

Neumann, Manfred J. M.

Working Paper

The monetary fiscal approach to inflation: A multi country study. Chapter III: The German case

Diskussionsbeiträge, No. 9b

Provided in Cooperation with:

Department of Economics, University of Konstanz

Suggested Citation: Neumann, Manfred J. M. (1971) : The monetary fiscal approach to inflation: A multi country study. Chapter III: The German case, Diskussionsbeiträge, No. 9b, Universität Konstanz, Fachbereich Wirtschaftswissenschaften, Konstanz

This Version is available at:

<https://hdl.handle.net/10419/68890>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Preliminary: Not to be Quoted

**THE MONETARY FISCAL APPROACH TO INFLATION:
A MULTI COUNTRY STUDY**

**Karl Brunner, Michael Fratianni,
Jerry Jordan, Manfred J. M. Neumann**

CHAPTER III

4
+ THE GERMAN CASE +

Manfred J. M. Neumann

2°

Prepared for the
Universities-National Bureau of Economic Research
Conference on Secular Inflation
Chicago, November 5 and 6, 1971

Diskussionsbeiträge
des Fachbereichs Wirtschaftswissenschaften
der Universität Konstanz

Nr. 9 b

Table of Contents

- I. The Fiscal and Monetary Institutions
- II. Measurement of Fiscal and Monetary Impulses
 1. Fiscal Policy Indicators
 - Government Expenditures
 - Discretionary Changes of Tax Revenue
 - Construction of the Indicators
 2. Monetary Indicators
- III. Empirical Analysis of the Role of Fiscal and Monetary Impulses
 1. Economic Trends Over the Period 1959 to 1970
 2. Selection of Subperiods Characterized by Counter-Movements of Fiscal and Monetary Impulses
 3. Examination of the Period 1960/61
 4. Examination of the Period 1967 to 1970
 - Survey of Important Economic Trends
 - The Role of Fiscal Policy
 - The Role of Monetary Impulses
 - a) Total Monetary Impulse
 - b) Influence of Nonbanks' and Banks' Behavior
 - c) The Monetary Impulse Emitted by the Bundesbank
- IV. Summary
 - Appendix
 - Tables
 - Footnotes

I. The Fiscal and Monetary Institutions

The constitution of the Federal Republic of Germany determines three levels of public authorities which affect total government expenditures and tax receipts: the Federal government ("Bund"), the governments of the eleven states ("Länder"), and the more than 20,000 governments of the local communities ("Gemeinden"). Bund, Länder and Gemeinden were designed as independent fiscal decision units. Actual developments since the foundation of the Federal Republic modified this design however. The Bund increased its influence on the budgetary decisions of Länder and Gemeinden considerably. This evolution has been intensified since 1967. The new Stabilization Law empowers the Bund to influence the borrowing of Länder and Gemeinden.

The Bund substantially influences total tax receipts. About half of total tax revenues accrue to the Bund and 80% of the taxes accruing to Länder and Gemeinden are controlled by the Bund. The only taxes not subject to federal legislation are the local trade tax and some other minor local taxes. The rates on these taxes are controlled by the Gemeinden. The Länder participate, however, indirectly in federal tax policy. The second parliamentary chamber (Bundesrat) represents the Länder on the federal government level. The political practice of the last twenty years demonstrated, however, that the Federal government,

is supported by the first parliamentary chamber ("Bundestag"), dominates the legislation of tax policies concerning rates, basis and payments. The Länder were usually more concerned to avoid unfavorable changes in the allocation of tax revenues between Bund, Länder and Gemeinden. It should also be noted that income and turnover taxes form the major sources of tax revenues. The personal and corporate income taxes yield about two fifths of total tax revenue. Turnover taxes contribute somewhat more than 20% of the total.^{1/}

Apart from its control of the bulk of taxes the Federal government exerts a significant influence on the expenditures of Länder and Gemeinden by transfer payments frequently tied to specific expenditures. Such transfers amount to 16 per cent of the Federal budget. This might not be an unusually high amount by international standards. The Federal transfer payments operate, however, with a substantial leverage resulting from the connection between federal transfers and specific expenditure programs of lower government levels. The public sector includes also a well developed Social Security system subject to Federal supervision. This system is not explicitly considered in the subsequent discussion of fiscal policy. Expenditures of the social security system are endogeneously determined within the German financial structure. Moreover, the federal government's financial support of the system appears directly among the federal expenditures. The financial position of the social security system is thus reflected by the federal budget.^{2/}

The monetary institutions are anchored with the Central Bank. The Bundesbank enjoys a substantial margin of independence. The law stipulates that the bank support the federal government's economic policy, provided the superior goal of a stable currency is not endangered. The introduction of the Stabilization Law has not changed this state of affairs. The Bank has effectively demonstrated on past occasions its autonomy by diverging more or less from the policy course desired by the Federal government. The most recent history shows, however, that fundamental deviations from the government's policy are not tolerated. Monetary policy is determined by the Central Bank Council ("Zentralbankrat"), a policy body constituted by the eight members of the Directorate, including the President and the Vice-President of the Bundesbank, and also presidents of the eleven regional Central Banks.

The Bank possesses a variety of tools for the control of monetary processes. Reserve requirements are a major instrument. The commercial banks have to maintain minimum reserves on giro account with the Bundesbank in respect of certain liabilities. The liabilities subject to reserve requirements are the nonbanks' demand deposits, time deposits (with maturities up to four years) and saving deposits. The reserve ratios applied are differentiated with respect to (1) the type of liability against which reserves have to be held, (2) the location of the commercial banks (the rates are higher if the bank is located at a place at which there is a branch of the Bundesbank than at another place), and

(3) the official classification of the commercial banks (there are four reserve classes). As a result of this complicated system the Bank operates on more than thirty different reserve ratios at a time.

In contrast to many other countries the German commercial banks are well accustomed to borrow heavily from the central bank by selling commercial bills and obtaining advances against collateral. The Bank influences this borrowing via the discount or the lombard rate. The Bundesbank also imposes rediscount quotas which define an upper limit for the commercial banks' refinancing operations. The manipulation of rediscount quotas by the Bundesbank exerted probably, contrary to official doctrine, no effect. Until late 1969 the commercial banking system used never more than 60 per cent of the quotas. The situation could have changed in 1970. The Bundesbank precludes, however, any detailed examination of this matter by refusing to publish the relevant data. It is surmised therefore that the rediscount quota remains irrelevant.

The Central Bank's operations in Treasury bills, mobilization paper and most recently in liquid paper immediately affect the commercial banks' reserve position. The Central Bank's operations were heavily concentrated in mobilization paper. They are based on the mobilization of the Bank's Equalization Claim against the Federal government in the form of negotiable paper. Until recently all open market operations were executed by setting rates of interest at which the Bundesbank buys or sells the securities. The

volume was determined by the response of the commercial banks to the quoted interest rates. The Bundesbank engaged, however, since 1967 in a few operations involving government securities at going market conditions with a predetermined volume.^{3/}

Finally, we have to mention the Bank's policy of manipulating its international reserves. Commercial banks are offered favorable terms for swap operations and forward exchange operations. The Bank also exploits short-term shifts of Länder deposits between the central and commercial banks as an instrument to modify the commercial banks' reserve position.^{4/}

II. Measurement of Fiscal and Monetary Impulses

The comparative role of fiscal and monetary effects in the evolution of economic activity can be easily assessed once one possesses a fully specified and highly corroborated hypothesis. Consider for example the following structure:

$$Y = \alpha(Y, i, FP, z) \quad \alpha_1, \alpha_3, \alpha_4 > 0; \alpha_2 < 0$$

$$M = \beta(Y, i) \quad \beta_1 > 0; \beta_2 < 0$$

where Y denotes income, i an index of interest rates, M the money stock, FP discretionary fiscal policy actions and z other exogenous forces at work. For this system we can formulate a solution function for Y :

$$Y = j(M, FP, z) \quad j_1, j_2, j_3 > 0$$

Let M represent monetary impulses. The differentials defined by the j function provide a measure of the impacts exerted by the policies in question.

$$dY = j_1 dM$$

$$dY = j_2 dFP$$

In a world of perfect knowledge about the system's structure, the derivatives j_1 and j_2 would be known and we could numerically measure the impacts of fiscal and monetary policy. Unfortunately this is not our world. We are still uncertain about the detailed structure of the process. This uncertainty is expressed by the fact that we are offered an array of hypotheses with different properties and implications. Moreover, this uncertainty is augmented by the difficulties encountered to assign operational significance by means of appropriate observations to the policy variables. This difficulty applies particularly to the fiscal policy variables. It is noteworthy in this context that no econometric model, however much the authors emphasize the policy purpose of its construction, offers any help in this respect. The problem is simply avoided by regressing tax revenues on income. Such procedures yield no basis for an examination of the role of fiscal and monetary policy. A less pretentious and quite modest approach seems most suitable under the present circumstances. It is our research strategy to construct indicators of fiscal and monetary policies which should justify at least an ordinal comparison of various fiscal or monetary impulses.

1. Fiscal Policy Indicators

Most academic economists and policy makers in Germany assign to fiscal policy a major role in stabilizing policy. This assessment was reflected by the Stabilization Law. This law provides a close coordination of the budgetary decisions made by public authorities. This coordination is controlled by the Federal government. It is quite surprising, therefore, that the German literature contains little information about useful measures of fiscal policy actions or fiscal policy effects. On the other hand policy makers in the Federal government and the Bundesbank judge the stance of fiscal policy by interpreting directly the movement of the joint actual budget deficit (surplus) of Bund, Länder and Gemeinden. It should be sufficiently known that this procedure yields very unreliable interpretations of fiscal policy. This unreliability is attributable to a large extent to the dependence of tax revenues on economic activity and the prevailing price level.

Two procedures are available to construct an indicator of fiscal impulses: the full employment budget surplus and the initial stimulus measure developed by Oakland and Corrigan.^{5/} The latter procedure will be applied to our problem in this paper.

The initial stimulus (IS) combines in one summary measure the initial effects of all discretionary fiscal policy actions. As discretionary policy actions appear (1) every change in total government expenditures,

and (2) those initial changes of tax revenues which are due to legislative changes in tax rates, tax bases and/or tax payment terms. The application of this straightforward concept within the German institutional framework poses some statistical problems, mainly on the receipts side, which require some attention. We will discuss these problems separately for expenditures and receipts and construct three different fiscal indicators. One of these measures will be used subsequently for an examination of fiscal and monetary policy.

Government Expenditures

Our study investigates budgetary policies in a narrower sense. This intention governs the description of the expenditure variable used for our purposes. We include the expenditures of Bund, Länder and Gemeinden, but we exclude the expenditures of the Social Security system, of the Equalization of Burdens Fund ("Lastenausgleichsfond") and of public enterprises as far as the latter's expenditures are not financed by transfers from the public authorities.

The expenditure figures of the Federal government are cash figures published by the Bundesbank.^{6/} They deviate from the Federal government's financial statistics "primarily because they are not recorded at the time they are entered into the budgetary accounts but at the time of the actual outpayment". The Bund's deposit balances are held completely with the Bundesbank. The latter possesses therefore

immediate and precise information about federal payments.

No cash figures are available for the expenditures of the Länder. The Länder data are based on actual accounting measures supplied by the Federal financial statistics. These data do not fully reflect the cash movements of the Länder budgets. There occur probably time lags up to about three months between the entering of specific expenditures into the books and the corresponding cash payments. We do not use the data from the Federal financial statistics but rely instead on unpublished data generously supplied by the Bundesbank.^{7/} Possible biases due to the discrepancies between accounting entries and cash payments have been removed as far as possible from these data.^{8/} There still remain some biases in the figures, however. According to the available information, it seems reasonable to conclude that the expenditure time series provided by the Bundesbank is closer to the unavailable cash expenditures than to the pure bookkeeping data. In order to avoid double counting we have subtracted from gross expenditures the transfers passed from the Bund to the Länder.

The Gemeinden pose an additional problem. There exists no quarterly data of their expenditures. What is known are the expenditures for construction by Gemeinden of 10,000 and more inhabitants. The data are measured on a cash basis and reported quarterly to the Federal Statistical Office.^{9/} According to the annual data published construction expenditures are about 20% of total expenditures made by

the Gemeinden. Moreover, the construction expenditures of the Gemeinden measures approximately 60% of the public sector's total investment expenditures. The relative importance of the construction expenditures made it advisable to include this magnitude into our measure of government expenditures. With respect to an ordinal scale this procedure is equivalent to an estimate of total expenditures of the Gemeinden by multiplying construction expenditures with a constant scale factor. The transfers made by the Bund and the Länder to the Gemeinden pose another problem. These transfers were not subtracted from the construction expenditures. We have no reliable information concerning the extent (and at what time) such transfers are directed into the construction expenditure of the Gemeinden. It follows that an uncertain, but probably marginal, amount of double counting cannot be avoided in our measure. This residue of double counting loses most of its practical significance in comparative uses of the fiscal impulse scale.^{10/}

There remains another problem to be considered. Cash expenditures lag behind orders placed by the government for goods or acquisition of services. But the effect on economic activity and prices is initiated with this acquisition and the placement of orders. Our interpretation of cash expenditure data is thus affected by the relative length of two distinct lag structures, i.e. the lag of cash flows behind orders and service acquisitions, and the lag of economic activity behind the initial impulse applied. We surmise that the first lag is shorter. The

mean value of the second lag is at least two quarters. The cash flow lag on service acquisitions does not exceed a month and for a major portion of orders placed not more than a quarter. The cash flow lag appears thus not to exceed a quarter. It follows therefore that the dominant portion of the fiscal effect can still be expected to follow chronologically the cash flow observation.

Discretionary Changes of Tax Revenue

According to Oakland and Corrigan the IS-Concept permits a relatively simple computation of the tax component. "It merely involves the application of rate changes to known tax and transfer bases".^{11/} On some occasions the estimated "initial effects" made available by Treasury or Central Bank can be used.^{12/} Still, the tax components of the IS measure for Germany encounter not unexpectedly some difficulties. We will briefly outline the main difficulties requiring attention. We wish to isolate from total changes in tax revenues those which result from changes in tax rates, tax bases and/or tax payment terms. For the period of investigation, 1958 to 1970, detailed surveys about changes in tax legislation are found in the annual finance reports.^{13/} Estimates of the initial revenue effects of tax changes are published, however, only for the period since the beginning of 1965. The estimates are presented separately for the taxes changed. They are calculated in such a way that they either present the total initial effects during the first four quarters after a

tax change or the total initial effects to be expected during the rest of a calendar year during which a tax change was introduced. The quarterly distribution of this initial impulse measure is missing, however.

The estimates supplied by the German ministry of finance, covering the years 1965 to 1970, were supplemented by our own estimates of the tax changes over the years before. The dates of tax changes were first located. The initial revenue effects for each individual tax change was then separately identified by inspection of the quarterly growth of revenues and, where known, of the tax base. Not unexpectedly the effects of many minor changes in tax legislation were not reliably identifiable. Some difficulties arise even in case of the different income taxes occurring on all government levels. The personal income tax, which is a unified, progressive tax on total personal income, as well as the corporate income tax are collected in form of preliminary prepayments, often based on the actual income of the previous year or even on that of two years ago. After the end of the year tax payers, with an annual income exceeding DM 24,000, prepare a declaration on their actual income during the year just terminated. Prepayments will be revised even during the current year and final tax payments for the previous year, if necessary, will be required. Finance offices are also entitled to request a new income declaration from tax payers in case income is suspected to be above the level stated in the last declaration. This procedure retards the tax payers response to a tax reduction. They

wait in general for some time before filing a motion for lowered pre-payments. The tax payers response lag is particularly long when incomes are rapidly rising. Moreover, changes in the rates and the base of the income tax on annual incomes below DM 24,000, which in case of employees is collected by their employers, take effect only gradually over time. This effect depends on the speed with which the employers adjust their tax collection administration. The individual time lag, depending on information and adjustment cost, obviously varies from employer to employer. The average time lag is not known, but judgment based on personal experience suggests a lag of about four months.

An extreme example of a delayed effect of changes in the income tax legislation was observed after the reform of all income taxes in 1957/58. The reform was designed in such a way that a considerable reduction in revenues was to be expected. The new regulations were supposed to be applied from the first day of the year 1958. Nevertheless, no significant reduction in the revenues was observable over the whole year. The delay factors mentioned above reinforced by delays in the preparation and distribution of the revised tax tables to be used by the employers in computing the employees' taxes, and also by delays in the processing of the annual income declarations and the subsequent reductions of prepayments by the finance offices¹⁴ obstructed any rapid adjustment of actual payments in 1958.

The subsequent estimates of discretionary revenues effects at prevailing tax base levels were in general computed for a year. In order to work with quarterly data the quarterly distribution of the revenue effects was also estimated. This was done quite simply by assuming a proportional relation between the quarterly growth of the discretionary revenue effects and the respective total revenues.

Construction of the Indicators

The difficulties encountered in measuring the tax component of the initial impulse made it advisable to construct three alternative fiscal indicators. A comparison between the three offers us an opportunity to assess the reliability of the general procedure.

The construction of the indicators proceeded as follows: the expenditures of Bund, Länder and Gemeinden were added up to form total expenditures. The estimated revenue effects of discretionary tax changes - cumulated since the beginning of 1958 - were subtracted from this total. The resulting time series was smoothed by a 3-quarter moving average. Finally, percentage rates of change between corresponding quarters of adjacent years were computed.

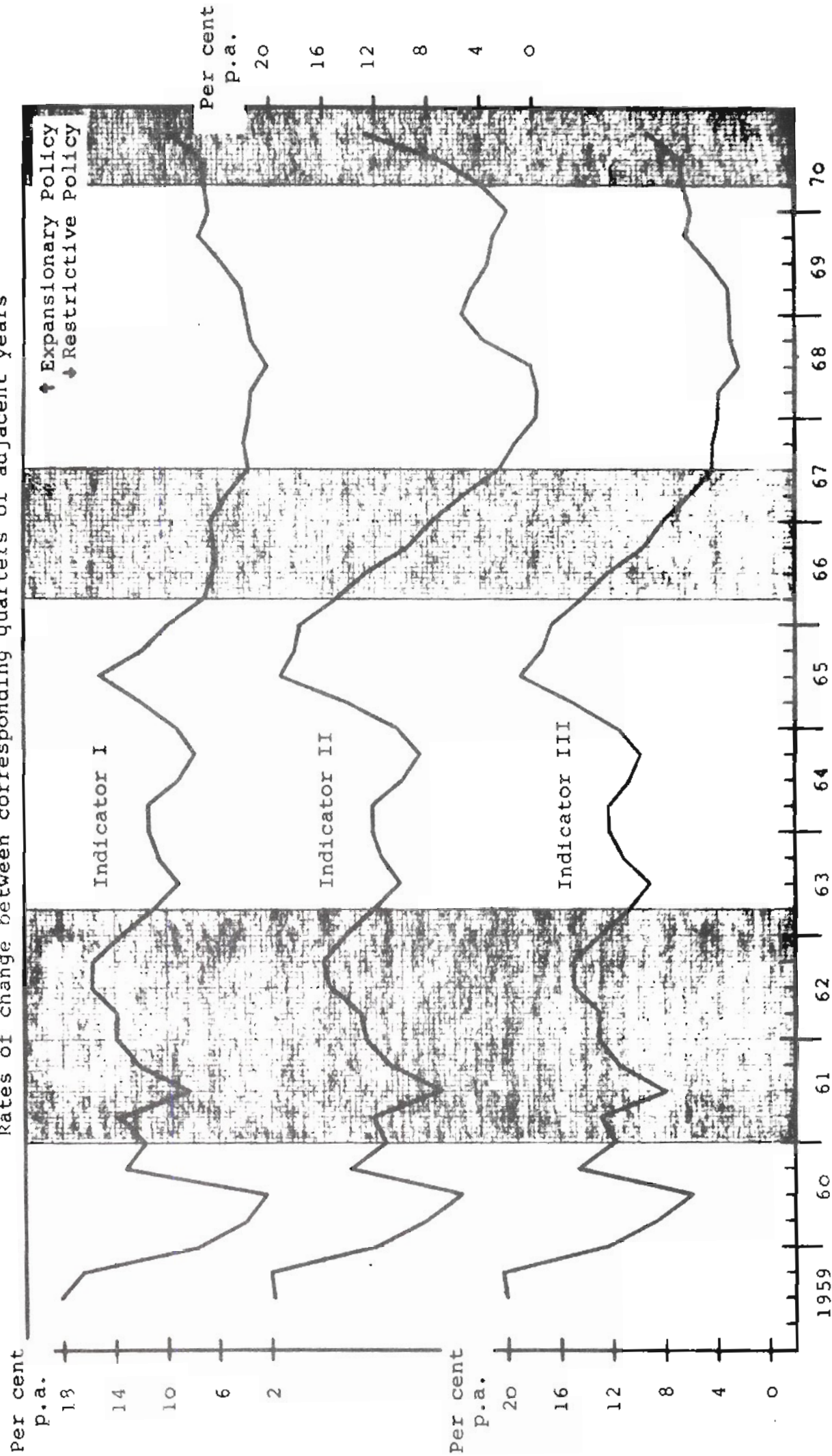
The three indicators constructed in this manner have the total cash expenditures of Bund, Länder and Gemeinden in common (for the data see table I in the Appendix) but differ with respect to the computation of the tax component. Due to the uncertainty about the precise time

profile of the initial impact of discretionary tax changes we computed three different tax components (see tables II to IV in the Appendix)^{15/}: Tax component I considers only the initial revenue effects during the first quarter after a tax change; and tax component II describes the corresponding effects over the first four quarters. Finally, tax component III forms a mixture of I and II. It combines discretionary revenue effects over the first four quarters for income taxes with first quarter effects of the remaining taxes. The last measure assumes a relatively quick and full effect of discretionary changes in the case of excise and other non-income taxes, and a gradually increasing effect in the case of income taxes.

The movement of the three fiscal indicators over the period beginning with the second quarter of 1959 and ending with the third quarter of 1970, measured by percentage rates of change between corresponding quarters of adjacent years, are presented in chart I. An inspection of that chart reveals a close association between all three indicators from 1959 until 1967. Total government expenditures were the dominant determinant over this period. The different constructions of the tax component had little opportunity to affect the indicator. Some differences appear however in later years, particularly in 1968. While the minor differences in 1967 can be explained by the alternative treatment of restrictive changes in rates and payment terms of several indirect taxes, the opposite movements to be observed

ALTERNATIVE FISCAL INDICATORS

Rates of change between corresponding quarters of adjacent years



+) Note: Shaded areas represent business contractions.

in 1968 between the indicators I and III on the one hand and II on the other are due to the fundamental revision of the turnover tax system introduced at the beginning of 1968. According to estimates of the Bundesbank the substitution of the former cascading turnover tax by a value-added tax produced a total loss in revenues of at least 2 billion DM over the four quarters of 1968.^{16/} The loss would have been even higher if the government had not raised the rates of the value-added tax in the middle of 1968, which by itself raised tax revenues by 1.1 billion DM over the last two quarters of 1968.^{17/} So the observed divergence of the indicators in 1968 and early 1969 can be explained by a different treatment of the revenue effects mentioned. While the tax components of the indicator I and III admit only the discretionary revenue effects of the first and the third quarter of 1968, the tax component of indicator II includes in addition the effects over the respective next three quarters.

It will be necessary to select a particular indicator for the examination of fiscal policy. The prevalence of dynamic models constructed with quarterly data naturally suggests the choice of indicator I. The components of the measure would be appropriately specified for this class of models. Nevertheless, we expect indicator III to form a more reliable approximation. This judgment is based on the German tax system's built-in delays of tax payments relative to tax policy actions discussed in a previous section.^{18/} Indicator III is thus

selected for our later assessment of German fiscal policy and its role in the evolution of inflationary pressures.

2. Monetary Indicators

The literature on monetary indicators offers a great variety of observable variables as a measure of the monetary thrust applied to the economy. Brunner/Meltzer argued that the money supply is the most reliable measure among the candidates usually proposed.^{19/} Of course, within the theoretical framework presented by Brunner/Meltzer one can also demonstrate that in the case of countries where no restrictions on interest rates (regulation Q) exist the extended monetary base^{20/} probably provides the most reliable indicator of monetary policy. Investigations into the money supply processes of several countries yield ample evidence that the growth of the money stock is in general dominated by the growth of the extended monetary base. Still, we wish to obtain not only a measure of thrust applied by monetary policy but in particular a measure reflecting the total monetary impulse.

We use in this study the money supply (narrowly defined) as an indicator of the total monetary impulse. An inspection of fiscal and monetary stimulus guides the selection of subperiods during which the monetary impulse and the fiscal impulse moved in opposite directions. These periods will be examined in more detail in order

to assess the comparative weight of fiscal and monetary impulses. It will also be informative to examine the determinants shaping the behavior of monetary growth.

Quarterly data of the money stock and the extended monetary base are presented in tables VI and VII in the Appendix. The monetary base and the currency component are computed in the form of monthly averages of daily figures.^{21/} The deposit component of the money stock includes demand deposits of nonbanks subject to reserve requirements.^{22/} The Deutsche Bundesbank's Order on Minimum Reserves^{23/} leaves it to the banks whether they compute their liabilities subject to reserve requirements as a daily average or as an average of four weekly key dates. It follows that we lack information about the kind of average the demand deposit component of our money stock definition represents. Nevertheless we believe this money series to be preferable over any other series based on end-of-month data only. It should also be noted that the demand deposits of foreigners held with German banks are included in our money definition. One might suspect, therefore, the adequacy of the measure for our purposes. It is a well known fact that a large volume of short term funds moved into and out of the D-mark in response to waxing and waning speculative expectations on the exchange rate. One would naturally assume that foreign deposits reflected these flows. This is, however, not the case. We computed a ratio of total demand deposits of domestic and foreign nonbanks to the demand de-

posits of domestic nonbanks and found this ratio to be nearly a constant. Similar results were found by inspection of time deposits. A tentative explanation might emphasize that the speculation involved dominantly buying or selling of liabilities issued by German nonbanks rather than of banks. It is, however, also possible that a major portion of foreign funds were actually hidden among the domestic deposits. German firms may have acted as intermediaries for foreign customers. We possess no reliable direct information on such matters. The banks' observed reserve behavior supports however this surmise. The banks' responded to large flows of short-term international funds with changes in the excess reserve ratio which almost offset the change in the base resulting from the flows. It follows that the inclusion of demand deposits of non-residents -- which on the average amount to less than 2 per cent of the respective deposits of domestic nonbanks -- poses no serious problem for our measure of the relevant monetary impulse.

III. Empirical Analysis of the Role of Fiscal and Monetary Impulses

1. Economic Trends Over the Period 1959 - 1970

During the period under investigation the German economy moved from the third through the fourth into the fifth business cycle after the foundation of the Federal Republic. Based on the levels of two seasonally adjusted time series which move closely together --

namely the index of total industrial net production and the unemployment figures -- the following turning points were determined:

	Trough	Peak	Trough
3. Cycle		1/61	2/63
4. Cycle	2/63	3/66	5/67
5. Cycle	5/67	4/70	

It may be noted that the German council of economic advisers found with one exception the same turning points by a different method. ^{24/}

In table VIII (see Appendix) annual rates of change for important economic indicators are presented in order to give a summary description of the German economy over the sixties. The annual rates of real growth varied considerably, between -.3 per cent (in 1967) and +10.4 per cent (in 1960). The average growth rate for the whole period was 5.9 per cent covering an average rate of about 7 per cent during the business upswings and of 3.5 per cent during retardations. Contrary to other countries Germany experienced no serious unemployment during the sixties. Variations in the net flow of foreign labor absorbed most of the fluctuations in the demand for labor. Since the German economy had reached the full-employment level at the beginning of the sixties, the unemployment ratio remained at a level of not more than .8 per cent. The only exception observed was in 1967. At that time, as a

consequence of the 1966/67 recession the average unemployment ratio reached 2.1 per cent. This level is still quite low by international standards. The prices of industrial products in home-market sales increased over the sixties at an average annual rate of 1.4 per cent. The average rate of increase of the costs of living measured 2.5 per cent per annum. Table VIII also shows that the rate of change of industrial product prices ranged over the first eight years of the sample between negative values of -0.7% and -0.9% in 1959 and 1967 and 2.4% in 1965. Similarly the cost of living index ranged between 1% in 1959 or 1.4% in 1967 and 3.5% in 1966. Both indices reveal a pronounced acceleration in price movements since 1968. The sample period thus covers an initial period of comparatively mild acceleration, followed by a period of deceleration and a final period of acceleration.^{25/}

Fiscal as well as monetary impulses fluctuated markedly. The lowest annual level of the fiscal stimulus was 2.9 per cent (in 1968), the highest 16.4 per cent (in 1962) while the average rate was 9.5 per cent. The monetary impulse exhibited in contrast both a lower average and a smaller range. The average annual growth rate of the money supply was 8.1 per cent and ranged between 5.0 per cent (in 1967) and 13.6 per cent (in 1959). The association between the total monetary impulse and the monetary impulse emitted by the Bundesbank

was relatively close in general (the average annual growth rate of the latter was 7.8 per cent). It should be noted, however, that especially during the period 1960 - 62 the behavior of the public dominated for several quarters the movement of the total monetary impulse. Table IX in the Appendix describes the role of the currency ratio during this episode.

2. Selection of Subperiods Characterized by Counter-Movements of Fiscal and Monetary Impulses

The movements of the total monetary impulse, represented by the money supply, and of the fiscal impulse, represented by the fiscal stimulus measure selected, are presented in Chart II for the period 1959 to 1970. The reader will note two main subperiods during which the indicators move in opposite directions. These periods are (1) from the second quarter of 1960 to the first quarter of 1961, and (2) from the beginning of 1967 to the third quarter of 1970. Both subperiods are of interest for our study because they provide discriminating evidence. This second episode is particularly important, as it coincides with the subperiod exhibiting a pronounced acceleration of price-levels.

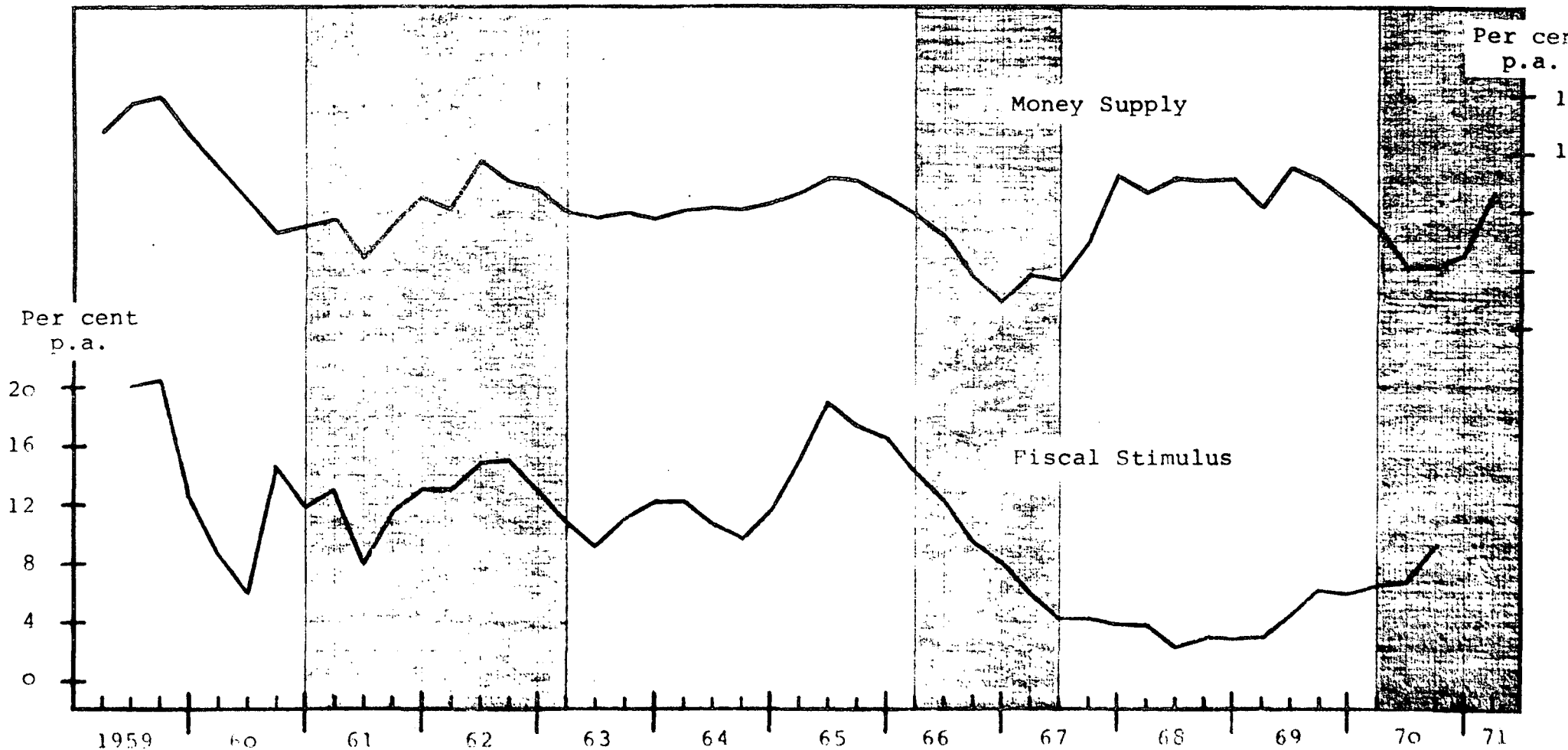
3. Examination of the Period 1960/61

The retardation of economic activity initiated at the turn of the

CHART II

MONETARY IMPULSE, FISCAL IMPULSE AND BUSINESS CYCLE +)

Rates of change between corresponding quarters of adjacent years

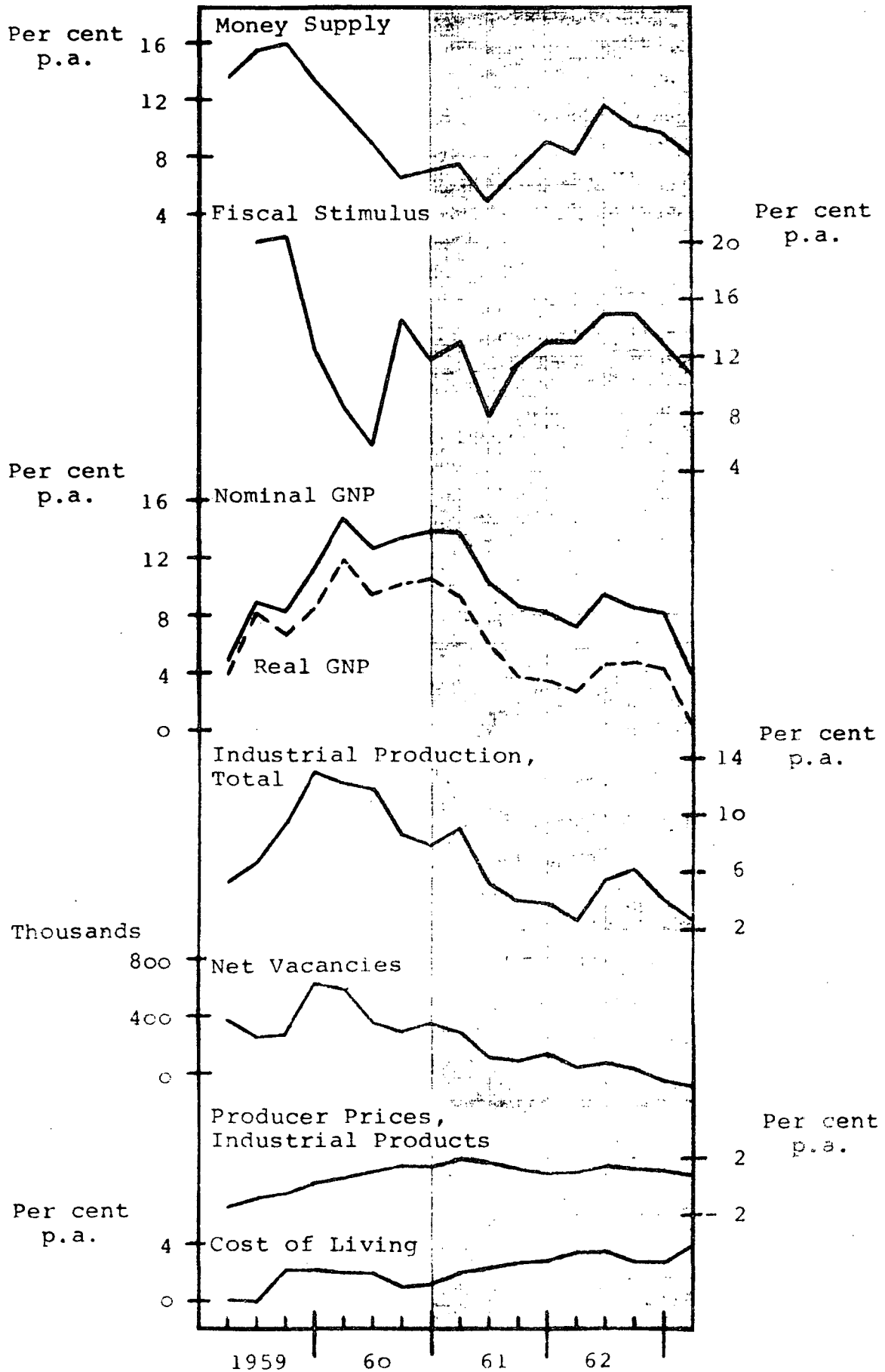


+) Note: Shaded areas represent business contractions.

year 1960/61 was preceded by relatively sharp decelerations of both the total monetary impulse, as represented by the change of the money stock, and the fiscal impulse (see chart III^{2E/}). From the fall of 1959 till mid-1960 the rates of change of the money stock decreased from 14 to 8 per cent and the rates of change of the fiscal impulse even from 20 to only 6 per cent (note, when talking about rates of change we always mean rates of change between corresponding quarters of adjacent years). The two financial impulses diverged sharply, however, during 1960. The rates of change of the money stock continued to decrease, reaching 5 per cent in mid-1961. The fiscal impulse accelerated on the other hand from a growth rate of 6 per cent in mid-1960 to 14 per cent a quarter later and nearly 13 per cent in early 1961.

The divergence between the two financial impulses offers some evidence bearing on the fiscalist versions of Keynesian theories. These versions assign to fiscal impulses a dominant role among the motor forces driving the economic process. The events of 1960/61 yield no support for the fiscalist hypothesis and actually disconfirm this thesis. Economic activity decelerated inspite of an impressive increase of the fiscal stimulus. The growth rate of nominal GNP retarded from 14% to 4%p.a. and of real GNP from 10% to zero p.a. Similar developments were observed with respect to the rates of change of

Rates of change between corresponding quarters of adjacent years



+) Note: Shaded area represents business contraction.

industrial production and of net vacancies on the labor market.^{27/} Moreover, the acceleration of industrial product prices in home-market sales was effectively terminated in 1961. Their rate of increase actually fell in 1961 from 1.9% to .9%. There occurred another spurt in 1962 which pushed price movements to 1.4% p.a. This temporary acceleration was short and relatively pronounced and offset the acceleration of monetary impulses observed from the second quarter of 1961 to the second quarter of 1962. The rapid spillover of the monetary expansion of 1961/62 to the price-level raised the probability of a continued economic retardation. The persistence of this retardation dampened eventually the intervening acceleration of prices. The rate of increase fell by 1963 to .5% p.a.

The cost of living index graphed in Chart III appears to be quite insensitive to the major developments of the economy. It is quite doubtful that this index yields a reliable measure of the rate of inflation. The index assigns large weights to food prices^{28/} and to prices which are more or less directly controlled by the government.^{29/} The large weights assigned to food prices implies that allocative effects bearing on the state of agriculture are reflected by the index. This dependence on special allocative effects makes the index an untrustworthy measure of the rate of inflation. Moreover, the un-

freezing of rents and the increase of prices on services supplied by Federal Railways and Postal Administration in two stages (in 1960 and at the end of 1962) reinforced the allocative distortions of the cost of living index. We find, in summary, that a large reversal of the fiscal impulse over the second half of 1960 was dominated by the deflationary forces of the monetary impulse or simply overwhelmed by the economic retardation. This episode is not consistent with the fiscalist strand of Keynesian theories, but reasonably consistent with a modified monetarist thesis. We also note that the economic retardation initiated with the large deceleration of financial impulses broke the rising momentum of prices. The price movements clearly responded to changing market conditions.

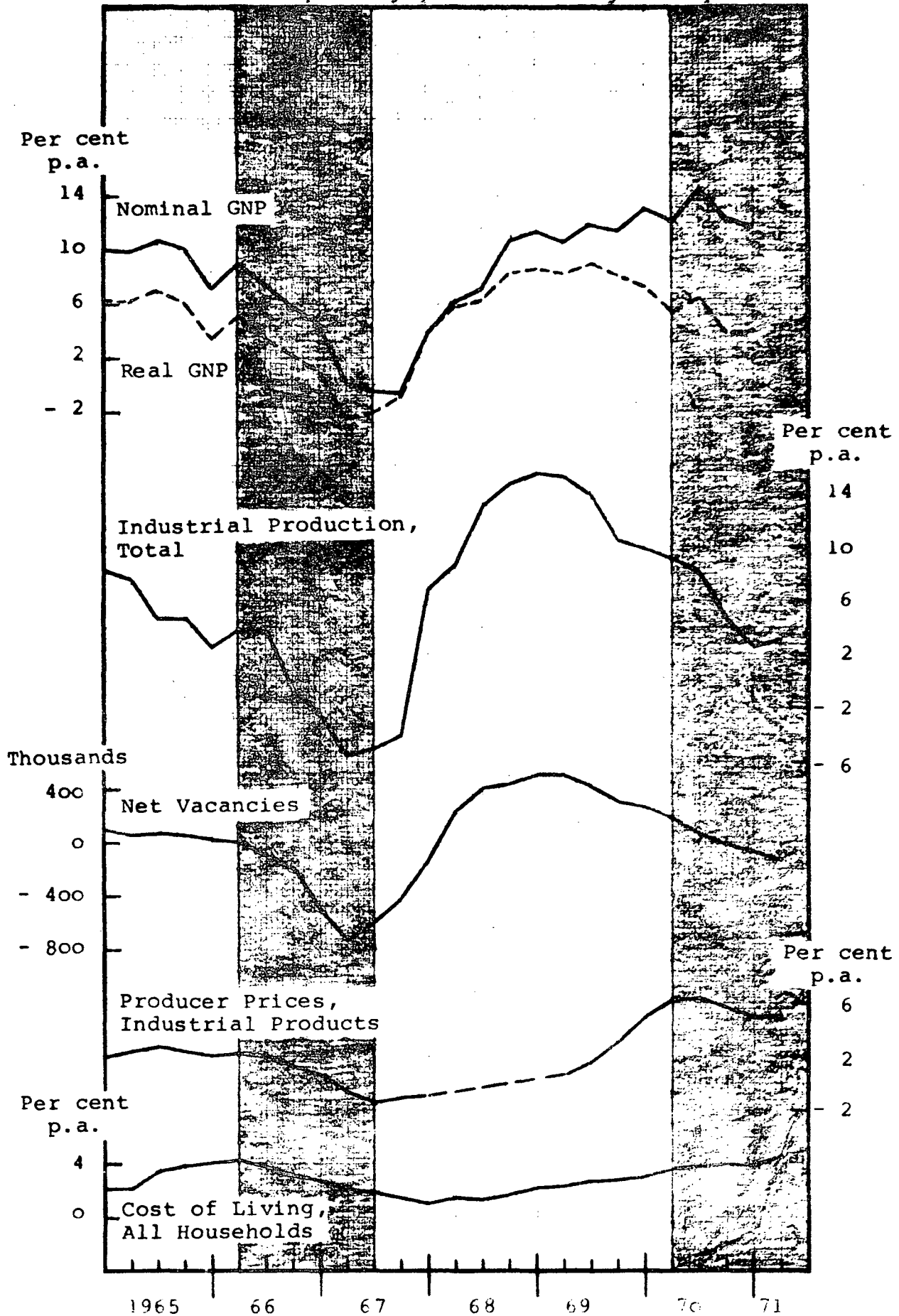
4. Examination of the Period 1967 to 1970

Survey of Important Economic Trends

The years 1966 and 1967 were characterized by the deepest recession observed since the Federal Republic was founded. The upper turning point was passed in the first quarter of 1966. The decline proceeded at first quite gradually. During the summer of 1966 the deceleration sharpened beyond the policy makers' anticipations. The retardation ended in the middle of 1967. The magnitude of this economic retardation can be assessed by inspection of Chart IV. ^{30/} The

CHART IV: BUSINESS INDICATORS +)

Rates of change
between corresponding quarters of adjacent years



+) Note: Shaded areas represent business contractions.

growth rate of nominal GNP fell during the recession from 9 to 0 per cent and stayed there till the end of 1967. The growth rate of real GNP turned even negative (-2 per cent). The same is true for total industrial production. Its growth rate declined from 4 per cent in the first quarter of 1966 to -6 per cent a year later. Unemployment had fallen to negligible levels in the years before the recession. It rose to levels not observed since early 1959. A corresponding change occurred in the vacancies. Prices decelerated with a short lag. Once again, price movements responded quite clearly to the deflationary trend of financial impulses and the economic retardation. This deceleration was sufficient to eliminate by the second half of 1967 any major traces of inflation. For the second time in the 1960's the financial policy of the German authorities had effectively removed both acceleration and the rise in prices.

After the lower turning point in the middle of 1967 economic activity expanded rapidly. The growth rate of nominal GNP rose from) to nearly 11 per cent at the end of 1968 and moved to about 14 per cent in early 1970. The growth rate of real GNP increased from -2 to +7 per cent at the end of 1968. It stayed at the level until mid-1969 and retarded gradually to +6 per cent in early 1970. The index of industrial production exhibits a similar but more pronounced movement. This measure accelerated from -6 to +14 per cent at the turn of the year

1968/69. It sank back thereafter to about +9 per cent in the first quarter of 1970 reflecting the economic evolution and price movements expressed by the changing market conditions. There emerged also the most substantial acceleration of prices since the Korean episode. Producer prices of industrial products on home market sales accelerated to 6% p.a. in 1970.

The Role of Fiscal Policy

It is not possible to differentiate the role of fiscal and monetary impulses in the recession of 1966 without much more detailed knowledge. The reader should note, however, that the U.S. mini-recession of 1966/67 cannot explain the timing or the magnitude of the German recession. The economic retardation in Germany was already well under way before the monetary impulses decelerated in the U.S. Moreover, the magnitude and duration of the German recession cannot be reconciled easily with the length and size of the U.S. mini-recession. The German experience of 1966/67 thus yields some evidence bearing on the existence of relatively autonomous economic fluctuations not reducible to fluctuations in major world centers. It appears thus that variations in financial impulses engineered by the German authorities are not immediately offset by adjustments of the international balance of payments. The deceleration of the money stock persisted in spite

of the interdependence of credit markets.

The recession thus yields some information about the relative autonomy of German economic evolutions and the range of independent financial policies. The subsequent upswing enlarges on the other hand our information about the relative role of fiscal and monetary policy. The fiscal stimulus did not increase and contributed until the end of 1968 practically none to the impressive economic acceleration in 1967 and 1968. Similarly fiscal policy cannot explain the retardation of economic activity in 1970. Fiscal thrust actually expanded somewhat during 1969 and 1970.

A monetary aspect of German fiscal policy confirms our findings above. Many countries are prone to finance their deficits by means of base money issued by the Central Bank. Such financing would be revealed by a suitable measure of the government's net position at the Central Bank. The following table presents this position of Bund and Länder vis-a-vis the Bundesbank:

NET POSITION OF BUND AND LÄNDER VIS-A-VIS THE BUNDESBANK ⁺⁾

Mio DM

	March	June	September	December
1967	1,229	762	2,023	- 1,680
1968	2,879	3,109	4,686	233
1969	3,590	3,956	5,621	53
1970	5,492	5,721	7,154	4,109

⁺⁾ Deposits minus book credits and Treasury bills held by the Bundesbank.

We note that the public authorities in Germany exhibit persistently a net claim on the Bundesbank. Moreover, this net claim position substantially increased over the period under examination. The acceleration of the monetary impulse occurred thus independently of the monetary aspects of fiscal policy. The behavior of the German governments net claim position on the Bundesbank reflects the financial institutions constraining the use of the Central Bank facilities by the German Treasury.

It might be of interest to describe the determinants of the course traced by fiscal policy over the period 1967 to 1970. The main determinant of the restrained course through 1967 and 1968 were total government expenditures which did not increase in 1967 by more than in 1966 (6.5 per cent compared with 6.3 per cent) and considerably less in 1968 (1.8 per cent). The acceleration of Bundes expenditures in 1967 was offset by a reduction of expenditures made by Länder and Gemeinden. The reverse occurred in 1968. Total expenditures of the government sector thus failed to provide any expansive stimulus until 1969. All three government levels raised their expenditures rapidly in this year. Discretionary tax changes yielded over this period only minor modifications of the total fiscal stimulus. The reader may usefully inspect table IV in the Appendix.

The Role of Monetary Impulses

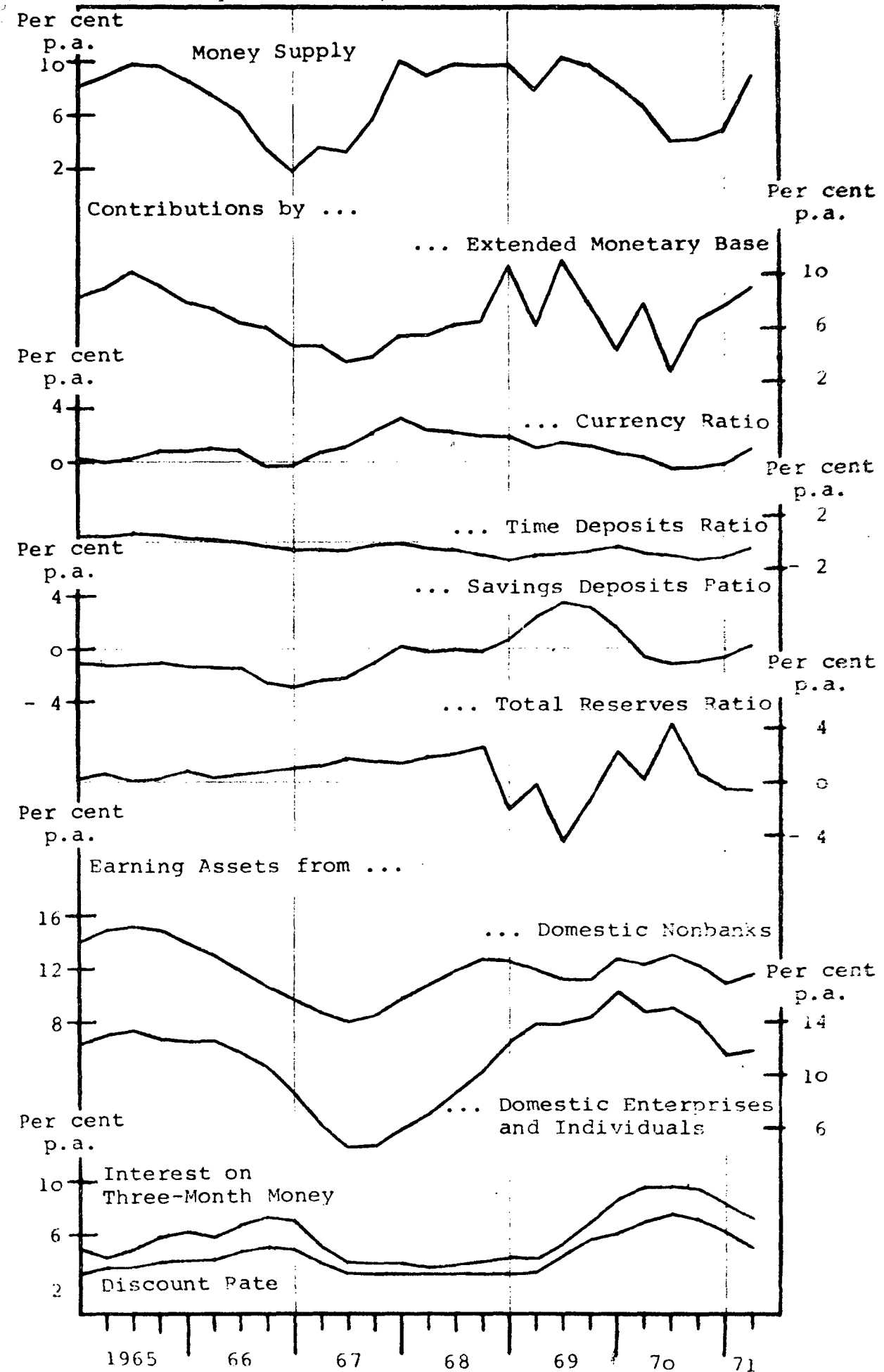
a) Total Monetary Impulse

The behavior of the monetary impulse measured by monetary growth diverged over 2 years dramatically from the fiscal stimulus. The reader may usefully inspect chart V for this purpose.^{31/} The monetary impulse accelerated sharply with the turn of the year 1966/67. This acceleration raised monetary growth from 2 to 10 per cent during the first four quarters. Monetary growth continued on a high level with minor fluctuations till the middle of 1969. The lag of economic acceleration behind monetary acceleration measures on this occasion about three quarters. This lag seems to have persisted over the period 1967 to 1970. The stable monetary growth after acceleration was followed three quarters later by a similar pattern in the movement of GNP. Moreover, in 1970 the movement of nominal GNP responded again to the deceleration of the money stock initiated in the middle of 1969. On this last occasion the lag was four quarters.

The upswing following the recession of 1966/67 yields thus instructive information. Once more, the fiscalist version of Keynesian theories is not consistent with the observations. If the fiscal stimulus had actually dominated the forces pushing economic activity the dramatic acceleration of economic activity could not have occurred. But this acceleration did emerge and it followed a correspondingly large monetary acceleration. This observation clearly supports the modified monetarist hypothesis. The gradual decay of economic acceleration by the end of 1968 and the gradual emergence of economic retardation in

CHART V: MONETARY DEVELOPMENTS

Rates of change between corresponding quarters of adjacent years (exception: interest rates)



1969 is also consistent with the monetarist explanation. This retardation emerged in response to a constant monetary growth following a rapid acceleration and the feedback generated by this acceleration in form of an accelerated movement of price-levels. The maintenance of a large monetary growth well into 1969 reinforced the initial momentum of the price-levels. We also note that vacancies decline and also that industrial production or real GNP retard after the onset of monetary decelerations in 1969

b) Our examination thus assigns to the monetary impulse a major responsibility for the increasing momentum of German price movements since 1967. The forces behind this monetary impulse are investigated in this section. In particular, we wish to determine the role of bank behavior, the public's behavior, and the role of the monetary authorities in the monetary acceleration observed over the period. Our examination is based on a suitable decomposition of changes in the money stock by means of the formula:

$$M = m \cdot B^e$$

where the money multiplier m is given by

$$m = \frac{1 + k}{r(1 + t_1 + t_2) + k}$$

and

$$k = \frac{C^P}{D} = \text{currency ratio}$$

$$t_1 = \frac{T}{D} = \text{time deposits ratio}$$

$$t_2 = \frac{S}{D} = \text{saving deposits ratio}$$

$$r = \frac{R}{D + T + S} = \text{total reserves ratio}$$

with:

- C^P = currency holdings of nonbanks
- D = demand deposits subject to reserve requirements
- T = time deposits subject to reserve requirements
- S = Savings deposits subject to reserve requirements
- R = required, excess, and liberated reserves plus vault cash
- B^e = extended monetary base

The reader should note that the product mB^e partitions all forces shaping the money stock into two groups. Those operating via the behavior of the monetary authorities are mostly expressed by the base B^e , and those operating via the public's and the banks' responses work essentially via the multiplier. A logarithmic decomposition determines the contribution of the multiplier components to monetary growth. The results are presented in Chart V. We note from an inspection of this chart that the base, the currency ratio, the savings deposits ratio and the total reserves ratio exerted a substantial influence in the money supply process over the years 1967 to 1970. The negative elasticities of the money supply with respect to these ratios^{32/} converted a decline of these ratios into positive contributions to monetary growth.

The public's behavior contributed actually quite noticeably to the monetary acceleration. The decline of the currency ratio contributed by the end of 1967 to raise the money stock by 3% p.a. This component declined continuously until it vanished in 1970. The movement of the

savings deposit ratio was even more important. The contribution rose from about -3% p.a. in early 1967 to about +4% late in 1969. The banks' behavior also contributed to the movement of the money stock. A decline in the reserves ratio reenforced the longer-run monetary growth. This decline resulted partly from a gradual decline in the average requirement ratio. The banks' reserve ratio was also lowered in the long-run by reductions in their vault cash and excess reserve ratio. In the short-run, however, the contribution of the total reserves ratio fluctuated substantially. The reserve ratio exhibited unusual movements from late 1968 to the middle of 1969. These movements were induced by the heavy speculations on a revaluation of the Deutsche Mark which took place in the last quarter of 1968 and the second quarter of 1969. During these periods the German commercial banks suffered a large inflow of foreign "hot money". The uncertainties attached to such deposits induced the banks to allocate an increasing amount to excess revenues. The excess reserve ratio thus rose sharply during this period. Over the first ten months of 1968 the average excess reserves of the total banking system amounted to not more than DM 200 million. They increased in November to DM 3.57 billion. They fell during the first quarter of 1969 to the former level of DM 200 million, but in April they jumped again (DM 700 million) and reached in May even DM 5.16 billion.^{33/} We notice thus that the banks responded in a stabilizing manner to the erratic movement of international funds.

c) The Monetary Impulse Emitted by the Bundesbank

Banks and public thus shaped the movement of the German money stock and contributed in this manner to the monetary impulse. Still, the behavior of the authorities expressed by the monetary base explains a major portion of the total monetary impulse. We note from Chart IV that the growth rates of the extended monetary base displayed considerable fluctuations from the end of 1968 to the middle of 1970. These fluctuations are the counterparts to the variations of the total reserves ratio induced by foreign exchange rate speculation. In order to describe the underlying trend the contributions of the base was smoothed by a two quarter averaging procedure. We find in this way that the contribution of the extended monetary base increased from 3.7 in the middle of 1967 to 6.1 per cent in early 1968, and even further to 9.8 per cent in the middle of 1969. The contribution declined subsequently to 4.7 per cent a year later. The peak in 1969 and the trough in 1970 coincide exactly with those of monetary growth. It should be noted, however, that the lower turning point of the contribution made by the base in 1967 lagged behind the lower turning point of monetary growth. The public's behavior described above initiated the acceleration of the monetary impulse. The reason for the lag in the base resulted from the Bundesbank's misconceived belief that it already had moved to an expansionary monetary policy in the middle of 1966. The Bundesbank followed a peculiar generalization of the free reserve doctrine which

mised its evaluation of actual monetary developments.^{34/} The free liquidity ratio of German banks rose sharply since the middle of 1966. The Bundesbank interpreted this movement as the sign of an expansionary policy, when actually no such policy change had occurred. The increase in the liquidity ratio only reflected the economic retardation and the associated retardation in the demand for funds.

The importance of the base in the German money supply process justifies some further attention to the sources of the base and in particular to the role of the balance of payments expressed by movements of international reserves. The following table describes the relative variances of the domestic source component DC and of international reserves IR.^{35/} The variance analysis used monthly changes of the extended monetary base and of the two components.

The results are as follows:

Period	Var (B ^e)	Var (IR)	Var (DC)	Cov (IR, DC)
		Per cent		
1958 to 1966	100	27	105	- 32
1967	100	12	76	13
1968	100	268	230	-398
1969	100	423	386	-709
1970	100	74	57	- 31

We observe that the domestic component dominated the movement of the extended monetary base over the period 1958 to 1966. The same

pattern also held in 1967. Moreover, during this year the covariance was positive. This indicates that the balance-of-payments did not offset but actually reenforced the expansion generated by the domestic component. The role of the two components changes around the middle of 1968. The international component dominated the varriability of the base. The negative covariance term is, however, most noteworthy. This term demonstrates the massive use of the domestic component directed to moderate the effect of the balance of payments on the monetary base. Table X in the Appendix contains additional information bearing on this aspect.

V. Summary

In examining the controversial issue concerning the role of monetary and fiscal policy some evidence was adduced from the German experience. We found two subperiods exhibiting divergent movements of fiscal stimulus and monetary impulse. Our observations do not establish that fiscal policy exerts no aggregative effects. The evidence does, however, deny the fiscalist version of Keynesian theories. The monetary impulse emerged in the German experience with a significant role.

We also noted that the acceleration of the monetary impulse since 1967 which induced the major inflationary experience of the postwar period essentially resulted from the intomational reserve component of the monctary base. The domestic source component was substantially

used to moderate this effect in 1968 and 1969, and in 1970 the acceleration of the base was even dominated by the domestic source component. Our examination showed lastly that prices responded to changing market conditions induced by the acceleration or deceleration of the financial impulse. The larger momentum in prices observed since 1967 followed a substantially larger and more persistent monetary impulse than was observed over previous periods of monetary acceleration.

Total Expenditure of Bund, Länder and Gemeinden
on Cash Basis⁺)

Mio. DM	1. Quarter	2. Quarter	3. Quarter	4. Quarter
1958	14,608	13,021	13,798	14,237
1959	16,643	15,296	15,675	15,787
1960 1)	16,056	16,088	17,250	20,616
1961	16,060	18,334	19,479	22,989
1962	19,013	20,549	22,648	26,987
1963	20,027	22,404	25,334	29,836
1964	22,330	25,092	26,358	32,136
1965	25,416	27,579	29,638	33,748
1966	26,997	29,346	31,461	35,936
1967	29,260	30,695	32,547	39,228
1968	29,365	30,408	33,497	40,854
1969	30,531	32,561	36,872	46,854
1970	32,897	37,509	41,345	51,756

+) Expenditures of the Bund plus expenditures of the Länder, plus construction expenditures of Gemeinden of 10,000 and more inhabitants minus transfers passed from the Bund to the Länder.

1) From 1960 onwards including Saarland.

Table II

Discretionary Revenue Effects During the First Quarter
After a Change of Tax Regulations ⁺⁾

Mio DM	(+) = Net Tax Reduction; (-) = Net Tax Increase			
Period	1. Quarter	2. Quarter	3. Quarter	4. Quarter
1958		+ 110		+ 103
1959	+ 329	- 24		
1960			- 100	
1961	- 21		+ 25	
1962	+ 100			
1963	+ 46		+ 76	
1964		+ 33		+ 13
1965	+ 803	+ 6	+ 107	
1966	+ 60			
1967	- 161	- 441	+ 17	+ 99
1968	+ 548		- 201	- 107
1969	- 121			-2200
1970	+ 761		+ 50	-1492

⁺⁾ Changes in tax rates, tax bases and tax payment terms. In addition certain additional advance payments of trade tax are taken into account; these prepayments were induced by the Gemeinden in 1969 at the expense of the following year from which on the trade tax revenues had to be shared with Bund and Länder.

Discretionary Revenue Effects During the First Four Quarters

After a Change of Tax Regulations ⁺⁾

Mio DM (+) = Net Tax Reduction; (-) = Net Tax Increase

Period	1. Quarter	2. Quarter	3. Quarter	4. Quarter
1958		+ 110	+ 64	+ 39
1959	+ 329	+ 250	+ 231	+ 296
1960	- 20		- 100	- 108
1961	- 48	- 34	+ 5	- 21
1962	+ 100	+ 101	+ 107	+ 113
1963	+ 46	+ 87	+ 160	+ 167
1964		+ 33	+ 202	+ 176
1965	+1004	+ 785	+ 964	+1048
1966	+ 264	+ 63	+ 69	+ 68
1967	- 161	- 602	- 707	- 670
1968	+ 726	+ 476	+ 310	+ 71
1969	- 761	- 898	- 295	-2364
1970	+ 761	+ 808	+ 921	- 496

⁺⁾ See footnote in table II.

Discretionary Revenue Effects

During the First Four Quarters After a Change in Tax Regulation in the Case of Income Taxes,
 During the First Quarter in the Case of All Other Taxes +)

Mio DM	(+) = Net Tax Reduction; (-) = Net Tax Increase			
Period	1. Quarter	2. Quarter	3. Quarter	4. Quarter
1958		+ 110		+ 103
1959	+ 329	+ 250	+ 256	+ 322
1960			- 100	
1961	- 19	- 20	+ 5	- 21
1962	+ 100			
1963	+ 46	+ 87	+ 160	+ 167
1964		+ 33	+ 691	+ 13
1965	+ 803	+ 759	+ 925	+ 989
1966	+ 142	+ 203	+ 125	+ 129
1967	- 161	- 343	+ 94	+ 214
1968	+ 583	- 65	- 299	- 225
1969	- 121	+ 17	+ 19	-2177
1970	+ 761	+ 104	+ 175	-1319

+) See footnote in table II.

TABLE V.
FISCAL INDICATOR III +)

Percentage rates of change between corresponding quarters of adjacent years

Period	1. Quarter	2. Quarter	3. Quarter	4. Quarter
1959		20.05	20.43	12.49
1960	8.53	5.89	14.54	11.76
1961	12.91	7.84	11.44	13.05
1962	12.99	14.87	14.96	12.88
1963	10.76	9.11	11.16	12.23
1964	12.34	10.64	9.71	11.58
1965	15.03	18.98	17.28	16.55
1966	14.22	12.32	9.52	8.03
1967	5.94	4.18	4.31	3.92
1968	3.73	2.31	2.92	2.87
1969	3.02	4.44	6.31	5.90
1970	6.44	6.71	9.11	

+) Total cash expenditures of Bund, Länder and Gemeinden plus cumulated discretionary tax revenue effects, based on the data presented in table IV. The figures are smoothed by a 3-quarter moving average.

Money Stock +)

3-month averages centered on last month of quarter

Mio DM	1. Quarter	2. Quarter	3. Quarter	4. Quarter
1958	37,172	38,543	39,994	41,942
1959 1)	42,207	44,492	46,367	47,522
1960	46,920	48,441	49,367	50,856
1961	50,448	50,777	52,874	55,443
1962	54,555	56,629	58,178	60,737
1963	58,871	60,936	62,801	65,248
1964	63,612	65,994	67,900	70,794
1965	69,492	72,792	74,808	77,123
1966	74,938	77,415	77,379	78,503
1967	77,689	79,942	81,994	86,800
1968	84,897	88,104	90,311	95,635
1969	91,876	97,628	99,417	103,822
1970	98,175	101,662	103,584	109,103

+)

Average demand deposits of nonbanks subject to reserve requirements held with commercial banks (including the postal bank system) plus daily average currency holdings of nonbanks. For the computation see footnote 1) in the Appendix.

1) From 3. quarter of 1959 onwards including Saarland.

Table VII

Extended Monetary Base ⁺)

3-month averages centered on last month of quarter

Mio DM

Period	1. Quarter	2. Quarter	3. Quarter	4. Quarter
1958	22,714	23,530	24,016	25,016
1959 ¹⁾	25,058	26,005	26,723	27,571
1960	27,892	28,830	29,541	30,494
1961	30,865	31,529	32,488	33,476
1962	33,735	34,674	35,197	36,233
1963	36,076	37,307	37,998	38,990
1964	38,873	40,241	41,063	42,379
1965	42,536	44,541	45,011	45,879
1966	45,856	47,496	47,820	48,092
1967	48,063	49,139	49,707	50,829
1968	50,785	52,319	53,023	56,556
1969	53,971	58,470	57,228	59,063
1970	58,433	60,043	61,125	63,743

⁺) Daily averages.

¹⁾ From 3. quarter of 1959 onwards including Saarland.

ECONOMIC INDICATORS - PERIOD 1959 TO 1970 +)

Period	Fiscal Stimulus	Money Supply	G N P		Producer Prices, Industrial Products	Cost of Living	Unemployment Ratio	Balance of Payments
			Nominal	Real				
Annual percentage rates of change								
							Per cent	Bill. of DM
1959	15.8	13.6	8.4	6.8	- .7	1.0	2.6	- 1.7
1960	8.8	8.3	13.7	10.4	1.1	1.4	1.3	8.0
1961	9.5	6.7	10.0	5.4	1.3	2.3	.8	- 2.3
1962	16.4	9.4	8.3	4.0	1.1	3.0	.7	- .9
1963	9.8	7.5	6.6	3.4	.5	3.0	.8	2.7
1964	8.8	7.9	9.6	6.7	1.1	2.3	.8	.4
1965	13.2	9.3	9.4	5.6	2.4	3.4	.7	- 1.3
1966	6.4	5.1	6.6	2.9	1.7	3.5	.7	2.0
1967	4.5	5.0	.8	- .3	- .9	1.4	2.1	- .1
1968	2.9	9.8	9.0	7.2	x	1.5	1.5	7.0
1969	5.6	9.0	11.9	8.1	2.2	2.8	.9	-14.4
1970	12.9	5.1	12.6	4.9	5.9	3.8	.7	22.7

+) Note: Money supply, producer prices, cost of living, and the unemployment ratio are based on annual averages of monthly figures.

Sources: Fiscal Stimulus: Total expenditures of Bund, Länder and Gemeinden plus the discretionary revenue effects over the first four quarters after a change of tax regulation, cumulated since 1958. Data on expenditures were provided by the Bundesbank and by the Statistische Bundesamt; computation of discretionary revenue effects is based on the Finanzberichte of the German ministry of economics and finance. Money Supply: See footnote 23). GNP, Producer Prices and Cost of Living: See footnote 27). Unemployment Ratio: Bundesanstalt für Arbeit, Jahresszahlen Arbeitsstatistik. Balance of Payments: Monthly Reports of the Bundesbank, Stat. Sect., Tbl. IX, 1, column: Net movement of gold and foreign exchange.

Table IX
Money Supply and Its Determinants +)

Annual percentage rates of change 1)

Period	M	B ^e	k	Contributions by		
				t ₁	t ₂	r
1959	13.59	10.04	2.78	.87	-.65	.56
1960	8.33	10.20	.35	-.29	-1.37	-.57
1961	6.72	9.42	-.82	-.22	-2.18	.53
1962	9.44	8.74	.50	.37	-.74	.57
1963	7.48	7.25	.48	.20	-1.28	.82
1964	7.91	7.50	.66	.24	-1.16	.67
1965	9.29	9.40	-.14	.48	-1.18	.72
1966	5.07	6.35	.23	-.18	-2.06	.73
1967	4.95	4.27	1.51	-.47	-1.68	1.32
1968	9.76	7.15	2.13	-.78	-.14	1.40
1969	9.00	7.21	.98	-.90	2.78	-1.07
1970	5.14	6.10	-.19	-1.13	-.91	1.26

+) M = Money Supply; B^e = Extended Monetary base; k = Currency ratio; t₁ = Time deposits ratio; t₂ = savings deposits ratio; r = Total reserves ratio.

1) Computed from annual averages of monthly data, assuming a continuous growth as described by an exponential function.

Table X

Per cent Extended Monetary Base and Its Components +)

Period	$\frac{\Delta B^e}{B_{-1}^e} \cdot 100$	$\frac{\Delta IR}{IR_{-1}} \cdot 100$	$\frac{IR_{-1}}{B_{-1}^e} \cdot 100$	$\frac{\Delta IR}{IR_{-1}} \cdot \frac{IR_{-1}}{B_{-1}^e} \cdot 100$	$\frac{\Delta DC}{DC_{-1}} \cdot 100$	$\frac{DC_{-1}}{B_{-1}^e} \cdot 100$	$\frac{\Delta DC}{DC_{-1}} \cdot \frac{DC_{-1}}{B_{-1}^e} \cdot 100$
1959	9.60	- .28	99.90	- .28	9,962.50	.099	9.88
1960	9.18	22.93	90.89	20.85	- 128.07	9.11	-11.67
1961	11.16	15.97	102.34	16.35	221.39	- 2.34	- 5.18
1962	9.82	- 6.35	106.77	- 6.78	- 245.25	- 6.77	16.60
1963	7.21	- .62	91.05	- .57	86.86	8.95	7.77
1964	7.93	5.51	84.40	4.65	21.07	15.60	3.29
1965	8.75	- 2.68	82.50	- 2.21	62.63	17.50	10.96
1966	5.88	- 2.80	73.83	- 2.07	30.36	26.17	7.95
1967	5.38	5.24	67.78	3.55	5.67	32.22	1.83
1968	10.21	19.91	67.68	13.47	- 10.09	32.32	- 3.26
1969	5.21	9.01	73.64	6.64	- 5.43	26.36	- 1.43
1970	7.14	-18.26	76.30	-13.93	88.94	23.70	21.08

+) B^e = Extended monetary base; IR = International reserves adjusted for swap-engagements;

DC = Domestic component. The subscript -1 symbolized a lag of $t - 1$.

Note that the growth rates of B^e in this table cannot be compared with those of table IX for two reasons: (1) B^e here is computed from end-of-month data while B^e of table IX from daily averages. (2) The rates of change in table IX are computed on the assumption of an exponential function.

FOOTNOTES

- +) This paper has benefited substantially from suggestions by Karl Brunner. In addition, the author owes a special thanks to his colleague Nikolaus K. A. Läufer.
- 1) The reader will find a summary of the German tax system in B. Hansen, Fiscal Policy in Seven Countries, 1955 - 1965, OECD 1967. For more details see Taxation in the Federal Republic of Germany, World Tax Series, Harvard Law School, Chicago 1963.
- 2) It may be noted that the German unemployment insurance fund does not depend on the Federal budget but is self-supporting.
- 3) H. Irmeler, The Deutsche Bundesbank's Concept of Monetary Theory and Monetary Policy, Proceedings of the Konstanzer Seminar on Monetary Theory and Monetary Policy 1970, Kredit und Kapital 1971, Beiheft 1.
- 4) Länder and Bund are required by law to hold all their deposits with the Bundesbank. Exceptions require permission by the Bundesbank. Sasual investigations by the Bundesbank, however, brought into the open that some Länder apparently hold minor balances with commercial banks without permission.
- 5) See W. H. Oakland, Budgetary Measures of Fiscal Performance, The Southern Economic Journal, Vol. XXXV, No. 4, April 1969, and E. G. Corrigan, The Measurement and Importance of Fiscal Policy Changes, Federal Reserve Bank of New York, Monthly Review, Vol. 52, No. 6, June 1970

- 6) See Deutsche Bundesbank, Monthly Reports, Statistical Section, Tb. VII, 8.
- 7) We use this opportunity to express our gratitude to the Deutsche Bundesbank and the members of its economic research department. They contributed useful background information for this and other investigations.
- 8) The Länder frequently enter some expenditures into the books during the first quarter of a year for which payments are made during the first quarter. The same expenditures were inserted in the administrative budget of the previous year for the fourth quarter. These biases as well as those resulting all over the year from differences between the book entries of personal expenditures and the respective cash payments, as far as known, have been removed from the statistic by the Bundesbank. In addition it may be noted that the figures do not include debt redemption.
- 9) See Statistische Bundesamt, Fachserie L: Finanzen und Steuern, Reihe 1: Haushaltswirtschaft von Bund, Ländern und Gemeinden, III. Vierteljahreszahlen zur Finanzwirtschaft.
- 10) In addition it may be noted that from what we know about the annual figures the construction expenditures seem to grow in accordance with the total expenditures of the Gemeinden. We assume, therefore, that the former reflect the latter in at least ordinal sense.

- 11) W. H. Oakland, op. cit. p. 352.
- 12) See E. G. Corrigan, op. cit. p. 136.
- 13) See Bundesministerium der Finanzen, Finanzberichte, Section:
Überblick über die Steuerrechtsänderungen.
- 14) See Allgemeine Vorbemerkungen zum Bundeshaushaltsplan für das
Rechnungsjahr 1960, Bundesdruckerei, p. 134.
- 15) We can conceive that the experts in the German ministry of finance
have more information which should enable them to provide more
precise quarterly estimates of the effects of discretionary tax
changes. We find however no evidence bearing on this matter.
We hope that they may react to this study and present their esti-
mates, we will be glad to include them into the final draft.
- 16) See Deutsche Bundesbank, Geschäftsbericht für das Jahr 1968,
p. 75.
- 17) See Finanzbericht 1968, p. 188. The subsequent effects of the
rise of rates during the first two quarters of 1969 amounted again
to slightly more than 1.1 billion DM.
- 18) It follows that the main effects show up during the first four quarters.
- 19) See K. Brunner/A. H. Meltzer, The Meaning of Monetary Indicators,
Monetary Process and Policy: A Symposium, G. Horwich ed., R. D.

Irwin Publ. 1967 and in addition: *The Nature of the Policy Problem, Targets and Indicators of Monetary Policy*, K. Brunner ed., Chandler Publ. 1969, by the same authors.

- 20) The extended monetary base is the sum of the sources of the monetary base plus the cumulated sum of reserves liberated or impounded by changes in reserve requirements since an arbitrary date. For a discussion of this aggregate see L. C. Andersen/J. L. Jordan, *The Monetary Base: Explanation and Analytical Use*, Federal Reserve Bank of St. Louis, Review, August 1968. For the sources of the German extended monetary base see footnote 36).
- 21) The extended monetary base is determined by its sources but is more easily computed by summing up its uses. The uses are: currency in circulation, deposits of commercial banks with the central bank, liberated reserves. The averages of the currency in circulation were taken till October 1968 from the Bundesbank's *Monthly Reports, Stat. Sect., Table II, A, 1, b* and thereafter from internal statistics of the Bundesbank. The deposits of commercial banks (incl. the postal bank system) were taken from an internal reserve requirements statistic of the Bundesbank. The same source was used for the computation of the liberated reserves. The computation was as follows: For every month in which reserve requirements were changed fictitious required reserves were computed by applying the new reserve ratios separately on demand, time, and savings

deposits subject to reserve requirements in the month before. The difference between actual and fictitious reserves approximate the reserves liberated or impounded. These differences were finally cumulated beginning with January 1958.

- 22) The money stock is defined as average demand deposits of nonbanks held with commercial banks (incl. postal bank system) subject to reserve requirements plus average currency holdings of nonbanks. The demand deposits were taken from an internal reserve requirement statistic of the Bundesbank. The currency holdings were computed on the auxiliary assumption that the average ratio of the nonbank's' currency holdings to the total circulation of currency is equal to the corresponding ratio at end of month. The respective end-of-month data are published in the Bundesbank's Monthly Reports, Stat. Sect., Tbl. I,2 and II,1,b.
- 23) See Appendices of the Bundesbank's Annual Reports.
- 24) The exception is the peak of 3/66; the council dates it 3/65 while Mintz on the other hand dates it 12/65, which is closer to our estimates. See I. Mintz, Dating Postwar Business Cycles: Methods and Their Application to Western Germany, 1950 - 1967, New York, Columbia University Press, 1969.
- 25) See on this section IV.3. of this paper.

- 26) The data presented in chart III were taken from the following sources:
- a) Money supply: For definition, computation and source see footnote 23)
 - b) Fiscal stimulus: Total expenditures of Bund, Länder and Gemeinden plus discretionary revenue effects combining the effects over the first four quarters as far as income taxes are concerned and the effects of the first quarter only as far as the remaining taxes are concerned. The resulting series was smoothed by a 3-quarter moving average. For the sources see the sections 'Government Expenditures' and 'Discretionary Changes of Tax Revenue' in this paper.
 - c) Nominal and real GNP: Deutsches Institut für Wirtschaftsforschung (Berlin), Vierteljährliche volkswirtschaftliche Gesamtrechnung, 1960 - 1970.
 - d) Index of total industrial net production: Statistisches Bundesamt (Wiesbaden), Fachserie D: Industrie und Handwerk, Reihe 2: Produktion ausgewählter industrieller Produkte, Index industrieller Nettoproduktion.
 - e) Net vacancies = vacancies minus unemployed: Bundesanstalt für Arbeit (Nürnberg), Jahreszahlen Arbeitsstatistik.
 - f) Index of producer prices of industrial products in home-market sales and cost-of-living index for medium income group: Deutsche Bundesbank, Monthly Reports. Stat. Sect., Tabl. VIII, 7.

The rates of growth for the variables listed under a) and d) - f) were computed from 3-month averages centered on the last month of the quarter.

- 27) Net vacancies are equal vacancies minus unemployed.
- 28) See Annual Report of the Bundesbank for the Year 1960, p. 24.
- 29) See Annual Report of the Bundesbank for the Year 1963, p. 71.
- 30) The data presented in chart IV were taken from the following sources:
- a) Nominal and real GNP: Deutsches Institut für Wirtschaftsforschung (Berlin), Vierteljährliche volkswirtschaftliche Gesamtrechnung, 1960 - 1970.
 - b) Index of industrial net production: statistisches Bundesamt (Wiesbaden), Fachserie D: Industrie und Handwerk, Reihe 2: Produktion ausgewählter industrieller Produkte, Index der industriellen Netto-produktion.
 - c) Net vacancies = vacancies - unemployed.
 - d) Index of producer prices of industrial products in home-market sales and cost-of-living index for all households: Deutsche Bundesbank, Monthly Reports, Stat. Sect., Tbl. VIII, 7.

The rates of growth for the variables listed under b) - d) were computed from 3-month averages centered on the last month of the quarter.

- 31) All variables presented in chart V are based on 3-month averages centered on the last month of the respective quarter. For definition, computation and sources of the extended monetary base and the money supply see footnotes 22) and 23). For the definitions of the four money multiplier components see page 36. The computation of the ratios was based on data taken from an internal reserve requirements

statistic of the Bundesbank. Sources for the earning assets of commercial banks are the Monthly Reports of the Bundesbank, Statist. Sect., Tbl. III, 5, and for the interest rates *ibid.*, Tbl. V, 1 and 5.

32) The average elasticities over the period 1967 to 1970 were:

$$\mathcal{E}(m, k) = -.2304 \text{ with } m = 1.6861$$

$$\text{and } k = .5057$$

$$\mathcal{E}(m, t_1) = -.0802 \quad t_1 = .8073$$

$$\mathcal{E}(m, t_2) = -.2550 \quad t_2 = 2.5670$$

$$\mathcal{E}(m, r) = -.4345 \quad r = .0887$$

33) It might be of interest that only recently, in May 1971, before Germany went on floating exchange rates, a similar extreme increase of the excess reserves was to be observed.

34) See M.J.M. Neumann, Bank Liquidity and the Extended Monetary Base as Indicators of German Monetary Policy, Proceedings of the Konstanzer Seminar on Monetary Theory and Monetary Policy 1970, K. Brunner (ed.), Kredit und Kapital, Beiheft 1, 1971.

35) As the sources of the monetary base are not available in form of daily averages we based the variance analysis on end-of-month data. With the exception of the liberated reserves and the coins in circulation all sources can be directly computed from the balance-sheet of the Bundesbank. The international source component of the base is defined: Gold-stock plus balances with foreign banks and money market investment abroad plus reserve position in IMF and net holdings of special drawing rights plus loans and other claims on the rest of the world minus deposits

of non-residents. The domestic source component is defined:
Liberated reserves plus securities plus lending to domestic banks
plus coins in circulation plus lending to public authorities minus
deposits of public authorities minus deposits of domestic enter-
prises and individuals minus capital and reserves minus other
liabilities (net).