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March 3, 1986

To: Members of the Executive Board  
From: The Secretary  
Subject: World Economic Outlook - Supplementary Notes

The six attached notes provide supplementary material for the Executive Board discussion on Friday, March 21, 1986 of the World Economic Outlook.

Mr. Larsen, ext. 4613 (Note 1); Mr. Mathieson, ext. 7662 (Note 2); Mr. Kaibni, ext. 7721 (Note 3); Mr. von Post, ext. 4526 (Note 4); Mr. Hole ext. 8811 (Note 5); and Mr. Deppler, ext. 4610 (Note 6) are available to answer technical or factual questions relating to these notes prior to the Board discussion.

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INTERNATIONAL MONETARY FUND

World Economic Outlook: Supplementary Notes

Prepared by the Staff

Approved by Wm. C. Hood

February 28, 1986

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## Supplementary Note 1

### Fiscal Developments in Major Industrial Countries

#### I. Background, 1980-85

##### 1. Introduction

In the 1980s, fiscal policies in the industrial countries have been generally more restrictive (or less expansionary) than they were during the middle and latter 1970s. Since about 1979, the governments of all the major industrial countries have been committed--at least in principle--to reducing both their fiscal deficits and the relative size of government transactions in their economies. In practice, however, these goals have proved elusive in most countries. Because of such factors as miscalculation of economic prospects, unforeseen external developments, and persistent political pressures, effective implementation of measures required to reduce deficits and to reverse the relative growth of government transactions has been widely frustrated or postponed. In some cases, and particularly in the United States, the effects on the fiscal deficit of the programs actually implemented have diverged markedly from the declared intentions of the authorities. Among the seven major industrial countries, indeed, only three have succeeded in preventing outright increases in the deficits of their general government sectors over the six years since 1979, and none of them has yet achieved a major reduction in the ratio of government expenditures to GNP.

The next three subsections of this supplementary note review in broad outline the principal factors contributing to this partial frustration of fiscal plans during the first half of the 1980s. These subsections comprise: (i) a description of changes in fiscal balances and in the overall size of government transactions during 1980-85; (ii) a discussion of factors affecting the revenue side of government accounts; and (iii) a summary of expenditure trends and policies. Against this background, Section II deals with the current and immediately prospective impact of fiscal developments on the economies of the major industrial countries. It also includes a special note on an important new law adopted by the United States in December 1985 (the "Balanced Budget and Emergency Deficit Control Act of 1985"--popularly known as the "Gramm-Rudman-Hollings" Act), and a technical note on the concepts and statistical techniques underlying the "fiscal impulse" estimates used in assessing the thrust of fiscal policy.

2. Changes in fiscal balances, 1980-85

Judged in terms of prima facie changes in general government fiscal balances, 1/ the deviations of actual from planned fiscal outcomes appear to have been most pronounced in Italy, the United States, and Canada, Table 1-1. The deficits of these countries, expressed as percentages of GNP, rose from 1979 to 1985 by some 4-5 percentage points. The apparent slippage was somewhat more moderate in France, amounting to about 2 1/2 percent of GNP. Contrasting with these results were the changes that occurred in the Federal Republic of Germany, Japan, and the United Kingdom. Over the same six years, Japan's general government deficit was reduced by 3 percentage points in relation to GNP and Germany's by about 1 1/2 percentage points. The deficit/GDP ratio in the United Kingdom showed virtually no cumulative change over this period.

Both among the countries with rising deficits and among those whose deficits were reduced, the prima facie comparisons of actual outcomes just summarized convey some misleading impressions of policy-directed shifts in fiscal positions. From 1979 to 1985, the change in general economic conditions was much more adverse in the four European countries than in the two North American countries or Japan.

The degree of deterioration of fiscal positions in this period attributable to purely cyclical factors is estimated (line 4 of Table 1-1 1/) to have been equivalent to more than 5 percent of GNP for Italy and France and to more than 3 percent for the United Kingdom and the Federal Republic of Germany. For the United States and Canada, on the other hand, the cumulative deterioration ascribable to cyclical influences over the same period is calculated to have been equivalent to only about 1 1/2 percent of GNP, and for Japan, it was even lower--roughly 1/2 of 1 percent.

Allowance for these rather sharp contrasts in fiscal effects of cyclical developments, so as to focus on budgetary shifts of an essentially structural character (summarized in the last line of Table 1-1), throws a different light on some of the cumulative changes in actual deficits as listed in the first line of the same table. The contractionary impact of changes in the German budget during the 1980s, for example,

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1/ See Statistical Appendix, Table 17, for the annual balances underlying this table. Also included in the Appendix, in Table 16, are separate data for central governments.

2/ Since the cyclically neutral change in the revenue/GNP ratio is zero by definition according to the concepts utilized here, the line showing the cyclically neutral change in expenditures serves also to measure the cyclically neutral change in the deficit. (This measure is identical to the difference between line 1 and line 6 of Table 1-1.)

Table 1-1. Major Industrial Countries: Summary of  
General Government Fiscal Developments,  
1980-85

(In percent of GNP/GDP)

	Italy	Canada	United States	France	United Kingdom	Fed. Rep. of Germany	Japan
Cumulative change in deficit	4.8	4.2	3.9	2.3	0.2	-1.4	-3.0
Cumulative change in revenue <u>1/</u>	9.0	4.1	0.5	4.2	3.4	1.2	4.3
Cumulative change in expenditures:							
Total (actual)	13.8	8.3	4.4	6.5	3.6	-0.1	1.2
Cyclically neutral <u>2/</u>	5.4	1.5	1.6	5.2	3.7	3.1	0.5
Structural <u>3/</u>	8.4	6.8	2.8	1.4	-0.1	-3.2	0.7
Cumulative structural change in deficit <u>4/</u>	-0.6	2.7	2.3	-2.8	-3.6	-4.6	-3.6

1/ According to the criteria described in Section II-5, a constant ratio of revenue to GNP is considered "cyclically neutral." Any change in that ratio may thus be considered "structural," and the figures shown here may be viewed (with reversal of algebraic signs) as cumulated contributions from the revenue side of the government accounts to the "fiscal impulses" shown on an annual basis in Appendix Table 17.

2/ As defined in Section II-5. (Includes all changes in unemployment insurance benefits.)

3/ All changes in expenditures except those considered "cyclically neutral" according to the criteria described in Section II-5; these figures thus represent cumulative contributions from the expenditure side of the general government accounts to the "fiscal impulses" shown on an annual basis in Appendix Table 17.

4/ Line 5 minus line 2--the difference being equivalent to a cumulation of the annual "fiscal impulses" shown in Appendix Table 17.

is seen to have been much larger (4 1/2 percent of GNP) than that implied by the actual change in the fiscal balance, and substantial structural reductions (3-3 1/2 percent of GNP) in fiscal deficits are also shown for the United Kingdom and France. Even in the case of Italy, the net impact of structural changes appears to have been mildly restrictive.

Since most of the changes in Japan's fiscal balance during the 1980s were structural in nature, a cyclical adjustment of the Japanese figures does not greatly alter the degree of contractionary influence implied by the cumulative reduction in that country's general government deficit. As estimated in the last line of Table 1-1, this restrictive influence was broadly similar to that exerted by structural shifts in the fiscal positions of most of the large European countries. (It should be noted, however, that the Japanese deficit at the beginning of the period was considerably larger than that of any of the major European countries except Italy, and that similar changes over the period under review do not necessarily imply similar current levels of structural deficits in any absolute sense.)

On a cyclically adjusted (or "structural") basis, the cumulative changes in fiscal balances of the United States and Canada stand in striking contrast to those of all the other major industrial countries. During a period in which the structural changes in the other five countries were all in the direction of lower deficits, and in most cases quite substantially so, the corresponding changes in the U.S. and Canadian deficits were strongly upward. Cumulatively over the period 1980-85, these increments amounted in each case to approximately 2 1/2 percent of GNP.

Generally speaking, the major industrial countries have recorded less progress toward reduction in the overall scale of government transactions than toward the companion goal of shrinking fiscal imbalances. <sup>1/</sup> With respect to the period 1980-85 as a whole, the most that can be said is that earlier upward trends in ratios of government revenues and expenditures to GNP were flattened in most cases, and that these trends were tilted downward in some cases during the last two or three years of the period.

In no major industrial country was the ratio of revenue to GNP lower in 1985 than in 1979, and only in the Federal Republic of Germany was there a decline (of fractional magnitude) in the ratio of expenditure to GNP

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<sup>1/</sup> In some countries with federal systems (e.g., the United States and Canada), the objective of reducing the scale of government transactions was pursued, strictly speaking, only at the central government level--sometimes with expansionary implications for regional and local government transactions.

(Chart 1-1). Although the Japanese authorities also managed to limit the relative growth of general government expenditures rather severely (to a little more than 1 percent of GNP), such growth elsewhere in this group of countries ranged from 3 1/2 percent of GNP in the United Kingdom to 8 percent in Canada and nearly 14 percent in Italy. Italy was also the country with the largest increase on the revenue side of the account, as Italian general government revenues rose by 9 percentage points in relation to GNP. Other revenue increases were on the order of 3 1/2-4 1/2 percent, except in the United States and Germany, where they were held to about 1/2 of a percentage point and 1 percentage point, respectively.

### 3. Factors affecting revenues

Revenue growth can be analyzed in terms of the relative contributions of "fiscal drag" and policy-determined changes in tax rates or in the tax base. The exceptionally slow growth of U.S. general government revenue from 1979 to 1985 was essentially a function of the large federal income tax reductions introduced in 1981 and implemented over a three-year period. Despite a subsequent partial reversal of some elements of the original tax-reduction legislation, the cuts were almost sufficient over the period as a whole (and more than sufficient during 1982 and 1983) to offset two major influences working to raise the ratio of revenue to GNP. One of these was the continued operation of a "fiscal drag," reflecting the elasticity of the revenue system in response to inflation and the trend growth of real income. <sup>1/</sup> Another major factor tending to raise the U.S. revenue ratio during the 1980s has been a series of progressive increases in both the tax base and the applicable rates for social security

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<sup>1/</sup> The effects of pure "fiscal drag" are very difficult to distinguish statistically from those of cyclical and other short-term influences on revenue yields. In this context, however, some impressions of the potential magnitudes involved may be inferred from certain estimates relating to the U.S. tax legislation of 1981. The cumulative reduction of individual income tax liabilities under that legislation amounted to 30 percent. By 1984, it was calculated to leave the ratio of personal taxes to personal income at about 10 3/4 percent, compared with 11 1/2 percent in 1980. However, it was also calculated that the interplay of inflation and real growth with progressivity of the rate structure would have led to a ratio of about 14 3/4 percent by 1984 under the previous tax arrangements. The combined effects of both cyclical improvement and longer-term fiscal drag (coupled with some predetermined changes in social security contributions) would thus have been more than 3 percentage points. With the U.S. unemployment rate no lower in 1984 than in 1980, the greater part of this hypothetical increase can probably be interpreted as a reflection of fiscal drag, as it operated before the 1981 tax cuts, rather than of purely cyclical influences.

contributions. Although the tax changes implemented under the 1981 legislation (which included provisions for indexing of personal exemptions and of the tax brackets through which progressive marginal rates are imposed) have probably reduced the longer-term income elasticity of the U.S. revenue system, a considerable element of fiscal drag is likely to remain a feature of U.S. fiscal developments. It may soon become more evident again in the absence of further reductions in U.S. income tax rates, since 1985 was the last year in which settlements of personal tax liabilities were significantly affected by the phased reductions enacted in 1981.

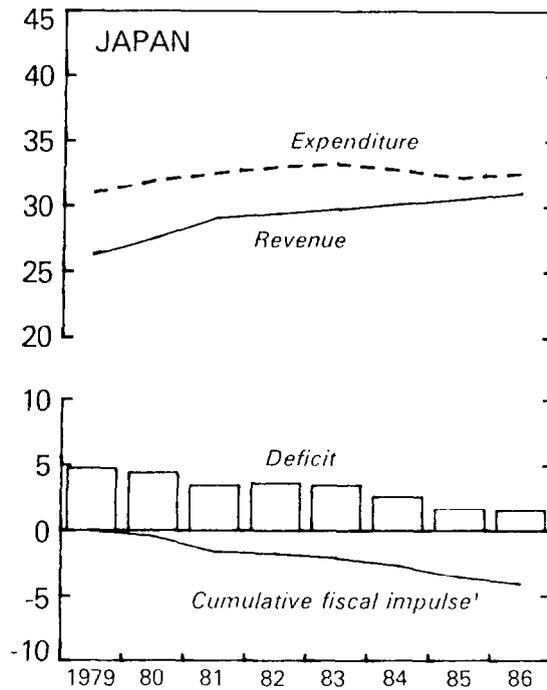
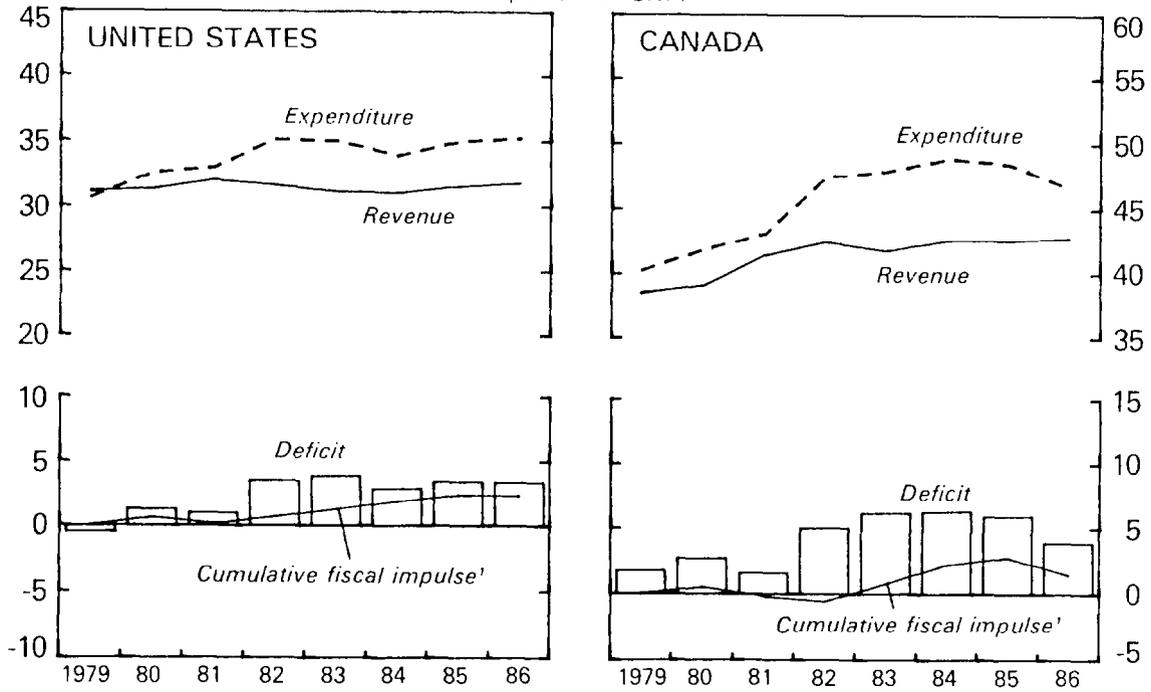
In relation to GNP, the rise in general government revenue in the Federal Republic of Germany during the first half of the 1980s was only slightly larger than that in the United States. With both real growth and inflation lower in Germany than in the United States, the impact of fiscal drag and cyclical influences tended to be smaller. In addition, income tax adjustments to "correct" for fiscal drag were introduced by the German authorities early in the period, and significant cuts in taxes on business incomes were provided, chiefly through credits designed to encourage investment and structural shifts in the composition of output.

Reflecting the opposing influences of the fiscal drag and the above-mentioned tax changes, direct taxes as a share of GNP remained virtually unchanged over the period. However, social security contributions as a proportion of GNP increased by 1 percentage point as a result of gradually increasing contribution rates. On the other hand, because of a fall in tax rates for specific indirect taxes in real terms, the share of indirect taxes in GNP declined by 1/2 percentage point, despite increases in selected consumer taxes and in the VAT. Thus, within a relatively stable overall tax burden, there was a shift away from indirect taxation and toward a higher degree of reliance on direct taxes and social security contributions.

Japan's major fiscal policy objective during the 1980s has been reduction of the deficit through curbing growth on the expenditure side of the budget. Revenues have risen substantially in relation to GNP because of the considerable elasticity of the tax system, increases in social security contribution rates, and some increases in corporate and indirect taxes in the early 1980s. The relative rise in taxes and social security contributions was facilitated by the fact that Japan's general government revenues at the beginning of the period were still by far the lowest, in relation to GNP, of any major industrial country. They remain the lowest, although the spread has narrowed considerably in comparison with some of the other countries (notably, the United States and the Federal Republic of Germany).

CHART 1-1  
MAJOR INDUSTRIAL COUNTRIES  
GENERAL GOVERNMENT FISCAL AGGREGATES  
AND BALANCES, 1979-86

(In percent of GNP)

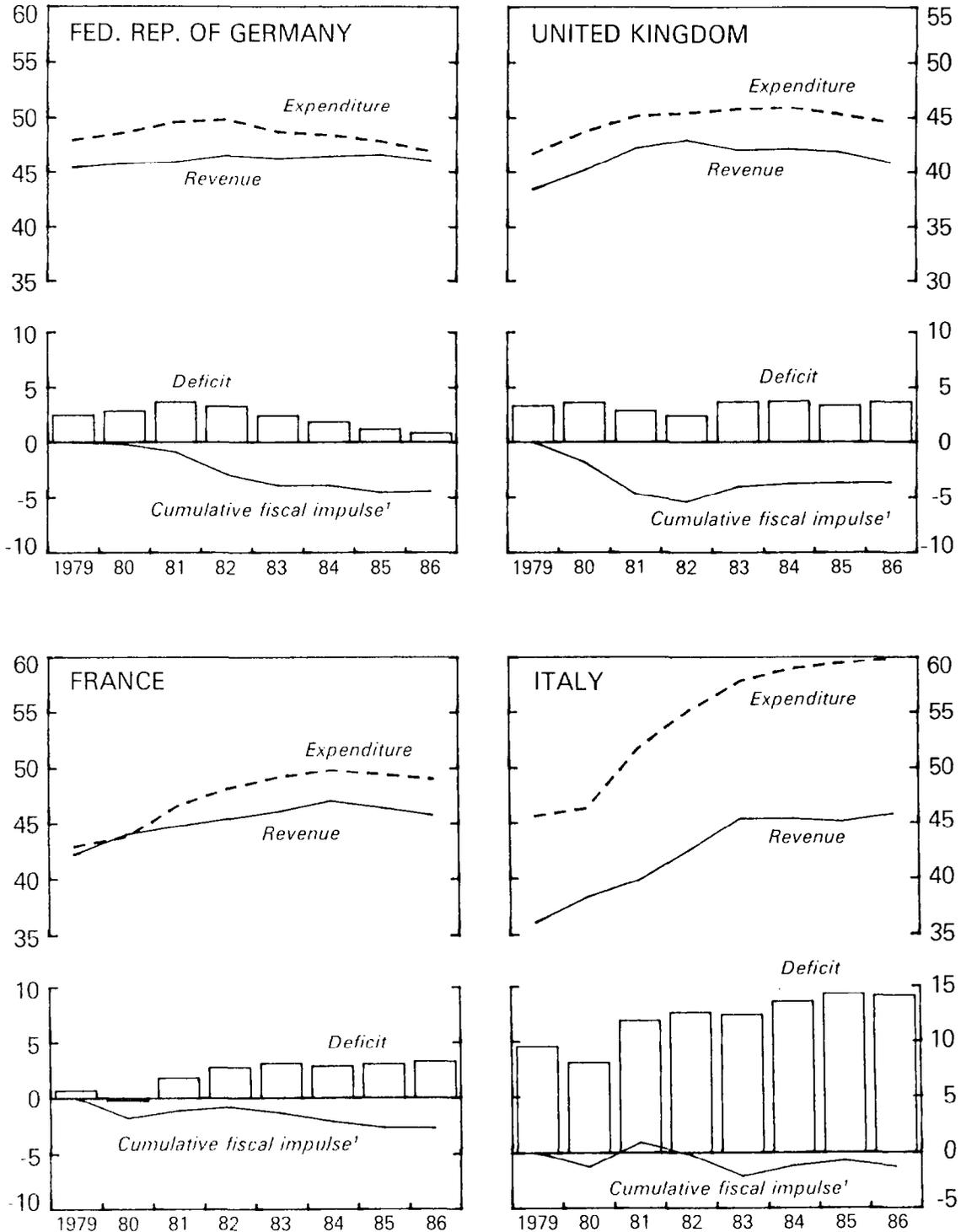


<sup>1</sup>Fiscal impulse as defined in Section 11-5 of text, cumulated from 1979.



CHART 1-1 (Concluded)  
MAJOR INDUSTRIAL COUNTRIES  
GENERAL GOVERNMENT FISCAL AGGREGATES  
AND BALANCES, 1979-86

(In percent of GNP)



<sup>1</sup>Fiscal impulse as defined in Section II-5 of text, cumulated from 1979.



The fiscal restraint sought by the U.K. authorities during the early 1980s was achieved chiefly by means of revenue increases, although strenuous efforts were also made to contain the growth of expenditures. The rise in world oil prices played a significant role in bolstering revenues. A feature of the fiscal strategy adopted by the U.K. Government in 1979 was a major shift in the tax structure from income taxation to taxes on expenditures. This shift continued in the budgets of 1982-83, 1983-84, and 1984-85, which resulted in very little cumulative change in the ratio of general government revenues to GNP. During those years, further cuts in taxes on both personal and company incomes were substantially offset by upward adjustments of excise taxes (mainly to take account of inflation), by increases in national insurance contributions, and by a significant rise in oil-related revenue. Partly because of the substantial shift in the tax structure, as well as widespread use of indexation, fiscal drag appears to have been a less important factor in revenue growth in the United Kingdom than elsewhere.

In France, where reliance on income and profits taxes is lower (about 18 percent of total revenue) than in any other major industrial country, a very substantial portion of the rather steady annual increments in the revenue/GNP ratio during the 1980s has come from successive increases in social security contributions. Measures initiated in 1979 to restore the integrity of the social security system were instrumental in launching this upward trend early in the current decade, and further increases in social security contributions were necessitated in subsequent years by the expansionary trend in social expenditures. In 1983, when a significant reorientation of fiscal policy occurred in response to pressures on the French franc, an income tax surcharge--introduced for the benefit of the family allowance fund--finally resulted in a relatively comfortable surplus in the social security accounts. Not until 1985 was the sustained surge of growth in the relative importance of general government revenue in the French economy arrested. In that year, when the budget also featured a modest cutback in the ratio of government expenditure to GNP, reductions in the personal income tax and the business tax were introduced. These reductions were equal to about 0.7 percent of GDP, more than offsetting an increase in the domestic tax on petroleum products. The net result was a decline of about 1/2 of 1 percentage point (in relation to GNP) in total general government revenue--the first such decline in France since 1978.

Cumulatively, the growth of general government revenue relative to GNP in Canada during the 1980s has been similar to the average of the other major industrial countries, although somewhat more irregular. Revenue growth was very strong early in the decade, as a result of large increases in energy taxation. In 1983, however, fiscal policy was directed toward promoting recovery from the 1981-82 recession, while energy tax receipts declined somewhat as a result of both the domestic recession and

the weakness in world oil prices. During 1983 and 1984, there was also a slowdown in the growth of revenue from personal income taxes. This slowdown apparently stemmed in part from a shift in the relationship between assessed income for tax purposes and total personal income, reflecting such factors as greater than expected use of exemptions, deductions, and tax credits. In addition, however, there was a decline in the ratio of tax collections to tax liabilities.

Toward the end of 1984 and in early 1985, Canadian fiscal policy was redirected onto a path of restraint by a new government. Although this was done predominantly through measures to curb spending, tax increases were also instituted. Sales tax rates were raised by 1 percentage point, and the base of the tax was broadened; tax brackets and exemptions were partially deindexed; and a temporary surcharge was levied on both individual and corporate incomes. The result was a reversal of the 1983 drop in the ratio of Canadian general government revenues to GNP, partly through restoration of an element of fiscal drag that had been suppressed by indexation.

In Italy, the persistently high rate of inflation and the steep progressivity of personal income tax rates combined to produce an unusually large degree of fiscal drag during the early 1980s, despite periodic steps to reduce its effects. In addition, upward adjustment of various tax rates, particularly for indirect taxes, plus fiscal amnesties and a shortening of lags in revenue collections contributed to a series of marked annual increases in the revenue/GNP ratio from 1980 through 1983. The fact that the growth of government spending during that period was even more rapid prevented major steps to reduce the rapid rise in the tax burden. Revenue increases were especially large in 1982 and 1983, reflecting various temporary measures to boost receipts. Subsequently, the expiration of those temporary measures, coupled with a reduction of fiscal drag (undertaken in conjunction with an agreed reduction of wage indexation), led to an abrupt leveling off of the revenue/GNP ratio in 1984 and 1985. The current medium-term strategy of the Italian authorities appears to be geared broadly toward maintenance of the tax burden at its recent level. Within this overall objective, some redistribution of incidence from wage to non-wage income is being sought, along with an increase in the share of indirect taxes. Improved enforcement and measures to reduce the erosion of the tax base (especially for the VAT and for income from unincorporated businesses) are prominent among the means through which these aims are being pursued.

#### 4. Expenditure trends and policies

Government expenditure trends in all of the major industrial countries have been strongly affected during the 1980s by two pervasive influences: difficulty in arresting the rapid growth of spending under various social

welfare programs; and the dramatic increase in interest payments generated by large increments in government debt and high interest rates. Both demographic changes and the impact of the prolonged international recession tended to generate automatic or quasi-automatic increases in payments to beneficiaries whose "entitlements" had been established under earlier policy decisions. Although many of the relevant entitlement programs had been introduced at times when prevailing conditions were quite different from those characterizing the 1980s, social and political pressures against curtailment of benefits were almost universal.

Debt service payments were, of course, even more intractable. With the scale of such payments sharply higher in relation to GNP during the early 1980s, containment of the overall ratio of government expenditures to GNP could not be accomplished by any of the major industrial countries except through outright reduction in the relative magnitude of noninterest outlays. The degree to which the national authorities of the seven nations have succeeded in reaching or approaching that target has varied even more widely from country to country than their respective results on the revenue side of the fiscal accounts.

At one extreme is the record of the Federal Republic of Germany, where the rise in total general government expenditures, expressed as a percentage of GNP, was limited to about 1/2 of 1 percentage point per annum from 1979 through 1982 and then rolled back to a level in 1985 fractionally below that of 1979. Since interest payments increased over those six years by the equivalent of 1 1/4 percent of GNP (Table 1-2), the decline in the relative magnitude of other outlays was appreciable. Moreover, inasmuch as those other outlays in 1985 included much larger unemployment insurance benefits, as well as other components pushed upward by cyclical influences, the compression of cyclically adjusted expenditures was substantial. As measured according to the concepts of the cyclically neutral budget analysis, it amounted to about 3 1/4 percentage points in relation to GNP over the period 1980-85 (Table 1-1). The constraint was distributed fairly evenly between government purchases of goods and services and transfer payments. It was also applied gradually, through a succession of relatively small steps in the annual budgets of recent years, rather than through any major fiscal reform. Contributory steps have included, for example, reductions of unemployment benefits, a temporary (nine-month) freeze on civil service wages, changes in the calculation of pension payments, and measures to limit the cost of health insurance.

Japan's fiscal restraint program, although applied under somewhat different economic circumstances, has also been characterized by gradualism and effectiveness. Given the revenue increases produced by the greater buoyancy of the Japanese economy in recent years and the relatively high elasticity of the Japanese tax system, the Japanese authorities have been able to lower the general government deficit substantially without a major

Table 1-2. Major Industrial Countries: General Government Expenditures and Selected Components, in Relation to GDP 1/

(In percent of nominal GDP/GNP)

	1979	1983	1984	1985 (estimated)	1986 (projected)
Canada--Total	40.2	47.9	48.9	48.5	46.6
Interest payments <u>2/</u>	5.2	7.2	7.9	8.4	8.2
Transfers and subsidies	12.4	16.4	16.6	16.2	15.3
Other (mainly purchases of goods and services)	22.6	24.3	24.4	23.9	23.1
United States--Total	30.6	35.0	33.9	37.1	37.1
Interest payments <u>2/</u>	2.7	4.3	4.6	4.8	5.0
Transfers and subsidies	10.8	13.2	12.1	12.2	12.0
Other (mainly purchases of goods and services)	17.1	17.5	17.2	20.1	20.1
Japan--Total	31.0	33.3	32.8	32.2	32.6
Interest payments <u>2/</u>	2.6	4.2	4.4	4.6	4.7
Transfers and subsidies	11.6	13.3	13.0	12.7	12.9
Other (mainly purchases of goods and services)	16.8	15.8	15.5	14.9	15.0
France--Total	42.9	49.2	49.8	49.4	48.5
Interest payments <u>2/</u>	1.5	2.6	2.8	2.7	2.7
Transfers and subsidies	26.3	30.2	30.7	30.5	30.0
Other (mainly purchases of goods and services)	15.1	16.4	16.3	16.2	15.8
Germany, Fed. Rep. of--Total	48.0	48.7	48.4	47.9	46.9
Interest payments <u>2/</u>	1.7	3.0	3.0	3.0	2.9
Transfers and subsidies	23.3	23.2	23.1	22.5	21.9
Other (mainly purchases of goods and services)	23.0	22.5	22.3	22.3	22.1
Italy--Total	45.6	57.8	58.9	59.4	59.8
Interest payments <u>2/</u>	5.8	9.1	9.5	9.2	9.4
Transfers and subsidies	17.4	21.4	21.1	23.0	23.1
Other (mainly purchases of goods and services)	22.4	27.3	28.3	27.2	27.3
United Kingdom--Total	41.7	45.7	46.0	45.3	44.5
Interest payments <u>2/</u>	4.6	4.9	4.9	5.1	4.8
Transfers and subsidies	14.9	17.1	17.6	17.2	...
Other (mainly purchases of goods and services)	22.2	23.7	23.5	23.0	...

1/ The fiscal data used in computing the ratios shown in this table are on a national accounts basis.

2/ Gross interest payments.

cutback in the overall ratio of government expenditure to GNP, which rose moderately from 1979 to 1983, then fell back slightly during the past two calendar years. However, a considerable restructuring of expenditures was carried out.

The authorities' main objective has been to reduce the deficit in the general account of the central government so as to eliminate by 1990/91 the issuance of bonds to cover current spending. A reduction in the deficit is believed to be needed both to prevent the further erosion of fiscal flexibility and to place the government in a better position to accommodate the increased social welfare expenditure that will inevitably accompany the rapid aging of the population in the next two decades.

Given the heavy upward pressure on expenditure arising from social security outlays caused by the aging of Japan's population and the maturing of its social security schemes, as well as the rise in interest payments on government debt, the burden of expenditure restraint has fallen heavily on other categories of expenditure. Whereas the ratios of transfer payments and of interest payments to GNP rose by 1.1 percentage points and 2.0 percentage points, respectively, between 1979 and 1985, the ratio of other expenditures was reduced by nearly 2 percentage points. Initially, the expenditure restraint was achieved mainly by across-the-board cuts of nonpriority, discretionary expenditures. However, room for reductions in these areas has become smaller and, in recent years, the authorities have undertaken an important reform of social security programs.

In both the United Kingdom and the United States, the growth of general government expenditures in relation to GNP during the period 1980-85 was close to the average for all seven major industrial countries. However, a considerably larger share of the rise in the expenditure ratio can be attributed to cyclical factors in the United Kingdom than is the case in the United States. Indeed, the "cyclically neutral budget" analysis would impute the entire rise since 1979 in U.K. general government expenditure (as a percentage of GDP) to such factors, whereas the corresponding share in the United States was only about one third (Table 1-1).

The composition of the respective increases in these two countries also differed. Interest payments and expenditures for national defense were the predominant expansionary elements in the United States, while a rise (relative to GNP) in transfers and subsidies accounted for more than half of the cumulative growth in total expenditures of the general government sector in the United Kingdom. Government interest payments in the United Kingdom, which were already relatively high in 1979, rose less (as a percentage of GDP) over the following six years than in any other major industrial country. In both the United Kingdom and the United States, transfers and subsidies rose more sharply in relative importance during the first several years of the period, but have fallen back somewhat (relative to GNP) since 1983, especially in the United States.

Another change of considerable significance in the United States was an appreciable reduction in the relative importance of transfers to state and local governments. Partly because of this development, which did not affect spending programs of the state and local governments commensurately, the latter units have been much more disposed toward revenue increases than the federal government. Accordingly, their share of U.S. general government receipts has risen, in relation to GNP, by about 1/2 percentage point during the first half of the current decade.

In France, the cumulative rise in general government expenditure during 1980-85 was appreciably larger than the average for all major industrial countries, and was more heavily concentrated on social welfare transfers and subsidies. This increase, together with a virtual doubling of the ratio of government interest payments to GNP, accounted for more than 85 percent of the cumulative growth of total French government spending. Most of the increment occurred during 1981 and 1982, as a consequence of the highly stimulative (but short lived) fiscal policy introduced to cushion the 1980-81 recession and hasten recovery. However, a major reorientation of French fiscal policy occurred in early 1983, when measures of restraint adopted to help defend the franc included steps to reduce public sector spending. Since then, the French authorities have arrested the increase in the expenditure/GDP ratio and, despite the continued relatively slow growth of GDP, managed to reduce it slightly in 1985.

The course of general government spending during the 1980s in Canada has been broadly similar to that of France, except that the main surge occurred a year later (1982) and the cumulative rise in relation to GNP was moderately larger (8 1/4 percentage points). Half of the cumulative increase occurred in 1982, reflecting countercyclical efforts of that year, including a large increase in the relative magnitude of unemployment insurance benefits. However, the ratio of government expenditures to GNP did not recede during 1983 and 1984, as might have been expected on cyclical grounds. On the contrary, the ratio rose in each of those years, and did not begin to recede until 1985.

One reason for difficulty in slowing the increase in the expenditure ratio in Canada has been an exceptionally persistent escalation of interest payments. Although the Canadian central government's debt ratio is not particularly high (relative to other countries), Canadian provinces and municipalities have quite large amounts of debt outstanding. With the high level of Canadian interest rates, increases in general government interest payments outpaced the growth of nominal GNP in 1984-85 by a wider margin than in any of the other major industrial countries except Italy.

Throughout much of the period since 1980, the Italian authorities have been unable to obtain the expenditure cuts or revenue increases (beyond those resulting from fiscal drag) that would have been required

to meet their established goal of containing the government deficit. General government expenditures rose faster than nominal GDP in every year--and by a strikingly wide margin from 1981 through 1983. Cyclical conditions explain part of the expansion during those years, but the rise in government spending also reflects improvements in social welfare benefits, sizable wage increases in the public sector, larger transfers to troubled enterprises, and rapid growth of debt service costs. Government interest payments in Italy, expressed as a percentage of GDP, increased from less than 6 percent in 1979 to a little over 9 percent in 1983--easily the highest such ratio among the major industrial countries (Table 1-2). Further increases since 1983 have been considerably slower, in broad conformity with the general trend in most of the other major industrial countries toward a leveling off of this relationship. Further deceleration sufficient to permit the growth of revenues to be applied to reduction of the deficits may depend crucially on the future evolution of real interest rates.

## II. Recent and Prospective Fiscal Influences on Economic Activity

### 1. Introduction

This section, after recapitulating the most recent changes in fiscal balances, goes on to review the prospects for 1986 and 1987, focusing on the restrictive or stimulative effects likely to be imparted to economic activity in the major industrial countries. For this purpose, the two immediately following subsections employ an analytical approach that measures the direction and strength of policy-induced changes in underlying fiscal positions. The particular concept utilized here is that of the "fiscal impulse" (expansionary or contractionary) calculated in terms of the "cyclically neutral budget" technique described in Section II-5 below. Section II-4 summarizes the main provisions of what might prove to be the most important single fiscal measure of recent years--the "Balanced Budget and Emergency Deficit Control Act of 1985" enacted by the U.S. Congress and approved by the President toward the end of 1985. Although the results likely to flow eventually from this legislation are highly uncertain at the present time, some of the potential consequences are of far-reaching importance, not only for the United States, but for the world economy generally.

### 2. Fiscal developments in 1985

The combined fiscal deficit of the major industrial countries increased marginally in relation to GNP in 1985, whether measured at the general government level or in terms of central government balances alone (Appendix Tables 16 and 17). The virtual stability of the combined fiscal balance, however, resulted from contrasting movements in the balances of individual countries. The deterioration in the budgetary position of the

United States in 1985 was more than large enough to offset a decline in the composite fiscal deficit of the other six countries. For the entire group, with account taken of cyclical changes in the respective economies, the underlying fiscal impulse was expansionary at the central government level, but broadly neutral at the general government level.

The difference between the expansionary thrust of U.S. fiscal policy and the generally restrictive impulse in the other major industrial countries, taken together, was somewhat greater in 1985 than in 1984. At the general government level, the U.S. impulse was again equal to about 1/2 of 1 percent of GNP, while the composite for the other countries shifted appreciably toward restraint. In the United States, the expansionary impulse stemmed from the expenditure side of the fiscal account, being fueled primarily by the defense buildup and secondarily by expansion of state and local government spending. Part of the expenditure impulse, however, was offset by revenue growth associated with the built-in elasticity of the tax system.

Outside the United States, the moderate composite swing toward restraint in 1985 was largely due to developments in Japan and the Federal Republic of Germany. In each of these countries, the general government deficit was reduced by about 3/4 of 1 percentage point in relation to GNP. Occurring in a context of little or no change in cyclical influences, these reductions imparted restrictive impulses of broadly similar size. In Japan, the degree of restraint was smaller at the central government level than for the general government sector, while in Germany it was about that same at either level. Moreover, the sources of the restrictive impulses differed in other ways. In Japan, the net impulse came to a considerable extent from the revenue side of the account, reflecting mainly the built-in elasticity of the tax system, whereas in the Federal Republic of Germany the decline in the fiscal deficit was due mainly to a fall in public investment outlays and restrained growth of social transfers. Although these categories of expenditure were also strongly restrained in Japan, the total withdrawal of stimulus from the expenditure side of the Japanese account was limited by built-in increases in social security outlays and the rise in interest payments.

In France, the thrust of fiscal policy was also moderately contractionary in 1985. This withdrawal of stimulus was attributable to a slowing of expenditure growth. Part of the expenditure restraint, however, was offset by a slowdown in revenue growth, due mainly to cuts in personal income taxes introduced in the 1985 budget. The decline in government expenditures as a percentage of GNP was attributable to restraints on increases in both employment and real wages in the government sector, to deceleration in the growth of social security transfers, and to a slight decrease in the relative magnitude of interest payments on government debt.

In the United Kingdom, government revenue declined in relation to GDP in 1985, reflecting the impact of lower oil prices and certain tax changes introduced in the March 1985 budget. Notwithstanding this relative decline in revenues, the government deficit also decreased moderately as a result of a sharper deceleration in the growth of government spending. In a year of relatively strong expansion of economic activity, however, much of the decline in the expenditure/GDP ratio was due to cyclical developments. With allowance for those, the moderate change in the actual deficit must be interpreted as essentially neutral in terms of the implied fiscal impulse.

Italy was the only major European country in which the fiscal deficit widened substantially in 1985. The increase amounted to about 3/4 of 1 percentage point in relation to GDP, whether measured at the general government level or for the central government alone. In either case, about one third of the change could be attributed to cyclical influences in a year of rather weak GDP growth, but the greater part of it--about 1/2 of 1 percentage point--represented growth in the structural deficit. Slower growth of non-tax revenue, increased outlays associated with social security benefit payments and other transfers to households, and termination of discretionary measures of restraint in effect during the previous year were the principal factors underlying Italy's reversion to a more stimulative fiscal stance in 1985.

In Canada, a relatively high rate of economic growth and the implementation of a number of deficit-reducing measures adopted in the context of the May 1985 budget resulted in a moderate decline in the fiscal deficit after three consecutive years of large and growing imbalances. The revenue measures in the budget included an increase in the sales tax, a deindexation of personal income tax brackets, and temporary corporate and personal income tax surcharges. Partly because of lags in collection of the newly increased taxes and partly because government spending declined less in relation to GNP than might ordinarily have been expected in a year of rather buoyant economic activity, the thrust of central government fiscal policy in 1985 was approximately neutral. In the broader general government accounts, because of the weight of provincial and municipal government transactions not directly affected by the shift in federal government policy, the fiscal impulse calculated for 1985 was again somewhat expansionary, although much less so than in the preceding two years.

### 3. The outlook for 1986 and 1987

The projections for 1986 presented in Tables 16 and 17 of the Statistical Appendix are generally based on proposed and, in some cases, adopted budgets and medium-term fiscal plans. For the seven countries as a group they indicate a moderately contractionary thrust at either level

of government. On the basis of staff estimates consistent with the general assumption of "present policies," a further contractionary impulse of similar size is indicated for 1987.

For the United States, the projections are based on the authorities' "current services" estimates. <sup>1/</sup> Their estimates of the deficit on this basis have been revised downward substantially from those presented in the fiscal 1986 budget. Current services estimates for expenditures have been lowered, reflecting sizable reductions in estimates of defense spending and the first-year spending reductions required under the Gramm-Rudman-Hollings Act (described in Section II-4). In deriving the projections for 1986, the staff has adjusted the U.S. authorities' current services estimate for differing assumptions regarding economic growth, employment, inflation, and interest rate developments. According to the staff projections, the federal government deficit (on a "unified budget" basis) would decline by about 1 percentage point to 4 3/4 percent of GNP in 1986. With little change in the U.S. cyclical position, the thrust of fiscal policy would thus turn contractionary for the first time since 1979. This prospective shift is mostly attributable to cuts in spending and to a reduction in interest rates. Revenue is also projected to increase at a marginally faster rate than GNP, and thus to impart some contractionary impulse. This essentially reflects the elasticity of the tax system, rather than new discretionary measures.

The overall fiscal deficit at the general government level is expected to remain unchanged in 1986 at about 3 1/2 percent of GNP. An expansionary impulse emanating from the state and local government sector would offset the withdrawal of stimulus by the central government. (Part of the difference between the two "impulse" estimates is also due to differences in coverage between the "unified budget" and the national income accounts, as well as to timing differences between cash transactions and accruals in the federal government account.)

For the other six countries as a group, the 1986 projections indicate a mild tightening of the composite fiscal stance, with the average deficit declining by about 1/4 of 1 percent of GNP at either level of government. In Japan, the projections for 1986, which are based on the authorities' budget proposals (with some adjustment) and estimates made by the staff, reflect the expectation of continued efforts to reduce the budget deficit and a further withdrawal of stimulus equivalent to 1/2 of 1 percent of GNP at either level of government. The Japanese authorities continue to stress the containment of expenditures in a situation featuring strong growth of "entitlement" spending. Social security transfers, in particular, are

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<sup>1/</sup> The deficit projected under the present tax system and existing spending programs.

growing rapidly in response to demographic factors and increasingly wide eligibility of the elderly for pensions. Against this background, containing total expenditures implies that growth in discretionary outlays will have to be especially firmly restrained. Implementation of such an expenditure policy would mean that the steady rise in revenue, which is expected to add about 1/4 of 1 percentage point to the revenue/GNP ratio, would produce an equivalent withdrawal of stimulus. For the most part, this prospect reflects elasticity of the tax system, rather than any significant new discretionary measures.

In the Federal Republic of Germany, the 1986 budget has been formulated in line with the authorities' commitment to medium-term fiscal consolidation. The overall budget deficit is projected to decline by about 1/4 of 1 percent of GNP at both levels of government, notwithstanding a larger relative decline in revenue (1/2 of 1 percent in relation to GNP) due to implementation of previously announced measures of personal income tax relief. The strengthening of the financial position is to be effected by restricting the growth in general government expenditure so as to lower the total by about 1 percent in relation to GNP. This result would reflect above-trend growth in GNP, as well as some further decline in the underlying share of government expenditure in total output. After allowance for cyclical factors, the withdrawal of stimulus from the expenditure side does not appear to be quite enough to offset the expansionary thrust originating from the revenue side. Accordingly, the overall fiscal impulse is expected to be slightly expansionary, both at the central government level and for the entire general government sector.

In France, the principal objective of the central government's financial policy in 1986 will again be to limit the budget deficit to 3 percent of GDP. This objective is to be achieved through absolute reductions in some types of outlays and reducing the real growth rates of other categories of discretionary expenditure. This expenditure restraint would more than offset the effects of a decline in the revenue/GDP ratio reflecting, inter alia, an income tax reduction. The net effect at the central government level is expected to be somewhat contractionary after cyclical adjustment. At the general government level, the appreciably lower rate of inflation now in prospect will help to lower the rate of increase in social security transfers, contributing to reduction of the deficit and to a moderately contractionary impulse from the general government sector as a whole.

The projections for the United Kingdom are based on the March 1985 budget, as modified in the Autumn Statement published in November 1985; some adjustments have been made by the staff to reflect more recent developments in international oil prices. The budget deficit at the central government level is projected to increase by about 1/2 of 1 percentage

Sea oil revenue. Central government outlays are projected to decline by roughly 1/2 of 1 percentage point in relation to GDP, with real expenditure growth held to about 1 percent during a year of moderate growth of output. Since GDP growth is projected at a rate close to its estimated potential, cyclical influences on the fiscal balance are expected to be minimal. In these circumstances, the contractionary effect of the expenditure restraint would not be large enough to offset the stimulus from slower growth of revenue, and the overall thrust of fiscal policy would be moderately expansionary (equivalent to about 1/2 of 1 percent of GDP). The projected decline in the revenue/GDP ratio would be solely a reflection of lower oil prices, as little change in the overall tax ratio is expected. The staff projections assume that the authorities, in light of the unfolding developments in international oil markets and their implications for government revenue, will forego a tax cut implied in the March 1985 budget. The foregoing sketch of prospective U.K. fiscal developments is not altered by focusing on transactions of the broader general government sector.

For Italy, the projections are based on the authorities' "current trends" estimates, with adjustments for the deficit-reducing measures included in the proposed budget, for the effects of income tax reform, and for expected delays in budget implementation. The central government deficit in 1986 is expected to remain unchanged at about 16 percent of GDP, which would be about 2 percentage points above the authorities' target. The ratio of revenue to GDP is expected to grow by 1/2 of 1 percentage point, more than offsetting the structural growth of expenditure. A moderately contractionary impulse is thus implied, and is expected to be reflected also at the general government level. The projected increase in the relative magnitude of government revenue is partly attributable to tax measures proposed in the budget, including those to increase social security contributions and local taxes.

The 1986 projections for Canada are largely based on the authorities' latest estimates, with adjustments for differing staff assumptions with respect to growth, inflation, and interest rates. The fiscal deficit is expected to decline by about 2 percentage points in relation to GNP at both levels of government, largely because the full-year effects of expenditure restraints and revenue measures contained in the May 1985 budget will greatly exceed the part-year effects reflected in the 1985 outturn. Deceleration of expenditure growth will result mainly from cuts in federal government employment. In relation to GNP, however, part of the decline in expenditure is expected to stem from a sizable drop in unemployment insurance benefits and other cyclical influences. With allowance for these factors, the overall contractionary impulse imparted to the Canadian economy is projected to be about 1 1/4 percent of GNP at either level of government.

For 1987, highly tentative staff projections of the central government fiscal balances of major industrial countries indicate a contractionary composite fiscal thrust equivalent to just over 1/2 of 1 percent of GNP. This would include significant moves toward restraint in the United States, Japan, Italy, and Canada, while fiscal impulses in the other countries are projected to be only moderately contractionary or neutral. The projections for the United States are based on the working assumption that significant cuts in expenditure would be made in relation to the staff's estimate of the current services deficit for 1987; however, the projections assume that less than half of the potentially very large spending cuts implied by the recently adopted "Gramm-Rudman-Hollings" legislation, described in the following subsection, will be implemented. The full implementation of the cuts provided for under this legislation would imply a further significant reduction of the federal budget deficit in 1987. The contractionary impulse in the United States would be 0.6 percentage points greater than indicated in Appendix Table 16, and the combined contractionary impulse for all seven major industrial countries would be greater by about 1/4 of 1 percentage point.

At the general government level, the 1987 projections (Appendix Table 17) broadly parallel those for the central governments in all countries of the group except Canada. In that country, the fiscal impulse at the general government level is expected to be broadly neutral, with stimulus from provincial and municipal government transactions roughly offsetting the projected withdrawal of stimulus by the federal government.

#### 4. The "Gramm-Rudman-Hollings" Legislation in the United States

On December 12, 1985, the President signed legislation--the Balanced Budget and Emergency Deficit Control Act of 1985 (widely know as the "Gramm-Rudman-Hollings" Act)--stipulating that the federal budget deficit, which reached \$210 billion in fiscal year 1985, must be reduced in each fiscal year from FY 1986 to FY 1991 to attain a balanced budget in the latter year. The maximum deficit amounts specified in the Act are shown in the following tabulation:

<u>Fiscal Year</u>	<u>Maximum deficit (billions of dollars)</u>
1986	171.9
1987	144.0
1988	108.0
1989	72.0
1990	36.0
1991	--

The Act provides that automatic spending cuts would be triggered if the Administration and Congress are unable to reach agreement on measures that would achieve these targets. With the exceptions of FY 1986 and FY 1991, the deficit may exceed the target by up to \$10 billion without triggering the mandatory spending cuts; once triggered, however, those cuts must be sufficient to bring the deficit down to the target for that year. For FY 1986, the reduction in outlays is limited by the Act to a maximum of \$11.7 billion regardless of the amount by which the projected deficit for that year exceeds the maximum; no leeway is allowed for FY 1991.

The first step in the process of expenditure reduction will involve the presentation of a joint report, on August 20 of each year, by the Office of Management and Budget (OMB) and the Congressional Budget Office (CBO) to the Comptroller General (CG), who is head of the General Accounting Office. The reports are required to provide:

- (1) estimates of the amount by which the projected deficit exceeds the maximum deficit for the fiscal year covered by the report;
- (2) a set of economic assumptions, including the estimated rate of real economic growth in the fiscal year covered by the report; and
- (3) calculations of the percentages and amounts by which various budget categories must be reduced to eliminate any difference between the projected deficit and the maximum deficit.

The CG will then review the joint OMB/CBO report and issue his own report on August 25 to the President and to the Congress; this report should either confirm or modify the estimates provided by OMB and CBO. An order by the President implementing the spending cuts specified by the CG must be issued on September 1. Unless Congress acts--and the President agrees--to modify the spending reductions in the CG's report by adopting an alternative deficit reduction plan (which could include tax increases as well as alternative spending cuts), the expenditure reductions will take effect on October 1. Any Congressional action taken during September to reduce the gap between the estimates and the maximum allowable deficit will be reflected in a final Presidential order to be issued on October 15.

Special procedures are to be followed in the event of a recession. Specifically, the Director of the CBO must notify Congress at any time:

- (1) if during the current and preceding quarter, and with respect also to the four quarters following the notification, the CBO or the OMB has projected real economic growth to be less than zero in two consecutive quarters within this six-quarter period, or

- (2) if the Department of Commerce reports that actual real economic growth for the most recent and immediately preceding quarter is less than 1 percent.

Upon receiving such notification, both Houses of Congress will suspend the obligation to achieve the maximum deficit target for the current fiscal year and the next fiscal year as it applied to Congressional budget resolutions and the President's budget submissions.

Certain federal programs and activities are exempt from mandatory cuts under the Act. These include social security benefits, veterans compensation and pensions, regular state unemployment insurance benefits, medicaid, aid to families with dependent children, food stamps, supplemental security income, and interest on the federal debt. Certain other programs, while not exempt, are subject to special rules limiting the extent of the cuts. For example, programs such as medicare and veterans' medical care cannot be cut by more than 1 percent in FY 1986 and 2 percent in later years. Programs with provisions for annual cost of living adjustments (COLA), such as pensions, can be cut by no more than the total COLA in any one year.

The Act requires that 50 percent of the mandatory cuts come from domestic programs and 50 percent from the defense budget. For FY 1986 only, the Act gives the President authority to exempt all or part of military personnel from cuts; he has chosen to use this authority, and has exempted 93 percent of the FY 1986 appropriations in this area from cuts. The Act also permits the President (for FY 1986 only) to adjust to a limited extent the percentage reductions for particular programs within a given category of defense spending. Except for these special provisions applying to FY 1986, and subject to the exemptions and limitations described above, all programs must be cut on a uniform percentage basis, computed separately for defense and nondefense programs.

For FY 1986, the average of the deficits recently estimated by OMB and CBO is \$220.5 billion. As indicated above, the Act limits spending reductions to \$11.7 billion for the current fiscal year. This figure reflects the fact that the Act restricts deficit reduction measures to a maximum of \$20 billion at an annual rate for FY 1986; as the reductions will not take effect until March 1, 1986, the maximum deficit reduction is seven twelfths of \$20 billion. The President's order specifying these cuts was issued February 1, 1986.

On February 7, 1986, a federal court ruled that a crucial provision of the Balanced Budget and Emergency Deficit Control Act of 1985 (the "Gramm-Rudman-Hollings" law) was unconstitutional because it violated the separation of powers among the three branches of government. The Court stated that powers conferred by the law on the Comptroller General

as part of the provision for the automatic spending reductions were executive powers that could not be exercised by an official who is removable by Congress. The Court stayed the effect of its order pending the outcome of an appeal to the Supreme Court.

5. Calculation of fiscal impulse and fiscal data base

This section provides a brief description of how the "fiscal impulse" measure is derived from the "cyclically neutral budget" model, and of the fiscal data used in the analysis undertaken in Sections II-2 and II-3, above, as well as in parts of Section I. The "cyclically neutral budget" technique involves a distinction, with respect to government revenues and expenditures, between changes considered to be associated with cyclical fluctuations in the output of an economy and other changes, which may be viewed as imparting expansionary or contractionary impulses to the economy independently of the more or less automatic responsiveness of government transactions to cyclical developments. Revenue is regarded as cyclically neutral when it grows in proportion to actual GNP at current prices, and is contractionary (expansionary) when it increases faster (more slowly) than actual GNP. Expenditure other than unemployment insurance benefits is regarded as cyclically neutral if it parallels the movement of potential GNP at current prices, and is expansionary (contractionary) when it increases faster (more slowly) than potential GNP. Year-to-year variations in unemployment insurance benefits are viewed as cyclically neutral--that is, merely reflecting cyclical developments in the economy. 1/ The net "impulse" from changes in revenue and expenditure (i.e., that part of any net change in the fiscal balance that cannot be attributed to "cyclically neutral" changes in revenue or expenditure) may be interpreted as a cyclically adjusted indicator (according to the criteria just specified) of stimulative or restrictive shifts in government fiscal operations. 2/

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1/ This view, although somewhat simplistic (in that it ignores changes in the scale of benefits or in eligibility requirements), is adopted on grounds of expediency. Alternative methodologies with conceptually improved treatment of the unemployment insurance benefits have been attempted by the staff, but the empirical results were found to be barely different from the current estimates. Moreover, data for a more refined treatment of unemployment insurance benefits are not readily available for all of the major industrial countries.

2/ The net fiscal impulse (FI) may be expressed in terms of the change in revenue (T), expenditure other than unemployment insurance benefits (G), actual GNP (Y), and potential GNP (YP), as follows:

$$FI = -(\Delta T - t_0 \Delta Y) + (\Delta G - g_0 \Delta YP)$$

where  $t_0$  and  $g_0$  are the base year ratios of revenue to actual GNP and of expenditure other than unemployment insurance benefits to potential GNP, respectively.

Such changes may be viewed as policy determined either (i) by the introduction of new measures or (ii) by the operation of previously existing measures that automatically result in revenue (expenditure) changing disproportionately to the change in GNP (potential GNP) by which "neutrality" is judged.

The fiscal impulse measure, as defined above, differs from the measure of "discretionary changes" in budget items employed by the Organization for Economic Cooperation and Development in its OECD Economic Outlook reports. The latter measure is calculated by deducting from the change in the fiscal balance the estimated effect on the budget of the operation of automatic stabilizers. The deduction is based on structural estimates of the automatic responsiveness of revenue and expenditure to cyclical fluctuations in real output, rather than on equiproportionate revenue and expenditure rules.

The fiscal impulse measure also has not taken account of the potentially different aggregate demand effects associated with increases in noninterest expenditure or decreases in revenue as opposed to increases in expenditure due to the effects of inflation on interest payments. In a situation of increasing inflation, nominal interest rates may rise sharply, leading to a significant increase in interest payments and a deterioration in the fiscal position. It has been argued that the implicit amortization component of these interest payments (reflecting the erosion of outstanding debt, in real terms, through inflation) has a much weaker impact on aggregate demand than other types of expenditure or revenue measures. The appropriate adjustment of the fiscal balance for the effects of inflation is itself a matter of controversy, but the effects of such adjustments on the measure of fiscal impulse are likely to be important only in periods when the inflation rate accelerates or decelerates rather sharply. If movements in the expected inflation rate could be assumed to closely parallel movements in the actual inflation rate, then adjustment of the fiscal impulse measure for the effects of inflation would impute a more expansionary (contractionary) character to fiscal policy in a period of declining (increasing) inflation that would be implied by the unadjusted fiscal impulse measure.

The data on central government fiscal balances shown in Appendix Table 16 generally conform to the standards used in the Fund's Government Finance Statistics Yearbook, which call for the recording of government transactions on a cash basis and the classification of net government lending (loan disbursements less repayments) with expenditures rather than with financing. For the United Kingdom and Canada, however, and for Japan (in large part), the data are on a national income accounts basis; for Germany and France, the data are on an administrative basis and do not incorporate social security transactions in the latter case; and for Italy, the data cover the transactions of the state budget as well as

those of several government-owned enterprises but, instead of including the gross revenue and expenditure transactions of social security institutions, include only net transfers from the central government to these institutions. The data on general governments, in Appendix Table 17, cover the consolidated balances of central, regional, and local government units engaged in performing governmental functions but exclude government-owned industrial and commercial enterprises. These data are on a national income accounts basis, and thus exclude net government lending from expenditure. The data in Appendix Tables 16 and 17 are derived from national sources and staff estimates. The base year for the calculation of the fiscal impulse is 1978. In general, definitions and statistical sources used are the same as in the April 1985 World Economic Outlook exercise except for the Federal Republic of Germany and the United Kingdom. The central government data on Germany have been shifted from a cash to an "administrative" basis in order to remain in agreement with government practice, which first introduced the shift. In addition, the data on growth of potential output in Germany have been revised to take account of new estimates reported by the Bundesbank. The figures related to the Central Government of the United Kingdom have been changed from a cash to a national accounts basis; this shift has been introduced to facilitate the interpretation and forecasting of central government finances in view of recently observed wide and erratic fluctuations in central government net lending to other entities within the public sector. In addition, several other fiscal data series for both central and general government and some of the GNP series have been revised since the publication of the April 1985 World Economic Outlook.

Supplementary Note 2

Monetary Developments in Major Industrial Countries

1. Introduction

During the past decade, a number of major industrial countries specified target ranges for the growth of key monetary aggregates as part of a medium term policy framework that gave special emphasis to controlling inflation. These monetary targets have played an important role in establishing the credibility of the authorities' commitment to anti-inflation policy and have thereby increased the policy's effectiveness. Partly as a result of these policies, the average rate of inflation (as measured by the GNP deflators) in the major industrial countries has declined from over 9 percent in 1980 to 3.5 percent in 1985. This represents the lowest average rate of inflation in these industrial countries since 1967.

While the period since 1980 has witnessed a decline in inflation in all major countries, the implementation of policies involving monetary aggregates targeting has faced a number of difficulties. The substantial changes in exchange rates, nominal and real interest rates, and financial market structures that occurred in the early 1980s made it difficult for the authorities in some countries to control and to interpret movements in monetary aggregates. These developments also complicated the operational problems associated with the conduct of monetary policy by introducing increased variability into the relationships between the growth rates of monetary aggregates and the expansion of nominal income. The extent and nature of this variability has differed across countries. The velocities of some key monetary aggregates have oscillated over a wider range than previously experienced while showing no clear trend (e.g., the income velocity of M2 in the United States), whereas the velocities of certain other key aggregates have shifted trend in a reversal of previous behavior (e.g., the income velocity of M3 in the United Kingdom).

In some cases, central banks have specified their targets without being able to predict the sharp movements in velocity that would occur during the target year, especially when market innovations or changes in regulations led to the creation of new types of financial instruments. <sup>1/</sup> Changes in financial market regulations generally tended to increase the velocity of narrow monetary aggregates, which usually include a relatively

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<sup>1/</sup> The behavior of velocity and its implications for policy are explored in the background staff study "The Velocity of Money and the Practice of Monetary Targeting: Empirical Experience and Theoretical Foundations," (SM/86/ ).

high proportion of assets with controlled interest rates; <sup>1/</sup> whereas the velocity of more broadly defined aggregates did not change as substantially. To a considerable extent, the pressures that gave rise to financial deregulation resulted from the rapid growth of new forms of financial instruments with market-related yields, which in turn reflected the strong incentives for the public to reduce its holdings of instruments with fixed or controlled yields in a period of high market interest rates.

The uncertainties surrounding the nature and stability of the linkages between the monetary authorities' policy instruments, their intermediate monetary targets, and their overall macroeconomic objectives have affected both the priority given to achieving monetary targets and the range of economic and financial variables used by the authorities in evaluating monetary conditions. As a result of these uncertainties, the growth rates of monetary aggregates have in a number of cases been allowed to move outside their target ranges. In some cases, target ranges have been modified prior to the end of the original target period and, in certain countries, the new bases that have been set for the monetary targets have incorporated the overshooting of the target ranges in the previous period. Several countries have established target ranges for more than one aggregate simultaneously, and in some cases the targeting of particular monetary aggregates has been de-emphasized or abandoned.

Of course, the monetary authorities in the major industrial countries have for some time examined a broad range of indicators of economic activity and financial market developments in evaluating monetary conditions. Nevertheless, the general decline in inflation and the instability of the linkages between money and income in some countries have led some authorities to give relatively more weight than previously to movements in such variables as the exchange rate, interest rates, and nominal or real income. The behavior of monetary aggregates relative to their targets nonetheless remains an important consideration in the formulation of policy in most major countries. However, the renewed focus on short term movements in exchange rates, interest rates, output, and employment raises issues concerning the extent to which the authorities can pursue these objectives through monetary policy without jeopardizing the credibility of their long-term commitment to an anti-inflation policy.

In what follows, recent monetary policy in the major industrial countries is examined in Section 2. The first part of this section considers developments in these countries as a group while the second contains notes on individual countries' experience. Section 3 of the paper examines prospects for 1986.

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<sup>1/</sup> Where the narrow aggregates also include new financial instruments, however, velocity has tended to decline to the extent that these new instruments have been attractive substitutes for deposits not included in the narrow aggregates.

## 2. Recent Monetary Policy Developments

### a. General trends

While the average rate of growth of both narrow and broad money in the group of major industrial countries was lower in 1984 than in 1983, the average rate of monetary growth accelerated during 1985 (Tables 2-1 and 2-2). The slower monetary growth in 1984 reflected both reductions in the target growth rate ranges for key monetary aggregates and greater success in keeping actual rates of monetary growth within the target ranges (Chart 2-1). As a result, the rate of growth of narrow money declined from 8.6 percent in 1983 to 6.8 percent in 1984, while the growth rate of broad money fell from 10.1 percent to 7.8 percent. In 1985, by contrast, the rate of growth of broad money rose to 8.8 percent, while narrow money growth accelerated to 9.4 percent--the highest rate of expansion for this aggregate since the late 1970s. The acceleration of monetary growth reflected both overshooting of target growth rate ranges and modifications of the target ranges during the original target period. Even in those countries where the rates of monetary expansion fell within the target ranges, they were generally near the upper bounds of those ranges.

Despite this more rapid monetary expansion, the growth of nominal GNP <sup>1/</sup> slowed sharply from 9.0 percent in 1984 to 6.3 percent in 1985 as the income velocities of both narrow and broad money declined. While the slower expansion of nominal GNP was accompanied by a slight reduction in inflation (from 3.9 percent in 1984 to 3.5 percent in 1985), real output growth also declined from 4.9 percent in 1984 to 2.7 percent in 1985.

During 1985, there was a widespread decline in interest rates, whether measured on a nominal or a real basis, for both short-term and longer-term maturities (Chart 2-2). The average of short-term nominal interest rates fell from 9.7 percent in 1984 to 8.4 percent in 1985; long-term nominal rates declined from 11.1 percent to 9.9 percent. With inflation being stable, or declining only slightly, real interest rates are estimated to have fallen in both short- and long-term markets. However, the declines in interest rates were not uniform across the major industrial countries. In the United States, downward pressures on interest rates were particularly pronounced in the eighteen months to end-1985. Although interest rates also fell in most other countries, the extent of these declines often differed from that in the United States. As a result, there were sizable changes in the pattern of interest rate differentials. In addition, with the exception of the Federal Republic of Germany and Japan, the long-term interest rate differentials in the past two years have been considerably smaller than the short-term yield differentials. In part, this could reflect the fact that short-term rates have been more strongly affected by the operations of the monetary authorities.

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<sup>1/</sup> The weighted average of nominal GNP growth rates of the seven major industrial countries.

Table 2-1. Major Industrial Countries: Selected Composite Data on Monetary Developments and Related Aggregates, 1978-85 1/

(Annual percentage changes, except as noted)

	1978	1979	1980	1981	1982	1983	1984	1985
Real GNP	4.6	3.3	1.1	1.6	-0.6	2.7	4.9	2.7
GNP deflator	7.3	8.2	9.3	8.7	6.9	4.6	3.9	3.5
Nominal value of GNP	12.2	11.7	10.5	10.3	6.2	7.4	9.0	6.3
Nominal monetary aggregates								
Narrow money (M1) <u>2/</u>	11.3	7.9	5.5	6.6	8.7	8.6	6.8	9.4
Broad money (M2 or M3) <u>2/</u>	11.1	10.0	9.5	9.6	9.3	10.1	7.8	8.8
Real monetary aggregates <u>3/</u>								
Narrow money (M1) <u>2/</u>	3.5	-0.6	-3.8	-1.4	3.1	4.1	3.0	5.7
Broad money (M2 or M3) <u>2/</u>	3.3	1.4	-0.2	1.4	3.7	5.6	4.0	5.1
Income velocity of money <u>4/</u>								
GNP/M1	1.1	1.6	4.4	3.5	-1.3	-2.5	2.0	-2.8
GNP/M2 or M3	1.0	1.0	1.0	0.4	-3.3	-2.6	1.2	-2.3
Nominal interest rates <u>5/</u> (percent per annum)								
Short term	7.3	9.8	12.6	14.1	11.8	9.2	9.7	8.4
Long term	8.4	9.3	11.2	13.1	12.4	10.9	11.1	9.9
Real interest rates <u>6/</u> (percent per annum)								
Short term	-0.2	-0.1	3.3	6.4	7.0	5.3	6.1	5.2
Long term	0.8	-0.5	1.9	5.4	7.6	7.0	7.5	6.7

1/ All of the data shown are weighted averages for the seven major industrial countries (with weights for each year's calculation proportionate to U.S. dollar values of the respective GNPs in the preceding three years).

2/ The figures shown represent changes during each year--that is, from year-end to year-end.

3/ Roughly approximated through deflation based on changes in GNP deflators for fourth quarters of successive years.

4/ Based on average stock of money during the year.

5/ Average of annual rates.

6/ Average of quarterly data calculated by adjusting the nominal rates by the effect of expected changes in prices. The expected change in prices is calculated from a weighted average of the rate of inflation in the current quarter and the next two quarters, with the deflator of private final domestic demand being used as the price variable.

CHART 2-1  
 SIX MAJOR INDUSTRIAL COUNTRIES:  
 TARGET RANGES AND GROWTH OF TARGETED AGGREGATES  
 AS REPORTED AT END OF POLICY PERIOD, 1981-86

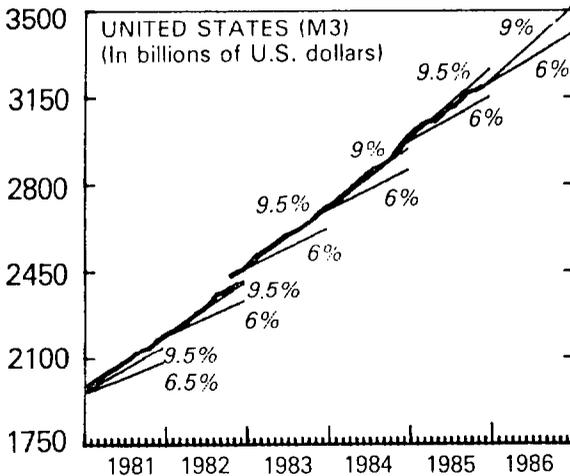
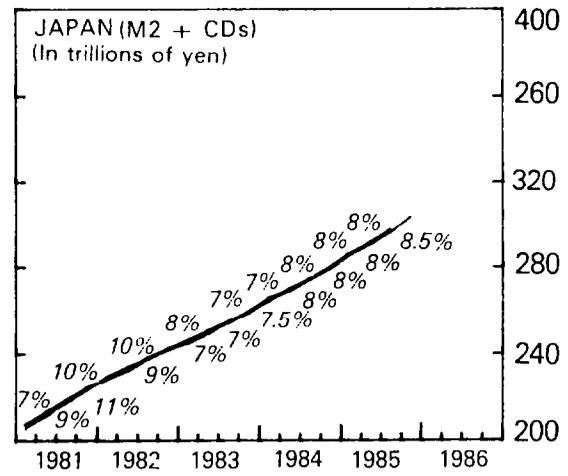
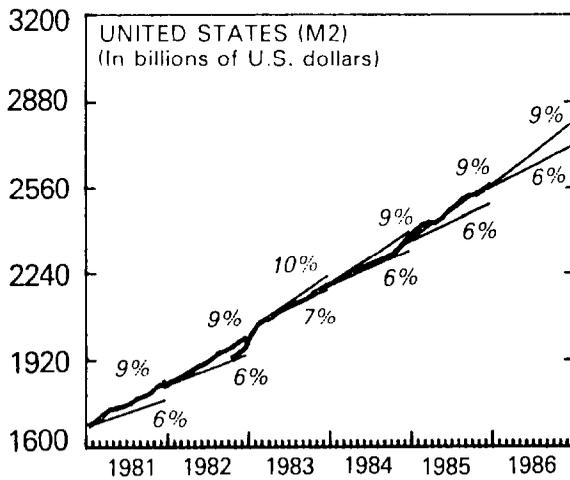
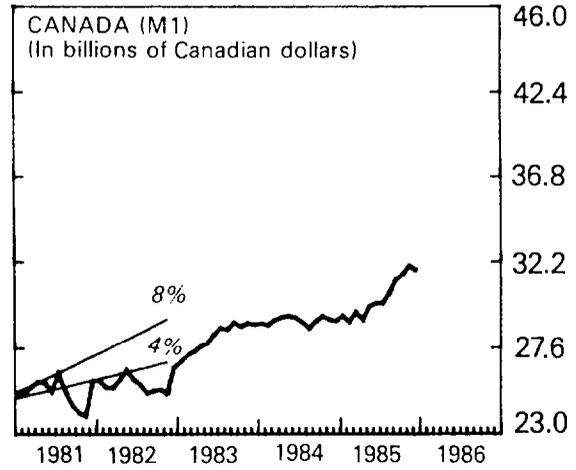
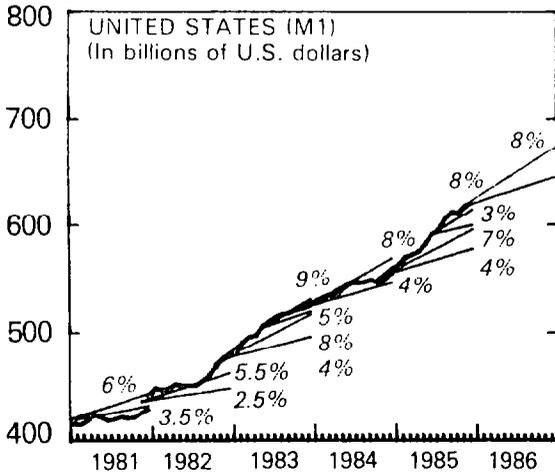




CHART 2-1 (Concluded)  
 SIX MAJOR INDUSTRIAL COUNTRIES  
 TARGET RANGES AND GROWTH OF TARGETED AGGREGATES  
 AS REPORTED AT END OF POLICY PERIOD, 1981-86

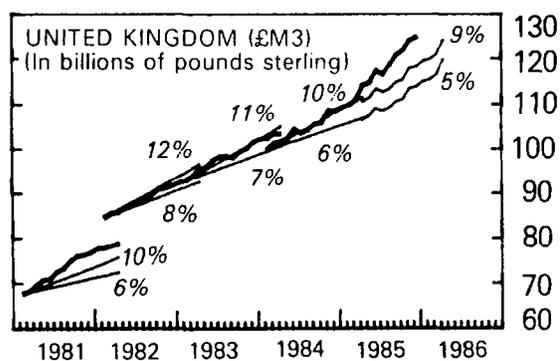
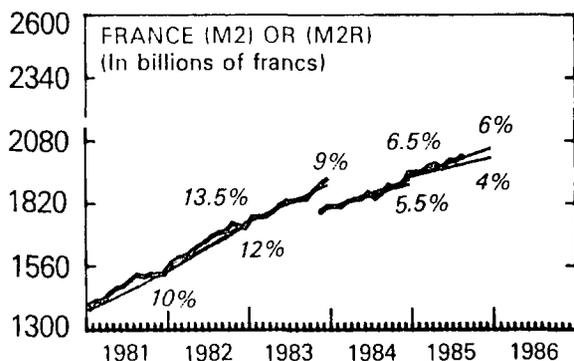
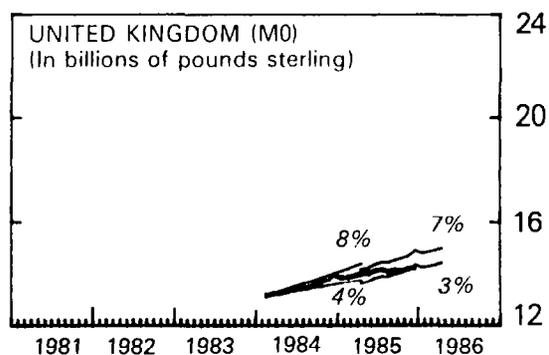
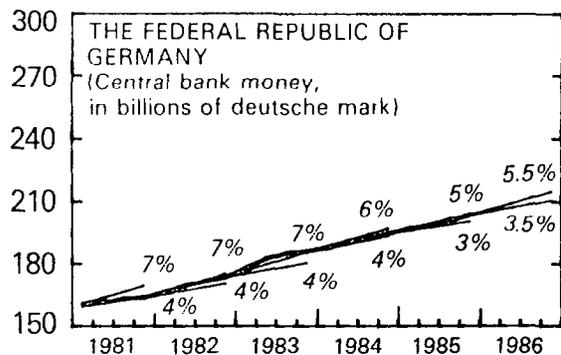
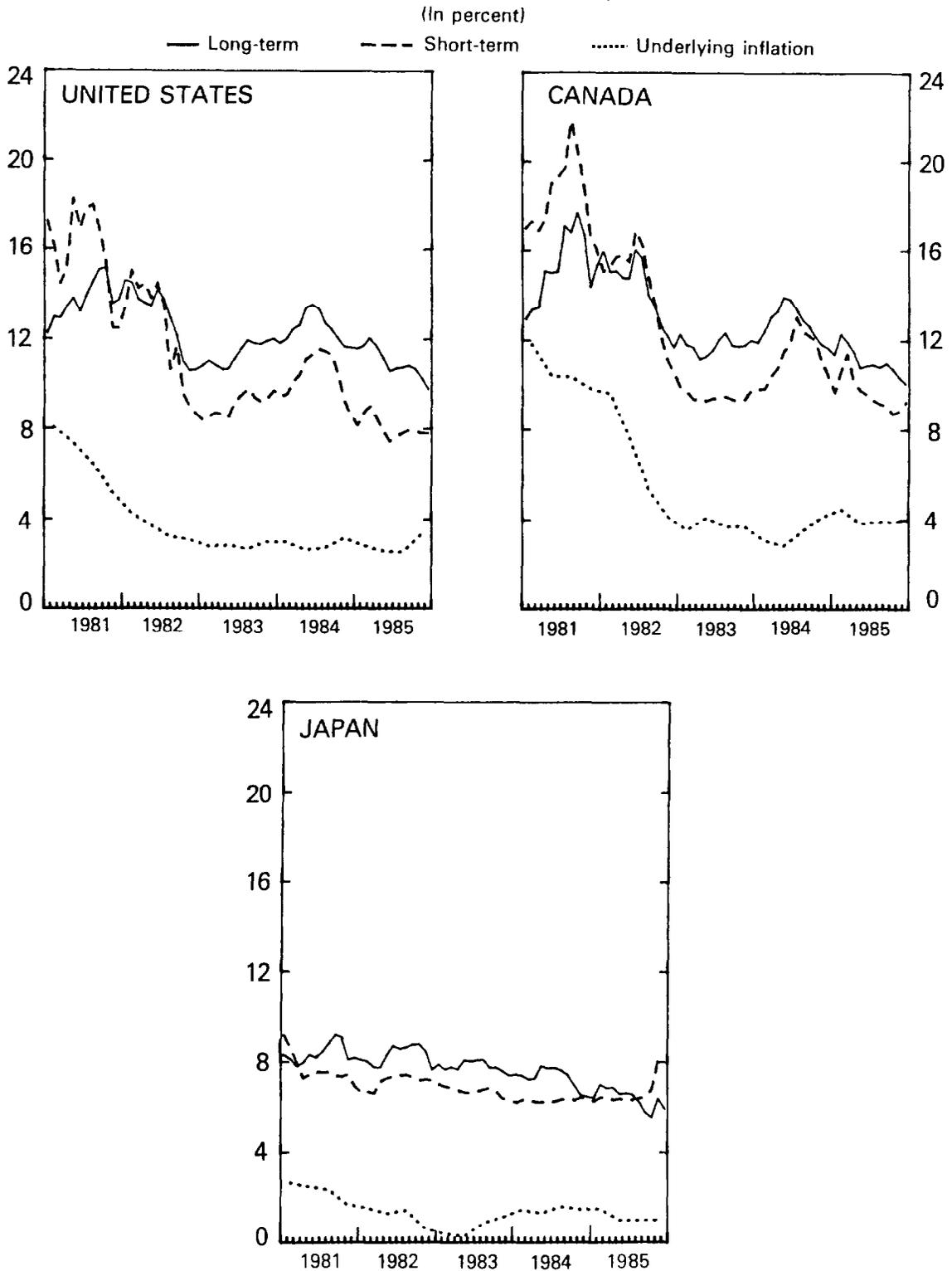




CHART 2-2  
MAJOR INDUSTRIAL COUNTRIES  
SHORT- AND LONG-TERM INTEREST RATES AND  
UNDERLYING INFLATION, 1981-85<sup>1</sup>

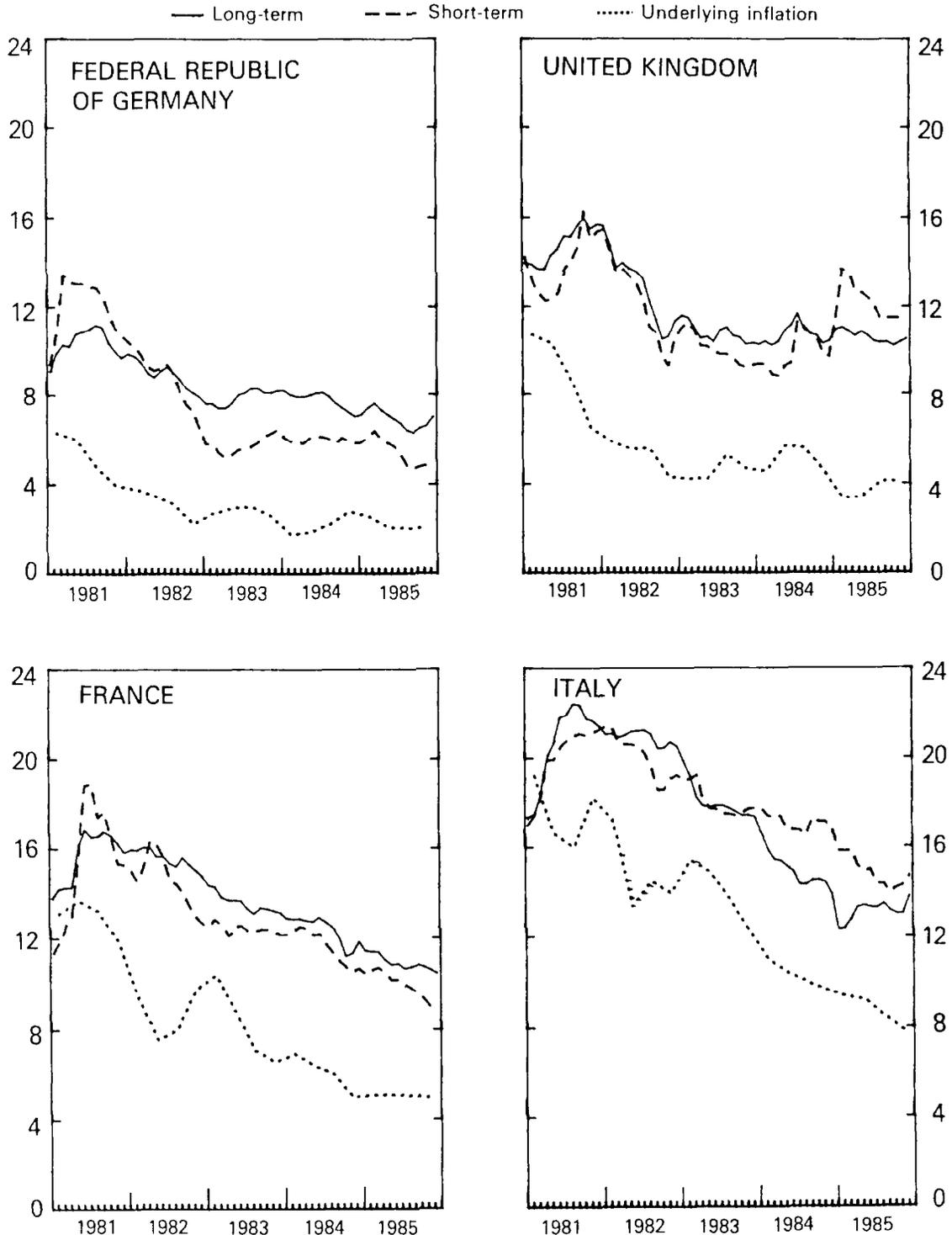


<sup>1</sup>Underlying inflation is measured by a weighted average of the rate of inflation in the current quarter and the next two quarters, with the deflator of private final demand being used as the price variable.



CHART 2-2 (Concluded)  
MAJOR INDUSTRIAL COUNTRIES  
SHORT- AND LONG-TERM INTEREST RATES AND  
UNDERLYING INFLATION, 1981-85<sup>1</sup>

(In percent)



<sup>1</sup>Underlying inflation is measured by a weighted average of the rate of inflation in the current quarter and the next two quarters, with the deflator of private final demand being used as the price variable.



Table 2-2. Major Industrial Countries: Changes in Stocks of Money (M1) and Broad Money, 1978-85

(Percentage changes from year-end to year-end)

	1978	1979	1980	1981	1982	1983	1984	1985
<u>Money</u>								
Canada	8.1	3.5	10.4	1.1	3.3	8.6	0.3	9.5
United States	8.2	7.5	7.5	5.1	8.7	10.4	5.2	11.6
Japan	13.4	3.0	-2.0	10.0	5.7	-0.1	6.9	3.0
France	11.1	12.0	6.8	14.5	10.5	11.7	9.5	6.0
Germany, Fed. Rep. of	14.2	3.7	4.2	-0.8	6.6	8.1	5.9	5.3
Italy	25.8	24.4	13.5	10.2	16.7	12.9	12.4	11.5
United Kingdom	14.6	15.2	4.2	10.3	12.3	11.4	15.6	17.5
Average, above countries <u>1/</u>	11.3	7.9	5.5	6.6	8.7	8.6	6.8	9.4
Average, four major European countries <u>1/</u>	15.2	11.4	6.4	7.5	10.6	10.7	10.3	9.4
<u>Broad Money <u>2/</u></u>								
Canada	12.5	18.1	18.1	11.7	8.1	3.5	7.2	10.8
United States	8.0	8.1	9.0	9.3	9.1	12.2	7.7	8.7
Japan	13.1	9.1	7.2	11.0	7.9	7.3	7.8	8.9
France	12.2	14.0	8.4	10.4	10.8	11.2	8.3	6.0
Germany, Fed. Rep. of	11.1	5.8	6.2	5.1	7.2	5.6	4.7	5.1
Italy	22.6	20.8	12.7	10.0	18.0	12.3	12.1	10.9
United Kingdom	17.5	13.4	18.5	13.9	9.1	11.2	9.7	14.5
Average, above countries <u>1/</u>	11.1	10.0	9.5	9.6	9.3	10.1	7.8	8.8
Average, four major European countries <u>1/</u>	14.5	11.9	10.2	9.2	10.3	9.5	8.1	8.5

1/ These composites are averages of individual country rates, weighted for each year in proportion to the U.S. dollar values of the respective GNPs in the preceding three years.

2/ Money plus quasi-money--generally "M2" except for the United Kingdom, for which figures are based on sterling M3, the Federal Republic of Germany (M3), and Japan (M2+CDs).

While nominal interest rate differentials have shown a somewhat diverse pattern, real interest rate differentials have shown greater convergence, especially in the period since mid-1984. For each of the major industrial countries except Canada, the real long-term interest rate differential with the United States has declined from the 4 to 5 percent range to less than 2.5 percent.

On average, the income velocities of both narrow and broad money declined in 1985, in contrast to the previous year (Table 2-1 and Chart 2-3). These swings in velocity continued a pattern of variability that has been apparent since the late 1970s. Over this period, the behavior of inflation rates and nominal and real interest rates have combined to produce substantial movements in the velocity of the key monetary aggregates. The reduction in the level and variability of inflation and the emergence and persistence of high real interest rates have tended to increase the general attractiveness of financial assets relative to that of real assets. During 1982 and 1983, the average velocity of both narrow and broad money declined sharply as inflation slowed and nominal interest rates fell from the peak levels seen in 1981. After mid-1983, however, the decline in inflation slowed and nominal interest rates stabilized or edged up; reflecting this, in 1984, the velocities of broad and narrow money both changed at rates roughly comparable to the trend rates of increase evident in the period prior to the high inflation era of the late 1970s. In 1985, stable inflation and a renewed decline in interest rates were accompanied by declines in the velocities of both broad and narrow money.

Despite the pronounced variability of velocity for the major industrial countries as a group, certain industrial countries have had relatively stable velocities for their key monetary aggregates. Since the mid-1970s, in particular, the income velocities of central bank money in the Federal Republic of Germany and M2+CDs in Japan have shown relatively modest variability around a downward trend (Chart 2-3). In contrast, the velocities for the key monetary aggregates in other major industrial countries have at times shown reversals of trend (e.g., M3 in the United Kingdom) or increased variability around an unchanged trend (e.g., M2 in the United States). While the lower variability of velocity in Germany and Japan has reflected the more stable evolution of inflation and interest rates in those countries, it may also be due in part to the fact that financial markets in the Federal Republic of Germany and Japan have until recently not experienced as extensive a series of institutional changes as financial markets in some other countries.

b. Country notes

United States--The monetary growth ranges set at the beginning of 1985 were kept substantially the same as in 1984, and were judged to be consistent with "further sustainable economic growth and progress toward reason-

CHART 2-3  
MAJOR INDUSTRIAL COUNTRIES  
BROAD AND NARROW MONEY VELOCITY, 1970-85

(Quarterly GNP at annual rates/average stock of money during quarter)

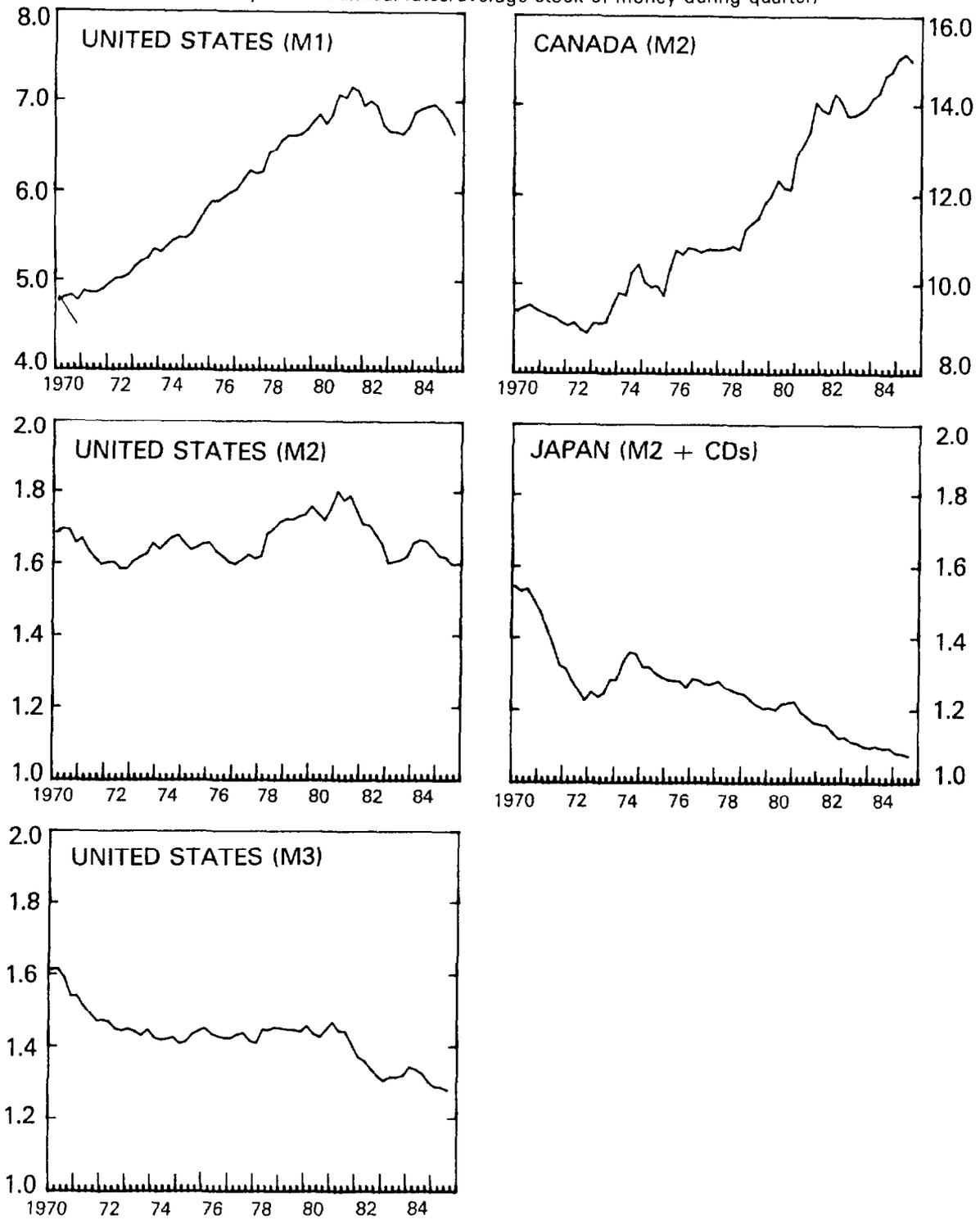
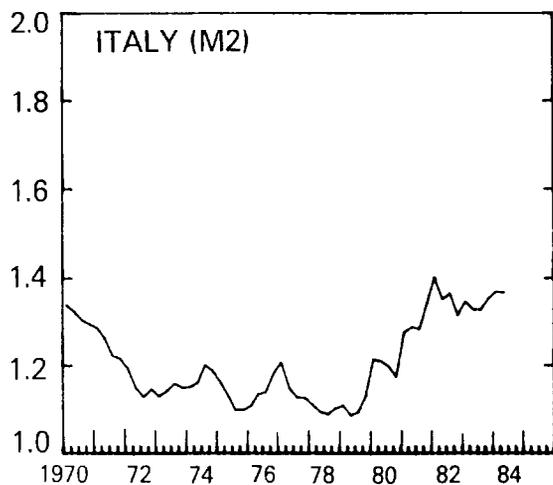
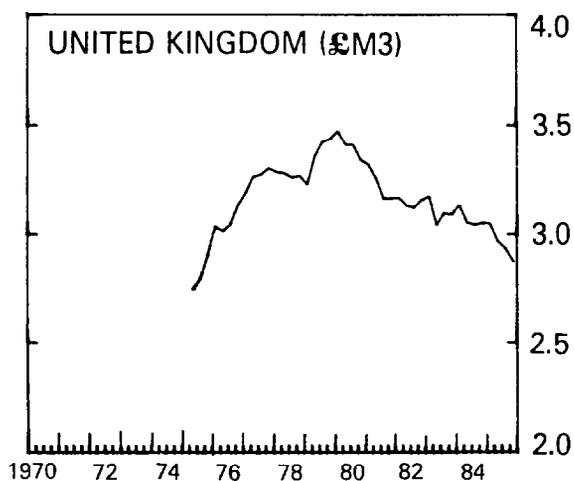
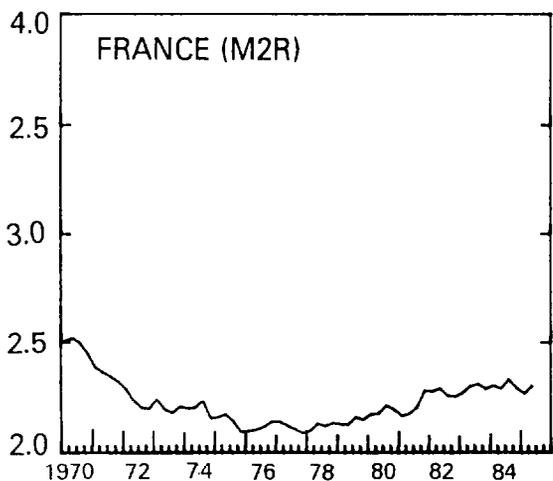
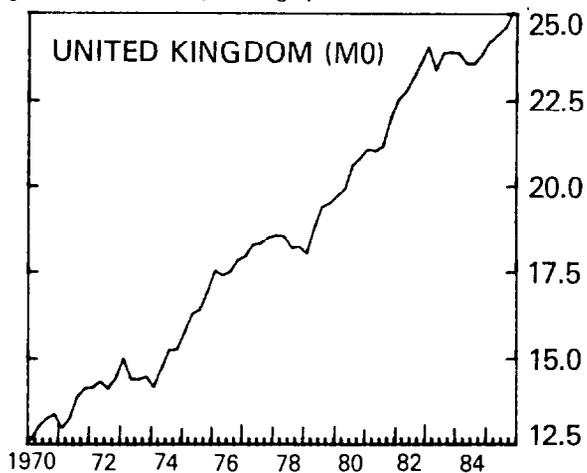
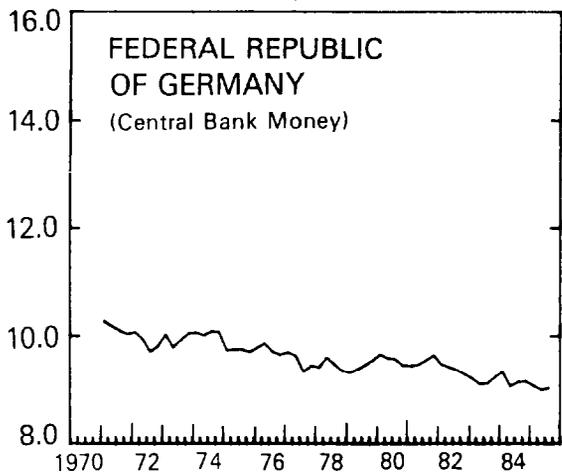




CHART 2-3 (Concluded)

### MAJOR INDUSTRIAL COUNTRIES BROAD AND NARROW MONEY VELOCITY, 1970-85

(Quarterly GNP at annual rates/average stock of money during quarter)





able price stability over time." 1/ At the time it was formulating its 1985 objectives, the Federal Open Market Committee (FOMC) projected that both real GNP and the GNP deflator would increase by 3 1/2 to 4 percent during 1985, and it was also assumed that the monetary aggregates would not be appreciably influenced by any new statutory or regulatory developments. In setting a target range of 4 to 7 percent growth for M1, account was taken of the behavior of M1 velocity during 1984, together with other evidence, which suggested that "the factors responsible for the highly unusual velocity behavior over 1982 and early 1983 have receded." 2/ Moreover, in setting growth targets of 6 to 9 percent for M2 and 6 to 9.5 percent for M3, it was recognized that a large continuing net capital inflow from abroad might tend to slow the growth of certain components of M2 and M3, thereby restraining the growth of these aggregates in relation to bank credit and credit generally. 3/

As shown in Chart 2-1, at the time that the Federal Reserve submitted its Monetary Policy Report to the Congress in February 1985, all three monetary aggregates were above the upper bands of their target ranges, as traditionally indicated by growth cones projected from the base-period levels that prevailed in the fourth quarter of 1984. "As a matter of economics and policy, rather than graphics," however, the FOMC was "not disturbed" by that development; Chairman Volcker indicated to Congress that the aggregates remained within "parallel lines drawn back from the outer bounds of the specified fourth quarter (1985) target ranges to the base period," and that the FOMC contemplated that "as the year progresses, growth will slow consistent with the target ranges." 4/ At mid-year, however, only M2 and M3 had been brought back within their cones. By that time, interest rates had drifted lower as industrial output remained little stronger than a year earlier, and the FOMC had lowered by roughly 1 percentage point its projections for both real and nominal GNP growth during 1985. In reexamining its targets in July, the FOMC expected that the sharp decline in M1 velocity during the first half of the year would be neither extended nor substantially reversed in the second half; however, the high degree of uncertainty surrounding the behavior of M1 velocity was explicitly recognized. Reflecting these various considerations, the base for the target range for M1 was shifted forward to the second quarter of 1985, and the range itself was widened to 3-8 percent for the second half of the year.

Over the next several months, however, M1 continued to grow rapidly. At the October FOMC meeting, it was suggested that "the recent strength in M1 could not be explained fully by such factors as institutional

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1/ Federal Reserve Bulletin, April 1985, p. 189.

2/ Ibid., pp. 189-90.

3/ Ibid., p. 190.

4/ Ibid., p. 216.

changes and financial innovations" but should be judged "in the context of the performance of the economy and the relatively moderate growth in the broader aggregates." <sup>1/</sup> Accordingly, it was decided not to react aggressively to M1 growth above the upper bound of the rebased target range.

For 1985 as a whole, M1 expanded by 11.6 percent (fourth quarter 1984 to fourth quarter 1985), while the growth rates of M2 and M3 were held within their target ranges at 8.6 and 7.9 percent, respectively. The targets for 1986, as adopted in February, have retained the 6-9 percent range for M2 growth while narrowing the M3 range slightly, also to 6-9 percent. The range for M1 was set at 3-8 percent, the same as the revised range that the FOMC adopted last July for the second half of 1985.

Federal Republic of Germany--In 1985, monetary developments in the Federal Republic of Germany were consistent with the plans established by the authorities at the end of 1984. For the period from the fourth quarter of 1984 to the fourth quarter of 1985, the Central Bank Council had indicated a target range of 3-5 percent for the growth of central bank money (CBM). This range was based on projections that both potential output and prices would increase about 2 percent. No allowance for a change in the velocity of circulation was included. During the target period, CBM expanded at a seasonally adjusted annual rate of 4.5 percent, toward the top end of the target corridor (Chart 2-1) and much the same as the 4.6 percent rate experienced in 1984.

Both short and long-term interest rates declined steadily from March until August-September 1985 (Chart 2-2). These declines reflected a number of factors, including the continued slowing of domestic inflation and strong foreign demand for deutsche mark-denominated financial assets. Although German interest rates declined by somewhat less than comparable U.S. dollar interest rates during this period, this reduction in market interest rates had created a situation by mid-August in which the Bundesbank was able to lower both its discount and Lombard interest rates by one half of a percentage point to 4 and 5.5 percent, respectively. In the fourth quarter of 1985, however, some limited increases in German interest rates occurred, perhaps reflecting a reduced demand for deutsche mark paper following the exchange rate changes in the wake of the September 22 G-5 meeting.

In December 1985, the Deutsche Bundesbank set a new target range of 3.5-5.5 percent for CBM growth for the period from the fourth quarter of 1985 to the fourth quarter of 1986. This target range is based on an estimated potential real output growth of 2.5 percent in 1986 and a projection of around 2 percent for underlying price inflation. The target range does not make any allowance for changes in the income velocity of CBM.

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<sup>1/</sup> Federal Reserve Bulletin, January 1986, p. 23.

During 1985, the monetary authorities also took measures to increase the competitiveness of the German financial markets. In May, for example, the range of assets available on German markets was expanded with the admission of various new financial instruments (such as floating rate notes, zero-coupon bonds, dual-currency bonds, and bonds linked to currency and interest rate swaps) which had previously been excluded. Moreover, in December, the Central Bank Council recommended a reduction and restructuring of reserve ratios, having had the effect of reducing the reserves credit institutions are required to hold by about DM 8 billion. As part of these changes, liabilities in foreign currencies to non-residents will largely be freed from the minimum reserve requirement, but certain newly issued bank bonds with an original maturity of less than two years will be subjected to minimum reserve requirements. In addition, the Bundesbank indicated that it would not object if credit institutions domiciled in the Federal Republic of Germany issued deutsche mark denominated paper having the character of certificates of deposit.

Japan--In recent years, monetary policy in Japan has attempted to influence interest rates and the growth of money and credit through intervention in the money markets and through variations in the discount rate. While credit ceilings are still a potential instrument of monetary control, they have not been used for several years. The change in the implementation of monetary policy reflects the evolution of the Japanese financial market that has occurred in response to a gradual process of financial deregulation. In the past two years, this has included the liberalization of the foreign exchange market (e.g., by increasing the scope of transactions that could be undertaken by foreign exchange banks and currency brokers), the introduction of new financial instruments (e.g., bankers' acceptances, bond futures, and money market certificates), expansion of the Euroyen bond market, and allowing foreign financial institutions improved access to Japanese markets. As a result, market forces have played an increasingly important role in the determination of domestic interest rates, and the linkages between Japanese and international financial markets have been strengthened.

The authorities have regarded movements in the broad money stock (M2+CDs) and interest rates as the primary indicators of monetary conditions. The demand for M2+CDs is regarded as more stable than that for narrower aggregates, while data for even broader aggregates are available only with longer reporting lags. <sup>1/</sup> Although there is no formal targeting of monetary aggregates, the Bank of Japan announces in the first month of each quarter a projection, with a loosely specified range, for the year-on-year growth of M2+CDs measured from the same quarter of the previous

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<sup>1/</sup> In 1985, the income velocity of M2+CDs declined by 2.2 percent (Chart 2-3), which was relatively close to the historical downward trend of 2.6 percent (Table 2-3).

year. The Bank of Japan's projection for the last quarter of 1985 implied a range of from 8.0 to 9.0 percent. In general, actual growth rates have been in line with official forecasts (Chart 2-1).

M2+CDs expanded by nearly 9 percent during 1985 in contrast to an average of approximately 7 1/2 percent during the previous three years (Table 2-2). During much of last year, however, the primary focus of monetary policy was on exchange rate objectives. The sharpest change in monetary conditions during the year occurred following the September 22 G-5 meeting, at which the five largest countries expressed themselves in favor of an orderly appreciation of non-dollar currencies (including the Japanese yen). The Bank of Japan decided not to sterilize the shortage of funds in the interbank market that resulted from its intervention in foreign exchange markets, and also decided not to accommodate the seasonal increase in the demands for funds in the domestic money market. As a result, short-term interest rates increased by 1 to 1 1/2 percent by the end of October, effectively eliminating the short-term differential between nominal interest rates on Japanese and U.S. assets. This rise in short-term interest rates, however, was more than reversed by early 1986 as the yen strengthened further and the Bank of Japan reduced the discount rate by 1/2 percentage point in order to support domestic demand.

United Kingdom--Since fiscal year 1980/81, monetary policy in the United Kingdom has been formulated in the context of a medium-term financial strategy (MTFS) designed to achieve lower rates of inflation through a progressive lowering in the growth rates of the targeted monetary aggregates. The specific set of targeted aggregates has varied with changes in their perceived usefulness as indicators of monetary conditions during a period of extensive financial liberalization. In addition, various supplementary indicators, including the exchange rate, have been taken into account in interpreting financial conditions and in determining interest rate policy. The budget for fiscal year 1985/86 reaffirmed the Government's commitment to the MTFS and to maintaining monetary conditions consistent with declining growth of nominal GDP and inflation, with short-term interest rates to be set at levels needed to achieve this objective.

For fiscal year 1984/85, the authorities had adopted  $\pounds$ M3 as the sole broad money target, while the wide monetary base M0 became the target for narrow money. <sup>1/</sup> In accordance with the MTFS, the target ranges for 1984/85 were set at 4-8 percent annual growth for M0 and 6-10 percent for  $\pounds$ M3, and it was projected that by 1988/89 these target ranges would

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<sup>1/</sup> M0 consists of currency in circulation with the public plus banks' till money and their operational balances with the Bank of England.  $\pounds$ M3 consists of currency in circulation plus private sector sterling bank deposits.

decline to 0-4 percent annual growth for M0 and to 2-6 percent annual growth for M3. In the 14 months to April 1985, <sup>1/</sup> M0 grew within its target range at an annual rate of 5.7 percent, while M3 grew outside its target range at an annual rate of 11.9 percent (Chart 2-1). Subsequently, the rates of the two aggregates began to diverge more strikingly: M0 grew at an annual rate of 2 1/4 percent in the 12 months to December 1985 (compared with a target range of 3-7 percent), while M3 grew by 14 1/4 percent (compared with a target range of 5-9 percent).

The authorities attributed the strong growth of M3 to a permanent shift in the demand for broad money, reflecting developments in financial markets arising from decontrol of the banking system and the restoration of positive real interest rates during the early 1980s. The associated downturn in velocity had not been sufficiently factored into the 1985/86 target range for M3, and with financial liberalization having diminished the usefulness of the broad aggregates as indicators of financial conditions, the authorities downgraded the role of M3 and upgraded that of the exchange rate. This development was foreshadowed in January 1985 by the abandonment of the "decoupling policy," which had focused interest rate policy almost exclusively on domestic indicators and objectives. At that time, the authorities allowed short-term interest rates to rise by 4 1/2 percentage points to 14 percent in order to halt the depreciation of the pound relative to the U.S. dollar. Subsequently, as the pound strengthened, interest rates were allowed to decline by 2 1/2 percentage points, despite the overshooting of the M3 target.

In January 1986, amid falling oil prices, renewed downward pressure on the pound prompted the authorities to let base interest rates rise by 1 percentage point. Despite further easing of the exchange rate and upward pressure on interest rates, a further increase was resisted. While the authorities are paying close attention to the exchange rate as an indicator of monetary conditions, they do not have an exchange rate target. Indeed, they appear willing to countenance declines in the effective value of sterling associated with falling oil prices to the extent that the effects of the two factors on the inflation rate are broadly offsetting.

France--In 1985, inflation and interest rates in France continued the declines that began several years earlier. As measured by the consumer price index, inflation has fallen continuously from over 13 percent in 1981 to 4.8 percent in the twelve month period to November 1985. Since 1981, short term nominal interest rates have been reduced from over 15 percent to less than 10 percent, and long term interest rates have

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<sup>1/</sup> Since April 1985, the performance of the targeted aggregates has been evaluated by the authorities in terms of rolling 12-month growth rates rather than annualized rates of growth from the start of the target period.

fallen from nearly 16 percent to about 11 percent. Because inflation and nominal interest rates have moved together in the period since mid-1983, however, real interest rates have generally remained within the range of 4-6 percent.

In 1984, the French authorities began to formulate their monetary target in terms of M2R (M2 held by residents), rather than total M2. <sup>1/</sup> In that year, M2R grew by 7.6 percent, about one percentage point above the upper bound of the target range of 5.5 to 6.5 percent (Chart 2-1). For 1985, monetary policy was again formulated in terms of M2R and the target growth rate range was set at 4-6 percent. During the first half of 1985, the expansion of M2R generally exceeded the upper bound, and this led the authorities to take measures in June designed to restrict the extension of credit by banks and to restrain capital inflows through the balance of payments. These measures included a lowering of the limits on bank lending not subject to penalty rates, holding down new foreign borrowing, and encouraging the private sector to repay foreign debt in advance of maturity.

In order to reflect recent financial innovations and institutional changes in the banking system, such as the introduction of instruments similar to claims on money markets funds, the authorities have chosen M3 <sup>2/</sup> as the new target aggregate for 1986. The 1986 target range has been set at 3-5 percent, 1 percentage point lower than the 1985 target range for M2R, to indicate the continuing commitment of the authorities to reduce inflation. <sup>3/</sup> The authorities have also reiterated their intention to move away from the present system of credit controls toward a system based on the control of interest rates, in order to give market forces more influence on the allocation of credit.

Canada--From 1975 until late 1982, the Canadian monetary authorities set a specific target range for the growth of M1 as a policy guide in their attempts to achieve sustained economic expansion and long-term price stability. In November 1982, however, the Bank of Canada abandoned the practice of monetary targeting. It was felt that the relationship between the monetary aggregates (particularly M1), nominal income, and interest rates had become unstable as a result of financial innovations

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<sup>1/</sup> M2 held by residents consists of demand, time and savings deposits in banks held by resident nonfinancial agents plus currency in circulation. Total M2 equals M2R plus nonresidents' bank deposits.

<sup>2/</sup> The authorities are also planning to change their classification of the monetary aggregates from the present one which is based on institutional criteria to a new system based on the nature and the substitutability of the financial assets involved.

<sup>3/</sup> The base for the 1986 target rate is the average stock of M3 in the fourth quarter of 1985, whereas the base period for M2R was previously the three month average centered on December.

(such as the introduction of interest bearing checkable accounts and the widespread availability of cash management facilities for businesses). These innovations in the financial sector led to a shift of funds from accounts classified as part of M1 (currency and noninterest-bearing demand deposits) into deposits bearing market related interest rates. <sup>1/</sup> As a result of the inflows into these types of deposits, there was a sharp divergence between the rates of growth of M1 and M1A (which includes interest bearing checking accounts). While M1 increased at an annual average rate of 3.3 percent during the period 1981-84 (Table 2-2), the average rate of growth for M1A was 12.0 percent. Consequently, after mid-1981 the income velocity of M1 increased, while that of M1A declined. Since its decision to abandon monetary targeting, the Bank of Canada has implemented its monetary policy with reference to a variety of economic and financial indicators, including in particular the exchange rate between the Canadian dollar and the U.S. dollar.

During 1985, the sharp divergence between the growth rates of M1 and M1A continued, but the growth of both aggregates accelerated substantially relative to their earlier pace. M1 and M1A expanded by 9.5 percent and 38.4 percent, respectively, in 1985; they had grown by 0.3 and 21.7 percent, respectively, in 1984. The authorities attributed the acceleration of the growth of M1A to an ongoing substitution of interest bearing checking accounts for other types of deposits. In addition, the more rapid growth of M1 since mid-1985 has been associated in part with changes in the amount of bank float (i.e., changes in the amount of checks and other items that have been deposited or cashed but not yet debited from the accounts on which they were drawn).

Under current conditions, one aim of monetary policy has been to try to reduce interest rates so as to promote economic expansion, provided these interest rate movements do not conflict with the objectives of maintaining a reasonably stable exchange rate and low inflation. Thus, when confronted with the downward pressure on the Canadian dollar that resulted from an increase in U.S. interest rates in the first half of 1984, the Canadian authorities allowed domestic interest rates to increase. Similarly, in early 1985, Canadian interest rates, especially short-term rates, were allowed to rise as U.S. interest rates firmed and the U.S. dollar strengthened relative to the Canadian dollar. However, the subsequent decline in U.S. interest rates permitted reductions to take place in Canadian rates also. As a result, average interest rates (both nominal and real) in Canada were about two percentage points lower in 1985 than in 1984.

In September 1985, two bank failures occurred (the first in Canada in more than 60 years). One of the banks involved had received considerable support in the form of an infusion of funds from federal and provincial

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<sup>1/</sup> The interest rates on these deposits are administered rates that are adjusted from time to time to reflect changes in market rates.

governments and other Canadian banks. These failures led to liquidity problems in certain small Canadian banks as a result of large deposit withdrawals. However, the authorities felt that this episode did not threaten the financial position of the banking system as a whole and did not raise major problems for the implementation of monetary policy.

Italy--Although the Italian authorities do not announce targets for monetary aggregates in their management of monetary affairs, overall economic policy is based on plans that include projections for a broad range of monetary and credit aggregates, including total domestic credit and its components and the financial assets held by the private sector. Since the beginning of 1984, the authorities have sought to influence financial conditions through their policies regarding the monetary base and interest rates, rather than through direct controls over the availability of domestic credit. 1/

For 1985, the authorities' plans included a continued deceleration in rates of monetary and credit growth. This was viewed as consistent with both a further reduction in inflation and some expansion of real output. However, the planned deceleration was achieved only for credit to the private sector, which is estimated to have grown by 12.4 percent in 1985 (15.5 percent in 1984). Credit to the state sector expanded by an estimated 21.7 percent in 1985 (22.8 percent in 1984), which was more than 2.5 percentage points above the projected increase of 19.0 percent. M2 is estimated to have increased by about 10.9 percent (the central projection was 10 percent), as the sharp loss in foreign reserves registered in the fourth quarter led to a marked slowdown of the monetary aggregates. The monetary base adjusted for the automatic increase in reserve requirements is projected to have grown by 13.9 percent, 3.9 percentage points above the initial target.

The major source of liquidity growth was the public sector deficit. As in several recent years, it was originally planned to keep the fiscal deficit unchanged in nominal terms. However, the state sector borrowing requirement is estimated to have been approximately 14 percent higher in

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1/ In June 1984, however, the authorities supplemented those instruments with limits on additional net foreign borrowings by banks in an effort to limit what was regarded as excessive growth in credit to the private sector. These limits were abolished in December 1985 since they had proved difficult to enforce and were no longer needed, as commercial banks' borrowing abroad fell sharply in the fourth quarter. In January 1986 credit ceilings were reintroduced for a period of six months and short-term interest rates were increased, in an attempt to contain heavy official reserve losses linked to widespread expectations of a depreciation of the lira.

1985 than originally planned, and the deficit therefore rose to 16.1 percent of GNP instead of the originally projected 14.4 percent. Similar difficulties in controlling the size of the public sector deficit have been experienced during most of the 1980s.

Although the central bank no longer has a legal obligation to underwrite the public sector deficit, it was felt that financing the larger than anticipated deficit through the issuance of nonmonetary obligations would require increases in interest rates that were not warranted in the face of an already weak demand for credit by the private sector. In 1985, 19.4 percent of the public sector deficit was financed by credit extended by the Bank of Italy, against 14.4 percent during the same period in 1984. As a result, in 1985 central bank credit to the Treasury accounted for approximately 152 percent of the increase in the monetary base, against about 72 percent in 1984.

Both short- and long-term interest rates in Italy declined during 1985 (Chart 2-2). Short-term rates fell from slightly more than 17 percent in 1984 to about 15 percent in 1985, and long-term rates fell from 15 percent to around 13 percent during the same period. Given the concomitant reduction in inflation, however, real interest rates showed a much smaller decline, with a tendency to rise again towards the end of 1985.

The authorities' plans for 1986 envisage increases in credit to the private sector, in the stock of M2, and in nominal GNP by 9 percent. The deficit of the state sector is again projected to remain unchanged in nominal terms (thereby leading to a reduction in the size of the deficit relative to GNP to about 14.8 percent). These projections further imply that total domestic credit should increase by 14 percent.

### 3. Review of 1985 and outlook for 1986

Table 2-3 summarizes the sharp contrasts in the "velocity puzzles" that different central banks encountered in pursuing their 1985 monetary growth targets. In Germany, France, and Japan the changes in velocity during 1985 were similar to the 1984 experiences, and the 1985 monetary growth targets were either achieved or narrowly missed (Chart 2.1). By contrast, for each of the targeted aggregates in the United States, and for sterling M3 in the United Kingdom, the sharp decline in velocity contrasted strongly with both the 1984 experience and the average annual change over the period since 1970. To some extent, the velocity declines in the United States may have reflected the lower level of interest rates. In any case, however, the rapid growth of money demand relative to nominal GNP led the authorities during the course of the year to stop aiming at the M1 target in the United States and the sterling M3 target in the United Kingdom.

Columns (5) and (6) of Table 2-3 provide an alternative perspective of the contrasting velocity puzzles and macroeconomic conditions that different central banks encountered in 1985. These columns indicate the

Table 2-3. Recent and Implied Changes in Annual Velocity of Targeted Aggregates <sup>1/</sup>  
(Percent per annum)

	Average Annual Change (1)	Yearly Changes			Implied Velocity Change Assuming Monetary Growth Target: <sup>2/</sup>				Target Ranges 1986 (9)
		1983 (2)	1984 (3)	1985 (4)	Upper bound	Lower bound	Upper bound	Lower bound	
					1985		1986		
United States (1970-85)									
M1	2.3	-3.4	3.8	-2.7	1.3	3.1	-2.8	0.1	3-8
M2	-0.2	-4.5	2.8	-2.8	-1.3	0.5	-1.9	-0.2	6-9
M3	-1.4	-2.4	0.9	-3.2	-2.4	-0.4	-1.8	-0.1	6-9
United Kingdom (1970-85)									
M0	4.3	3.4	-0.4	3.7	2.2	3.8	--	--	--
M3	-0.3 <sup>3/</sup>	-1.5	-0.9	-3.7	-1.1	0.4	--	--	--
Germany, Federal Republic of (1971-85)									
CBM	-0.7	-2.4	0.1	0.3	0.1	1.3	0.1	1.3	3.5-5.5
Japan (1970-85)									
M2+CDs	-2.6	-3.3	-2.0	-2.2	-1.8	-1.8	[-4.1] <sup>4/</sup>	[-4.1] <sup>4/</sup>	8.5 <sup>4/</sup>
France (1970-85)									
M2R	-0.5	1.0	0.4	--	1.6	2.6	--	--	--

<sup>1/</sup> The definitions of monetary aggregates used in this table are those employed by the monetary authorities of the individual countries. Velocity changes are based on average money stock and average income during the year; such changes do not correspond to velocity changes during policy periods.

<sup>2/</sup> Percentage changes between implied velocity levels for the indicated year and actual velocity levels for the previous year. Implied velocity levels are based on the nominal GNP projections adopted in the World Economic Outlook and the average money stocks that would prevail during the year if money growth coincided with the upper or lower bounds of the target ranges. The actual changes in velocity may fall outside these bounds if the monetary aggregates do not grow in their target ranges or if the GNP projections are incorrect.

<sup>3/</sup> 1976-85.

<sup>4/</sup> There is no formal targeting of monetary aggregates by the Bank of Japan. This calculation assumes that projected rate of growth of M2+CDs for the fourth quarter of 1985 is maintained throughout 1986.

ranges for velocity that were implied a year ago by the monetary growth targets that had then been announced, in combination with the nominal GNP forecasts adopted in last April's World Economic Outlook. The sharp declines in velocity that occurred during 1985 in the United States and for sterling M3 in the United Kingdom were substantially outside the ranges implicitly expected a year ago. By contrast, the velocity changes for M0 in the United Kingdom and central bank money in Germany fell within the ranges of expectations held a year ago, while the velocity change for M2+CDs in Japan was close to last year's expectation.

Columns (7) and (8) of Table 2-3 project the velocity changes implied by combining the monetary target ranges that have been announced for 1986 with the staff's nominal GNP forecasts. It should be emphasized that the projections for GNP growth that are used in the construction of these columns are not those of the authorities, and that the year-over-year changes do not correspond to policy periods in any country. It is noteworthy, however, that the tentative 1986 target ranges for the United States (as indicated in the July 1985 Monetary Policy Report to the U.S. Congress) suggest that the velocities of all three targeted aggregates most likely will continue to decline, although at more gradual rates than during 1985. It may also be noted that for Japan, a continuation of growth of M2+CDs in the recent range of 8.5 percent would (under WEO output projections) imply an unusually sharp decline in velocity (which has had a remarkably stable downward trend since the mid 1970s).

The variability of velocity in recent years, particularly in the United States, the United Kingdom, and Canada, and the decisions to deemphasize or abandon certain monetary targets in those countries, has rekindled the debate over the appropriate conduct of monetary policy. The average inflation rate in the major industrial countries has now been reduced to little more than half of its level in the decade through 1976. With unemployment high and the global economy strained by a widespread need to grow out of severe debt burdens, it has been argued that the formulation of monetary policy in some countries should devote relatively higher priority to sustaining output and employment than could be done when inflation was the major short-run danger. Regardless of the extent of agreement on the desirability of promoting growth, however, there is disagreement both about the inherent ability of monetary policy to achieve this objective, and about the possible long-run inflationary consequences of attempting to do so.

The nature and sources of these disagreements are reviewed in a background staff study for the World Economic Outlook on "The Velocity of Money and the Practice of Monetary Targeting: Empirical Experience and Theoretical Foundations." This study distinguishes three schools of thought: those who advocate heavy reliance on central bank discretion, those who advocate a fairly firm adherence to the types of fixed targets that have been announced over the past decade for monetary growth (or

for some alternative objective such as nominal GNP growth), and those who advocate replacing fixed targets with a system of prespecified rules for countercyclical monetary policy. Much of the debate between these schools of thought centers on three related issues. One issue is the extent to which the behavior of the monetary authorities themselves may have contributed to the variability of velocity and the general policy difficulties that they have confronted. A second issue is the extent to which central bank policies can have systematic effects in the short run on the relative prices (or other variables) that influence the supply decisions of firms and factors of production at the microeconomic level, and thus the levels of output and employment at the macroeconomic level. And the third issue is the extent to which the suppression of inflation requires central banks to formulate and announce in advance a set of rules or principles for reacting consistently to cyclical developments over time, particularly in an environment in which the public bases its decisions on expectations about the future stance of monetary policy.

Supplementary Note 3

Non-Fuel Primary Commodity Price Developments and Prospects

This note reviews developments in prices of the major non-fuel primary commodities (hereafter generally referred to as "commodity prices") entering international trade. The first section describes recent price movements and examines the main determinants of those movements. The second section assesses the short- and medium-term outlook for commodity prices. The final section contains a brief discussion of the implications of changes in commodity prices for the terms of trade of the non-fuel exporting developing countries and the use of the Fund's special facilities.

Recent developments

The weakness in world commodity markets that has been in evidence in recent years continued and became more pronounced in 1985. Following a moderate improvement in 1983-84, the overall index of commodity prices, measured in current U.S. dollar terms, fell in 1985 to its lowest average level since 1976, 12 1/2 percent below the average in 1984 (Table 3.1). <sup>1/</sup> In real terms, i.e., when deflated by the export price index for manufactures, <sup>2/</sup> the overall index dropped by nearly 13 percent in 1985, thereby erasing most of the improvement that had occurred in the two preceding years. The downturn began in the third quarter of 1984 and proceeded through five consecutive quarters during which the dollar price index dropped by more than 20 percent. The final quarter of 1985, however, witnessed a slight recovery in the index because of the special circumstances affecting coffee prices (discussed below).

The recent decline in commodity prices was both steep and broad-based, encompassing all the major commodity groups included in the index (Table 3.1 and Chart 3.1). The most pronounced declines since mid-1984 were recorded for food items and agricultural raw materials (including forestry products). The index for beverages also declined sharply through the third quarter of 1985 before recovering markedly in the final quarter of the year when the prolonged drought in key coffee growing areas of Brazil began to strongly influence coffee prices. The average price of metals exhibited the smallest decline of the major commodity groups after mid-1984, but this decline occurred from an already relatively low level as metal prices had largely failed to share in the general upturn in commodity prices of the previous 18 months. In contrast to the other

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<sup>1/</sup> The commodity price indices referred to in this report are constructed using weights based on 1979-81 average export earnings. The indices referred to in the 1984 and earlier World Economic Outlook reports were constructed using weights based on 1968-70 average export earnings of primary producing countries. Commodity prices in this note refer to the world index in current U.S. dollars (column 1 of Table 3.1) unless otherwise specified.

<sup>2/</sup> The United Nations index for the unit values of manufactured goods exported by developed countries.

Table 3.1. Indices of Non-Fuel Primary Commodity Prices <sup>1/</sup>

(Indices: 1980=100)

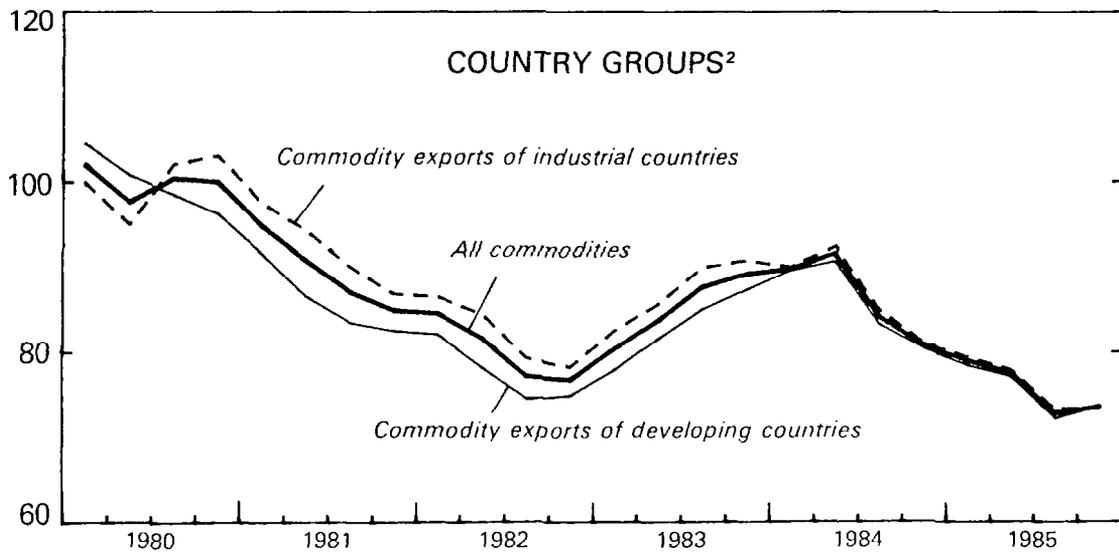
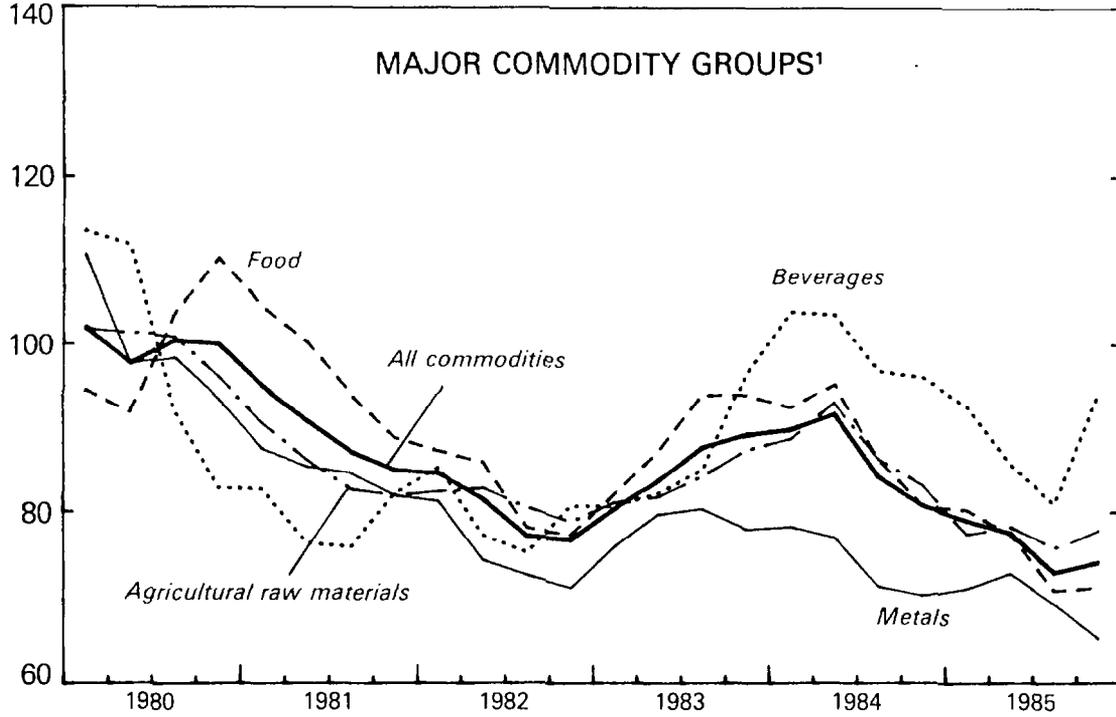
Year	In U.S. Dollar Terms						In SDR Terms		Deflated by Price of Manufactures <sup>2/</sup>		
	All	Food	Beverages	Agricultural Raw Materials <sup>3/</sup>	Metals	Commodity Exports of Developing Countries	Commodity Exports of Industrial Countries	All	All	Commodity Exports of Developing Countries	Commodity Exports of Industrial Countries
(Weights)	(100.0)	(42.9)	(11.8)	(23.3)	(22.0)	(45.4)	(54.6)	(100.0)	(100.0)	(45.4)	(54.6)
	(Index)										
1970	37.1	38.4	31.8	29.8	45.4	36.8	37.4	48.4	108.9	107.9	109.8
1971	36.2	39.6	28.8	29.5	40.5	34.4	37.7	46.9	100.9	95.8	105.2
1972	38.9	42.8	31.6	33.6	40.7	36.1	41.1	46.6	99.8	92.7	105.7
1973	63.1	77.2	40.1	53.7	58.1	55.4	69.8	68.8	137.9	121.0	152.4
1974	76.4	95.4	48.6	55.9	75.8	71.4	80.4	82.6	140.4	131.3	148.0
1975	64.0	76.5	45.7	47.7	66.6	59.2	67.8	68.6	102.7	95.1	108.9
1976	69.4	71.7	84.6	61.1	65.5	68.9	69.9	78.3	110.8	109.7	111.6
1977	76.7	69.7	147.0	61.7	68.3	84.8	69.8	85.5	112.2	124.2	102.2
1978	77.6	78.9	109.9	65.6	70.3	80.2	75.4	80.6	98.2	101.5	95.4
1979	94.1	92.1	114.4	90.3	91.3	94.4	93.9	94.8	104.1	104.4	103.9
1980	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981	89.4	96.8	79.3	85.3	84.8	86.1	92.2	98.6	94.0	90.4	96.9
1982	80.0	82.1	79.6	81.1	74.8	77.4	82.1	94.2	86.2	83.4	88.5
1983	85.2	89.3	86.1	83.6	78.5	82.9	87.2	103.9	95.1	92.5	97.3
1984	86.6	88.6	100.0	87.8	74.2	86.0	87.1	109.9	100.1	99.4	100.8
1985	75.9	74.9	88.3	77.3	69.6	75.4	76.2	97.5	87.4	86.8	87.8
1980											
Q1	102.0	94.5	113.5	101.8	110.6	104.4	99.9	101.8	104.9	107.4	102.9
Q2	97.7	91.8	111.7	101.3	97.7	100.8	95.0	98.0	98.6	101.7	96.0
Q3	100.4	103.5	92.0	100.9	98.4	98.5	102.0	99.1	97.8	95.8	99.4
Q4	100.0	110.2	82.8	95.9	93.4	96.3	103.0	101.1	98.7	95.0	101.7
1981											
Q1	94.9	104.4	82.7	90.5	87.4	91.7	97.5	99.3	96.4	93.1	99.1
Q2	90.8	100.2	76.3	86.1	85.3	86.6	94.3	100.0	96.7	92.2	100.4
Q3	87.1	93.9	75.8	82.6	84.6	83.5	90.0	100.0	95.1	91.1	98.3
Q4	84.9	88.7	82.2	82.0	82.0	82.5	86.8	95.1	87.8	85.3	89.9
1982											
Q1	84.5	87.2	85.3	82.4	81.3	82.1	86.5	96.8	88.6	85.9	90.7
Q2	81.6	85.8	77.2	82.8	74.3	78.2	84.4	95.0	86.6	82.9	89.6
Q3	77.1	78.1	75.2	80.5	72.5	74.5	79.2	92.4	84.7	81.8	87.1
Q4	76.7	77.3	80.7	78.9	71.1	74.9	78.2	92.6	84.9	82.8	86.6
1983											
Q1	80.3	82.1	80.7	81.1	75.9	77.8	82.5	95.8	87.3	84.5	89.7
Q2	83.7	87.2	82.2	81.8	79.7	81.6	85.6	101.1	92.6	90.2	94.7
Q3	87.6	93.9	85.0	84.2	80.4	85.0	89.9	108.2	99.5	96.5	102.1
Q4	89.2	93.9	96.6	87.3	78.0	87.3	90.8	110.3	101.0	98.9	102.8
1984											
Q1	89.8	92.4	103.8	88.7	78.3	89.6	90.0	111.4	101.4	101.2	101.7
Q2	91.6	95.2	103.5	93.0	77.0	90.7	92.5	114.0	103.2	102.1	104.2
Q3	84.2	86.2	96.8	86.2	71.2	83.3	84.9	108.2	98.9	97.8	99.8
Q4	80.8	80.8	96.0	83.2	70.2	80.5	81.1	105.8	97.1	96.6	97.4
1985											
Q1	79.0	80.3	92.6	77.4	71.0	78.5	79.4	106.4	97.9	97.1	98.4
Q2	77.6	77.4	85.7	78.3	72.8	77.1	77.9	101.7	91.5	91.0	92.0
Q3	72.8	70.8	81.0	75.9	69.2	72.2	73.3	92.3	81.8	81.1	82.4
Q4	74.1	71.2	94.0	77.8	65.2	73.9	74.2	89.4	78.3	78.1	78.4

<sup>1/</sup> Weights are based on 1979-81 average export earnings from commodities.

<sup>2/</sup> Based on the United Nations index of the unit values of manufactures exported by developed countries.

<sup>3/</sup> Including forestry products.

CHART 3-1  
DOLLAR COMMODITY PRICE INDICES, 1980-1985  
(Indices, 1980=100)



<sup>1</sup>Weights are based on 1979-81 average export earnings of the world.

<sup>2</sup>Weights are based on 1979-81 average export earnings of the respective country groups.



major commodity groups, metals prices weakened further in the latter part of 1985, largely as a result of the sharp downward adjustment of the price of tin, following the suspension in October of buffer stock operations under the Sixth International Tin Agreement. Over the five-year period from 1980 to 1985, prices of metals fell to a larger extent (by more than 30 percent in dollar terms) than the overall index of commodity prices (24 percent). The index for beverages, on the other hand, recorded the smallest decline (12 percent) in the period, due in part to the recovery in the fourth quarter of 1985. The five-year movements in the indices for food items and agricultural raw materials were broadly similar to that of the overall index. The separate indices of prices for primary commodities exported by developing countries and by industrial countries closely paralleled each other in the past few years (Chart 3.1). In some earlier years (e.g., 1977 and 1981-82), however, those indices had moved apart reflecting divergent movements of the particular primary commodities exported by the two groups of countries.

Because of the large changes in the exchange rates of major currencies in recent years, movements in commodity prices denominated in currencies other than the U.S. dollar have, of course, diverged markedly from those exhibited by the dollar price indices shown in Table 3.1 (Chart 3.2). With the large appreciation of the U.S. dollar from 1980 through the first quarter of 1985, commodity prices denominated in terms of the French franc and the pound sterling stood in the latter period some 86 percent and 65 percent, respectively, above their levels in 1980, while the overall U.S. dollar index declined by 21 percent; the index measured in terms of the Japanese yen was in the first quarter of 1985 some 10 percent below the 1980 level. Mainly as a result of the depreciation of the U.S. dollar in the last three quarters of 1985, the differences between the commodity price indices denominated in various currencies have narrowed substantially or been reversed. Thus, while the overall dollar price index fell by 6 percent from the first to the fourth quarters of 1985, the reductions in terms of other major currencies ranged from 26 percent to 29 percent. Whereas the indices for the French franc, the pound sterling, and the deutsche mark were still considerably above the U.S. dollar price index in late 1985 (on a base of 1980=100), the index of commodity prices denominated in the Japanese yen was, in fact, about 9 percent below the dollar price index. The index of commodity prices, measured in terms of the SDR, was in the final quarter of 1985 some 20 percent above the dollar price index, using 1980 as a base.

Of greater importance--at least from the perspective of the commodity exporting countries--than the changes in nominal prices discussed above, has been the movements of commodity prices in real terms (measured here by changes in commodity prices relative to the unit values of manufactured exports from the industrial countries). With the general slowdown of world inflation during the past few years, and reflecting the impact of the appreciation of the U.S. dollar over the 1980-85 period, real commodity prices have declined to a lesser extent since 1980 than the index measured in nominal U.S. dollar terms (Table 3.1 and Chart 3.3). Nevertheless, commodity prices in real terms have still been quite weak

in this five-year period. After declining considerably during the 1981-82 recession, and then recovering in 1983 and 1984 to a point slightly above the 1980 level, real commodity prices fell by about 13 percent in 1985. Despite the small rise in the commodity prices in the final quarter of 1985, the average real price in the second half of 1985 was about 20 percent below the level of 1980. The weakness of commodity prices in recent years becomes even more evident when viewed in a longer time perspective. Real commodity prices so far in the 1980s have averaged about 16 percent below the average for the 1970s and in 1985 were some 20 percent below the average for the 1960-80 period.

While year-to-year changes in commodity prices have resulted mainly from various specific influences operating on the demand and the supply sides of the various markets, discussed later in this section, the general weakness of commodity prices during the past five years can be attributed in large measure to the slower economic growth experienced in the industrial world--the major market for primary commodities--than during the 1970s. The sluggishness of economic activity in Western Europe since 1980 is of particular significance as this region accounts for about one half of total world imports of primary commodities. However, the prolonged weakness of the markets for primary commodities may also, to some extent, have been the result of more deep-seated and fundamental changes in the world economy. One of these factors may well be the structural changes that are taking the economies of the industrial countries away from basic and heavy industries toward lighter manufacturing (particularly in electronics) and services industries. While such changes were already under way in the 1970s, they were given additional impetus by the sharp rise in energy prices during the 1979-81. Structural changes, as reflected in lower intensity of commodity use, may have been a particularly important influence on prices of metals which, as noted earlier, have shown the most pronounced decline since 1980. These changes may also have contributed to the weak state of the market for agricultural raw materials. At the same time, technological progress and the spread of new technology to developing countries may have contributed to a downward shift in the supply curve for some commodities. As a result of the increased use of higher-yielding varieties of foodgrains, for example, several developing countries have managed to achieve self-sufficiency in food production and, in some cases, to develop export surpluses. As offsetting drought-related declines in food production have generally affected regions with relatively small populations and markets, such as Sub-Saharan Africa, such developments may be one factor underlying the persistent weakness of food prices during the past five years.

The much lower commodity prices that were recorded in 1985, following the recovery in the two preceding years, must, of course, be attributed primarily to short-term influences, in particular changes in economic activity in the industrial countries and to specific factors operating on the supply side. That such factors have recently played an important role is indicated by the fact that over the last 30 years, a decline in commodity prices of the magnitude experienced in 1985 occurred only in

CHART 3 - 2  
OVERALL COMMODITY PRICE INDICES IN TERMS OF SDRs  
AND FIVE MAJOR CURRENCIES, 1980-1985  
(Indices, 1980=100)<sup>1</sup>

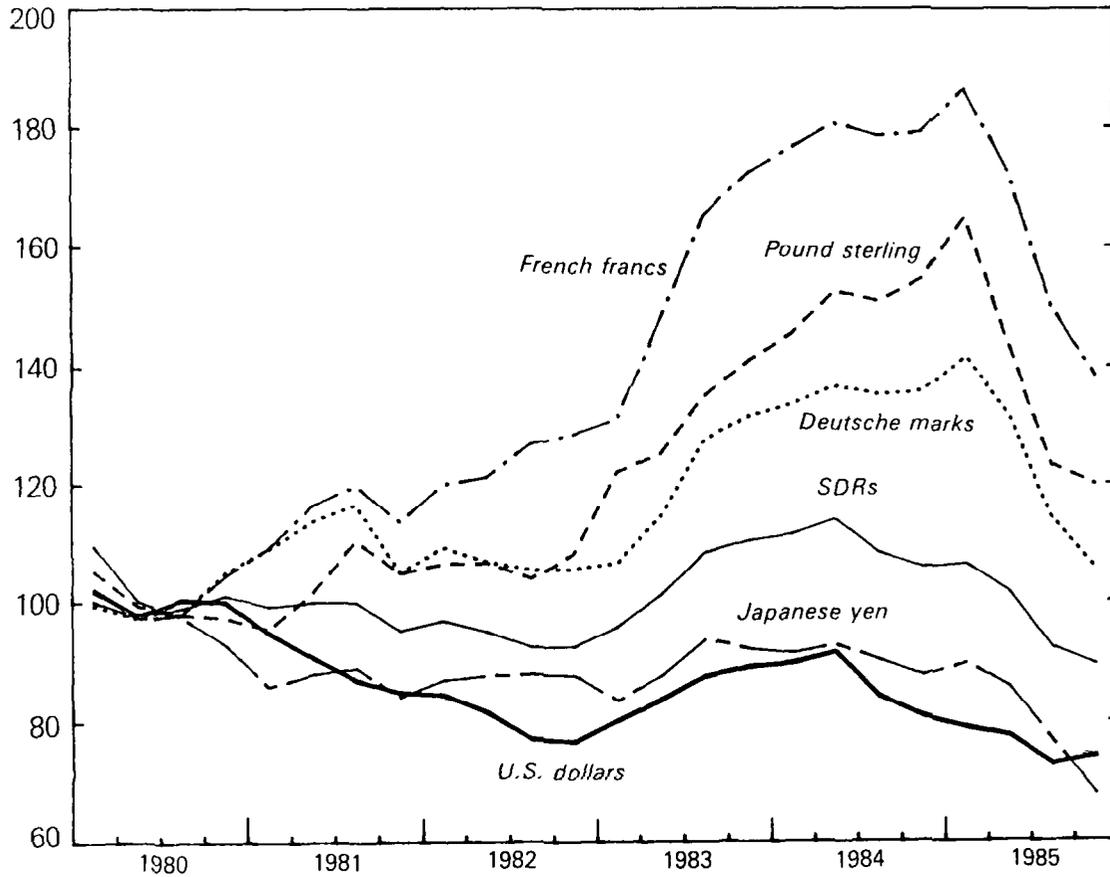
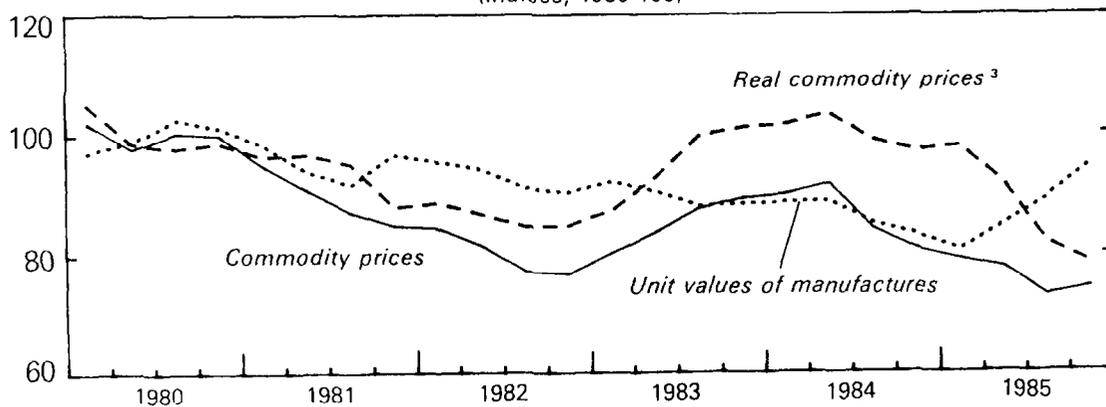


CHART 3 - 3  
PRICE INDICES FOR COMMODITY EXPORTS OF DEVELOPING COUNTRIES  
AND UNIT VALUE OF MANUFACTURES, 1980-1985  
(Indices, 1980=100)<sup>2</sup>



<sup>1</sup>Weights are based on 1979-81 average export earnings of the world.  
<sup>2</sup>Weights are based on 1979-81 average export earnings of developing countries.  
<sup>3</sup>Commodity price index deflated by unit value of manufactures' exports.



the 1975 and 1981-82 recessions. While the explanation for the recent steep decline has to be sought in both demand and supply factors, the latter appear to be by far the more important.

The slowdown in economic activity in the industrial countries in 1985 was obviously a factor that tended to dampen demand for primary commodities. On a year-to-year basis, the rate of growth in real GNP in the industrial world fell from 4 3/4 percent in 1984 to 2 3/4 percent in 1985, while growth in industrial output slowed from about 8 percent to 3 percent (Table 3.2). The deceleration in the latter indicator of economic activity was even more pronounced on a half-yearly basis as the rate of growth declined continuously from a peak of 11 percent in the second half of 1983 to only 2 1/2 percent in the second half of 1985. This marked slowdown was undoubtedly partly responsible for the excess supply situation in commodity markets in 1985. Nevertheless, while the severity of the commodity price decline in 1985 resembled those of the major post-war recession periods in the sense that it was both large and shared by virtually all commodities, the primary reason was not a reduction in demand.

Instead, the major factor appears to have been the large worldwide buildup in supplies of primary commodities that occurred during 1984-85 and which had the effect of depressing commodity prices during a period of continuing, albeit decelerating, world economic growth. The total supply of primary commodities, defined as current production plus beginning stocks, increased by a cumulative 7 1/2 percent during 1984-85 (Table 3.3), the largest two-year increase in at least 25 years.<sup>1/</sup> The effect of this expansion in supply availability on the overall level of commodity prices was augmented by its concentration in commodities for which supply factors are relatively more important in the determination of prices.

The largest cumulative increases in commodity output during 1984-85 were recorded for food commodities and beverages which together expanded by about 11 percent in the two-year period. With allowance for the impact of stock changes, the total supply of food items increased by about 9 percent and that of beverages by about 8 percent in the period. In addition to relatively favorable weather conditions, these increases appear to have resulted mainly from an expansion in productive capacity (including technological improvements) which in turn reflected mainly the lagged response to earlier changes in real prices. As the gestation lags are estimated to be relatively long (an average of about four years for food items and about seven years for beverages),<sup>2/</sup> the 1984-85 production increases can be traced in part to the high levels of food prices in 1980-81 and to the high beverage prices of 1977-79. As, in addition, the utilization of productive capacity in food and beverage production

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<sup>1/</sup> Since 1960, the first year for which the supply index was calculated.

<sup>2/</sup> See K. Chu and T. Morrison: "World Non-Oil Primary Commodity Markets: A Medium-Term Framework of Analysis," IMF Staff Papers (March 1986).

Table 3.2. Changes in Non-Fuel Commodity Prices  
and Major Underlying Factors, 1981-85

(Annual percentage change)

	1981	1982	1983	1984	1985
Commodity prices in U.S. dollar terms					
All commodities	-10.6	-10.6	6.5	1.6	-12.5
Food	-3.2	-15.2	8.7	-0.7	-15.5
Beverages	-20.7	0.4	8.2	16.1	-11.7
Agricultural raw materials	-14.7	-4.9	3.1	5.0	-12.4
Metals	-15.2	-11.8	4.9	-5.5	-6.2
Underlying factors					
Real GNP <u>1/</u>	1.4	-0.4	2.6	4.7	2.7
Industrial production <u>2/</u>	0.3	-3.6	3.4	8.2	3.1
Inflation <u>3/</u>	9.9	6.9	4.4	4.4	3.8
U.S. dollar exchange rate <u>4/</u>	12.7	11.7	5.8	7.9	4.5
World production of commodities <u>5/</u>	3.1	-0.8	-0.6	7.2	1.6
Food and beverages	5.3	1.1	-1.7	7.5	3.1
Agricultural raw materials and metals	0.4	-3.0	1.4	6.5	-0.3

- 1/ Real GNP of all industrial countries.  
2/ Index of industrial production in seven major industrial countries aggregated using GNP weights.  
3/ Index of consumer prices in seven major industrial countries aggregated using GNP weights.  
4/ Positive figures indicate appreciation of the effective exchange rate of the U.S. dollar.  
5/ Using same weights as in commodity price index, adjusted to exclude commodities for which no production data are available. Data for 1985 are estimates.

Table 3.3. World Supply of Commodities

(Percent changes)

	1980	1981	1982	1983	1984	1985
<b>All commodities</b>						
Production	0.2	3.1	-0.8	-0.6	7.2	1.6
Beginning stocks	-4.9	6.2	14.6	10.8	-10.3	10.4
Total supply	-0.3	3.2	1.5	1.5	4.5	2.9
<b>Food</b>						
Production	-0.9	4.2	4.9	-3.9	7.5	2.7
Beginning stocks	1.2	2.4	9.8	15.1	-18.6	20.1
Total supply	-0.8	4.0	5.4	-1.3	4.2	4.5
<b>Beverages</b>						
Production	4.0	9.2	-12.5	6.0	7.3	4.7
Beginning stocks	10.1	21.6	27.5	-5.4	-5.6	4.0
Total supply	5.5	12.0	-1.8	2.0	3.2	4.5
<b>Agricultural raw materials</b>						
Production	-0.7	1.6	0.3	2.0	7.9	-0.4
Beginning stocks	-5.8	2.6	11.2	6.7	-0.5	30.4
Total supply	-1.0	0.5	0.5	3.9	5.8	3.0
<b>Metals</b>						
Production	1.5	-0.9	-6.5	0.8	5.1	-0.1
Beginning stocks	-23.3	5.1	16.3	20.0	-1.7	-11.5
Total supply	-1.6	-0.2	-3.5	4.8	4.4	-1.7

is responsive to the previous year's real prices, the increased output of these commodities in 1984-85 may also have been attributable partly to the rise in prices of these items from late 1982 through mid-1984.

Other factors that may have contributed to increased agricultural production levels in 1984-85 could be related to price support policies pursued by major producing countries and pressures on debtor countries to maximize their foreign exchange earnings. Agricultural price support policies are widely applied in the major industrial countries. Although it is not clear that these policies intensified during 1984-85, the maintenance of support policies by these countries at a time when world production was increasing had the effect of inhibiting adjustment in output, thus exacerbating pressures on prices of the commodities concerned. The lack of response to price signals was particularly evident in 1985 when production of most agricultural commodities continued to rise despite substantial declines in prices beginning in the middle of 1984.

Total supplies of agricultural raw materials and metals also increased during 1984-85, but these increases were much less pronounced than in the case of the two commodity groups discussed above. While production of agricultural raw materials and metals increased in 1984 by about 7 1/2 and 5 percent, respectively, small contractions of output were recorded for both these groups of commodities in 1985. For agricultural raw materials, these developments were accompanied by lower-than-expected increases in consumption and a consequent sharp rise in stocks, which tended to depress price expectations. Supply factors had a particularly depressing influence on prices of cotton and, to a lesser extent, rubber and wool. In the case of metals, an important factor was the existence of large unutilized production capacity that continued to depress prices despite the fact that consumption growth outpaced production growth in 1984-85. This is particularly noteworthy as metal stocks declined significantly in the period. In addition, some of the major metal producers achieved substantial reductions in costs of production.

The differential rates of growth in supplies of the various commodity groups, discussed above, had a significant impact on the overall movement of commodity prices in 1985 since changes in production of food commodities and beverages are much more important determinants of short-term price developments than is the case for agricultural raw materials and metals; for the two latter groups changes in economic activity have been shown to be the more important factor. <sup>1/</sup> Demand for food and beverages is more

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<sup>1/</sup> The elasticities of prices with respect to changes in production are estimated at -2.5 for food commodities and -1.3 for beverages, while for the other two commodity groups the elasticities are not statistically significant. On the other hand, the elasticities of prices with respect to changes in economic activity of industrial countries are estimated to be 3.4 for agricultural raw materials and 2.6 for metals, while in the case of food and beverages these elasticities are not statistically significant. These estimates were calculated from equations that are part of a model of commodity price determination; see Chu and Morrison (1986).

stable than demand for industrial raw materials. In addition, the production of food crops and beverages cannot easily respond to short-term demand changes (e.g., during a crop year), whereas output of most industrial raw materials, particularly metals can usually adjust to a somewhat greater degree. 1/

The relatively large increases in output of food items and beverages in 1984-85 therefore had a strong depressing impact on prices of these commodities as well as on the overall level of commodity prices. With the large supply increases in 1984, prices began to fall sharply in the second half of the year and these price reductions continued in 1985 when output increased further. The impact on prices of the large rise in output of these commodities in 1984-85 can be illustrated by examining a hypothetical scenario of alternative output developments. It is estimated that if food production had only recovered in 1984 to the 1982 level and then remained unchanged in 1985, and if output of beverages had remained at the 1983 level, the prices of these commodities in 1985 would have been some 15-16 percent higher than the levels actually attained. This would have resulted in the overall index of commodity prices being 8 percent higher than the level actually experienced. While the rise in output of food items and beverages had a particularly important impact on prices, specific supply factors also tended to depress prices of certain agricultural raw materials and metals, as noted earlier.

Market intervention mechanisms through supply control measures such as export quotas and buffer stocks under international commodity agreements were in effect in respect of three commodities in 1985: coffee, natural rubber, and tin. 2/ Reductions in December 1984 and July 1985 in the export quotas for coffee exporting countries established under the International Coffee Agreement served to contain the downward tendency in coffee prices in the first three quarters of 1985. However, increases in quotas in the final quarter failed to have much effect in containing the sharp upward movement in coffee prices beginning in October 1985 as a

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1/ Food production is, therefore, more influenced by the previous years' prices, whereas production of industrial raw materials is more influenced by the current year's prices. In addition, supply shocks (e.g., caused by weather) are generally a much more dominant factor affecting production of food crops and beverages than in the case of other commodities. These different characteristics between the various commodity groups results in a significant inverse correlation between production and prices of food items, and a significant positive correlation between production and prices of industrial raw materials.

2/ The 1977 International Sugar Agreement expired at the end of 1984 and sugar exporting members were then free to release the special stocks of sugar accumulated under that Agreement. While the 1980 International Cocoa Agreement remained in force in 1985, no purchases for, or sales from, the buffer stock established under that Agreement (apart from rotation of the stock of 100,000 tons accumulated earlier) have been made since March 1982 when purchase operations were suspended because of the depletion of funds.

result of adverse weather in Brazil. Large-scale intervention by the buffer stock manager of the International Rubber Agreement during 1985 was required to keep prices from falling below the agreed floor level. The semi-automatic downward revision of the price range of 3 percent was triggered in August 1985 after buffer stock purchases reached 300,000 tons. In contrast to the relative success during the year of operations under the Rubber Agreement, it was necessary to end market intervention operations under the International Tin Agreement on October 24, 1985 as a result of the exhaustion of financial resources in the face of continued downward price pressures in the depressed tin market. Until that date the price of tin had been kept within the agreed range only through large-scale intervention by the buffer stock manager of the Tin Agreement. Trading in tin on the London Metal Exchange was suspended and the market remained closed through February of 1986. Although measures may be taken to resolve the problem of the outstanding debt of the International Tin Council, it is unlikely that price stabilization operations will resume in the period immediately ahead.

In addition to the supply and demand influences discussed above, changes in worldwide inflation and in the exchange rate for the U.S. dollar have, of course, continued to have a significant impact on commodity prices in 1985. The further moderate deceleration of inflation in the industrial countries continued to constrain current commodity prices through its influence on the prices of substitutes, through pressures to reduce costs in commodity-using industries (particularly metal-intensive industries), and by reducing speculative demand for stocks. Moreover, the decline in the price of petroleum, which, apart from its widespread effects on production costs, is a raw material for many synthetic substitutes for primary commodities, also acted to depress commodity prices.

The impact of the changes in the U.S. dollar on commodity prices in 1985 is more difficult to ascertain. Although depreciating significantly after the first quarter of 1985, the average value of the U.S. dollar in 1985 was about 4.5 percent above the 1984 level, a factor that probably contributed to the lower average level of commodity prices in U.S. dollar terms in 1985. The significant fall in the value of the U.S. dollar during the last three quarters of the year by itself, would have tended to push up commodity prices in dollar terms during the year. However, it provided only a partial offset to the depressing impact of other factors, and dollar-denominated commodity prices continued to fall until the final quarter of the year. At that time, the dollar index, as noted earlier, recovered slightly under the influence of the sharp rise in coffee prices.

In summary, the major factor affecting the markets for primary commodities in 1985 was the large expansion in supplies, particularly of food items and beverages, that took place during 1984-85 and which was the largest two-year increase recorded since 1960. When combined with the worldwide deceleration of economic activity, and in an environment of continued low inflation in the industrial countries, the rise in output resulted in a broad decline in commodity prices in both nominal and real terms.

### Outlook for commodity prices

Movements in the overall index of commodity prices in the near future will be affected in an important way by changes in coffee prices, which are discussed separately below. The markets for most other primary commodities are expected to remain weak in 1986 and 1987 reflecting the large overhang of supplies in combination with continued slack demand. The marked expansion of agricultural output in the past two years is expected to continue to depress prices of most food items, at least until the next harvest season begins to influence the market around the middle of 1986. Some response of agricultural production to the low prices prevailing in 1985 may lead to reduced output and a strengthening of prices in the latter part of 1986. This is assumed to result in price increases in 1987 roughly in line with the rate of inflation. Metal prices are also projected to remain weak in 1986 and to recover only moderately in 1987 because of a combination of continued sluggish demand and ample supplies.

While supply-side factors are generally expected to continue to be the more important short-term determinants of commodity prices, prospective macroeconomic developments in the major markets for primary commodities also suggest that 1986 and 1987 will witness continued depressed prices for most commodities. Real economic growth in the industrial countries is projected to increase only slightly from the subdued pace (2 3/4 percent) recorded in 1985, while the growth in industrial output is expected to decelerate somewhat from about 3 percent in 1985 to 2 1/2 percent in each of the next two years.

In conjunction with a further moderate fall in the rate of inflation in the industrial countries, as well as the large drop in petroleum prices, and on the assumption that the pattern of exchange rates prevailing in late January 1986 will remain unchanged--implying a 10 1/2 percent year-on-year depreciation of the U.S. dollar from 1985 to 1986--these prospective developments on the supply and demand sides of the commodity markets are expected to result in a slight increase (of about 2 percent) in the current dollar price index for all primary commodities excluding coffee in 1986. In real terms, the average price of these commodities is expected to decline further, by about 9 percent, to a level significantly below the long-term trend. In 1987, noncoffee commodity prices are expected to rise by about 6 percent in current U.S. dollar terms and by about 3 percent in real terms.

Changes in the overall index of commodity prices in 1986 and 1987 will, as noted earlier, differ markedly from those discussed above because of the special situation affecting the price of coffee, which has a relatively high weight in the index. As a result of the anticipated effects of adverse weather conditions on Brazil's current coffee crop (to be harvested in 1986), coffee prices rose by more than 70 percent during the final quarter of 1985 to their highest levels since before quotas under the International Coffee Agreement were reintroduced in October 1980. While coffee prices were still lower on average in 1985 than in

the previous year, prices in 1986 are projected to average about 50 percent above the level in 1985. On the assumptions that Brazil's coffee crop will recover partially in 1987 and that other countries draw down their stocks, coffee prices are projected to decline by 15 percent in 1987. <sup>1/</sup> Because of these developments in coffee prices, the overall index of commodity prices in current U.S. dollars is projected to increase by about 7 percent in 1986 and by about 2 1/2 percent in 1987. In real terms, overall commodity prices would therefore decline by 4 percent in 1986 and by about 1 percent in 1987. As coffee is exported only by developing countries, the prospective changes in coffee prices discussed above will have a considerably larger impact on the overall index of primary commodities exported by these countries. The latter index is projected to rise by 10 percent in current U.S. dollars in 1986 before declining marginally in 1987. In real terms, the average price of all primary commodities exported by developing countries would decline by 1 percent in 1986 and by about 4 percent in 1987.

Some of the longer-term factors that have tended to depress commodity prices in recent years are expected to continue to influence prices over the medium term. In particular, further structural changes in the economies of the industrial countries are likely to continue to adversely affect the demand for primary commodities, while technological progress may contribute to further expansion of supplies. Nevertheless, on the assumptions that these factors will exert a diminishing influence on commodity prices over time and that aggregate output in the industrial countries will increase at a moderately higher average rate in the 1988-91 period (3 percent per annum) <sup>2/</sup> than during the first half of the 1980s (as well as in 1986-87), real commodity prices are projected to remain virtually unchanged during the four years after 1987. Under the influence of continued low inflation (assumed to average 3.3 percent a year for the industrial countries), and with the assumed depreciation of the U.S. dollar at an average annual rate of 2 1/2 percent, <sup>2/</sup> commodity prices in current U.S. dollar terms are projected to rise at an average annual rate of 4.2 percent in the 1988-91 period, slightly below the 4.5 percent rate of increase assumed for prices of manufactured exports and for petroleum.

Terms of trade of non-fuel exporting developing countries and use of Fund special facilities

The weakness in world commodity markets in recent years has been reflected in a significant deterioration in the terms of trade of the non-fuel exporting developing countries. During the six-year period from

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<sup>1/</sup> It should be recognized that these projections are subject to a high margin of error as they are dependent upon uncertain assumptions regarding the disposal of large coffee stocks held by many countries and the extent of the longer-term damage to Brazil's coffee trees that may have occurred.

<sup>2/</sup> As assumed in the medium-term baseline scenario discussed elsewhere in this report.

1980 to 1986 the terms of trade of these countries declined cumulatively by almost 13 percent. Following a temporary small improvement during the recovery of commodity prices in 1983-84, the terms of trade of these countries declined again in 1985, virtually erasing the small gains recorded in the two preceding years. The stability in the terms of trade of the non-fuel exporting developing countries over the past three years is particularly significant in view of the decline in petroleum prices which account for a relatively large portion of the total import bill of these countries. The overall terms of trade of the countries under review are expected to increase by about 2 percent in 1986, implying an increase for the coffee-exporting countries and a further weakening for most other countries.

Total purchases under the Fund's compensatory financing facility in 1985 amounted to SDR 929 million, compared with SDR 816 million purchased in 1984. Purchases during 1984 and 1985 represented a substantial decline from the SDR 2.7 billion in average purchases made in 1982-83. Of the 13 compensatory financing purchases made during 1985, four were at least partly with respect to excesses in the cost of cereal imports. Financing of cereal imports accounted for 20 percent (SDR 189 million) of total compensatory financing purchases in 1985. Repurchases during the year, in respect of previous purchases, were larger than purchases, with the result that the total of outstanding purchases under the facility declined to SDR 7.0 billion at the end of 1985 from SDR 7.5 billion at the beginning of the year. Use of the facility may increase in 1986 as a result of the marked decline in commodity prices and the related fall in export earnings of many developing countries in 1985. Net use of the facility, however, is likely to again be negative as repurchases of SDR 2.3 billion, partly with respect to the large purchases made in 1982, become due.

No purchases were made in 1985 under the Fund's buffer stock financing facility. Outstanding purchases with respect to previous purchases in connection with members' contributions to the operations of the buffer stocks of the natural rubber and tin agreements amounted to SDR 179 million at the beginning of 1986. Repurchases of SDR 153 million were made in 1985, of which SDR 95 million were made with respect to earlier purchases made in connection with operations under the International Sugar Agreement, which expired at the end of 1984.

Supplementary Note 4

World Oil Situation

1. Introduction

Developments in the world oil market in early 1986, when the price of oil fell precipitously in the spot markets for both crude oil and refined products, were conditioned by two main factors. In essence, they reflected the culmination of the tendency observed during the past few years for the price of oil to become more closely related to short-run market forces and the simultaneous substantial relaxation, or de facto abandonment, of the policy of concerted output restraint that had been followed by the members of the Organization of Petroleum Exporting Countries (OPEC) <sup>1/</sup> since early 1983. While the timing of the price drop was also influenced by other factors, it was the latter development that paved the way for the steep price decline.

Although the international oil market has clearly moved into a new phase, it is uncertain how longlasting the recent changes will prove to be. While the shift from the previous system of fixed official selling prices to market-oriented pricing may be a permanent feature of the oil market, the restoration of considerable output restraint could occur at any time. As world oil demand is expected to rise only moderately in the next few years--with the impact of the fall in prices that has so far taken place likely to be gradual--the level of oil prices will be determined primarily by factors operating on the supply side of the market. For the immediate future, the interplay of political and economic factors suggests that the oil market may remain weak, and the possibility of further downward pressure on prices cannot be ruled out. In the event that some form of concerted output restraint is reestablished, a partial reversal of the sharp fall in oil prices could take place.

The following section of this note reviews recent developments in the world oil market with particular emphasis on prices. The subsequent section describes recent developments in consumption, production and world trade in oil. The final section assesses the prospects for the oil market and prices, focusing both on the short-term outlook and medium-term prospects.

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<sup>1/</sup> The membership of OPEC corresponds, except for the inclusion of Ecuador and Gabon and the exclusion of Oman, to the former analytical group of 12 major "oil exporting countries." The aggregate oil balance data for the latter countries (presented in Table 4-1 together with data for other major groups of countries) are virtually identical with those of OPEC.

Table 4-1. World Oil Balances, 1973-87 <sup>1/</sup>

(In millions of barrels per day)

	1973	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
<u>Industrial countries</u>											
Production <sup>2/</sup>	13.8	14.1	14.7	14.8	14.8	15.2	15.7	16.5	16.8	16.9	17.0
Consumption <sup>3/</sup>	39.7	40.6	40.8	37.8	35.5	33.6	33.0	33.8	33.3	33.6	34.1
Adjustments <sup>4/</sup>	-0.3	-0.8	-0.1	-0.4	-1.1	-1.3	-1.2	-0.9	-1.1	-1.0	-1.0
Net imports	25.6	25.7	26.0	22.6	19.6	17.1	16.1	16.5	15.4	15.7	16.1
Net oil importers	(23.2)	(25.0)	(25.9)	(22.9)	(20.3)	(18.1)	(17.5)	(17.9)	(17.1)	(17.5)	(17.9)
Net oil exporters <sup>5/</sup>	(2.4)	(0.7)	(0.1)	(-0.3)	(-0.7)	(-1.0)	(-1.4)	(-1.4)	(-1.7)	(-1.8)	(-1.8)
<u>Developing countries</u>											
<u>Major oil exporters <sup>6/</sup></u>											
Production <sup>2/</sup>	31.1	30.6	31.5	27.8	23.8	19.9	18.3	18.2	17.1	17.6	18.2
Consumption <sup>3/</sup>	1.0	2.0	2.2	2.4	2.7	2.9	3.1	3.2	3.3	3.4	3.5
Adjustments <sup>4/</sup>	0.5	0.3	0.8	0.7	0.6	0.6	0.3	0.2	0.2	0.1	0.1
Net exports	29.6	28.3	28.5	24.7	20.5	16.4	14.9	14.8	13.6	14.1	14.6
<u>Other net oil exporters <sup>7/</sup></u>											
Production <sup>2/</sup>	2.8	5.3	5.8	6.4	6.7	7.3	7.5	7.9	8.2	8.4	8.6
Consumption <sup>3/</sup>	2.2	3.4	3.6	3.8	4.0	4.1	4.1	4.2	4.3	4.4	4.5
Adjustments <sup>4/</sup>	0.1	0.1	0.1	0.1	--	--	--	--	--	--	--
Net exports	0.5	1.8	2.1	2.4	2.7	3.2	3.4	3.7	3.9	4.0	4.1
<u>Net oil importers</u>											
Production <sup>2/</sup>	1.5	1.5	1.5	1.5	1.7	1.9	2.1	2.3	2.5	2.7	2.9
Consumption <sup>3/</sup>	5.6	7.0	7.4	7.4	7.2	7.2	7.2	7.2	7.2	7.4	7.6
Adjustments <sup>4/</sup>	--	0.1	0.1	0.1	--	--	--	--	--	--	--
Net imports	4.1	5.6	6.0	6.0	5.5	5.3	5.1	4.9	4.7	4.7	4.7
<u>Other countries <sup>8/</sup></u>											
Production <sup>2/</sup>	9.0	11.9	12.2	12.5	12.6	12.7	12.8	12.7	12.5	12.4	12.4
Consumption <sup>3/</sup>	7.8	10.0	10.4	10.7	10.8	10.8	10.7	10.6	10.5	10.4	10.4
Adjustments <sup>4/</sup>	--	--	--	--	--	--	--	-0.1	--	--	--
Net exports	1.2	1.9	1.8	1.8	1.8	1.9	2.1	2.2	2.0	2.0	2.0
Net oil exporters	(2.5)	(3.5)	(3.5)	(3.5)	(3.5)	(3.5)	(3.7)	(3.8)	(3.6)	(3.6)	(3.6)
Net oil importers	(-1.3)	(-1.6)	(-1.7)	(-1.7)	(-1.7)	(-1.6)	(-1.6)	(-1.6)	(-1.6)	(-1.6)	(-1.6)
<u>Memorandum items:</u>											
Total consumption	56.3	63.0	64.4	62.1	60.2	58.6	58.1	59.0	58.6	59.2	60.1
(Change in percent)		(3.3)	(2.2)	(-3.6)	(-3.1)	(-2.7)	(-0.9)	(1.5)	(-0.7)	(1.0)	(1.5)
Total production	58.2	63.4	65.7	63.0	59.6	57.0	56.4	57.6	57.1	58.0	59.1
(Change in percent)		(3.6)	(3.6)	(-4.1)	(-5.4)	(-4.4)	(-1.1)	(2.1)	(-0.9)	(1.5)	(1.8)
Aggregate oil trade balance	1.6	0.7	0.4	0.3	-0.1	-0.9	-0.8	-0.7	-0.6	-0.3	-0.1
Asymmetry attributable to:											
Estimated transit lag		(-0.1)	(-)	(-0.6)	(-0.5)	(-0.3)	(-0.1)	(-0.2)	(0.1)	(...)	(...)
Other <sup>9/</sup>		(0.8)	(0.4)	(0.9)	(0.4)	(-0.6)	(-0.7)	(-0.5)	(-0.7)	(...)	(...)

<sup>1/</sup> For classification of countries in groups shown here, see the Introduction to the Statistical Appendix (SM/86/47), and footnotes 5, 6, 7, and 8 below.

<sup>2/</sup> Includes crude oil production and output of condensates and natural gas liquids (wherever data are available).

<sup>3/</sup> Data for industrial countries include use of oil in refineries and bunker fuel. Data for several other countries are derived from statistics on production and trade in oil and group totals should be regarded as orders of magnitude only.

<sup>4/</sup> Includes changes in inventories, processing gains (in industrial countries), bunker sales (in some cases), and statistical discrepancies.

<sup>5/</sup> Norway and the United Kingdom.

<sup>6/</sup> The 12 countries classified as "oil exporting countries" according to former analytical criteria, i.e., Algeria, Indonesia, Islamic Republic of Iran, Iraq, Kuwait, Libyan Arab Jamahiriya, Nigeria, Oman, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. The aggregate data for these countries shown here are virtually identical with those of the members of the Organization of Petroleum Exporting Countries (OPEC).

<sup>7/</sup> Bahrain, Bolivia, Cameroon, China, Congo, Ecuador, Egypt, Gabon, Malaysia, Mexico, Peru, Syria, Trinidad and Tobago, and Tunisia.

<sup>8/</sup> Includes the U.S.S.R., nonmember countries in Eastern Europe, Democratic People's Republic of Korea, Cuba, Angola, and Brunei.

<sup>9/</sup> In addition to statistical discrepancies, reflects changes in stocks afloat (not included in normal transit lag), inclusion of bunkers in export data for some countries, and transit losses.

## 2. Recent developments in the oil market and prices

In order to provide a fuller background to the present oil market situation, it may be useful to first review briefly underlying developments in a longer time perspective. During the 1963-73 decade, total production of the members of OPEC rose sharply from about 12 million barrels a day (mbd) to 31 mbd because of a combination of rapid growth in world demand and limited additions to productive capacity in other countries. These developments, which reflected mainly the low price of oil prevailing during the period and the comparatively high rate of growth in the world economy, set the stage for the first round of major oil price increases in 1973-74 when the price approximately quadrupled (in current U.S. dollars) to more than \$10 a barrel. Important new oil discoveries were made in the early 1970s (in the North Sea, Mexico, and Alaska) and, with the enhanced price incentives, exploration for oil and additions to productive capacity began to rise substantially in these and other non-OPEC areas. However, because of the long lead times, the new capacity had only begun to come on stream in the latter part of the 1970s. As world oil consumption had also continued to rise, although at a much reduced rate, OPEC production in 1979 was about the same as in 1973. In the meantime, the members of OPEC had gained virtually full control over the determination of both prices and production from the leading international oil companies.

In this situation, the second round of large oil price increases was triggered by a temporary supply interruption and was sustained for more than two years--bringing the average price of oil from about \$13 a barrel in late 1978 to more than \$34 a barrel in the first quarter of 1981--in part because of the bidding up of prices by buyers lacking secure long-term supplies and a consequent large buildup of world oil inventories. The escalation of oil prices took place during a period when oil consumption had already started to decline and was made possible because supply could easily adjust to the lower level of demand in view of the sharply higher export earnings of the oil exporting countries. In these circumstances, there was no need for production-sharing agreements and the fall in export volume was brought about by voluntary adjustments in output by individual countries, which were relatively easy to administer as oil operations are directly controlled by the national authorities of the major oil exporting countries.

The sharp rise in oil prices, combined with the comparatively low rates of growth experienced by both industrial and developing countries, led to a considerable decline in world oil consumption during the first half of the 1980s. With a large expansion in non-OPEC production and a reversal (from mid-1981) of the previous buildup of inventories, total oil production of the members of OPEC fell from 31 1/2 mbd in 1979 to about 17 mbd in 1985, <sup>1/</sup> while the volume of exports from these countries dropped by more than 50 percent. When the almost continuous fall in export

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<sup>1/</sup> Including output of crude oil, condensates, and natural gas liquids.

earnings began to be reflected in mounting balance of payments difficulties for several oil exporting countries, voluntary output limitations by individual countries became increasingly difficult to maintain. In March 1983, therefore, the members of OPEC found it necessary to introduce a policy of concerted output restraint through the establishment of export quotas on individual member countries within an overall ceiling on total OPEC crude oil production of 17 1/2 mbd. 1/ 2/ Saudi Arabia was designated as the swing producer "to supply the balancing quantities to meet market requirements". At the same time, the official price of the benchmark or "marker" crude (Arab Light 34° API) was reduced by about 15 percent from \$34 a barrel to \$29 a barrel. With the gradual erosion of prices that had occurred over the previous two years, this brought the weighted average export price of the major oil exporting countries to just over \$28 a barrel, 3/ representing a decline of about 18 percent from the peak reached in the first quarter of 1981 (about \$34.40 a barrel).

During the period from the March 1983 OPEC meeting to late 1985, the world oil market was in a state of fragile balance and the average level of oil prices eased only moderately. The price of the marker crude was reduced on one occasion when, in January 1985, the members of OPEC decided to adjust that price to \$28 a barrel. The issue of price differentials between various crude oils, which had become a source of instability in the oil market in 1984, was reduced in relative importance as the members of OPEC at the same time decided to narrow the differential between light and heavy (mainstream) crude oils from \$4.50 a barrel to \$2.40 a barrel, thereby bringing the relative prices more in line with market price differentials. 4/ In July 1985, the price differential was widened slightly as the official export prices of medium and heavier crude oils were reduced by \$0.20-0.50 a barrel, while the official prices of lighter crude oils remained unchanged. The effective average price level was reduced during the 1983-85 period also through increased reliance by several oil exporting countries on offering discounts below the official export prices in various direct and indirect ways, for example, through processing arrangements with foreign refineries, extended credit terms, barter-trade arrangements, or sales at spot market related prices.

Nevertheless, the weighted average export price of the major oil exporting countries declined only moderately (by about 5 1/2 percent) in current dollar terms from April 1983 to the fourth quarter of 1985 when that price is estimated to have reached about \$26.50 a barrel. Mainly reflecting the large changes in the value of the U.S. dollar in the

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1/ An earlier attempt (in March 1982) to establish export quotas lasted only a short period.

2/ The production ceilings excluded output of condensates and natural gas liquids (currently about 1.1-1.3 mbd for OPEC as a whole). Such output is included in production in Table 4-1.

3/ Including exports of crude oil, condensates, natural gas liquids, and refined oil products.

4/ See April 1985 World Economic Outlook, p. 150.

period, the real price of oil <sup>1/</sup> actually increased (by about 4-5 percent) through the first quarter of 1985 before falling by about 12 percent from the first to the fourth quarters of 1985. The annual average oil export price of the major oil exporters declined, in current U.S. dollar terms, by about 2 percent in 1984 and by about 4 1/2 percent in 1985 to a level of about \$26.70 a barrel in the latter year. In real terms, the average price remained virtually stable in 1984 and fell by 4 1/2 percent in 1985. Thus, during the whole period since oil prices peaked in 1981, the annual average price declined by about 21 percent in current U.S. dollars and by about 13 percent in real terms, thereby erasing only a relatively small portion of the price increases in 1979-81 (Table 4-2).

Table 4-2. Changes in the Price of Oil, 1979-86 <sup>1/</sup>

(In percent)

	1979-81	1982-85	1983	1984	1985	1986
In current U.S. dollars	162	-21	-11½	-2	-4½	-25
In real terms <sup>2/</sup>	111	-13	-8½	-	-4½	-31

<sup>1/</sup> Annual average oil export price of the major oil exporting countries.

<sup>2/</sup> Nominal price deflated by estimated import prices of the major oil exporting countries.

Prices in the spot market for crude oils, after having strengthened for some months following the March 1983 OPEC agreement, fluctuated during the following two years with an underlying moderate downward trend. From June through November 1985, the spot market firmed considerably with prices of some crude oils rising by about \$4 a barrel to more than \$30 a barrel

<sup>1/</sup> The average oil export price of the major oil exporting countries in current U.S. dollars deflated by the estimated import prices of these countries (also in U.S. dollar terms). While this definition provides an approximate measure of the real price (or purchasing power) of oil in international trade, it does not provide a measure of the real domestic price of oil in importing countries. Such changes in the industrial countries are discussed in the following section.

(Chart 4-1). 1/ Prices in this period were influenced by a number of partly transitory factors, for example, reduced supplies from the U.S.S.R, intermittent interruptions of oil shipments from the Islamic Republic of Iran, and relatively low worldwide inventories.

The relative stability of the oil market during most of the 1983-85 period, at least on the surface, resulted in part from a flattening out of world oil demand in the past two years after the continuous and large decline from 1979 to 1983. With the recovery in economic activity in major industrial countries since the latter part of 1983, world oil consumption actually increased (by about 1 1/2 percent) in 1984. Although consumption declined again in 1985, as economic growth moderated significantly in both industrial and developing countries, the annual level of world oil consumption was still higher in that year than in 1983 (Table 4-1). 2/ Nevertheless, as total oil production in areas outside the major oil exporting countries (or the members of OPEC) continued to rise, although at a decelerating pace, the annual volume of net oil exports from the latter countries remained virtually stable in 1984 and then declined further by about 8 percent in 1985. In response to the weakening of oil market conditions in the latter part of 1984, the members of OPEC agreed, with effect from November 1, 1984, to reduce the individual production quotas within an overall OPEC ceiling of 16 mbd, a reduction of 1 1/2 mbd from the previous ceiling of 17 1/2 mbd.

The apparent market stability during most of 1985, as attested by the resilience of the price of oil, masked the precarious state of the oil market that developed during the course of the year and which reflected primarily the increasing reliance on a single producer to support the price. As world demand for oil from the members of OPEC declined significantly during the first nine months of 1985--in the third quarter reflecting in part a drawdown of commercial inventories contrary to the normal seasonal pattern--total crude oil production of these countries had, by the summer of 1985, fallen to about 14-15 mbd, or more than 1 mbd below the reduced production ceiling. Virtually all of the decline was absorbed by Saudi Arabia (the swing producer), whereas several other OPEC members maintained their output, in some cases at levels above the production quotas, through increased reliance on price discounting (from the official export prices) or sales at market-related prices. By August 1985, Saudi Arabia's production had fallen to only about 2-2 1/2 mbd, or less than one fourth of its average output in 1980-81. As at that point there was virtually no room for further

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1/ The spot prices depicted in Chart 4-1 are those of the most widely traded crude oils (Brent and Ekofisk in the North Sea and West Texas Intermediate (WTI) in the United States) as well as the OPEC marker crude (Arab Light, produced by Saudi Arabia).

2/ Recent developments in oil consumption are discussed in more detail in the following section.

reduction, 1/ the swing producer had lost the incentive and ability to perform its function in an almost continuously declining market.

It was against this background that a major shift in Saudi Arabia's oil policies took place in September 1985. Its major elements were the abandonment of Saudi Arabia's role as a swing producer, a change in the previous practice of selling crude oil only at the official export prices, and the restoration of Saudi Arabia's oil production and market share. The latter objective was achieved mainly by the entering into of a number of crude oil sales agreements with major oil companies under which the price of crude oil was directly linked to the spot market prices of the refined products extracted by the particular crude oil (so-called refinery netback prices). 2/

A further development in late 1985 with major implications for the oil market was the decision reached by the members of OPEC at their meeting on December 7-9, 1985 to "... secure and defend for OPEC a fair share in the world oil market..."; a ministerial committee was appointed to study the question of how this objective was to be achieved. Although previous decisions on prices and production quotas were not changed, the December OPEC decision was generally interpreted by market participants as a de facto abandonment of the policy of attempting to administer international crude oil prices through the maintenance of agreed official export prices and concerted output restraint.

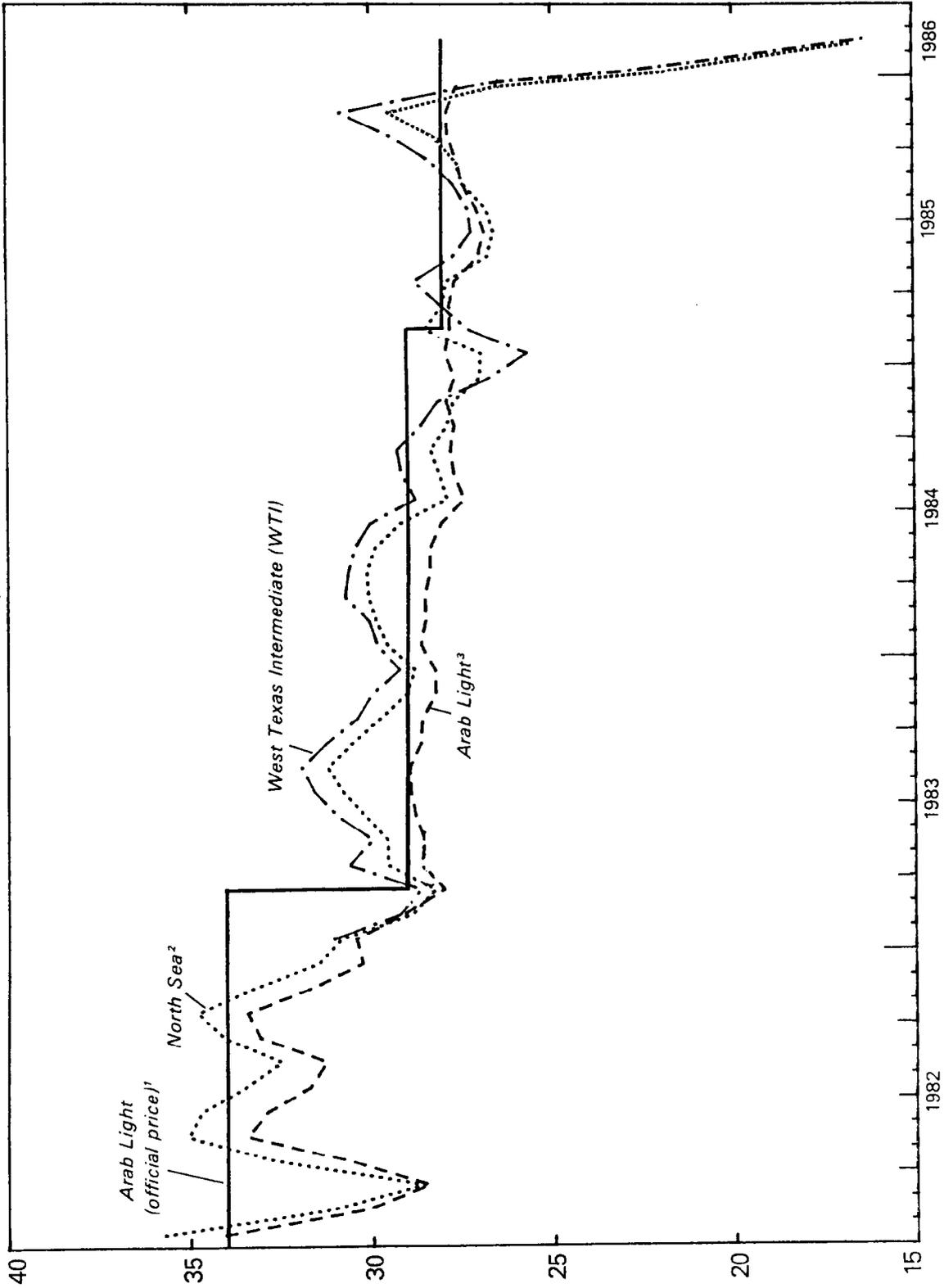
Largely as a consequence of these developments, total OPEC production increased considerably (by almost 3 mbd) from the third to the fourth quarters of 1985 and remained at a high level in early 1986. Although most of the increase was accounted for by Saudi Arabia, several other oil exporters also raised their output, in part through increased reliance on sales arrangements at netback prices. While the rise in OPEC production since September 1985, coupled with a shift toward market-related pricing, did not have an immediate impact on the oil market, as it occurred during a period of seasonal upturn in oil consumption, it had a powerful effect in early 1986.

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1/ The sharp fall in Saudi Arabia's crude oil production had, in addition to bringing about a steep decline in foreign exchange earnings and budgetary revenue, begun to impinge on domestic requirements of associated gas (produced in conjunction with crude oil).

2/ Although the exact formulae differ, a typical netback price is determined by calculating the weighted average spot market price (generally at the time of arrival of the crude oil at the refinery gate) of the refined products extracted by a particular crude oil and subtracting from that price total refining costs (often including an agreed profit margin) and the cost of transporting the crude oil. Such netback prices can differ significantly because of the varying product yield patterns of individual crude oils, regional differences in product prices, and different characteristics of oil refineries.

CHART 4-1  
SPOT MARKET PRICES FOR SELECTED CRUDE OILS, 1982-86  
(in U.S. dollars per barrel)



<sup>1</sup> OPEC's marker crude oil.  
<sup>2</sup> Average of Brent and Ekofisk.  
<sup>3</sup> Representative quotations are not available after 1985.



Following an initial sharp drop after the announcement of the OPEC communique on December 9, spot market prices recovered partially in the latter part of December 1985 to approximately their levels in mid-year. In January 1986, however, the large buildup in OPEC production in combination with lower than expected demand for heating fuel--reflecting the unusually mild weather since mid-December in both Western Europe and the northeastern part of the United States--led to the emergence of a major short-term supply/demand imbalance. Spot market prices for both crude oils and refined products began to fall sharply with a major price break occurring in the latter part of January 1986. The spot market prices for some crude oils had by the first half of February 1986 fallen well below \$20 a barrel. Prices in early 1986 were also highly volatile, being influenced by speculative trading in both the spot and forward markets. <sup>1/</sup> While the average price of oil in international trade in this period cannot be assessed with any degree of certainty, the fall in products prices had driven down the calculated crude oil netback values to below \$20 a barrel in the first half of February 1986.

Although recent developments in the oil market were conditioned by the large reduction in world demand for oil from (and the loss in market share of) the members of OPEC over the past several years, it is important to note that the precipitous drop in oil prices in early 1986 did not take place because of any major or sudden drop in demand for oil at that time. Instead, it occurred because of a major relaxation--if not formal abandonment--of the policy of concerted output restraint by the major oil exporting countries and the simultaneous shift to market-related pricing. In essence, the price of oil had been left free, at least temporarily, to find its own level for the first time in a long period. <sup>2/</sup> Because of the low short-term price elasticity of demand for oil and the continued existence of considerable unused production capacity in countries where production costs are very low (generally less than \$2 a barrel), and which have the ability to reintroduce considerable production restraint at any time, this has created an unstable situation in which the price of oil can swing widely (in either direction) within a relatively short period.

In view of the adverse effects of such swings for producers of oil (and the world economy at large), <sup>3/</sup> it is probable that some form of structured oil market system will eventually reemerge from the present situation. As the maintenance of adequate and flexible output restraint

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<sup>1/</sup> Trading activity was concentrated in the Brent and WTI crude oils, the two crudes preferred by speculators, and representative quotations for some other crude oils (including Arab Light) are not available for January-February 1986.

<sup>2/</sup> Prior to the assumption of control over the determination of oil prices by members of OPEC in the early 1970s, the major international oil companies exercised a stabilizing influence on the oil market and the level of prices.

<sup>3/</sup> See Supplementary Note 6, section 3.

will for some time be a prerequisite for any stability in the general level of oil prices, 1/ and as it also appears that such restraint cannot, in current circumstances, be implemented for long by individual producers acting alone, it is likely that any such system will necessitate some form of collective responsibility for managing supplies. Its nature and the configuration of its participants may, however, differ from the system existing in the past few years.

The change in the method of crude oil pricing, from a system of fixed official prices based on the price of a benchmark crude oil--changed from time to time by joint decisions by the members of OPEC--to one of market-related pricing, will probably be more difficult to reverse. The price of oil had already become more directly responsive to short-term market forces because of several related developments over the past few years. These include the growing importance of the spot market for crude oils (at the expense of the term-contract market), the emergence of futures markets for both crude oil and refined products, the increasing fragmentation of the oil market and rise in the number of market participants, the tendency toward disintegration and restructuring of the oil industry following the loss of ownership or control of oil reserves by the major oil companies, the greater flexibility of oil refineries to use different crude oils (which has led to enhanced transmission of price influences between the markets for crude oil and refined products), and a recent shift in world oil trade from crude oils to refined products associated in part with the construction of new export refineries in oil exporting countries. Of major importance, of course, were the practices of several oil exporting countries (inside and outside of OPEC) to formally or de facto abandon the official selling prices 2/ or to provide varying discounts from these prices. Despite these developments, however, the official selling prices were still of importance in 1985, at least in providing benchmarks for a significant portion of oil moving in international trade.

With the turn of events in the oil market in the latter part of 1985, the transformation of the pricing system from fixed official selling prices to market-related prices was virtually completed in a short period of time. A factor of particular significance was the increasing reliance on netback pricing, as this method of pricing provides a direct link between the price of crude oil and the prices paid by end-users of petroleum products. At the same time, it provides for a sharing of the risk of short-term changes in oil prices between refineries and crude oil producers.

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1/ In a situation with no restraint on output by any producer, the price of oil would fall to a very low level. Such a development would probably be associated with large shifts in the distribution of world oil production and the price of oil would remain unstable, at least potentially, as output restraint could be reintroduced at any time.

2/ An important development was the shift to market-related prices by the North Sea producers in the latter part of 1984.

Although it is not easy to predict the future evolution of the international oil market in the present situation, it is possible that a flexible pricing system--under which crude oil sales will be based on spot prices, netback values, or some other market indicators--will be a permanent feature. The main rationale for such an expectation is not so much the recent events as the likelihood that the structural changes in the oil market over the past several years, noted above, will prove irreversible. As the breakdown of the previous oil market system resulted, to at least some extent, from the difficulties encountered by the major oil exporting countries in attempting to control production through concerted action and simultaneously adhere to agreed and fixed official export prices, a market-oriented pricing system might, in fact, provide for greater longer-term stability in the oil market. At the same time, however, it will pose a challenge in managing supplies in a flexible manner as oil prices will remain volatile in the short run, in part because of the seasonal variations in oil consumption and shifts in demand between various oil products and geographical areas.

### 3. Recent developments in consumption, production, and trade in oil

The first half of the 1980s witnessed a remarkable shift in the direction and pattern of world energy use. The most important changes occurred in the industrial countries which currently account for about one half of world energy consumption and more than two thirds of total energy use in the member countries of the Fund. In the developing countries, trends in oil and energy consumption have also departed significantly from previous longer-term trends, but for the developing world as a whole the more important changes have occurred on the supply side.

While the earlier close link between changes in total output and energy consumption had already begun to weaken in the industrial countries in the second half of the 1970s, the trend toward increased efficiency of energy use gathered strong momentum only after 1979. With the continuing impact of the 1973-74 oil price increases sharply reinforced by the effects of the more important escalation of prices from early 1979, the overall use of energy per unit of output in the industrial world declined by more than 3 1/2 percent a year in the 1980-83 period with only a moderate tendency toward deceleration (Table 4-3). As the international oil price increases were almost universally passed through to consumers in importing countries and contributed to a considerable rise in prices of other energy products, particularly natural gas, the average real price of energy paid by end-users in the industrial countries rose by almost 40 percent from 1978 to 1982.

Table 4-3. Industrial Countries: Changes in Oil and Energy Consumption, 1974-85

(Changes in percent, except as noted)

	Average 1974-79	1980	1981	1982	1983	1984	1985
Oil consumption	½	-7½	-6½	-5	-2	2½	-1½
Non-oil energy consumption	2	1½	1½	-1½	1	5	3
Energy consumption	1	-3	-2½	-3	-½	4	1
Consumption per unit of of output							
Oil	-2	-8½	-8	-5	-4½	-2	-4
Total energy	-1½	-4½	-4	-3	-3	-½	-1½
Ratio of oil consumption to total energy con- sumption (in percent)	54-51 <u>1/</u>	49	46½	45½	45	44½	43½

1/ For the years 1973 and 1979, respectively.

Although real domestic prices of oil and total energy products in the industrial world as a whole had already started to fall in 1982 and 1983, respectively, the gains in the overall efficiency of energy use were sustained in 1984 and 1985, albeit at a reduced pace. The rate of decline in energy use per unit of output is estimated to have been somewhat larger in 1985 (about 1 1/2 percent) than in the preceding year (1/2 percent), a development that may be explained in part by the impact on energy consumption of the unusually cold winter in 1983-84 and by the more pronounced shift in industrial activity than in growth of total GNP as the strong recovery in industrial output in 1984 was followed by a marked deceleration in 1985. 1/

In addition to the sustained trend toward increased efficiency of overall energy use, the period since 1979 also witnessed a marked replacement of oil by other forms of primary energy. Whereas the use of total energy per unit of output in the industrial countries declined cumulatively by about 15 percent from 1979 to 1985, consumption of oil per unit of

1/ The industrial sector is a relatively large user of energy, and a cyclical upturn in industrial production is often associated with increased utilization of older (and less fuel-efficient) equipment.

output fell by almost 30 percent. As a result, the share of oil in total energy consumption of these countries, which had already been reduced from 54 percent in 1973 to 51 percent in 1979, fell to an estimated 43 1/2 percent in 1985. Non-oil energy consumption increased significantly in both 1984 and 1985 with the increase shared by all major energy sources. The growth in production and use of nuclear energy was particularly rapid (about 17 percent a year) because of increased utilization of existing capacity and the commissioning of several new nuclear plants. Coal consumption also rose considerably in the United States, while in Western Europe natural gas had the greatest penetration.

Oil consumption (as well as total energy use) in the industrial countries in the early 1980s was also affected by the prolonged recession and the particular weakness in energy-intensive industrial production, which reflected in part the structural changes in the economies of these countries. As a result of all these factors, total oil consumption in the industrial world fell by nearly 20 percent from 1979 to 1983, although at a gradually declining rate (Table 4-3). Mainly because of the strong recovery in economic activity in some major countries since the latter part of 1983, oil consumption increased by about 2 1/2 percent in 1984. With the renewed slowing of growth, however, consumption declined again (by an estimated 1 1/2 percent) in 1985. In addition to the changes in economic activity, the levels of total oil consumption in the industrial countries in the past two years were significantly affected by the coal miners' strike in the United Kingdom, which led to a large-scale shift from the use of coal to heavy fuel oil for power generation in that country in 1984 and a subsequent switching back to the use of coal when the strike ended in early 1985. Moreover, because of the cold winter of 1983-84, oil consumption in the industrial countries was considerably higher in the first quarter of 1984 than in the corresponding period of 1985. The relatively mild weather in some major consuming areas in December 1985 and January 1986, noted earlier, appears to have led to a temporary weakening of oil consumption in this period.

When allowance is made for the impact of weather conditions as well as the coal miners' strike in the United Kingdom, demand for oil in the industrial countries was relatively stable in the second half of 1985 and has recently tended to firm slightly. It appears, therefore, that the period of falling oil consumption may have come to an end. This development reflects, to some extent, a further lessening of the effects of the oil price increases in 1979-81 and the growing influence of the subsequent fall in prices. Changes in domestic oil prices among the industrial countries have, however, differed markedly in recent years. During the 1982-85 period, the real price of oil for end-users is estimated to have declined by about 23 percent in the United States, by about 10 percent in Japan, and to have remained virtually unchanged in Western Europe. 1/

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1/ According to data prepared by the International Energy Agency.

The different behavior of domestic oil prices in the United States and Western Europe, which to a large extent reflected the impact of exchange rate developments on the landed cost of oil imports in local currency terms (Chart 4-2), 1/ probably served to accentuate the impact on oil demand of the differential rates of economic growth in these regions over the past two years. Whereas all of the increase in total oil consumption in the industrial world from 1983 to 1985 was accounted for by the United States, in Western Europe consumption declined moderately. While oil consumption also declined in Japan, which maintained a high rate of economic growth over the two-year period, this can be explained in part by an unusually large replacement of oil by other forms of energy in that country in 1985.

The lack of comprehensive and up-to-date statistics precludes an adequate analysis of recent developments in total energy demand of the developing countries. Available information indicates that total oil consumption in these countries, 2/ after having expanded at a rapid rate (about 7 percent a year) from 1973 to 1979, continued to rise through 1985, in contrast to the experience of the industrial countries. Nevertheless, the growth in total oil use of the developing world slowed markedly to less than 2 percent a year in the 1980-85 period. Of more significance than changes in the aggregate oil demand of these countries, however, was the experience of different groups of countries. Whereas oil consumption in the 26 net oil exporting developing countries (including the 13 members of OPEC) continued to rise, although at a much reduced rate, total consumption in the much larger group of net oil importing developing countries declined moderately in 1981 and remained virtually unchanged in the following four years at a level of about 7.2 mbd (Table 4-1).

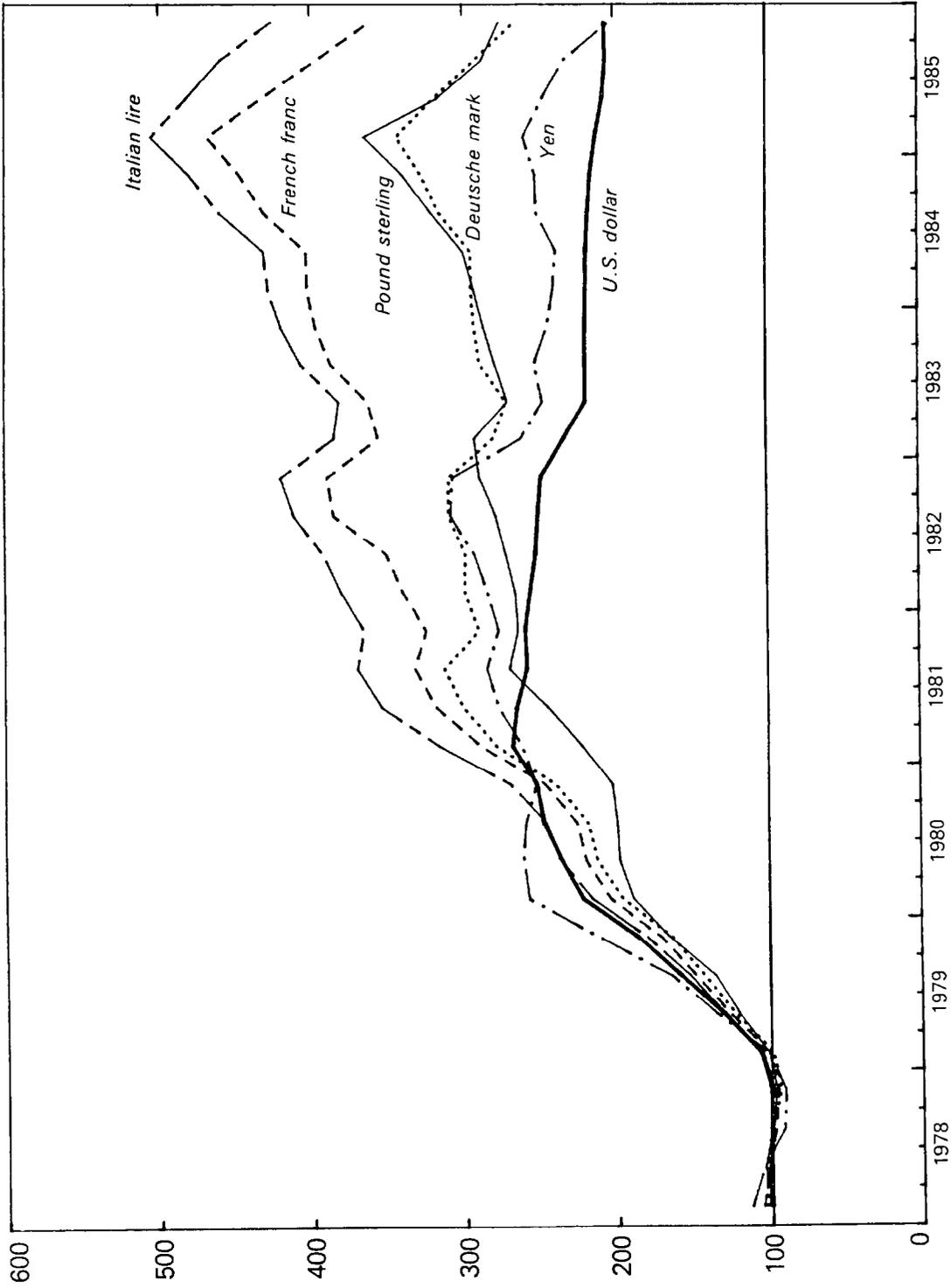
Although the stability in oil consumption of the net oil importing developing countries in recent years contrasts with the marked decline in oil use by the industrial countries since 1979, it has entailed a considerable effort on the part of many countries to curtail the demand for oil. Apart from their already low level of oil consumption per capita, some of the main obstacles to oil conservation in developing countries include the scarcity of investment capital for the development of oil substitutes, increasing urbanization, and relatively large concentration of oil use in industry and agriculture. Nevertheless, because of the persistent foreign exchange constraints facing the net oil importing developing countries, virtually all of them have taken a number of measures aimed

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1/ These changes resulted primarily from the appreciation of the U.S. dollar through the first quarter of 1985. While the subsequent depreciation of the U.S. dollar resulted in a substantial fall in the international price of oil in terms of currencies other than the U.S. dollar in the last three quarters of 1985, the impact on oil demand in 1985 was probably relatively small because of the lags involved.

2/ Consumption for several countries are derived from data on production and trade in oil.

CHART 4-2  
AVERAGE EXPORT PRICE OF PETROLEUM  
IN TERMS OF MAJOR CURRENCIES, 1978-85<sup>1</sup>  
(1978=100)



<sup>1</sup> Average export price of 12 major oil exporting countries in national currency units per barrel. Indices are based on quarterly average prices and exchange rates.



at limiting oil consumption and imports, of which the most important have been increases in domestic petroleum prices. <sup>1/</sup> In addition to the direct impact of such measures, the stagnation in total oil consumption of these countries during the past five years has, of course, also reflected the much slower growth experienced by them in this period than during the 1970s.

The stability in total oil consumption of the net oil importing developing countries in recent years conceals important differences between individual countries and regions. Whereas consumption has declined substantially in the Western Hemisphere, with the large drop in Brazil since 1979 being of particular importance, it has continued to rise in several other countries, particularly in the Asian region. In 1985, India appears to have overtaken Brazil as the largest oil consumer among the developing countries.

The trends in consumption of the industrial and developing countries, discussed above, have led to a marked shift in the composition of world oil consumption (excluding the U.S.S.R. and certain other countries that are not members of the Fund) <sup>2/</sup> over the last number of years (Table 4-4). The share of developing countries increased from 18 percent in 1973 to 25 percent in 1979 and rose further to about 31 percent in 1985 due mainly to the continuing rise in consumption of the net oil exporting developing countries. Although the 1985 distribution of world oil consumption is not expected to change markedly in the near future--with all major groups of countries expected to experience a moderate growth in consumption--the trend since 1973 toward relatively greater oil use in developing countries is likely to continue in the medium to longer term.

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<sup>1/</sup> In the past few years, most oil exporting developing countries have also raised domestic oil prices substantially, often with a view to strengthening budgetary positions.

<sup>2/</sup> Although available information on developments in these countries (listed in footnote 8 of Table 4-1) is fragmentary, it appears that their total consumption has tended to decline moderately in the past few years due mainly to significant substitution of natural gas for oil in the U.S.S.R. that was made possible by the continuing large rise in natural gas production in that country. The U.S.S.R. accounts for some 85 percent of total oil consumption in these countries.

Table 4-4. Distribution of World Oil Consumption, 1973-85 <sup>1/</sup>

(In percent, except as noted)

	1973	1979	1984	1985
Industrial countries	82	75	70	69
Developing countries	18	25	30	31
Net oil exporters <sup>2/</sup>	7	11	15	16
Net oil importers	11	14	15	15
Total	100	100	100	100
Total (in millions of barrels a day)	48.5	54.0	48.4	48.1

<sup>1/</sup> Excluding consumption in the nonmember countries of the Fund which are included in the group of "other countries" in Table 4-1.

<sup>2/</sup> Includes the 26 net oil exporting countries listed in footnotes 6 and 7 in Table 4-1.

Changes in aggregate world oil production in recent years have, of course, mirrored the developments in total consumption discussed above, although there have been significant differences in some years, which have resulted mainly from changes in the level of world inventories. While world oil production declined overall by about 13 percent from 1979 to 1985, of greater significance was the marked shift in its distribution that took place in the period. The share of the major oil exporting countries (or the members of OPEC) fell from almost one half in 1979 to only 30 percent in 1985, a marked acceleration of the loss in market share observed in the preceding six-year period (Table 4-5). While the relative shares of all other major groups of countries increased in the first half of the 1980s, even in absolute terms total production outside the members of OPEC rose considerably in the period, despite the reduction in world oil demand.

The continuing rise in total oil production in areas outside the major oil exporting countries reflected, to a large extent, the development of oil reserves that had been discovered in the early 1970s, particularly in the North Sea, Mexico, and Alaska, but more recently also the impact of the increased incentives for oil exploration resulting from the 1979-81 oil price increases. In part because the new production that was brought on stream entailed a relatively high investment cost--the total cost of production is generally much higher than in OPEC countries--producers have tended to maximize the use of installed capacity by pursuing

Table 4-5. Distribution of World Oil Production  
and Net Oil Exports, 1973-85 1/

(In percent, except as noted)

	1973	1979	1985
<u>World oil production</u>			
Major oil exporters <u>2/</u>	53	48	30
Other developing countries	7	11	19
Net oil exporters	5	9	14
Net oil importers	2	2	4
Industrial countries	24	22	29
Net oil exporters	--	3	6
Net oil importers	24	19	23
Other countries	<u>16</u>	<u>19</u>	<u>22</u>
Total	100	100	100
Total (in million barrels a day)	58.2	65.7	57.1
<u>World net oil exports 3/ 4/</u>			
Major oil exporters <u>2/</u>	95	88	64
Other developing countries	2	6	18
Industrial countries	--	--	8
Other countries <u>4/</u>	<u>3</u>	<u>6</u>	<u>10</u>
Total	100	100	100
Total (in million barrels a day)	31.2	32.4	21.2

1/ For classification of countries, see Table 4-1.

2/ Members of OPEC, except for the exclusion of Ecuador and Gabon and the inclusion of Oman, three relatively small net oil exporters. The data for this group are virtually identical with those of the members of OPEC.

3/ The aggregate oil trade balances of countries that have been net oil exporters since 1980.

4/ Excluding exports from the U.S.S.R. to other member countries of the Council for Mutual Economic Assistance (CMEA).

more flexible pricing policies than OPEC member countries. <sup>1/</sup> Although most of the rise in total non-OPEC production was accounted for by countries that have been, or have recently become, net oil exporters, oil production also increased significantly in a number of net oil importing countries where the producers--in developing countries mostly governments or national oil companies--are often not faced with external competition in their domestic markets. Consequently, almost all producers outside the members of OPEC, with the exception of Mexico, <sup>2/</sup> have been producing at close to capacity levels in recent years despite the weakening of demand and prices.

As the residual suppliers of oil to importing countries, the members of OPEC experienced a fall in their total output from 1979 to 1985 that was approximately two and one half times as large as the decline in world oil consumption in the period, and their total export volume dropped by more than one half. <sup>3/</sup> Nevertheless, as a significant portion of the rise in output in other countries was absorbed in their domestic markets, the members of OPEC still accounted for almost two thirds of world oil exports in 1985 (Table 4-5). <sup>4/</sup> However, it should be noted that world oil trade has fallen to a considerably greater extent, in both absolute and relative terms, than the decline in world oil consumption since 1979, a circumstance that has tended to narrow the scope for output restrictions.

After having increased, on average, by about 2 1/2 percent a year from 1979 to 1983, total non-OPEC production rose at a somewhat more rapid rate in 1984, mainly because of an upturn in crude oil production in the United States and an acceleration in the growth of oil output of the developing countries, combined with further expansion in North Sea production. In 1985, however, the further rise in total production of these areas slowed significantly as output in the United States started to level off, while production in the U.K. sector of the North Sea began to near its peak. Elsewhere in the industrial world, Norway's output continued to rise, particularly in the latter part of 1985, and significant production increases were also recorded in Canada and Australia. In the non-OPEC developing countries, output rose at almost the same pace as in 1984, led by sizable increases in China and, to a lesser extent, in Egypt. Approximately four fifths of the further steady rise in oil production in the net oil importing developing countries in the past two years was accounted for by Brazil and India.

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<sup>1/</sup> In some cases, a substantial part of any reduction in prices is being absorbed by the taxes paid by oil companies.

<sup>2/</sup> Mexican production has been held virtually stable at a level of about 3 mbd since 1982 and crude oil exports have been limited to an annual ceiling of 1.5 mbd.

<sup>3/</sup> As noted in the preceding section, the composition of output among the members of OPEC has also changed significantly, particularly in 1985.

<sup>4/</sup> The aggregate of world oil trade balances of countries that are net oil exporters. Excludes exports of the U.S.S.R. to other member countries of the CMEA.

An important reason for the slowdown in total non-OPEC production in 1985 was the fall in oil output of the U.S.S.R., the world's largest producer. This decline, which started in 1984 following a continuous upward trend in production for several years, appears to have resulted partly from the gradual loss of productive capacity in some major oil fields (reportedly caused in part by oil field management problems) and the lack of large discoveries in recent years. Although efforts are now being made to improve field operations and recovery methods, it is uncertain whether a further decline in output of the U.S.S.R. can be avoided in the near future.

The changes in world oil consumption and production discussed above, coupled with the large movements in the price of oil, have led to major shifts in world oil trade balances (in U.S. dollar value terms) in recent years. The combined oil export value of the major oil exporting countries, after having more than doubled from 1978 to 1980 (to about \$280 billion), fell in each of the following five years and had by 1985 reached approximately the level of 1978 (\$134 billion). The main counterpart to this change, of course, was the fall in the net oil import value of the industrial countries from about \$260 billion in 1980 to about \$150 billion in 1985. Although changes in oil trade balances of the developing countries (outside the major oil exporting group) have been much smaller in absolute terms, the fall in the net oil import bill of the oil importing developing countries of about one third from a peak of \$71 billion in 1981 to about \$48 billion in 1985 has been of particular importance for these countries. The decline reflected not only the fall in the oil import price but also the growing oil self-sufficiency of these countries, particularly of the two largest consumers (Brazil and India). For the 14 net oil exporters that are not included in the group of major oil exporters, the net oil export value continued to increase through 1984--as the rise in volume more than offset the fall in the average price--but then declined slightly (by about 2 percent) in 1985.

#### 4. Outlook for the oil market and prices

Given the current situation in the world oil market, it is obviously not possible to predict the average oil price level in 1986 and 1987 with any degree of confidence. Although prices will continue to be affected by developments in oil and energy demand, there can be little doubt that supply-side factors will be the dominant influence on the evolution of oil prices in this period. As both the composition and total volume of world oil production may be subject to significant shifts, and with the change to market-related pricing, it also seems likely that oil prices will be quite volatile in the near future.

World oil consumption will be influenced primarily by the level of economic activity in the industrial countries, by further shifts in the composition of total energy consumption, and by the demand response to the recent fall in international oil prices. The latter response will depend importantly on the price level that will eventually emerge, on the expectations for future prices changes, as well as on the extent

to which the fall in oil prices will be passed through to consumers in major oil importing countries. The uncertainties attached to each of these factors obviously makes any projection subject to a significant margin of error. However, on the basis of the average oil price level for 1986-87 assumed in this report (\$20 a barrel), world oil consumption is initially expected to be affected by the oil price decline to a relatively limited extent; as discussed below, the effects could be much more important with a significantly lower level of oil prices. In view of the availability of substantial spare capacity in production of other forms of energy and the likely sympathetic responses of prices of such fuels to the oil price decline, the switching from oil to coal, natural gas, and nuclear energy that occurred in 1985 is likely to be retarded only moderately during the next year or two. Prospective changes in world economic activity--with growth in real GNP expected to rise only moderately in 1986-87--also do not point to any major upturn in world oil and energy consumption in the immediate future. Taking all these factors into account, it is expected that world oil consumption will rise at an annual rate of about 1-1 1/2 percent in 1986-87 with some tendency toward acceleration during the period. The growth in consumption is likely to be somewhat higher in developing countries than in the industrial world.

The key issue in the determination of oil prices in 1986 and 1987, as discussed earlier, is the extent to which production restraint will be exercised by the major oil exporting countries (inside and outside of OPEC). In the circumstances prevailing in mid-February 1986, such restraint would seem to require some form of agreement on concerted action. Without such an agreement--which may be difficult to achieve in the near future because of the different perceptions of the optimal price and appropriate strategies among the oil exporting countries--it is possible that competition for market shares could intensify and drive the price of oil down to very low levels. 1/ Although the floor for crude oil prices would, in such a situation, probably be in the \$5-10 a barrel range, 2/ it would appear unlikely that the price would remain at such a low level, or even below \$15 a barrel, for an extended period of time. At a price level in the range of \$12-18 a barrel, the demand response may be quite significant, as some energy conservation programs would no longer be economical and as considerable switching back to oil from other forms of energy may begin to occur. 3/ Such effects would, of course, depend importantly on price expectations of market participants and may not be very large if the lower level of prices is expected to be

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1/ This possibility is particularly significant during the forthcoming period of seasonal decline in oil demand.

2/ Virtually no oil fields worldwide (even in high cost areas such as the North Sea) have operating costs above this range.

3/ Such reverse fuel switching would initially affect mainly the use of heavy fuel oil, particularly in electricity generation and industrial plants with dual- or multi-fuel burning capability.

temporary. Of more importance than the demand response to a very low level of oil prices, however, is the probability that it will eventually lead to an agreement to restore considerable production restraint because of the severe financial implications for oil exporting countries. Depending upon the degree of restraint exercised, such an agreement could quickly lead to a significant recovery of oil prices. Short-term changes in the price of oil could, of course, also be influenced by changes in inventory behavior. However, this factor will probably not be of importance over the 1986-87 period as a whole as the present inventory position is broadly in line with prospective demand. 1/

Given all the uncertainties inherent in the current situation, and in the absence of any obviously plausible alternative assumption, the staff has adopted as a working assumption for this report that the annual average price of the major oil exporting countries will be \$20 a barrel in both 1986 and 1987. 2/ This would represent a decline of 25 percent from the estimated average price in 1985 (about \$26.70 a barrel). In real terms, the price would decline by about 31 percent in 1986 and by about 4 percent in 1987.

World energy developments in the medium term will be conditioned by the as yet uncertain outcome of the events in the world oil market in early 1986. Although the near term impact of lower oil prices may not be very large, as discussed above, the cumulative effects could be significant over time. While the fall in oil prices will affect both the demand for and the supply of oil, the supply side effects are likely to be the more important, particularly as they will be superimposed upon longer-term tendencies pointing towards slower growth in productive capacity outside the major oil exporting countries in the Middle East.

Although developments since the first round of oil price increases in 1973-74 have shown that the demand for oil is responsive to price changes over a longer period of time, several factors suggest that the response to lower oil prices will be smaller than the response to the earlier rapid escalation of prices. The sustained tendency toward reduced use of energy per unit of output resulted primarily from behavioral changes by end-users of energy that are not easily reversible and from conservation measures mandated by the authorities in consuming countries that are likely to remain in place. Given the considerable time lags in the replacement of the total capital stock (particularly in the housing

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1/ Although the level of commercial stocks has been reduced considerably in the past few years (both in absolute volume and in terms of days of forward consumption), the minimum level of stocks needed for operational purposes has also been reduced because of a more efficient management of stocks and refinery operations by the oil companies.

2/ This assumption was adopted in January 1986 and is used for the projections shown in the Statistical Appendix. However, the staff has also been exploring the consequences of an alternative lower oil price level (see Supplementary Note 6 below).

industry), further gains in the overall efficiency of energy use can, therefore, be expected for some time. Moreover, the substitution of non-oil forms of energy for oil is also likely to be sustained--barring the possibility that oil prices will remain at a low level (say, below \$15 a barrel) for an extended period--in view of the prospective ample supplies of coal and natural gas and the projected further rise in installed nuclear energy capacity (where the lead times are particularly long). <sup>1/</sup> Nevertheless, as the price of oil is becoming more competitive vis-a-vis other fuels and as falling end-user prices will begin to stimulate demand (e.g., in the transportation sector), world oil consumption is expected to expand at a moderately accelerating pace in the medium term. The growth in consumption is likely to be somewhat more rapid in the developing countries than in the industrial countries because of the expected higher rate of growth and closer link between oil use and economic activity in the developing world. Continued financial constraints to interfuels substitution and a rise in energy-intensive industrial production are also expected to stimulate oil consumption in the developing countries. Total world oil consumption is, however, not expected to grow by more than about 2 percent a year in the 1988-91 period.

As discussed in the 1985 World Economic Outlook report, the medium-term prospects for sizable new additions to world oil reserves and productive capacity were already not very promising prior to the recent fall in oil prices, as the returns on world oil exploration have been diminishing with the search for oil increasingly gravitating toward marginal, higher-cost, and less accessible areas. Although recent developments have tended to make the outlook somewhat more favorable in light of significant new finds or improved prospects in some developing countries with active exploration (e.g., China, Colombia, Oman, the Syrian Arab Republic, and the Yemen Arab Republic), on the whole the longer-term picture has not changed significantly. Of added importance in assessing the medium-term prospects, is the likelihood that the recent sharp fall in oil prices will result in a considerable further decline in worldwide drilling activity and overall spending on oil exploration in the near future, notwithstanding a fall in drilling costs. The decline in capital expenditures by the oil companies, which is already in evidence, is being enhanced by the financial constraints facing some segments of the oil industry, in part because of debts incurred in stock buy-back operations and recent merger activities. As the financial incentives for investments in enhanced recovery techniques are also being reduced, and with oil fields in a number of countries reaching maturity, total productive capacity (outside the major oil exporting countries) is likely to rise at a slow pace in the medium term.

The trends in world oil demand and supply, discussed above, are likely to result in a gradual firming of the oil market. However, as the changes in both demand and supply conditions will be slow to materialize,

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<sup>1/</sup> New investments in productive capacity of such energy sources are, however, likely to slow down.

they may not have any significant impact in the medium-term period considered in this report, i.e., through 1991. Moreover, they are subject to uncertainties in at least two important respects: (1) the extent to which governments of consuming countries will allow the fall in oil prices to be passed through to consumers; and (2) the influence of price expectations in a market where the prospective price is likely to remain highly uncertain. As the world as a whole will be faced with considerable unused production capacity for several years, the price of oil could fluctuate within a very wide range. Of major importance for the determination of the price, also in the medium term, therefore, is the extent to which the major oil exporting countries will be able to maintain adequate production restraint. Although it would appear that the difficulties currently encountered by these countries will diminish over time as the remaining world oil reserves become increasingly concentrated in a few countries in the Middle East, the medium-term prospects for maintaining sufficient production restraint will depend on factors (partly political in nature) that are difficult to evaluate at the present time.

For the medium-term baseline scenario used in this report, the staff has assumed that the real price of oil will remain unchanged in the 1988-91 period. Given the assumptions on exchange rates and world trade prices, this would imply an increase in the price of oil of 4 1/2 percent a year in current U.S. dollar terms. In view of the wide margin of error that must be attached to this assumption, the staff has also explored the medium-term implications of an alternative oil price assumption (see EBS/86/43).

Supplementary Note 5

Economic Developments in Eastern Europe and the U.S.S.R. 1/

The year 1985 marked the end of a five-year plan period for Eastern Europe and the Soviet Union in which real net material product (NMP) increased by around 3 percent a year, falling short both of plan objectives and of the rate of economic growth during the preceding five-year period (1976-80). During 1981-85, Eastern Europe confronted a serious external debt problem, which required formal debt reschedulings in the cases of Poland and Romania. By 1985, the external position of most Eastern European countries had strengthened considerably. The U.S.S.R. did not experience the same external problems as Eastern Europe in the early 1980s, but is presently confronted with a deterioration in its external current account position, related largely to lower receipts from energy exports.

All inferences drawn in this note are subject to statistical uncertainties and gaps of information not experienced to the same extent in the cases of most Western industrial countries and should therefore be treated with caution.

I. Developments in 1985

1. Eastern Europe

After a marked upturn in economic activity in 1983 and a further strong expansion in 1984, the six Eastern European members of the Council for Mutual Economic Assistance (CMEA) 2/, taken together, experienced a slowdown of economic growth in 1985 under the influence of an exceptionally hard winter generally and the subsequent impact of drought in some countries on agricultural output. Real net material product (NMP) of the region, after increasing by 4-4 1/2 percent per year in the two preceding years, is estimated to have expanded by about 2 1/2 percent, more than 2 percentage points less than plan targets had called for (Table 1). The shortfall reflected both a deceleration in the growth of industrial production to 3 1/2 percent and a decline in total gross agricultural output of about 1 1/2 percent. Under these conditions, and despite a reduction in net exports of goods and services, real private consumption and real gross fixed investment both grew less rapidly than in 1984. While the deceleration in the growth of private consumption was shared by most countries of the region, the reduction in the rate of investment growth primarily reflected developments in Poland and Romania. Hungary again recorded a reduction in gross fixed capital formation, although at a somewhat slower pace

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1/ This note was prepared in the European Department.

2/ Membership of the CMEA comprises six Eastern European countries (Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, and Romania), the U.S.S.R., Cuba, Mongolia, and Viet Nam.

than in the two preceding years. With few new initiatives of significance, the process of economic reform in Eastern Europe appears to have slowed in 1985.

The slower growth in domestic production in 1985 was accompanied by a significantly smaller increase in the volume of imports than in 1984 (Table 2). The deceleration appears to have been particularly marked in imports from the Eastern European countries themselves and from the U.S.S.R. <sup>1/</sup> As a result, the rise in the share of intra-CMEA trade relative to that of East-West trade which had been observed since about 1980, and had stemmed largely from the sharp financially-induced contraction of imports in convertible currencies, may have been arrested in 1985. The total volume of Eastern European exports, meanwhile, probably stagnated in 1985, following two years of relatively rapid growth. Adverse climatic conditions contributed to this outcome, but growing difficulties in maintaining market shares in Western industrial and in developing countries also played a role. After having worsened for four consecutive years, Eastern Europe's terms of trade are thought to have remained broadly unchanged in 1985.

With regard to transactions settled in convertible currencies, the regions' trade surplus is estimated to have declined by about US\$2 billion, to a total of around US\$5 billion in 1985 (Table 3). The decline largely reflected weaker trade performance in Hungary, Romania and Bulgaria. With the invisibles deficit also narrowing under the influence of lower international interest rates, however, the region's current account surplus declined by somewhat less--probably to about US\$2 billion. Current account surpluses continued to be recorded by Czechoslovakia, the German Democratic Republic and Romania in 1985, while Bulgaria and Hungary moved into current account deficit--a position which continued to obtain in Poland. In addition to the influences noted above on its external transactions in convertible currencies, Eastern Europe began to feel the impact of efforts by the U.S.S.R. to reduce its current account surplus with CMEA partners and to stem a decline in its terms of trade. Some countries experienced a decline in energy imports from the U.S.S.R. other than against convertible currencies, while all countries were required to improve the quality of their exports for nonconvertible currency to the U.S.S.R. In some instances, the latter development was reflected in a reduced readiness on the part of the U.S.S.R. to pay for certain food exports

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<sup>1/</sup> The estimation of changes in the value and volume of trade flows for Eastern Europe and the U.S.S.R. is necessarily an imprecise exercise. The total value of trade is estimated by converting ruble trade (mostly trade among member countries of the CMEA) into U.S. dollar terms and adding to it trade with the convertible currency area computed in U.S. dollars. However, as similar commodity exports and imports are often priced differently in the two markets, the resulting total trade value, and the decomposition of its changes into price and quantity components, are necessarily rough estimates.

from Eastern Europe in convertible currencies. For the Eastern European countries, these changes combined to reduce their ability to achieve continued large current account surpluses in convertible currencies with existing production structures.

Reversing its falling tendency of the three preceding years, the region's external debt in convertible currencies increased in 1985. Taking into account a small increase in deposits with Western banks, net debt increased somewhat less than gross debt, which is estimated to have risen by some US\$6 billion to a level of about US\$66 billion at end-1985. (Table 4). <sup>1/</sup> Although foreign borrowing was stepped up by several countries, much of the increase in debt was accounted for by valuation effects which, for the first time since 1980, resulted in an increase in the U.S. dollar value of debt denominated in other currencies. The level of net external debt relative to annual exports in convertible currencies increased significantly in 1985, but remained below the level reached in the period 1979-82.

The increase in Eastern European borrowing on Western capital markets in 1985 was facilitated by a more favorable attitude of creditors to most countries in the region following significant improvements in their current account and debt positions. After a period of little or no recourse to the financial markets, Bulgaria, Czechoslovakia, and Romania returned to the syndicated loan market in 1985, and the German Democratic Republic and Hungary continued to be active. In addition, Hungary began to tap other segments of the international capital market (e.g., that of note issuance facilities), which have recently been favored by many market participants. There has also been a tendency by the German Democratic Republic and by Hungary to diversify their borrowing in terms of currency of denomination. Poland's access to new borrowing from banks, meanwhile, remained extremely limited.

The terms of bank credits available to Eastern Europe improved further in 1985. Average spreads fell below 3/4 percentage point and were in some cases below 1/2 percentage point, while average maturities lengthened. Under these conditions, some countries of the region sought to repay early some older loans carrying significantly higher margins.

## 2. U.S.S.R.

After a deceleration in the rate of economic growth in 1984, preliminary indications suggest that in 1985 real NMP in the U.S.S.R. again increased by about 3 percent, somewhat below the officially planned rate of 3 1/2 percent. This brought the average growth rate of

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<sup>1/</sup> The measure of net debt employed here and in Table 4 does not take into account the rising volume of trade-related credits extended by Eastern European countries in support of their convertible currency exports.

real NMP over the plan period 1981-85 to somewhat less than 3 1/2 percent, which compares with a plan target of 4 percent and growth of almost 4 1/2 percent a year over the previous plan period 1976-80. Gross industrial production appears to have been broadly in line with plan targets in 1985--increasing by 4 percent for the third consecutive year--even though crude oil output is estimated to have fallen by 3 percent. While a higher-than-planned increase in natural gas production partly offset the shortfall in crude oil output, a sizable increase in domestic energy consumption is estimated to have substantially curtailed the availability of energy products for export. Gross agricultural output, meanwhile, is thought to have remained substantially unchanged, as compared with a planned increase of 6 percent. Over the plan period 1981-85 as a whole, agricultural production is estimated to have risen at an average annual rate of only 2 percent, or approximately half the originally targeted rate of increase. Grain output was particularly disappointing with substantial shortfalls from plan occurring in most years during the 1980s. The slowdown in growth in 1984-85 was reflected mainly in lower rates of capital formation. Consumption, by contrast, appears to have increased slightly faster than total NMP.

The U.S.S.R. does not publish data on its balance of payments. Rough estimates by the staff suggest that after being in approximate balance over the three preceding years, in 1985 the trade account in convertible currencies weakened sharply and may have recorded a deficit of some US\$4 billion to US\$5 billion. <sup>1/</sup> A sharp fall--of perhaps 20 percent--in the value of energy exports, which in 1984 accounted for nearly 80 percent of exports to the developed market economies, was mainly responsible for this outturn. The underlying decline in the volume of energy exports had its origin both in an increase in domestic energy consumption and in lower domestic production, especially of crude oil. Other exports to developed market economies, which have tended to stagnate or fall in recent years, are estimated to have shown a small decline in 1985 as a result mainly of falls in U.S. dollar prices for raw materials.

There is some evidence that the U.S.S.R. reacted to the sharp fall in convertible currency earnings in 1985 by curtailing somewhat the

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<sup>1/</sup> In estimating the U.S.S.R.'s current account balance in convertible currencies, it is generally assumed that all current account transactions with developed Western countries are settled in convertible currencies, with the exception of those with Finland, which enters into annual bilateral payments agreements with the U.S.S.R. However, major problems arise in trying to estimate which transactions with developing countries and socialist countries take place in convertible currencies. Evidence from partner countries suggests that sizable amounts of the U.S.S.R.'s exports to developing countries are in direct exchange for goods, and that a considerable amount of transactions with developing countries takes place within the framework of bilateral clearing arrangements.

volume of its imports from the West. In addition, and perhaps more importantly, it appears to have benefited from sharply lower prices for grain imports, which have increased in volume following a series of relatively poor harvests. As a result, imports settled in convertible currencies are estimated to have fallen slightly in 1985. By contrast, there are no obvious indications that the U.S.S.R. has sold significantly larger amounts of gold on international markets to cover its widening trade gap. Rather, this was covered by a considerable rise in net external debt. Correspondingly, an increase in net interest payments is likely to have ensued which, together with the sharp deterioration in the trade account, is estimated to have resulted in a swing in the current account in convertible currencies from a position of small surplus (of perhaps US\$1-2 billion) in 1984 to a pronounced deficit (of possibly US\$4 billion) in 1985.

The substantial current account deficit gave rise to a perceptible increase in borrowing from international financial markets as well as to some reduction by the U.S.S.R. in its deposits with Western banks. In 1985, the lending terms available to the U.S.S.R. were exceptionally favorable, and in general syndicated bank loans were oversubscribed, with margins over LIBOR falling to one quarter of one percentage point.

## II. Outlook

For the 1986-90 five-year plan period, Eastern Europe and the U.S.S.R. have set output targets that are generally more ambitious than those in the preceding five-year plan which, as noted above, remained in part unfulfilled. The authorities look for the growth objectives to be reached mainly through economies in labor and material inputs--in particular of energy--with only a modest expansion of productive capital. In order to realize the implied increase in the productivity of capital and labor, emphasis is to be given to accelerating technical progress and to strengthening incentives to managers and workers, in part by improving the supply of consumer goods. The promotion of technological cooperation has been a major theme in the coordination of the new five-year plans within the CMEA. However, there may well be an inconsistency between the likely small increases in gross fixed investment and the generally slow progress of economic reforms, on the one hand, and the expectation of rapidly rising technological standards and improved economic efficiency, on the other. The current account position in convertible currencies could remain weaker for the region as a whole than in 1983-84--perhaps substantially so in the case of the U.S.S.R.

### 1. Eastern Europe

Based on the assumption of a recovery in agricultural output, staff estimates for 1986 foresee a modest acceleration in the average rate of growth of real NMP to 3 percent. Gross industrial production is expected to increase by about 4 percent, assuming that bottlenecks in the availability of energy and raw materials (either domestically or

under nonconvertible currency clearing arrangements) do not intensify. To the extent that supplies of such intermediate products are obtained from the U.S.S.R. under ruble settlement, Eastern Europe will probably have to offer manufactured products and foodstuffs to the U.S.S.R. that are superior in quality to those supplied in the past. For most countries, this may imply diverting some convertible currency exportables to the nonconvertible currency area and possibly importing more inputs from the convertible currency area in order to raise the quality of their production. Consequently, and despite the posited recovery in agricultural output and stronger expansion of industrial production, the scope for increasing the region's trade surplus in convertible currencies is likely to be limited in 1986, especially as plans call for a somewhat faster increase in domestic absorption, particularly in investment outlays.

After declining in U.S. dollar terms in 1985, total exports and total imports (i.e., in convertible and nonconvertible currencies) are both forecast by the staff to increase by about 10 percent in 1986. While this is expected principally to reflect a major turnaround in prices in U.S. dollar terms, a stronger volume performance is also foreseen (Table 2). As regards transactions in convertible currencies, a small increase is expected in the trade surplus in 1986. The deficit on services, meanwhile, is forecast to remain broadly unchanged, with net interest payments subject to the opposing influences of higher net debt and lower interest rates. All told, the current account surplus is projected to rise to around US\$3 billion from an estimated US\$2 billion in 1985. Despite the expected rebound of exports in 1986, Eastern European countries continue to face the longer-term challenge of raising the quality and technological standard of their manufactured exports to a level which would make them more easily marketable in Western industrial countries. Recent export achievements have relied to some extent on sales to developing countries which are supported by the extension of trade credits and to that extent do not contribute immediately to cash flow in convertible currencies.

The further evolution of the external debt position in 1986 is likely to differ widely from one country to another. While the German Democratic Republic and Romania remain firmly committed to a further reduction in their net external debt and are again expected to achieve sizable current account surpluses in 1986, Bulgaria, Czechoslovakia, and Hungary are each expected to show approximate balance in their current accounts. In Poland, little change is foreseen in the current account deficit, and the debt situation--complicated by the fact that obligations under earlier reschedulings begin to fall due from 1986 onwards--will be marked by a need for further debt reschedulings.

## 2. U.S.S.R.

The economic plan of the U.S.S.R. for 1986-90 calls for the annual rate of growth of real NMP to accelerate to 4 percent. This is to be accomplished mainly by modernizing industry, enhancing labor discipline,

and strengthening managerial performance. Fixed investment, which is currently expanding at a rate of 2-3 percent per annum, is planned to rise by 4 percent a year over the five-year period. With the production of raw materials, fuels, and energy targeted to rise by only 2-2 1/2 percent annually, attainment of the output and export targets will be critically dependent on the economy's ability to realize a substantial decrease in the material- and energy-intensity of production. Agricultural output is planned to increase at an annual rate of 2.7-3.0 percent, which, if achieved, would permit a considerable reduction in grain imports.

For 1986, real NMP is targeted to grow by close to 4 percent, with a surge in the growth rate of fixed investment to 7 1/2 percent. Gross agricultural and gross industrial production are both planned to increase by almost 4 1/2 percent. Achievement of these targets, and of those for the five-year period 1986-90, is to be facilitated by certain reforms within the existing economic system. In addition to steps aimed at improving labor discipline and the performance of management, greater efficiency is to be sought by streamlining the planning and administrative system and enlarging the scope for decentralized decision-making. In early 1984, a reform experiment was launched giving more autonomy to enterprises in selected industrial branches and regions, at the expense of centralized administrative powers. This experiment is estimated to have covered about 10 percent of national production in 1985 and is to be extended in 1986 and later years.

Little is known about the U.S.S.R's external objectives for 1986 or the 1986-90 plan period. However, in 1986 a further sizable deterioration in the current account in convertible currencies seems to be in prospect, as a result of lower estimated prices for energy exports and considerably higher prices (expressed in U.S. dollar terms) for industrial imports. To a limited extent, the adverse impact of these factors may be offset by an increased volume of energy exports. In addition, an improved agricultural performance would reduce the need for grain imports, while the five-year plan appears to place greater reliance on CMEA-produced capital goods than on imports of Western machinery and technology to modernize and re-equip Soviet industry. Even so, the trade deficit in convertible currencies could widen by around US\$5 billion in 1986 1/--which, with a broadly unchanged surplus on invisibles account, would carry the current account deficit to more than US\$8 billion, or double its estimated level in 1985.

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1/ This estimate is based, inter alia, on an assumed decline in the price of oil exports of about 25 percent and an assumed increase in the price of imports of manufactured goods of about 11 percent, each expressed in U.S. dollar terms.

Table 1. Eastern Europe and the U.S.S.R.: Economic Activity and Prices, 1976-86 <sup>1/</sup>

	<u>Average</u> 1976-80	<u>Average</u> 1981-85	1981	1982	1983	1984	<u>Estimate</u> 1985	<u>Projection</u> 1986 <sup>2/</sup>
(Percent change in constant prices)								
Net material product								
Eastern Europe	3 1/2	2	-1 1/2	--	4	4 1/2	2 1/2	3
Eastern Europe excluding Poland	4 1/2	3	3	2	3	4 1/2	2	3 1/2
U.S.S.R.	4 1/2	3 1/2	3 1/2	4	4	3	3	4
Eastern Europe and U.S.S.R.	4	3	2	3	4	3 1/2	3	3 1/2
Gross fixed investment								
Eastern Europe	3	-1	-6 1/2	-6	3	4	2	5
Eastern Europe excluding Poland	5	--	-1 1/2	-3	--	1 1/2	1/2	5
U.S.S.R.	4	3 1/2	4	3 1/2	5 1/2	2	3	7 1/2
Eastern Europe and U.S.S.R.	3 1/2	2 1/2	1	1	5	2 1/2	2 1/2	7
Gross industrial production								
Eastern Europe	5	2 1/2	-1	1	4	4 1/2	3 1/2	4
Eastern Europe excluding Poland	5 1/2	3 1/2	3	2 1/2	3	4 1/2	3 1/2	4
U.S.S.R.	4 1/2	3 1/2	3 1/2	3	4	4	4	4 1/2
Eastern Europe and U.S.S.R.	4 1/2	3 1/2	2	2 1/2	4	4 1/2	4	4
Gross agricultural production								
Eastern Europe	1	1 1/2	1 1/2	1 1/2	1 1/2	6 1/2	-1 1/2	2 1/2
Eastern Europe excluding Poland	2 1/2	1 1/2	1/2	3	1	7	-2 1/2	3
U.S.S.R.	1 1/2	2	-1	5 1/2	6	--	--	4 1/2
Eastern Europe and U.S.S.R.	1 1/2	2	-1/2	4 1/2	5	2	-1/2	4
(Percent change)								
Consumer prices								
Eastern Europe	3 1/2	11	7	34	8 1/2	6	5 1/2	5 1/2
Eastern Europe excluding Poland	2	2 1/2	1 1/2	6	3	2	1 1/2	1 1/2
U.S.S.R.	1	1/2	1	4	--	-3	1	1
Eastern Europe and U.S.S.R.	1 1/2	3 1/2	3	12 1/2	2 1/2	-1/2	2	2

Sources: Staff estimates and projections drawing on information from national authorities (Hungary, Poland, and Romania), and United Nations publications.

<sup>1/</sup> Differences in historical estimates from those in SM/85/74 largely reflect new information and revised country weights.

<sup>2/</sup> Projections for 1986 represent staff forecasts for Eastern Europe and for the U.S.S.R. staff forecasts based partly on available official plan targets.

Table 2. Eastern Europe and the U.S.S.R.:  
Merchandise Trade, 1981-86 1/

(Percent change in U.S. dollar terms)

	1981	1982	1983	1984	<u>Estimate</u> 1985	<u>Projection</u> 1986
<b>Exports, f.o.b.</b>						
Eastern Europe						
Value	1	3	5	4	-3	10
Volume	--	5	9	8	--	5
Prices	1	-2	-3	-4	-3	5
U.S.S.R.						
Value	4	10	5	--	-8	-4
Volume	2	5	3	3	-6	1
Prices	2	5	2	-3	-2	-5
<b>Imports, f.o.b.</b>						
Eastern Europe						
Value	-3	-4	3	3	-2	10
Volume	-5	-6	5	5	2	5
Prices	2	2	-2	-2	-3	5
U.S.S.R.						
Value	7	6	3	1	2	5
Volume	8	7	4	5	3	--
Prices	-1	-1	-1	-4	-1	5
<b>Terms of trade</b>						
Eastern Europe						
Value	-2	-3	-2	-2	--	--
U.S.S.R.						
Value	3	6	3	1	-1	-10

Sources: Staff estimates and projections drawing on United Nations publications and national trade data.

1/ Including trade of the German Democratic Republic with the Federal Republic of Germany.

Table 3. Eastern Europe and the U.S.S.R.: Current Account  
in Convertible Currencies, 1981-86

(In billions of U.S. dollars) 1/

	1981	1982	1983	1984	Estimate 1985	Projection 1986
Eastern Europe						
Current account balance	-5.5	-0.5	1.5	3.0	2.0	3.0
Trade balance	--	4.5	5.5	7.0	5.0	5.5
Net invisibles	-5.5	-5.0	-4.0	-4.5	-3.0	-2.5
U.S.S.R.						
Current account balance	0.5	1.0	1.0	1.5	-4.0	-8.5
Trade balance	-1.5	--	--	0.5	-4.5	-9.0
Net invisibles 2/	2.0	1.0	0.5	1.0	0.5	0.5
Eastern Europe and U.S.S.R.						
Current account balance	-5.0	--	2.5	4.0	-2.0	-5.5
Trade balance	-1.5	4.0	5.5	8.0	0.5	-3.5
Net invisibles 2/	-3.5	-4.0	-3.5	-3.5	-2.5	-2.5

Sources: Staff estimates and projections, drawing on information from national authorities (Hungary, Poland, and Romania), national trade data sources, and United Nations publications.

1/ Components may not add to totals because of rounding.

2/ Including sales of nonmonetary gold.

Table 4. Eastern Europe and the U.S.S.R.:  
External Debt in Convertible Currencies, 1981-85

(In billions of U.S. dollars)

	1981	1982	1983	1984	<u>Estimate</u> 1985
<hr/>					
Gross debt outstanding					
Eastern Europe	67.0	63.5	61.5	59.5	66.0
Of which: Poland	(25.5)	(26.5)	(26.5)	(27.0)	(29.5)
U.S.S.R.	<u>25.0</u>	<u>25.0</u>	<u>22.5</u>	<u>20.5</u>	<u>26.0</u>
Total	92.0	88.5	84.0	79.5	92.0
Net debt outstanding <u>1/</u>					
Eastern Europe	61.0	58.0	53.0	48.5	53.5
Of which: Poland	(24.5)	(25.5)	(25.0)	(25.5)	(28.0)
U.S.S.R.	<u>16.5</u>	<u>15.0</u>	<u>11.5</u>	<u>9.0</u>	<u>14.5</u>
Subtotal	77.5	72.5	64.5	58.0	68.0
CMEA banks	<u>4.0</u>	<u>3.5</u>	<u>3.5</u>	<u>3.5</u>	<u>4.0</u>
Total	81.5	76.0	68.0	61.5	72.0
Memorandum items:					
Ratio of net debt to convertible currency exports					
Eastern Europe	2.00	1.95	1.75	1.55	1.80
Eastern Europe excluding Poland	1.50	1.30	1.10	0.90	1.00
U.S.S.R.	0.55	0.50	0.35	0.30	0.60
Eastern Europe and U.S.S.R.	1.30	1.20	1.05	0.95	1.25
Ratio of deposits in foreign banks to liabilities to such banks <u>2/</u>					
Eastern Europe	0.14	0.15	0.24	0.34	0.34
Eastern Europe excluding Poland	0.19	0.20	0.31	0.41	0.42
U.S.S.R.	0.53	0.71	0.67	0.68	0.50
Eastern Europe and U.S.S.R.	0.25	0.31	0.38	0.46	0.40
Ratio of short-term debt to banks <u>2/</u> to total gross debt					
Eastern Europe	0.19	0.17	0.20	0.18	0.17
Eastern Europe excluding Poland	0.28	0.25	0.26	0.27	0.28
U.S.S.R.	0.20	0.27	0.31	0.32	0.34
Eastern Europe and U.S.S.R.	0.19	0.20	0.23	0.22	0.22

Sources: United Nations; Organization for Economic Cooperation and Development; Bank for International Settlements; national authorities (Hungary, Poland, and Romania); and staff estimates.

1/ Gross debt less deposits in banks reporting to the Bank for International Settlements.

2/ Banks reporting to the Bank for International Settlements.

Supplementary Note 6

Impact of a Decline in the Price of Oil

1. Introduction

The analyses and projections in the main WEO documents are based on the working assumption that oil prices will average \$20 per barrel in 1986 and 1987, 25 percent less than in 1985. The purpose of this note is to examine the implications for the staff's projections of a lower price of oil. For this purpose, it is assumed that oil prices will average \$15 per barrel in 1986-87 instead of \$20. Needless to say, this assumption is arbitrary. As discussed in the note on the World Oil Situation, the situation in the oil market is highly uncertain, with scope for prices to move over a considerable range. The consequences of a further \$5 a barrel cut in the oil price is examined on two bases: first, on the assumption that this price is expected to be sustained indefinitely and, second, on the assumption that the price change is not sustained and that oil prices have become more variable.

2. Implications of a sustained oil price decline

In analyzing the implications of a sustained oil price decline, it is useful to distinguish among first round (or terms of trade) effects; second round effects, which, given the policy reactions of national authorities, allow for behavioral reactions over, say, a two-year horizon; and medium- to long-term effects stemming from the impact of the oil price change on aggregate supply in fuel importing countries. It is also useful to distinguish among different groups of countries: the industrial countries, the fuel exporting developing countries and the non-fuel exporting developing countries. The first and third of these groups will be collectively referred to as the oil importing countries. <sup>1/</sup> A distinction is also made between the eight Middle Eastern oil exporters, which have traditionally been capital exporting countries, and the other fuel exporting countries, which have traditionally been capital importing countries.

a. First round or terms of trade effects

The first round effects of a \$5 per barrel decline in oil prices are reasonably straightforward. For the industrial countries, the price decline would result in a reduction in the net oil import bill of about \$30 billion and an improvement in the terms of trade of somewhat more than 2 percent. For the fuel importing developing countries, the

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<sup>1/</sup> A more refined analysis might distinguish more strictly between net oil exporting and net oil importing countries. However, the resulting gain in precision would blur the implications for the staff's general assessment of prospects.

reduction in the net oil import bill would be \$8 billion, similar to that for industrial countries when adjusted for differences in the economic size of the two groups. If allowed to feed through to the domestic economy, these changes would imply a 1/3 to 1/2 percent fall in the domestic price level and a commensurate rise in real national income.

The effects on fuel exporting countries would be adverse and considerably more pronounced. The loss in export earnings would amount to some \$33 billion, somewhat less than the reduction in import bill of importing countries because the exports of other countries, notably the U.S.S.R., would also decline. Since oil accounts for some four fifths of the fuel exporters' total exports, a 25 percent drop in oil prices would imply an overall terms of trade loss of some 20 percent. Similarly, with oil exports accounting for close to a sixth of output, the loss in real income would also be severe, some 3-4 percent of GNP.

An important distinction among the fuel exporters is between those that are capital exporters and those that are capital importers. Assuming, for simplicity, an unchanged distribution of oil exports as between these two groups, a drop in the price of oil would hit the capital exporters hardest because of the greater importance of oil in these economies. The loss on the terms of trade for these countries would very nearly equal the full 25 percent drop in oil prices and the loss in real income would reach some 4-5 percent of GDP. However, most of these countries were able to accumulate substantial external assets whilst oil prices were rising. These external assets, as well as the relatively high income levels in their countries, provide something of a "cushion" against the effects of a loss of export earnings. Greater concern attaches to the impact of oil price changes on those fuel exporters which have much more strained external positions and where per capita incomes, on average, are markedly lower. Oil in these economies (the "indebted fuel exporters") accounts on average for two thirds of exports and well over a tenth of income. A 25 percent drop in the price of oil would reduce export earnings by \$14 billion, the terms of trade would deteriorate by 17 percent, and the loss in real income would be close to 3 percent of GDP.

In sum, the first round effects of an oil price change would be quite sizeable and, perhaps even more important, quite unevenly distributed. The terms of trade gain of oil consumers, while significant, would be spread among many recipients. The terms of trade losses of oil producers on the other hand, would be concentrated and proportionately larger.

b. Second round effects

With time, the first round effects would gradually permeate the economies of both oil importing and exporting countries and elicit a number of secondary reactions which could enlarge or offset the initial effects. Such second round effects would, however, be heavily dependent upon the kinds of policies pursued by national authorities and on the

nature of the reaction of financial markets to the reduced creditworthiness of some fuel exporting countries, and of the energy industry in general. These issues are discussed first.

The policy stances pursued by national authorities would have a major impact at least on the shorter run implications of an oil price change. The reaction of governments in industrial countries to the oil price rises of 1979-80 was to significantly tighten both fiscal and monetary policies. This tightening, together with the oil price increases and other developments led to the 1980-82 recession. Such a policy reaction--or rather its symmetrical counterpart, an easing of policy--seems unlikely under present circumstances. Projected growth, although modest, appears to be broadly acceptable to the authorities of the industrial countries. Accordingly, there would be little reason to expect a further decline in oil prices to initiate a significant easing of policy stances.

Indeed, for the industrial countries as a group, fiscal policy might be tightened. Some of the oil and gas producing countries in the group (Canada, the Netherlands, Norway, the United Kingdom, and the United States) might seek to offset the budgetary impact of losses in taxes on the oil/energy industry through increases in other taxes or reductions in expenditures. Moreover, some industrial countries might use the opportunity provided by the beneficial effect of an oil price decline to further consolidate their fiscal positions. In the United States, for example, proposals have been made to tax oil imports or increase gasoline taxes so as to both increase Federal revenues and maintain the momentum of conservation efforts. To the extent that countries use the opportunity of lower oil prices to benefit government revenues rather than the real income of the private sector, the short-term beneficial effects of an oil price change would be delayed or reduced.

With respect to monetary policy, concern continues to focus on the still high level of real interest rates. Accordingly, and given the favorable outlook for inflation, it might be expected that monetary policy as embodied in target rates of monetary expansion might remain substantially unaffected by a decline in oil prices. If so, an oil-induced slackening of the rate of inflation might well result in a further easing of interest rates. The extent to which interest rates would ease would depend on a variety of factors, including other financial market reactions to the oil price decline. However, depending on the extent of the strengthening of real demand and the relationship between the income and interest rate elasticity of demand for money, short-term interest rates might decline more or less in line with the decline in inflation. Long-term rates would be firmer since, given an unchanged path for the monetary aggregates, the deceleration in inflation would be temporary. If, however, the terms of trade effect were absorbed in the form of a reduction in fiscal deficits rather than in domestic price levels, the reduction in interest rates would probably be more permanent and pervasive. In the end, therefore, an oil price decline would seem likely to result in an easing of monetary conditions.

Policy stances among fuel importing developing countries would probably be more mixed, with some countries using the opportunity to strengthen their adjustment efforts and others allowing consumption levels to increase since the prospective level of economic activity in these countries is considerably weaker than among industrial countries. Most of them would probably use the reduction in their oil import bills (equivalent to about 2 percent of imports) to increase imports and domestic real incomes.

Policy stances among fuel exporting countries, on the other hand, would most likely turn sharply contractionary. As noted earlier, because of the much greater importance of oil in these economies, the shock would be proportionately much larger. Given the already strained external circumstances confronting many of these countries, a shock of this magnitude would require major policy adaptations on the part of national authorities.

The capital exporting countries in this group would have some latitude as regards the pace of the adjustment. A few of these countries remain in current account surplus and some could at least for a time probably finance the loss in export earnings through running down external financial assets. Nevertheless, these countries as a group would be under considerable pressure to adjust. With oil prices at \$20 per barrel, they are already expected to incur a current account deficit of some \$18 billion in 1986. This deficit would be equivalent to roughly 23 percent of export earnings. Since a further \$5 drop in oil prices would result in an additional \$18 billion drop in oil revenues it seems likely that they would react by curtailing government expenditures and imports quite considerably.

The extent by which these countries would curtail imports is difficult to establish. The data for the years 1982 to 1985 suggest that adjustment has increased over time with the relationship approaching one to one by the end of the period. On the other hand, the compression in imports already undertaken has been so large for some countries that further adjustments will become increasingly difficult. In the staff's baseline projections, real imports in 1986 are projected to be almost 40 percent below their 1982 peak and 14 percent below their 1978 level. Given these circumstances, these countries might well take some time to effect the further 25 or so percent compression of imports that would be required to adjust to a sustained oil price of \$15 a barrel. It is doubtful that much more than half of the adjustment would be effected within two years.

The scope for choosing between adjustment now and adjustment later would generally be much more limited among the capital importing fuel exporters. These countries are, by and large, heavily indebted and without ready access to the external financing that would be required to enable them to postpone adjustment to a 20 percent or \$14 billion annual loss in export earnings. Given these financing constraints, governments

could be expected to seek pronounced cuts in both fiscal expenditures and imports, as they did in 1982-83. Those cuts had been relatively easy, however, coming as they had on the heels of a period of marked buoyancy. Indeed, they did little more than reverse the preceding surge. Further cuts, however, would occur in a context in which there has been no substantive improvement in living standards for close to a decade, and in which per capita GDP and imports are well below the levels of the mid-1970s. Under these circumstances, the political pressures resisting adjustment could well be considerable and national authorities would be expected to seek ways to phase the adjustment over several years.

Some latitude in this respect would be provided by the reserves accumulated by some of these countries in 1983-85 which, at end-1985, amounted to close to 25 percent of imports for the group as a whole. In the main, however, these countries would be able to phase their adjustment only to the extent that they were able to attract additional external financing. For a number of these countries, this financing would in all likelihood not be forthcoming on a voluntary commercial basis. The grounds for such financing would rather reflect various political considerations; concerns for the stability of the financial system (see below); and concerns about maintaining the capital value of existing commercial claims on these countries, e.g., by avoiding arrears on debt service payments. Whatever the reason, such financing would presumably be tied to the implementation of policies that insured adjustment in these countries' current account balances to the new price of oil within a relatively short time. Although the extent of the adjustment in imports is difficult to gauge, given the relatively cooperative scenario postulated here and considering the adjustment already under way, it might be supposed that perhaps three fourths of the required adjustment in imports would take place within two years.

Besides policy stances, a key issue regarding the likely implications of a drop in oil prices is that of the resilience of financial markets to that decline. As was noted above, oil price changes have asymmetrical effects on consumers and producers, the effects for consumers being small, because widely spread, and for producers large, because narrowly focused. This asymmetry carries over to the banking system, for two reasons: the financial condition of banks tends to be more sensitive to the major reverses of a few customers than to the offsetting but diffused benefits of the many; and the proportion of energy or energy-related loans in banks' portfolios varies widely from bank to bank. As a result, there is a concern that the viability of banks with relatively high proportions of their portfolios in energy loans or loans to regions and countries where developments are dominated by oil might come into question if oil prices fell below a certain threshold. These concerns are compounded by the fear that, because of the highly interconnected character of banking, disturbances in one part of the system could spread to the system as a whole. If so, the implications for, e.g., loan rates, the flow of credit, and exchange rates, could be significantly adverse.

On the other hand, these features of the banking system are well known and considerable attention has been and is being given both by banks and national authorities to increasing the resilience of the system to adverse developments. Thus, banks--prodded in part by bank regulators, but also by a desire to reduce their exposure--have sought to increase the liquidity of their assets, to reduce the energy and energy-related share of their portfolios, to increase their provisioning against eventual loan losses, and to increase their capital base. Similarly, banking regulators have significantly strengthened their monitoring capabilities and tightened banking regulations. As a result, the ability of the system to absorb an oil price decline is now better than it was a few years ago. Nevertheless, the risks and the costs of oil-related disturbances in financial markets cannot be dismissed and probably increase disproportionately with each further decrease in the price of oil.

To summarize, the main features of the policy/financial context of a further \$5 decline in the price of oil would seem to be the following: (1) fiscal stances in industrial countries that, if anything, would be likely to absorb part of the terms of trade gain to further consolidate fiscal positions; (2) an easing of monetary conditions; (3) broadly unchanged to mildly restrictive policy stances in oil importing developing countries; (4) a possibly somewhat more phased adjustment of imports in fuel exporting countries than in the past, chiefly because further adjustment is likely to be politically more difficult than the adjustment that has been carried out so far; and (5) increased risk (to an extent that is hard to gauge) of disruptions in the financial system.

The various features of the situation just listed have offsetting effects, and the importance attached to each of them is likely to vary considerably from observer to observer. Nevertheless, there would seem to be two basic conclusions. First, the relation between costs and benefits is not the same for large and for small changes in the price of oil. A large price change carries more than proportionate risks of provoking disruption. Secondly, because of asymmetries, the gains for oil importing countries from reduction in the price of oil seem likely to be less than were the costs associated with comparable oil price increases in the 1970s. First, there appears to be an asymmetry in the short-term policy reactions of national authorities in industrial countries. Policies moved toward restraint in response to the oil price rises of the late 1970s (because of inflation) and may shift in that direction again, if at all, in response to the oil price declines of late 1985, early 1986 (because of fiscal consolidation). Second, there also appears to be an asymmetry in the exposure of the banking systems of industrial countries to changes in the price of oil. Banks withstood relatively well the oil price rises of the 1970s because the adverse effects were diffused across many oil consumers. They appear, however, more exposed to the latest oil price declines because the costs fall on a much narrower range of bank customers. In the light of these asymmetries, caution needs to be exercised in estimating the effects likely to be associated with a decline in oil prices.

These reservations notwithstanding, the cumulative first and second round effects on oil importing countries of the change in the price of oil of the assumed magnitude would probably be favorable. Assuming no changes in fiscal stance, the immediate effect on inflation would be about twice that resulting from the improvement in the terms of trade alone since, barring increased taxes on energy imports, the price of domestically produced petroleum would adjust to the world price. In time, this primary reduction in inflation would permeate the domestic wage-price nexus and yield a cumulative effect on the price level of the order of 1 1/2 percent after 2 years, for a per annum reduction in inflation of 3/4 percentage point for the period. Assuming unchanged rates of monetary expansion, a significant easing of monetary conditions, i.e., of interest rates, would result. The fall in interest rates would significantly enhance the effects that the easing of inflation would, through real balance and wealth effects, have on domestic demand and output. These expansionary effects would be partially offset by declines in exports to fuel exporting countries. However, given the gradual adjustments paths postulated for these countries, this deflationary element would be more than offset by the expansionary effects stemming from the reduction in inflation and interest rates. Such would not necessarily be the case if fiscal policies were tightened, however, since the expansionary effects would be reduced more or less in proportion to the extent to which the fiscal corrections matched the initial terms of trade effect. The positive effects in this case would be those resulting from the declines in real interest rates. On the assumption that the fiscal offset was moderate and that rates of monetary expansion were unchanged, the overall effect of a \$5 price decline might be to raise output in industrial countries by 1/2 to 3/4 percent after two years.

Oil price effects for a number of oil importing developing countries would be similar to those for industrial countries. The similarity would be most pronounced for the higher income, more industrialized members of this group. For most fuel importing developing countries, however, the secondary expansionary effects would stem more from the beneficial effects of lower international interest rates on debt service payments and of increased industrial country imports rather than from any easing of domestic monetary conditions. Nevertheless, the beneficial effects could still be substantial, with the effect on real GDP probably being of the same order of magnitude as that for industrial countries.

In the fuel exporting countries, the adverse effects on real incomes of a 25 percent loss in oil export earnings would be considerable. As noted earlier, the terms of trade loss alone would amount to 3-4 percent of GDP, a loss which would tend to get amplified as domestic economic agents gradually adjusted their spending to the reduced level of real income. Policies in these countries would, however, be geared to limiting, at least to some extent, the adverse consequences on the economy as a whole, e.g., through sales of foreign assets and, where possible, by allowing increases in public sector deficits. Moreover, governments

could be expected to concentrate on adjusting those expenditures, e.g., technology and import-intensive investment, which resulted in the greatest import reductions for the lowest adverse consequences for domestic incomes. In the same vein, a number of countries might resort to intensified import restrictions aimed at curbing "non-essential" imports, i.e., those which could be cut without undue adverse consequences for output and employment. Moreover, several of these countries could be expected to promote their non-oil exports through exchange rate adjustments and other means. Finally, the task confronting these countries would be eased by any firming of output in oil importing countries and an easing of international interest rates. Nevertheless, even after these mitigating factors are taken into account, these countries would need to effect a large cut in both real imports and absorption so that, overall, real domestic demand might eventually decline by an amount broadly equivalent to that of the initial terms of trade effect. Real GDP, however, would be somewhat better sustained because of the concurrent improvement in the real foreign balance.

If sustained over the medium- to longer-term, a \$5 drop in the price of oil would have beneficial supply-side effects on the economies of oil importing countries. Although expert opinion on the subject is divided, some analysts have associated the slowdown in the growth of total factor productivity in the 1970s to the steep rise in oil prices over that period. On that argument, declines in oil prices could result in raising multifactor productivity and hence per capita incomes in oil importing countries over the medium term.

In the view of some analysts, an additional consideration applies to European economies. It is suspected that the high levels of unemployment prevailing in Europe stem at least in part from the interaction of rigidities in labor market behavior, on the one hand, and the adverse effect on real wage claims of the terms of trade losses associated with past oil price rises, on the other. As a result of these interactions, and despite considerable efforts by national authorities, real wages, on this view, remain above their warranted level, a situation that precludes or at least inhibits the type of employment-based recovery evident in the United States. From this perspective, a decline in oil prices is seen as setting the stage for a resource-absorbing recovery in Europe by inducing, through terms of trade gains, reductions in real labor costs and increases in warranted wages such as to foster employment growth.

### 3. What if price changes are transitory?

The foregoing discussion was premised on the assumption that the oil price change is sustained, or at least perceived to be lasting by market participants. To the extent that the price change was perceived to be transitory, the effects would of course become consequentially smaller and, in the limit, would tend to disappear altogether. Fuel

exporting countries would have a strong incentive to finance rather than adjust to the temporary weakening of their external positions. Similarly, consumers in fuel importing countries would tend to save a high proportion of the transitory rise in real incomes, thus helping to generate the financing required by the fuel exporting countries. Such financing might, however, not be forthcoming for some of the capital importing fuel exporters, even if it was generally agreed that the price change was temporary. If so, the decline in these countries' imports would likely exceed the expansionary effects in oil importing countries so that even the latter countries might end up worse off from a temporary fall in the price of oil.

Similarly, adverse effects would follow if oil prices were to become much more variable in the future than they have been in the past. If oil prices were henceforth to fluctuate randomly between, say, \$15 and \$25 a barrel, this would be equivalent to a succession of shocks to the world economy equivalent to well over one percent of GDP. Shocks of this magnitude could be seriously destabilizing and it would presumably be a matter of time before countries took action to insulate themselves from these disturbances. Fuel importing countries might impose variable levies on oil imports so as to neutralize the effect on domestic energy prices and real incomes. To the extent that domestic prices continued to fluctuate, consumers might be expected to respond with increases in saving rates so as to better cope with the increased variability of their prospective real income streams. Similarly, fuel exporting countries would respond by building up reserves so as to better cope with the increased variability of their prospective export earnings. Aggregated across all countries, the result would be a general rise in world saving as countries sought to cope with the increase in the variability of real incomes. That rise would have a net deflationary effect on the world economy.

Another set of costs associated with oil price changes is the adjustment costs associated with sustained oil price changes. The oil price increases of the 1970s resulted in large capital losses for oil importing countries as large parts of the capital stock became obsolete given the new and largely unquestioned set of relative prices. More generally, the changes in relative prices induced a large-scale and costly reallocation of resources. Additional costs were incurred by oil importing countries in the form of the output foregone as national authorities in these countries sought to re-establish a non-inflationary environment for sustained growth. By the same token, the price declines since 1980 and especially those of the last year have resulted in a renewed string of capital losses and, potentially, a renewed set of adjustment costs. The most obvious of these are the large energy-related investments made by countries for, e.g., oil exploration and extraction, nuclear and hydro-electric energy, strategic petroleum reserves, and new or "alternative" energy sources. Some of these investments were viable only on the assumption that energy prices would remain significantly above present levels. Yet

another kind of cost associated with past oil price changes has been that borne by many fuel exporting countries who, having adjusted their spending patterns to, say, \$30 per barrel oil prices have since had to reduce their spending by even more than required by the decline in oil prices because of the debts accumulated during the phase of rising prices.

These adjustment costs tend to get ignored in flow-oriented analyses. Such analyses often conclude that neither the level nor the distribution of world income would be much affected by a sustained change in oil prices that was later reversed. This ignores, however, the fact that, because of adjustment costs, global wealth ends up lower under the hypothesized conditions than it would have been if actual (or expected) relative prices had not changed.