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by

WAYNE W. SNYDER

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MEASURING THE STABILIZING EFFECTS OF SOCIAL SECURITY PROGRAMS IN SEVEN COUNTRIES, 1955-65*

WAYNE W. SNYDER

IN this article we shall measure the stabilizing effects that social security benefits and contributions had on economic fluctuations during the eleven-year period from 1955 through 1965 in seven countries: Belgium, France, Germany, Italy, Sweden, the United Kingdom, and the United States. The methods used are those developed for a recent OECD survey by Bent Hansen [7], which gives the institutional background to budgetary action and an analysis of the nature and effects of fiscal policy in these seven member countries. The Hansen study generally focuses on the budget effects of the entire public sector or of central government alone.[1] This paper supplements the Hansen study by singling out the social security functions and comparing their stabilizing effects with those of the general government sector as well as with the conditions which would have been required to produce completely balanced and stable growth.

It should be noted that several European countries began their social security programs early in the nineteenth century, decades before the advent of Keynesian economics and its concern for economic stability [15, pp. 123-33 and 18, pp. 1-20]. The "sound" budgetary philosophy which widely prevailed up to World War II deplored deficits generally, and was specifically suspicious of deficits incurred by the social security system during economic recessions. Thus, whatever dampening impact on cyclical fluctuations in income and expenditures has occurred has not always been viewed as desirable, and the stabilizing influence of these programs has been largely an unintentional by-product. Their major purpose was and still is to help meet individual human needs in many ways, principally through the provision of pensions for the aged and survivors, unemployment and accident insurance, family allowances, and more recently, medical care. Social security benefits of this kind have grown more rapidly than any other category of government expenditures, and in several European countries now account for more than one-third of *all* public expenditures and are larger than the current expenditures of either central or local government [7, p. 89]. In the United States social security programs are relatively less important than in most European countries, and change here has not been as spectacular in the postwar era; with the introduction of medical aid for older persons, however, the differences are likely to diminish.

Important as the individual benefits of social security programs are, my concern is with the net impact of benefits and contributions on income and expenditures and with the extent to which they help to stabilize demand. Unemployment compensation has the most obvious anti-cyclical impact, as payments rise and fall as unemployment increases and decreases, but other benefits may vary anticyclically too, and contributions do also. The fact that social security programs have stabilizing effects has long — though certainly not always — been recognized [15, pp. 309-19], and in the United States these effects continue to be the subject of considerable research [6, 13, 16 and 19].

I. *Measuring the Effects of Social Security Changes*

To measure the effect of any budget change, it is necessary first to estimate what would have occurred if there had been no

*The University of Michigan, Center for Research on Economic Development. I am particularly indebted to J. C. R. Dow, who conceived and directed the OECD study of fiscal policy [6], and to Bent Hansen, with whom I had the pleasure of working for two years to complete it and whose comments and suggestions on an earlier version of this paper were extremely helpful, as were those of George Write and the referee; I also benefited from the editorial suggestions of Janet Eckstein.

[1]The OECD system of national accounts [12], which provided the basic data for the Hansen study, does not distinguish social security benefits from other government transfers to households. Our study uses national and other sources to estimate the net impact of both contributions *and* benefits of the social security programs.

change at all and then to compare this estimate with what actually occurred.[2] When government expenditures and revenue change, the effects occur in several stages. First, there is the *direct* impact brought about by the increased (or decreased) spending occasioned by the initial budget change. For social security programs, when contributions or benefits change so that household incomes increase, "leakages" occur to the extent that households save a portion of their increased income or purchase imported commodities; only after this does the direct impact on domestic demand occur. The initial change then induces a series of *indirect* or multiplier effects.[3] The combination of all the direct and indirect effects, or the total effect of budget changes can be classified in two types: discretionary and automatic, built-in stabilizers. It was, however, only possible to separate these two kinds of effects for Germany, Sweden, the United Kingdom, and the United States.

The model developed by Hansen draws on the previous contributions of Brown [2], Hansen [8], Lindbeck [9], and Musgrave [10]. Although the Hansen model is admittedly simple compared with the large econometric models which have been developed for some countries (partly because he wanted to use a common analysis for each of the seven countries), it is adequate to measure the relative importance of various kinds of budget changes both within and among countries. Due to the lack of quarterly data for some of the countries, his model uses only year-to-year changes, and no lags are introduced. The model assumes that private investment, exports, and prices are exogenously determined. Imports are endogenous and for some countries (i.e., Belgium and Sweden) represent the principal leakage of potential budget effects. The model uses multipliers of various magnitudes to determine the total effects for different types of budget changes, after allowing for leakages due to the estimated marginal propensities for private saving, imports, and direct and in[illegible] direct taxes.

All models have their deficiencies, and Hansen's is no exception. In respect to the social security sector, the most important features are the lumping together of all contributions (e.g., by employees and employers) for whatever type of program (e.g., in the United States notably OASDI and State Unemployment Insurance), and the absence of any distinction among the many different kinds of benefits that individuals may receive. Unquestionably a model which incorporated a greater degree of disaggregation would be more desirable because it would permit studying separately the stabilizing features of the various social security programs. Unemployment benefits certainly are the strongest automatic stabilizing component, but there are no clear reasons why other types of transfer payments are necessarily counter cyclical although most kinds of contributions probably are. Unfortunately the data was not available on the same disaggregated basis for all countries, and it was decided that it would be difficult to compare the results of a detailed analysis for one country with the more aggregated results for another country.

For two countries studies have attempted to distinguish among the various multipliers associated with different types of contributions and benefits. For the United States, Vroman [19, p. 54] estimated that the social insurance multipliers for government transfer payments are significantly larger than those for contributions (under varying assumptions about the direction of tax shifting), and hence he concluded that the long-run balanced budget multiplier for the social security sector is large and positive [19, p. 63].[4] For the United King[illegible]dom, Balopoulis [1, p. 205] also estimated multipliers for various National Insurance

[2]For a complete description of the methods used to measure budgetary effects, see Hansen [7], Chapter 1.

[3]In general, "accelerator effects" should be included too, but (as will be explained later) the model he used assumed that all changes in private investment were exogenously determined; hence the measurement of budget effects is limited in this respect (as well as in other respects that will be described below).

[4]In a different context, Mrs. Teeters [16] has shown why as many as three different assumptions about social security contributions are relevant to making estimates of the now familiar calculations of the "full-employment surplus."

contribution and benefit rates, but his results gave no significant differences among the multipliers for the disaggregated variables.

The Hansen model is similar in this respect with Balopoulis' investigations because for each country it uses a unique multiplier for all changes in social security contributions and benefits. While the multipliers cannot be accepted as being exact or applicable for every budget change, they are, nevertheless, sufficiently representative to indicate relative orders of magnitude and the range of differences between countries.[5]

In most countries the social security systems are designed to be self-supporting — at least in the long-run — through pay-as-you-go employee and employer contributions, although in practice they rarely are. The United States is a unique case because both the federal and the state-local government social insurance funds' accounts produced a surplus for the period from 1955 through 1965 [18, pp. 58-9]. Furthermore, during the decade of the 1950's deficits in the social insurance funds' accounts in recession years were approximately offset by surpluses in the other years, but with only one recession in the 1960's the accounts showed a substantial surplus for the decade. If this becomes an established pattern it will be another contribution to the "fiscal drag" associated with the federal government's tax system. In each of the other six countries the central government provided grants to cover annual deficits, which in some instances were substantial. Belgium, Germany, France, and Italy have programs which are intended to be self-supporting, but annual deficits were more the rule than the exception [11, pp. 142-5]. In Sweden, on the other hand, most benefits are systematically and intentionally financed directly by the central government budget. Social security contributions traditionally have provided only a small portion of the total funds required, although since 1960 there has been a movement towards requiring new contributions by the employers in order to cover a greater proportion of the costs [7, pp. 346-7 and p. 400]. The United Kingdom's National Insurance Fund functions with generally small annual government grants [4. p. 47], but this excludes the National Health Service program, which is integrated into the central government budget and for which specific contributions provide less than 20 per cent of the annual cost [4, pp. 42-3]. Because the Health Service is directly administered by the central government, its financial impact is *not* included in this study. In addition to the programs administered by public authorized special social security agencies, governments also provide direct relief and public assistance on an individual case basis. This type of social welfare payment is not included in this study because it is inseparably mixed with the general government budget.[6]

The total effect of social security programs results from the deficit or surplus of the difference between contributions received from and benefits paid to the private sector, adjusted for the appropriate multiplier impact. Table 1 gives the total effect for each year and the average for the entire eleven-year period. Although in the United States between 1955 and 1965 the total effect averaged nil for the period as a whole, for the reasons previously given, during the last half of the 1950's the average impact had a small expansionary effect which was offset in the early 1960's by a generally dampening impact. Financial deficits frequently occurred in all of the other six countries, and these produced an effect that stimulated demand by an average of +0.1 per cent of GNP annually for Belgium, Germany, Sweden, and the United Kingdom, and of +0.2 per cent in France. The average effect was largest in Italy, where it amounted to +0.4 per cent of GNP; but without the single year 1965 when the deficit was particularly large (for

[5]The multipliers differ, of course, among countries because of differences in the leakage coefficients — the marginal propensity to save, and, especially, the marginal propensity to import. For the seven countries the multipliers used are: Belgium 0.60, France 1.76, Germany 1.27, Italy 1.38, Sweden 0.92, the United Kingdom 0.96, and the United States 2.48 [7, p. 47].

[6]For further details about European Social Security systems, see the Joing Economic Committee report [17], and for a complete description of the rates of contributions and benefits in Belgium, France, Germany, and Italy see the Common Market publication [5].

TABLE 1.
Effect of Changes in the Social Security Deficit (Surplus), 1955-65
(expressed as a percentage of GNP_{t-1})

	1955	56	57	58	59	60	61	62	63	64	65	Ave.
Belgium												
Total effect	—0.7	0.1	—0.3	0.9	1.1	—0.5	0.1	0.1	0.1	—1.0	1.2	0.1
France												
Total effect	0.5	—0.3	1.4	—1.1	0.0	0.4	—0.7	0.4	0.3	0.7	0.7	0.2
Germany												
Total effect	—0.3	0.0	0.9	0.5	—0.1	—0.8	0.2	0.1	0.2	0.1	—0.2	0.1
Automatic	—0.5	—0.2	0.3	0.9	—0.2	—0.8	0.0	—0.1	0.1	—0.4	—0.2	—0.1
Discretionary	0.2	0.2	0.6	—0.4	0.1	0.0	0.2	0.2	0.1	0.5	0.0	0.2
Italy												
Total effect	n.a.	—0.2	—0.7	1.7	0.6	—0.4	—1.1	1.0	0.1	0.6	2.7	0.4[a]
Sweden												
Total effect	—0.3	0.2	0.5	0.8	0.1	—0.2	0.2	—0.3	—0.4	0.0	0.8	0.1
Automatic	—1.3	0.1	0.6	0.3	0.3	0.0	0.1	—0.6	—0.3	0.1	0.6	0.0
Discretionary	1.0	0.1	—0.1	0.5	—0.2	—0.2	0.1	0.3	—0.1	—0.1	0.2	0.1
United Kingdom												
Total effect	0.2	0.0	0.2	0.4	0.2	0.0	0.0	0.0	0.3	0.2	0.1	0.1
Automatic	0.0	0.0	0.2	0.1	0.1	—0.1	0.1	0.1	0.2	0.0	0.1	0.1
Discretionary	0.2	0.0	0.0	0.3	0.1	0.1	—0.1	—0.1	0.1	0.2	0.0	0.0
United States												
Total effect	—0.4	—0.2	0.3	1.9	—1.1	—0.7	1.3	—0.9	—0.6	—0.1	0.4	0.0
Automatic	—0.9	0.0	0.5	1.5	—0.8	0.4	0.4	—0.8	0.4	—0.1	—0.3	0.0
Discretionary	0.5	—0.2	—0.2	—0.4	—0.3	—1.1	0.9	—0.1	—1.0	0.0	0.7	0.0

[a] 1956-65 average

reasons discussed later), the effect would have averaged only about +0.1 per cent. Averages are not, however, relevant to the stabilizing effect, which can only be assessed in terms of year-to-year fluctuations.

II. *Evaluating the Stabilizing Effect Of Social Security*

In order to evaluate the stabilizing effect of social security, it is necessary first to define what we shall call "potential" stabilization. Potential stabilization could be conceived in relation to various norms. In another study, we measured the stabilizing effects of *all* general government budget changes in relation to estimates of full employment GNP [14]. No government has, however, systematically used its social security programs to promote long-term growth and stability, nor are the automatic features of social security designed to accomplish this objective. Hence, it is more appropriate to investigate the short-term stabilization of growth of GNP around its *actual* average, although it must be remembered that this may not have been the most desirable development path.[7]

Actual GNP is itself partly produced by the impact of budgetary changes by central and state-local governments as well as by the impact of the various social security programs. Hence, the stabilizing (or destabilizing) effect should not be directly compared with actual GNP. This study uses two derived series which help to evaluate the social security sector's total effect.

We can construct one hypothetical series of GNP by subtracting from actual GNP the total effect in each year for *all* government budget changes, estimated by using different multipliers for the major kinds of budget changes (e.g., direct and indirect taxes, social security benefits and contributions, domestic purchases of goods, etc.)[8] The choice of which budget changes to include was based on what budget policies seemed to be substantially influenced by the central government, or to what extent the finances of central and state-local budgets were so closely related by tax-sharing systems that separating them would be more artificial than not. Although differences among the seven countries range from the highly centralized governments of Belgium and France to the case of the United States where state-local budgets are determined almost totally without influence from the federal government, except for the latter's grants and aids, it seemed most appropriate to include *general* government for all countries except the United States where only the federal government was used (including, of course, the federally financed portion of the social security sector).

This derived series is called the "pure cycle," because it attempts to estimate what GNP would have been each year without *any* budget impact. The pure cycle still incorporates the effects of other government policies (e.g., monetary and direct controls) and autonomous forces (e.g., private investment and exports). Hence, the pure cycle is not so "pure," but nevertheless it is a useful analytical construct.

Potential stabilization can then be defined as the absolute difference between the pure cycle and the average growth of GNP. Potential stabilization for a given number of years is simply the cumulated sum of these annual differences. The total effect of government budget changes are defined as stabilizing if actual GNP growth is closer than the pure cycle to the average growth rate; otherwise they are destabilizing.

Another hypothetical series can be formed by subtracting from the actual GNP *only* the total effect of the social security sector, suggesting how GNP might have developed in the absence of its impact.

[7]This is clearly so for the United States, which had the most short-term stabilization of GNP growth around the trend [7, p. 69], but the cumulated short-fall of actual GNP below the full employment potential was greater than for any other country [14, p. 8]. For the United Kingdom, the debate over what would have been a desirable growth rate continues [3 and 7]. Belgium, Germany, and Italy all could have achieved full employment sooner with different fiscal policies; hence evaluating the effects of budgets changes in relation to actual and to full employment GNP gives different results. Only for France and Sweden does there seem to be no substantial differences if either criterion is used.

[8]A table of the multipliers used for each country to calculate the total effect for various kinds of government budget changes is contained in Hansen [7, p. 47].

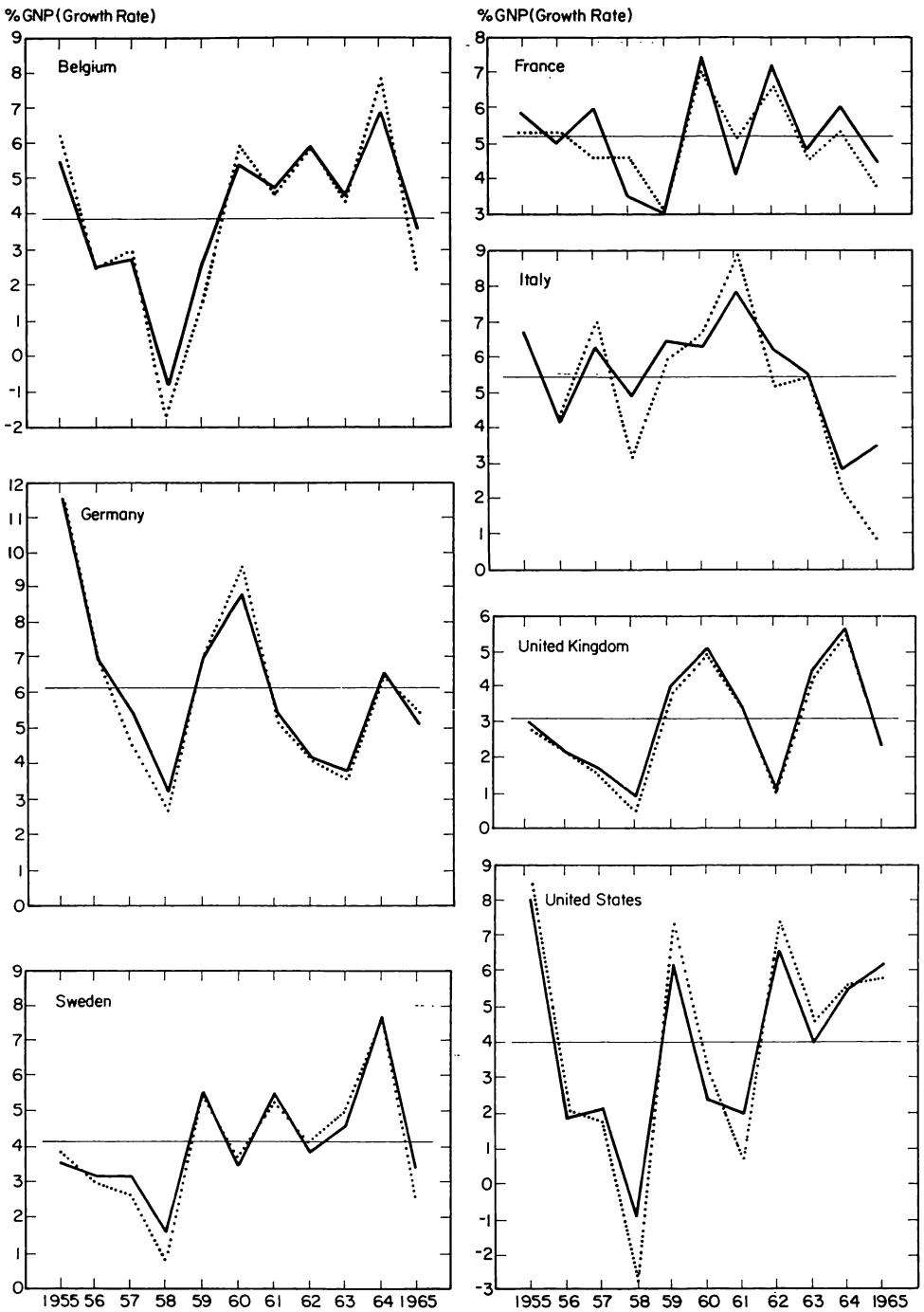
This new series is identical with one which can be obtained by *adding* to the pure cycle the total effect of central and state-local government alone. The total effect of social security is defined as stabilizing if the actual GNP growth is closer to the average GNP than it would have been without the impact of social security; otherwise the effect is destabilizing. In actual fact, the real GNP growth and the two derived series intersect to such a degree that figures drawn to show what occurred for each country require more effort to interpret than is warranted by providing a visual basis for comparison. Figure 1 has been drawn without the pure cycle while still retaining actual and average GNP growth rates, and GNP *minus* the total effect of social security (the dotted line). The absolute difference between the actual growth of GNP and the dotted line measures the total effect as given in Table 1.

Italy and the United States are clearly the two countries in which the impact of social security had the greatest influence on the course of events, but if allowance is made for the exceptional year (1965) in Italy, then the relative importance there was no greater than in Belgium and France. Social security was modestly important in Germany and Sweden while it had the least influence in the United Kingdom. In order to evaluate the overall stabilizing effect of social security, the cumulated data for the entire eleven-year period are summarized in Table 2.

The *net* stabilizing effects of social security (item 1) show considerable variation among the seven countries. They are largest for Italy, the United States, and Belgium (in descending order of importance), somewhat smaller in Germany, still less in Sweden, virtually nothing in the United Kingdom, and on balance destabilizing in France. The effects are, of course, the net result of years when social security was a stabilizing factor and years when it was destabilizing. In Germany the effects were stabilizing in all but one year, while in the other countries they were destabilizing in three or four years, and in France they were more often destabilizing than not.

The net stabilizing effects can also be divided according to whether they result from automatic or from discretionary changes in the social security system. Automatic changes are those differences in both benefits and contributions which occur under existing laws and regulations; discretionary variations can be attributed to new laws or changes in the existing structure of benefits and contributions. Naturally, both automatic and discretionary changes can be either stabilizing or destabilizing. A priori one might expect that the effects of automatic changes would be generally anticyclical, whereas governments might understandably have many factors to consider in making discretionary changes in the system, and these might not be consistent with attempting to achieve economic stability. The evidence, unfortunately, is not complete, and what does exist is not conclusive. It was not possible to make quantitative estimates of the discretionary effects of social security for Belgium, France, and Italy. It is known, however, that in 1957 major increases in social security benefits became effective in France and that these were a major factor causing the excessive demand that year. Then, in 1958 new increased contribution rates were a part of the government's deflationary program, which was, of course, intentionally destabilizing in its immediate impact and without which the subsequent devaluations of the franc would not have made sense. In Italy the large change in social security during 1965 was mostly due to diminished contribution rates that were set in an effort to stimulate demand in a recession year. For both France and Italy, then, if a rough allowance is made for these discretionary changes there is no clear indication that the automatic effects were any more stabilizing than were the remaining discretionary effects.

There remain four countries for which it is possible to distinguish the discretionary from the automatic effects. It is important to note that for Germany and the United States virtually all of the net stabilizing total effects (item 1) are accounted for by automatic changes (item 2), and the amount of destabilizing automatic effects is very small relative to their (gross) stabilizing effects. The corollary is, of course, that while the cumulated effects of discretion-



Note: Solid and horizontal lines are actual and average GNP-growth rates, respectively; dotted lines are the rates without the impact of social security.

FIGURE 1. — The Impact of Social Security, 1955-65

TABLE 2. The Cumulated Effects of Social Security, 1955-65

	Belgium	France	Germany	Italy[a]	Sweden	United Kingdom	United States
	expressed as % of GNP_{t-1}						
1. Net stabilizing total effects	4.9	—3.2	3.1	5.7	1.6	0.2	5.3
a. Gross stabilizing	5.5	1.6	3.3	7.4	2.7	0.9	6.6
b. Destabilizing	0.6	4.8	0.2	1.7	1.1	0.7	1.3
2. Net stabilizing automatic effects	n.a.	n.a.	3.1	n.a.	—0.2	0.2	5.3
a. Gross stabilizing			3.4		1.9	0.6	5.7
b. Destabilizing			0.3		2.1	0.4	0.4
3. Potential stabilization	24.2	14.2	32.8	21.2	21.5	15.1	48.1
4. Net stabilizing effects of general government	3.0	1.9	11.1	8.8	7.6	0.8	19.2
5. Percentage of potential stabilization achieved							
	expressed as %						
a. General government[b]	24	13	39	42	35	5	40
b. Social Security	20	—23	9	27	7	1	11

[a]Cumulated for 1956-65

[b]These percentages are not identical with Hansen's [6, p. 69], because they exclude the effects of public enterprise expenditures and are calculated on a somewhat different basis.

ary changes were both stabilizing and destabilizing, the *net* effects were nil for these two countries. Sweden and the United Kingdom present puzzling cases, because the (gross) stabilizing and destabilizing automatic effects approximately offset one another. One factor seems to be certainly relevant to explaining the differences between Germany and the United States on the one hand and Sweden and the United Kingdom on the other. Economic fluctuations were substantially larger in the first two countries than in the latter cases (see Figure 1). Hence, employment varied more and accordingly there was greater automatic variation in unemployment compensation (and contributions also). Sweden and the United Kingdom usually ran at full and often over-full employment, so that variations in the unemployment insurance component of social security benefits and contributions were much less important. In cases of relatively small fluctuations in the GNP growth rate, one might expect variations in the automatic social security changes to be slight, tending to produce stabilizing effects in years when the GNP growth rate exceeds its average and destabilizing effects when it falls below it. This explanation is roughly corroborated by the series on changes in automatic effects for Sweden and the United Kingdom given in Table 1, but a detailed analysis of the other components of the social security system is required for a complete explanation of the differences.

The next step in assessing the contribution of social security programs to helping maintain economic stability is to cumulate the annual differences between the pure cycle and the average GNP growth rate (item 3), defined earlier as potential stabilization. Fluctuations in the pure cycle produced considerably more potential stabilization for some countries than for others. Over the eleven year period it amounted to almost one-half of a typical year's GNP for the United States as compared with about one-third for Germany, one-quarter for Belgium, Italy and Sweden, but only one-seventh for France and the United Kingdom.

Next, before we look at the stabilizing effects of social security relative to the potential stabilization, it is helpful to appreciate the net stabilizing effects of changes in general government budgets (item 4), which include besides social security the effects of central and state-local governments as well. Perhaps it is not surprising that these effects appear to be largest for the two countries where potential stabilization was the greatest — Germany and the United States — and smallest where potential stabilization was the least — France and the United Kingdom; but even when the net stabilizing effects of general government are expressed as a percentage of potential stabilization (item 5a) some notable differences remain. Germany, Italy, Sweden, and the United States form a group apart, in which the net stabilizing effects of general government eliminated between 35 and 42 per cent of the pure cycle's potential fluctuations about the average growth tate. Belgium and France are next, but the percentage of potential stabilization achieved was substantially less, 12 and 13 per cent respectively. The United Kingdom is unique because almost no stabilization was achieved — a quantitative evaluation of the effects of the well-known "stop/go" policies which were followed throughout that period.

Finally, the stabilizing effects of social security *alone* can be expressed as a percentage of potential stabilization (item 5b). The effects were relatively most important in Italy (27 per cent) and Belgium (20 per cent). At first this may appear surprising, but neither country attempted to use the government budget as an instrument for maintaining economic stability, and consequently what stabilization was achieved occurred mainly through the income stabilizing features of the social security system. Therefore, it is less surprising that Germany and the United States are next— in each case about 10 per cent of the potential stabilization was achieved by the effects of social security; and in Sweden the percentage was only slightly less. As previously mentioned, the social security system had virtually no stabilizing effects in the United Kingdom, and in France the effects were an important *destabilizing* factor (probably more due to discretionary changes than to any procyclical features in-

herent in the automatic functioning of the system).

III. *Conclusions*

In the process of providing for a number of important human needs, social security programs help to maintain household income and thus make a positive contribution to dampening economic fluctuations. The relative importance of this contribution during the period from 1955 through 1965 differed considerably among the seven countries studied. In some cases the social security system was a greater stabilizing factor than the combined effects of changes in the central and state-local government budgets, while in some countries its importance was almost negligible and in at least one case it exerted a definite destabilizing influence. Considering that in every country but the United States the receipts and expenditures of the social security system are nearly as large as those of the central government itself, one might wonder why the systems' stabilizing effects were not any larger than they were.

Several factors are relevant, but certainly one important reason is that the systems were mostly designed to be self-financing and the stabilizing features are largely unintentional. For those countries where it is possible to distinguish between automatic and discretionary effects, the former appear to have been generally stabilizing, but as often as not discretionary changes have been destabilizing, because of modifications in the contribution and benefit rates at inappropriate times. Another reason is clearly connected with lags, which this study made no attempt to evaluate. It is widely recognized that trends in employment lag behind production, and consequently so do contributions, which depend to a large extent on wages; unemployment benefits also lag, with the result that the combined effects tend to diminish the inherently anticyclical nature of this part of the social security system. Other programs — pensions, family allowances, medical assistance, etc. — have smaller cyclical variations, but a disaggregated analysis is required before their effects can be properly evaluated. It must still be concluded, however, that for each of the seven countries studied, except France, the impact of the social security system was a positive feature, and in some instances was the major factor contributing the goal of achieving economic stability.

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