemployed and depends on the number of vacancies and on the matching of the unemployed to vacant jobs, which is assumed to be imperfect so that not all jobs are filled instantaneously. I assume that the matching function, with U unemployed and V vacancies, takes the special form such that the number of matches is

7

$$M = m\sqrt{(UV)}$$

so that the rate of outward flow is

8

$$M/U = m\sqrt{(V/U)}$$

It follows that in stationary equilibrium the valuation placed on the state of unemployment is

9

$$r\Omega_U = [\Omega_J - \Omega_U]\, m\sqrt{(V/U)}$$

The probability of getting a union job is the only reward at this stage for the unemployed (unemployment benefit is introduced below).

From the three equations 5, 6, and 9, we can obtain the relationship which must hold in equilibrium between the wage rate and the marginal value of home production, w_h (eliminating Ω_J and Ω_U):

10

$$w = w_h[1 + ((r + \delta)/m)\sqrt{(U/V)}]$$

The necessary wage differential depends on the degree of pressure in the labor market, which affects the extent of friction.

The wage differential itself is the subject of bargaining. Following the standard assumption in the labor economics literature (for example, Booth, 1995, p. 125), the outcome is assumed to be the generalized Nash bargaining solution, where employers and unions maximize

11

$$H = \Pi^{\theta}\{L(\Omega_J - \Omega_U)\}$$

where π denotes profits and θ is a positive parameter measuring the relative bargaining power of the employers, and where the union maximizes the difference in total expected present value from the employment of L workers at wage w, compared with their being unemployed. From this, one obtains the first-order condition (it may be verified that the second-order conditions are satisfied)

12

$$w/(w - w_h) = 1/\beta + \theta(1 - \beta)/\beta$$

(see Booth, 1995, p. 125, and using the Cobb–Douglas production function). This can be rewritten

13

$$w = w_h[1 + (\beta/(1 - \beta))/(1 + \theta)]$$

so that the negotiated differential is, as we might expect, larger, the larger is the share of capital (β) and the smaller is the relative strength of employers (θ).

In equilibrium, the U/V ratio must be such that (combining equations 10 and 13)

14

$$\sqrt{(U/V)} = m/(r + \delta)(\beta/(1 - \beta))/(1 + \theta) \equiv \lambda$$

Since in equilibrium the number of vacancies is equal to the number of job terminations, δL, we can express U as a proportion of L (δ times the square of the right-hand side of equation 14). This gives the augmented labor demand curve, including the queue unemployment, shown by $L + U$ in Figure 3.[6] There is an equilibrium with employment in both market and home production lower than if the labor market cleared without friction and there were no union power.

The model described above serves to illustrate how even a relatively limited modification of the assumptions introduces significant complexity. It is, however, the greater richness of the model that allows us to examine the impact of social transfers in a way that recognizes their key institutional characteristics.

Institutional Structure

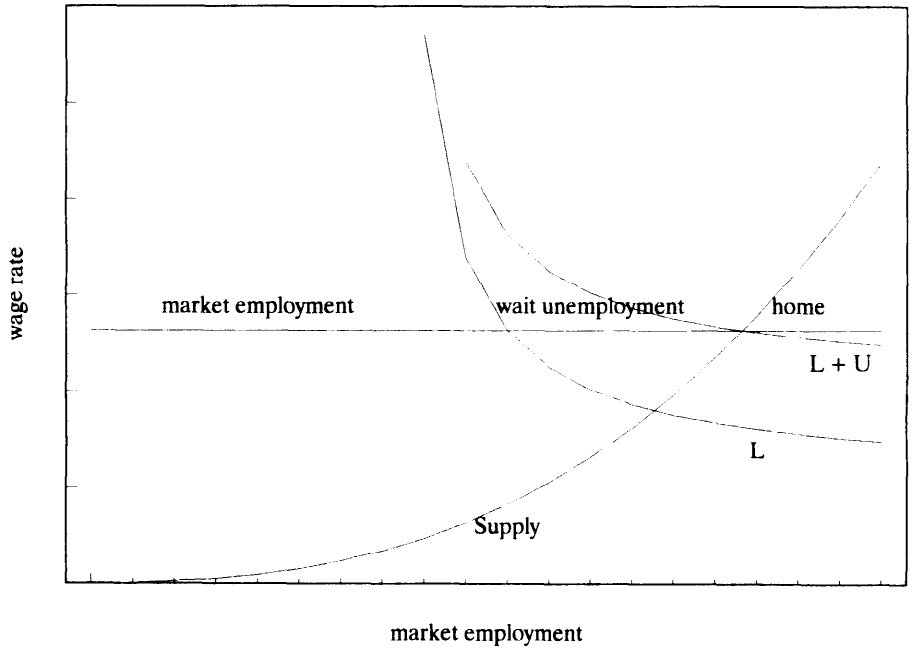
The standard labor economics textbook treatment of unemployment benefit assumes that it is paid unconditionally, so that we simply add the benefit, b, to the right-hand side of equation 9 for the valuation placed on the state of unemployment. If the replacement rate is ρ, so that the benefit received is ρw, then equation 9 becomes

$$r\Omega_U = [\Omega_J - \Omega_U]\, m\sqrt{(V/U)} + \rho w$$

We now obtain

$$w[1 + (\rho(r + \delta)/m)\sqrt{(U/V)}] = w_h[1 + ((r + \delta)/m)\sqrt{(U/V)}]$$

FIGURE 3. Union Bargaining and Wait Unemployment



As one might expect, the existence of unemployment benefit makes waiting more attractive. The introduction of benefit of this form shifts the "total" demand curve including those in the queue. The equilibrium value of U/V rises. Employment in the market sector is reduced, as is home production.

However, as has been stressed in the previous section, the typical unemployment insurance benefit does not take the form assumed above. Unemployment insurance is subject to contribution conditions, is paid for a limited duration, and is monitored to limit coverage to involuntary job loss. In order to incorporate these institutional features, we need to distinguish between insured and uninsured unemployment, the value of these two states being denoted by Ω_I and Ω_U. People working in the market sector whose jobs are terminated are assumed to be entitled to benefit on the basis of past contributions, so that they enter the state of insured unemployment. This means that the value of a job in the market sector becomes

5'

$$r\Omega_J = w - \delta(\Omega_J - \Omega_I)$$

At the same time, those in receipt of the insurance benefit face a probability γ that the benefit expires. This means that in stationary equilibrium the valuation placed on the state of insured unemployment is

15

$$r\Omega_I = b + [\Omega_J - \Omega_U]m\sqrt{(V/U)} - \gamma[\Omega_I - \Omega_U]$$

where it is assumed that the rate of flow out of unemployment is the same for the insured unemployed as for the uninsured (again a strong assumption). Ω_U gives the valuation of the state of uninsured unemployment, and again this is equal to the marginal value of home production. Finally, there is the question as to whether it is Ω_I or Ω_U that enters the union objective function. Any short-term reduction in labor force may give rise to benefit entitlement, but in the long term it is achieved by natural wastage, and the size of the insured labor force is scaled down. In what follows, I assume that the fallback position has value Ω_U, as before.

If we write the replacement rate as ρ', then solving equations 5', 6, 9, and 15 for Ω_J, Ω_I, and Ω_U, we arrive at

10"

$$w[1 + \delta\rho'/(r + m\sqrt{(V/U)} + \gamma)] = w_h[1 + ((r + \delta)/m)\sqrt{(U/V)}]$$

Qualitatively, the effect of unemployment insurance works in the same direction, making (insured) unemployment more attractive, and raising the equilibrium U/V ratio. But the quantitative impact is potentially quite different. The key difference is in the extent to which benefits make working in the market sector more attractive, which is given by the square brackets on the left-hand side of equation 10" for unemployment insurance and of equation 10' for the hypothetical benefit imagined by economists. Suppose that the outflow rate is 25 percent per quarter, that the job loss rate is five percent and the interest rate five percent. A replacement rate of 50 percent then raises the square bracket in equation 10' from 1, with no benefit, to 1.2; the same replacement rate with the insurance scheme, and an outflow rate from insurance of 20 percent, raises the square bracket from 1 to 1.05. The disincentive effect of the insurance benefit is less serious because it is tied to previous employment record.[7] The fine structure can make a considerable quantitative difference, and needs to be

taken into account when specifying econometric relationships. At an aggregate level, account has to be taken not just of replacement rates but also of the extent of benefit coverage; in micro-econometric studies, individual benefit entitlement and conditions need to be modeled.

It is not within the scope of this paper to examine the redistributive benefits of the Welfare State, but it should be noted that the institutional features just considered turn on benefit coverage being less than complete. The contribution conditions associated with unemployment insurance reduce its effectiveness as a social safety net. At the same time, it is not a simple equity/efficiency trade-off. For instance, disqualification provisions for job refusal may deter such refusal without anyone actually being disqualified, so that benefit coverage remains complete.

WELFARE STATE AND ECONOMIC GROWTH

I turn now to the possibility that the Welfare State may adversely affect the rate of growth of the economy: to provide theoretical justification for the growth-rate hypothesis, in contrast to the levels hypothesis of the previous section. The competitive general equilibrium model used at the beginning of that section may be given a dynamic interpretation, with a full set of futures markets, but this neither coincides with the reality of existing markets nor captures the interesting features of a dynamic economy. Here, I start instead from the theory of economic growth, in which there has been a resurgence of interest in the past decade.

The point of departure is again the aggregate production function equation 1, although the labor supply is now assumed to be unaffected by the wage rate (there is no home production) and to be growing over time at rate n. In growth rate form, we have

(16)

$$g_Y = \beta g_K + (1 - \beta)(g_A + n)$$

where g_X denotes the proportionate growth rate of the variable X.

How may the Welfare State affect the growth rate? The first possible mechanism is *via* a reduction in savings and the rate of capital accumulation.[8] However, as is well known, in the (Solow) neoclassical growth model a reduction in saving would lower the level of output, but not affect the steady-state rate of growth. The steady-state growth rate at which output and capital are growing at the same rate is equal to the rate of population growth plus the rate of technical progress (setting $g_Y = g_K$ in equation 16). In the long run (and the speed of convergence may be slow), any decline in savings induced by the Welfare State does not affect the growth rate. This may be seen by rewriting equation 16 as

(17)

$$g_Y = \beta(S/Y)/(K/Y) + (1 - \beta)(g_A + n)$$

where S denotes aggregate savings, assumed equal to investment. If S/Y were to fall, then over time the capital output ratio falls and in steady state the fall in (K/Y) fully offsets the fall in the savings ratio, leaving the growth rate unchanged.

If, however, the rate of technical progress is treated as endogenous, rather than exogenous, then the transfer system may affect the long-run growth rate. Suppose that we take the simple version of the Arrow (1962) learning by doing model where productivity A depends on experience, which is propor-

tional to cumulated past investment, or K. This gives a production function for the economy as a whole (the unsatisfactory features of this formulation are clearly brought out by Solow, 1994):

18

$$Y = aK$$

and the economy is in instantaneous steady growth at rate

19

$$g_Y = g_K = S/K$$

where S denotes net savings. A rise in the savings rate leads to a permanently increased rate of growth, with the rate of technical progress being correspondingly increased. On this steady growth path, the private competitive return to capital, r, is equal to $a\beta$.[9]

In this endogenous growth model, can social transfers reduce the long-run rate of growth? In particular, does the existence of a state pay-as-you-go pension scheme reduce the growth rate, as commonly alleged? To consider this, we need to investigate the determinants of saving behavior. Much of recent growth theory assumes that this can be modeled in terms of a representative agent maximizing the integral of discounted utility over an infinite horizon. This "Ramsey" formulation requires that the rate of growth of consumption, and hence the steady-state growth rate of capital, equals

20

$$g = (r_n - \rho)/\epsilon$$

where r_n is the return to individuals net of any taxes, ρ is the rate of discount, and $1/\epsilon$ the rate of intertemporal substitution in the utility function.

If we follow the herd in making this assumption, then the impact of social transfers can only operate *via* the net rate of return (bearing in mind that the gross rate of return is fixed at $a\beta$). The payment of a state pension financed by a payroll tax which does not affect r_n has no impact on desired growth rate of capital. In this respect, it resembles the extreme Kaldorian model (Kaldor, 1956), where savings are proportionate to capital income, and the rate of growth of capital is equal to the savings rate times the rate of return.

Neither the Ramsey nor the extreme Kaldorian models seem particularly appealing as explanations of savings in modern economies. More commonly used in studies of the impact of pensions have been models of life-cycle savings with a finite lifetime and no bequests (so that there is no Ricardian equivalence). One such is the discrete time model of Diamond (1965), where people, identical in all respects apart from their date of birth, live for two periods working for a wage w during the first and living off their savings in the second.[10] Capital available to the next generation is equal to the savings of the preceding generation of workers. Suppose that they choose to consume in the first period a fraction $(1 - \sigma)$ of their net present discounted receipts, which are equal to the wage net of payroll tax at rate t plus the pension received next period discounted by $(1 + r)$, since the net return is equal to the gross return. This may be seen as the result of maximizing the Cobb–Douglas utility function

21

$$U(c_1, c_2) = c_1^{(1-\sigma)} c_2^{\sigma}$$

(where $0 < \sigma < 1$) subject to the budget constraint

$$c_1 + c_2/(1 + r) = w - tw + tw(1 + g)/(1 + r)$$
$$= w - tw(r - g)/(1 + r)$$

The pension scheme is assumed to be in steady state with a constant tax rate, so that the pension received per head is the contribution of the current generation (tw) increased by a factor $(1 + g)$ since the wage bill is higher by this amount. As is well known (Aaron, 1966), the pay-as-you-go scheme makes people worse or better off according to whether the rate of interest obtainable on private savings is greater or less than the rate of growth. It follows that the capital carried forward is

$$sw \equiv w(1 - t) - (1 - \sigma)w[1 - t(r - g)/(1 + r)]$$
$$= [\sigma - t + (1 - \sigma)t(r - g)/(1 + r)]w$$

Combined with the learning by doing model used above, this yields a rate of growth [using the fact that $w = (1 - \beta)Y$]

$$(1 + g) = s(1 - \beta)a$$

(It may be noted that g appears on the right-hand side of equation 24 *via* s.) If we were to start from a position where the rate of growth equals the rate of return, then from equation 23 we can see that the payroll tax would have a pure pay-as-you-go effect, with state contributions displacing private savings dollar for dollar, and hence reduce the rate of growth. Where the initial rate of growth is less than the rate of return, the effect is smaller, but the savings rate is still reduced.

We have therefore described a situation in which the Welfare State can have an adverse impact on the long-run growth rate. There are, however, a number of important considerations that are missing. As in the previous section, neither the economic model nor the treatment of the Welfare State is wholly satisfactory.

Institutional Structure

First, we need again to examine the institutional fine structure, as becomes apparent when we consider the alternatives to the pay-as-you-go state pension analyzed above. Those advocating cuts in state pensions do not usually propose that nothing take its place. Critics wish to see either a better targeting of state spending, for example with universal pensions being replaced by income-tested benefits, or state provision being replaced by private pensions. Both of these changes in policy would, however, have economic consequences.

Suppose first that the level of state pension provided to those with no other resources is left unchanged but that the state benefit is withdrawn progressively from those with other sources of income. The pension ceases to be universal and becomes an "assistance pension." In a limiting case, the state benefit represents a minimum income guarantee, and is reduced dollar for dollar of other resources. Such a reform promises to reduce total public expenditure while still meeting the antipoverty objective (providing the guarantee is set at a sufficient level). But the test of resources changes the intertemporal budget constraint faced by the individual. People who prior to retirement foresee that increased savings lead to a reduced state transfers may adjust their savings behavior. In the case of the minimum income guarantee, they in effect face an either/or choice. Either they save sufficient to be completely independent in

old age or they reduce their savings to zero and rely solely on the state benefit.

Such a policy move toward assistance pensions, while it would reduce total Welfare State spending, creates a "savings trap." The potential impact may be seen in the earlier Diamond model. Figure 4 shows the choice now faced by the individual when there is a minimum income guarantee. Suppose that the minimum guarantee is set at the level of the previous pay-as-you-go pension, $tw_{av}(1 + g)$: *i.e.*, a proportion t of the average wage, allowing for the fact that this rises at rate $(1 + g)$. The switch to an assistance pension allows the tax rate levied on earnings, τ, to be less than the previous value t, since the guarantee is paid to only a fraction of pensioners. As shown in Figure 4, the opportunity set is now nonconvex, and the consumer compares the highest level of utility obtainable on AB with that obtainable at point D consuming the entire net wage in the first period and the minimum pension in the second. From the utility function equation 21, we can calculate that the minimum pension is preferable where

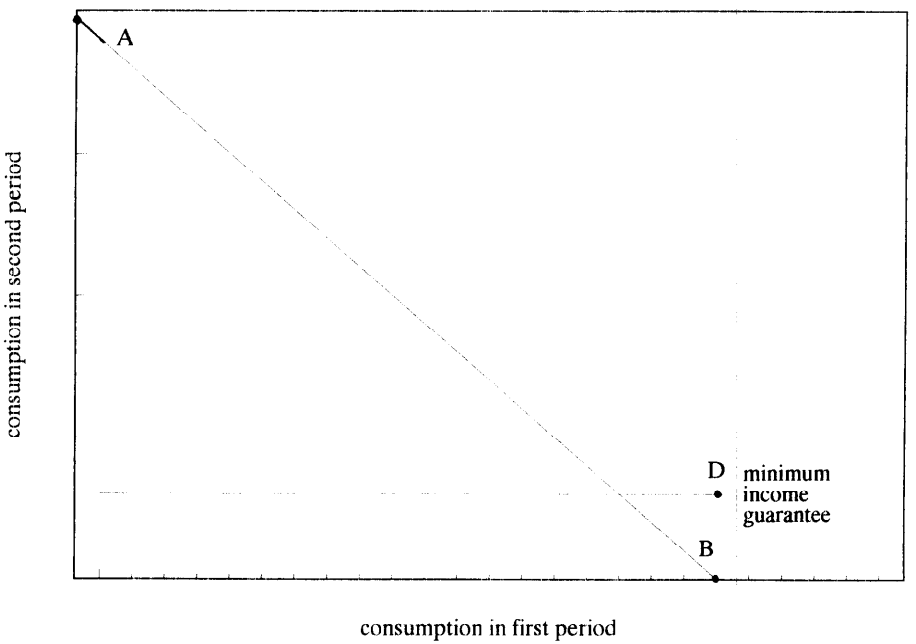
25

$$w < t/(1 - \tau) \cdot w_{av} h \cdot (1 + g)/(1 + r)$$

where h is a constant greater than 1.

In order to understand the implications of this proposal, we can no longer rely on the assumption of representative identical individuals but have to treat explicitly distributional differences. For people with wage rates above the critical value in equation 25, savings rise on two counts. First, the tax rate is lower.

FIGURE 4. Budget Constraint with Minimum Pension



Second, the contribution is a pure tax, so that they reduce present consumption: the savings rate is reduced not by t but by $\sigma\tau$. On the other hand, for those with 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 cutoff, their relative wages, and the other parameters. The net impact is unclear.

Those making private provision for old age may do so through individual savings but in many cases there are special private pension institutions, and this introduces a further institutional feature that is often ignored in the theoretical analysis. In order to qualify (for example for reduction in state contributions), private provision typically has to be in some protected form, either an occupational scheme or one operated by a pension institution. Employer-operated schemes may affect the financing of the company sector, since the employer is liable for any deficit. Pension institutions acquire substantial weight in the capital market, and again may influence the working of the company sector. We cannot simply suppose that a switch to private pension provision would be neutral as far as the capital market is concerned. A situation where savings are in the hands of pension funds is different from one where they belong to individual savers. However, in order to explore the implications, we need to enrich the treatment of the capital market.

Investment and Firm Behavior

To this point, it has been supposed that changes in savings are automatically translated into changes in investment. It is assumed that investment can be carried out of an amount equal to the level of savings, without consideration of the underlying mechanism. As noted by Hahn and Matthews (1964, pp. 11–15), we need to distinguish between the rate of interest, here denoted i, and the rate of profit, denoted by r as before.

Consideration of the nature of the investment function leads naturally to the introduction of the corporate sector. As suggested in Atkinson (1994), it may be useful to view the investment rate in an endogenous growth model as being governed by the choice of growth rate by firms that face costs of adjustment. This draws on the early literature on the growth of the firm (Penrose, 1959; Marris, 1964) and follows the work of Uzawa (1969) on the Penrose effect and of Odagiri (1981) on corporate growth.

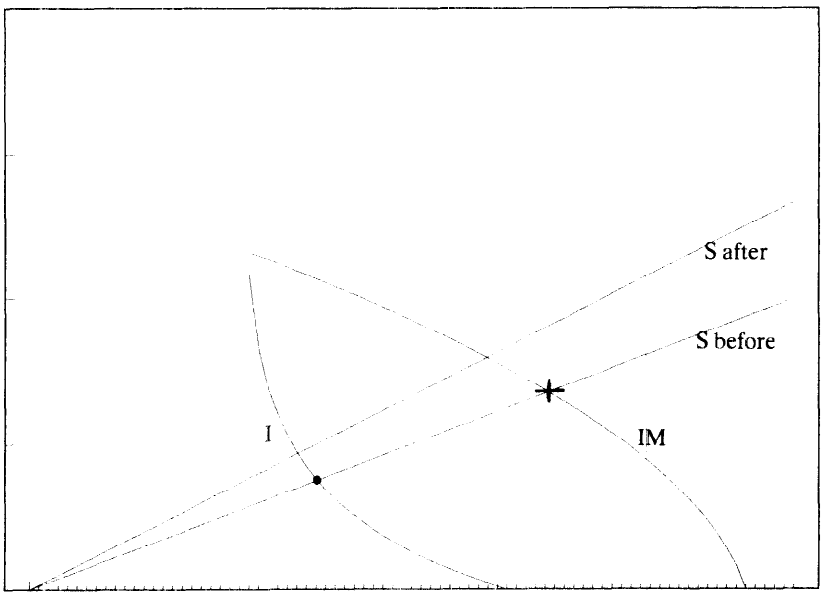
The key element in the growth theory of the firm is the stock market valuation, V, which is assumed to equal the present value of future dividend payments, where the discount rate is equal to the interest rate i (possibly plus a risk premium, although uncertainty is not treated explicitly). Assuming that all investment is financed out of retained earnings, dividends are equal to profit less the cost of expansion at rate g, given by $c(g)K$, so that

$$V = [rK - c(g)K]/(i - g)$$

since dividends grow at rate g.

The firm may maximize its stock market value, in which case the desired growth rate depends on i and on the internal costs of expansion. Equilibrium of savings, which depend also on i, and investment is achieved by variation in the rate of interest. In Figure 5 the investment function for a firm maximizing stock market value is shown by the curve labeled I, and the savings rate is assumed to be proportional to the interest rate, generating the equilibrium before any change marked by the dot. Alternatively, in the managerial version,

FIGURE 5. Capital Market and Effect of Increase in Savings



firms maximize the rate of growth subject to a takeover constraint. The constraint may take the form of limiting the stock market value to some fraction of the "break-up" value of the assets:

27

$$V \geq mK$$

In this case, managers choose the highest rate of growth consistent with this constraint, which yields a different, higher equilibrium rate of growth (and interest rate). This is shown in Figure 5 by the intersection, marked by a cross, of the "S before" line with the IM curve.

Capital Markets and the Welfare State

The elaboration of the capital market model allows us to see that impact of a move from state to private pensions. The first effect is an upward shift in the savings function, as analyzed above. This tends to raise the equilibrium rate of growth, for both profit-maximizing and growth-maximizing firms, as shown in Figure 5.

There is, however, a second possible effect. As already noted, private pension funds come to play a more important role in the capital market. In the case of Sweden, such a development is welcomed by the Lindbeck Commission:

> "It is also important to stimulate the emergence of a larger number of institutions that not only hold shares, but are also willing to play an active ownership role" (1994, p. 96).

The precise nature of the takeover constraint, equation 27, has not been

spelled out, but there are good reasons to expect that the larger the fraction of shares owned by pension funds, the tighter is likely to be the constraint. (An argument may be developed along the lines of the shirking models in the labor market.) If this is the case, then a switch in pension from unfunded state to funded private may lead to a rise in the savings rate but a fall in the desired growth rate of managerially controlled firms. The net effect may be to either raise or lower the rate of growth, or to leave it the same, as illustrated in Figure 6, where the IM curve shifts from "IM before" to "IM after."

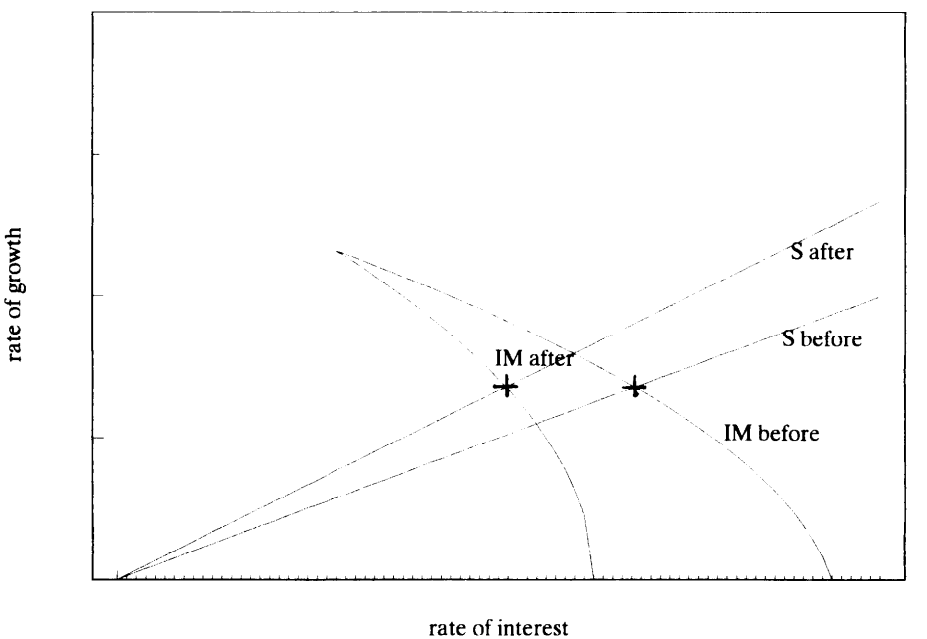
The existence of such an effect operating in the opposite direction from that usually treated may be considered by some readers to be mere academic theorizing. There has, however, been considerable concern about the influence of financial institutions on investment decisions. In the United Kingdom, the Goode Committee noted that there had been[11]

> "widespread discussion of the 'short-termism' of pension funds. Those who identified this as a problem saw it as making long-term investment decisions in research and development or capital projects impossible for company managements to pursue"(1993, p. 159).

They went on to point out that

> "Perhaps it did not matter whether the institutions were 'short-termist' or not; the critical question was whether it changed the behaviour of company management to the detriment of the long-term prospects of the economy as a consequence of the mere belief that

FIGURE 6. Effect of Move to Private Pension



institutions were likely to behave in this manner" (1993, p. 159).

Conclusions

From this paper, three main conclusions may be drawn:

• Study of the aggregate relationship between economic performance and the size of the Welfare State is unlikely to yield conclusive evidence. While popular argument often refers in a casual way to the experience of Sweden or other countries with sizeable levels of spending, the results of econometric studies are mixed, and provide no overwhelming evidence that high spending on social transfers leads to lower growth rates. Nor is it evident that firm conclusions could be drawn from such an approach, which poses serious problems of interpretation.

• In order to understand the relationship between the Welfare State and economic performance, the theoretical framework needs to be set out explicitly. I have given examples where, to explore the implications of existing social transfers, and of possible reforms, we need to enrich the model to introduce the considerations that are central to the policy issue. At the same time, the models used are far from fully satisfactory and are in need of development. Understanding the impact of the Welfare State is a challenge to economic theory and not just to applied econometricians.

• An important role is played by the institutional structure of the Welfare State. The form of benefits, and the conditions under which they may be claimed, can change their impact on economic behavior. The same level of total spending may have different implications for the level of GDP or the long-run growth rate depending on the entitlement structure. Switching to "targeted" benefits or to private provision may replace one set of disincentives by another. Economists cannot ignore what may appear to be issues of detail.

ENDNOTES

Paper prepared in memory of Morris Beck. I am grateful to the Editor, Joel Slemrod, and to François Bourguignon, John Hills, and Anders Klevmarken for their very helpful comments on the first version of this essay. I would also like to thank Steve Dowrick, Magnus Henrekson, Walter Korpi, Dan Landau, Håkan Nordström, Torsten Persson, Guido Tabellini and Erich Weede for information about the studies quoted in Table 1. None of the above is to be held in any way responsible for the opinions expressed in the paper.

[1] There is a profusion of statistics comparing social transfer spending in different countries. The figures in Figure 1 are from the OECD Historical Statistics (OECD, 1992, Table 6.3, p. 67) and relate only to social security transfers, excluding other government transfer payments. They are broadly similar to the figures for "cash benefits" published by the ILO in *The Cost of Social Security* (1992).

On the other hand, the figures in Figure 1 differ from the statistics for income transfers also produced by the OECD (see, for example, Barr, 1994, Table 1–3), which include, in the case of the United Kingdom, payments under private occupational pension schemes. The figures in Figure 1 differ also from those for social protection expenditure published by Eurostat (for example, European Commission, 1993, p. 42) which include benefits in kind and expenditure on public health services.

The choice between these different statistics depends on the purpose for which they are to be used—a point developed below.

[2] See also two reviews in Swedish, which reach rather different conclusions from each other: Söderström *et al.* (1994) and Agell, Lindh, and Ohlsson (1994). I owe these references to Klevmarken (1994).

[3] Hansson and Henrekson (1994), for example, find a significant negative coefficient on total transfers but a smaller and less significant coefficient for social security alone. Since total transfers include subsidies to firms and interest payments on the national debt, this seems a less relevant variable for the present purpose.

[4] Hansson and Henrekson (1994) try also entering both level and change in total transfer payments.

[5] McCallum and Blais (1987) adjust total social security spending to allow for differences between countries in the proportion of population aged 65 and over.

[6] Denoting the right-hand side of equation 14 by λ, the equilibrium condition is

$$L[1 + \delta\lambda^2] = NF(w_h)$$

where w_h is obtained from equation 13.

[7] For fuller analysis of these institutional details, in a different model, see Atkinson (1992); for a more general discussion of the actual features of schemes, see Atkinson and Micklewright (1991).

[8] In terms of the earlier discussion of the empirical literature, this would show up as an effect on the *total* rate of growth, not on factor productivity.

[9] The competitive share of capital is β, and the output-capital ratio is a.

[10] Labor supply in the first period is assumed to be fixed. The model may be extended to allow for variation in the date of retirement (which may be affected by the pension)—see Feldstein (1976). Another version has been used by Blanchard (1985), where there is a constant probability of death and wages decline exponentially over the lifetime. This has been used by Saint-Paul (1992) to argue that an unfunded social security system reduces the growth rate.

[11] I was a member of this committee, but did not write this passage!

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