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Economic Interdependence and the International
Implications of Supply-Side Policies*

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Abstract

This paper analyzes the implications of growing international economic integration for the conduct of structural policy. Section I points out that the internationalization of financial intermediation has raised the welfare costs associated with domestic distortions. The growing importance of structural policies in affecting domestic demand in a more integrated world economy is discussed in Section II. It is shown that domestic distortions reduce the effect of expansionary policy on the domestic economy. Section III examines the international transmission of unilateral structural policies. Section IV discusses the need for the international coordination of structural policies. Section V identifies structural areas in which international policy coordination is most urgent.

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Summary

It is increasingly recognized, especially in a more integrated world economy, that structural policies have important implications that transcend national boundaries. This paper explores how growing international economic integration has affected the conduct of structural policies. It argues that the Internationalization of markets has increased the urgency to reduce domestic distortions through appropriate structural policies for two major reasons. First, the world economy will fail to reap the full benefits from liberalizing international markets unless the removal of domestic distortions accompanies the globalization of markets. In particular, the internationalization of financial markets has tended to raise the welfare costs associated with domestic distortions. Second, as the integration of world markets has proceeded, structural policies have become increasingly important in affecting domestic demand and in determining the success of policies aimed at raising domestic absorption.

After describing the effects of recent investment incentives in the United States on the rest of the world, the paper investigates the international transmission of structural policies more generally. A country that independently pursues supply-side reforms is likely to attract capital from abroad and to worsen its external accounts, especially if these reforms raise the after-tax return on domestic capital or increase the fiscal deficit. At the same time, other countries typically experience capital outflows, which may expose the costs associated with distortions in their economies.

As regards the international coordination of structural policies, various difficulties (in formally coordinating policies) reduce the scope and desirability of coordinating reforms in particular areas. However, there is a greater need and scope than at present for coordinating trade and tax policies. With respect to taxation, countries could make a greater effort, for example, in homogenizing the taxable base for corporate income taxation, the tax treatment of interest income and expense, and the taxation of energy.

The paper concludes with some implications for structural policy in the Federal Republic of Germany. It suggests that particular structural policy measures there can make an important contribution to the international macroeconomic adjustment process by reducing the German investment-savings imbalance. Such measures have become more urgent and desirable in view of structural policy developments in other industrial countries.

At the April 13, 1988 meeting in Washington, D.C., the Finance Ministers and the Central Bank governors of the seven major industrial countries "...agreed that greater attention will be given to structural reforms to increase the flexibility of their economies and to improve growth and adjustment." 1/ This reference to structural reforms was made in the context of the policy coordination agreement reached at the 1986 Tokyo summit and strengthened at the 1987 Venice summit. It implies the recognition, at the highest official level, that these reforms are important and have implications that transcend national boundaries.

In closed economies, structural reforms or supply-side policies affect only the country initiating them. 2/ However, in today's highly interdependent economies, they inevitably have spillover effects on other countries. The size of these effects is likely to depend both on the size of the economy where the reforms occur and on the degree of openness of that economy. Structural reforms in the United States, Germany and Japan, for example, can be expected to have noticeable repercussions on the rest of the world. However, these are not the only countries capable of generating significant spillovers. The remaining Group of Seven (G-7) countries, as well as some other large countries, can also cause non-negligible external effects.

The internationalization of financial markets (see Ralph Bryant, 1987), the increasing importance of foreign trade (see Stanley Fischer, 1987), the growing role played by multinationals (which may set up integrated plants in different countries), and the greater mobility of skilled labor have all contributed to the growing interdependence of the world's economies (see Tables 1 and 2). This interdependence guarantees that policy developments in a large industrial country will be felt by other countries. As the world inexorably moves toward a truly global economy, individual countries are becoming parts of that economy, just as the American states are part of the U.S. economy. It is no longer unusual for, say, an American multinational company, perhaps using Japanese technology and Turkish labor, to produce in Germany, and to sell goods in the United States.

While in recent years much attention has been paid to the domestic aspects of supply-side policies, the international implications of these policies have generally been ignored. However, as indicated by the quotation from the statement of the G-7, this situation is changing; there is a growing recognition that tax reforms, reforms of financial and labor markets, reforms of trading practices, and various types of deregulation affect not just the economy of the country in which they are introduced but also the economies of other nations. Some of the

1/ "Statement of the Group of Seven" issued in Washington, D.C. on April 13, 1988.

2/ In this paper, the terms structural reforms and supply-side policies are used as synonyms.

Table 1. Exports and Imports in G-7 Countries, 1957-86

(As percent of GDP)

	Exports f.o.b./GDP			Imports c.i.f./GDP		
	1957-66	1967-76	1977-86	1957-66	1967-76	1977-86
United States	3.99	4.97	6.52	3.25	5.26	8.80
Canada	15.29	19.60	24.30	15.65	18.76	22.17
Japan	8.84	10.00	11.98	10.20	9.84	10.50
France	10.14	13.52	17.78	10.40	14.51	19.51
Germany	15.78	19.74	25.40	14.20	16.56	22.49
Italy	9.98	15.17	18.85	12.39	16.99	21.15
United Kingdom	14.40	16.38	20.76	16.78	19.95	22.76

Source: IMF, International Financial Statistics.

Table 2. Dimensions of International Bond Markets, 1970-87

(In billions of U.S. dollars)

Year	Eurobonds		Foreign Bonds	Total International Bond Issues
	Total	\$-Denominated		
1970	3.0	--	1.6	4.6
1971	3.6	--	2.6	6.3
1972	6.3	3.9	3.4	9.7
1973	4.2	2.4	3.6	7.8
1974	2.1	1.0	4.7	6.9
1975	8.6	3.7	11.3	19.9
1976	14.3	9.1	18.2	32.5
1977	17.7	11.6	14.5	32.2
1978	14.1	7.3	20.2	34.3
1979	18.7	12.6	22.3	41.0
1980	24.0	16.4	17.9	41.9
1981	31.6	26.8	21.4	53.0
1982	51.6	44.0	26.4	78.0
1983	48.5	38.4	27.8	76.3
1984	79.5	63.6	28.0	107.4
1985	136.7	97.8	31.0	167.8
1986	188.7	119.1	39.4	228.1
1987	140.4	56.7	36.8	177.3

Source: Morgan Guaranty Trust, World Financial Markets, various issues.

consequences of the increased interdependence among the economies in relation to supply-side policies are discussed in the rest of this paper.

1. Interdependence and the Cost of Domestic Distortions

This section discusses how the internationalization of financial markets has increased the urgency to reduce domestic distortions through appropriate structural policies. Regardless of whether economies are closed or open, distortions have welfare costs. For example, an investment incentive will always attract more capital to the advantaged activity than would be the case in the absence of the incentive. If the incentive is not justified by the existence of some genuine externality, there will be a welfare cost associated with it. *Mutatis mutandis*, a disincentive to a given activity, say through the tax system or through a regulation, will always reduce the amount of resources allocated to that activity. However, both the domestic costs and worldwide costs associated with these distortions are likely to be smaller in closed than in open economies; in open economies with unrestricted movement of capital, a distortion associated with a subsidy to a given activity is likely to attract more capital to that activity than it would in closed economies because the supply of capital is more elastic. Similarly, a distortion that reduces the after-tax rate of return to a given activity decreases investment in that activity by more than would be the case in closed economies because investors have the option to invest abroad.

The internationalization of financial markets has, in effect, caused investment to become more sensitive with respect to incentives. This has raised the relevant elasticities and, thus, the welfare costs associated with given distortions. As the integration of capital markets proceeds, the cost of maintaining distortions in any country tends to increase. This is not the place to provide a rigorous proof of the proposition advanced above.^{1/} However, a few examples may help make the basic point in an intuitive fashion.

The existence of a large fiscal deficit typically implies a substantial distortion (see Feldstein, 1985). The "services" provided by the government are "sold" at too low, implicit, tax-prices. In addition, the fiscal authorities will eventually have to raise taxes, which are likely to be distortionary, to cover the debt service. In a closed economy with a high household saving rate, domestic savings may

^{1/} Using a two-country intertemporal equilibrium model, Lans Bovenberg (1986) demonstrates how the welfare costs of capital income taxation depend on the degree of openness of an economy.

be sufficient to finance the fiscal deficit without high interest rates, ^{1/} especially if investment opportunities within the country are limited. This was the Italian experience over the years. With a net household saving rate out of disposable household income of over 20 percent, and with a relatively closed capital market, Italy's fiscal deficit, until recently, was financed relatively easily because the investment options available to Italian families were limited.

If one thinks of the Italian fiscal deficit as a distortion, its costs were contained by the relative closedness of the Italian financial market and by the high savings rate of Italian households. However, in recent years, Italians no longer had to accept low rates of return on their savings since the increasing openness of the Italian financial market allowed them to progressively invest these savings abroad. Obstacles to capital movements are equivalent to implicit taxes on savers. The higher the difference between the rate of return that savers could have received abroad and the one they actually received at home, the higher is the implicit tax rate. Whereas financial liberalization removed these implicit taxes, it also raised the deficit distortion by forcing the government to pay higher real rates of interest on government bonds (see Franco Bruni, Alessandro Penati, and Angelo Porta, 1988). Furthermore, because of the high and growing ratio of public debt to gross national product, and because of the increasing likelihood that at some point the government either will have to increase taxes to pay for the debt service or will have to rely on the monetization of the debt, Italian real rates are now not just equal to but generally higher than those in other industrial countries (Bank for International Settlements, 1987, p. 67). Thus, the internationalization of financial markets has raised the cost of running fiscal deficits in Italy.

Tax rules provide another example of the relationship between open financial markets and welfare costs imposed by distortions. Different countries treat interest deductions, and especially those connected with mortgage payments, differently for personal income tax purposes. In some countries (the United States, for example), households can take an almost unlimited tax deduction for nominal interest payments on their home mortgage. Furthermore, the imputed rental income of owner-occupied housing is not taxed and capital gains on homes are taxed only on accrual. ^{2/} Other countries (for example, Canada and Japan) rigidly

^{1/} Martin Feldstein (1985) shows that the excess burden associated with debt financing rises with the real interest rate on public debt.

^{2/} The tax legislation of the United States allows the deferral of the capital gains from the sale of a principal residence when another residence costing at least as much is purchased within two years of the sale of the former one. Moreover, a one-time exclusion of \$125,000 capital gains is allowed in home sales for taxpayers 55 years of age and older. In view of these provisions, the effective tax rate on capital gains from owner-occupied housing is likely to be close to zero.

limit interest deductions on mortgages. Still others, while allowing these interest deductions, tax imputed rental income in some form (for example, Belgium, the Netherlands, and Sweden).

A tax rule that favors a given investment activity--residential construction, for example--is likely to attract too much capital, from an efficiency point of view, to that activity. The excessive investment in a subsidized activity will become greater in a world where increasing international mobility of financial capital causes real interest rates to approach some sort of parity among countries. The experience of the United States (and some Northern European countries) seems to support this conclusion. Tax rules have probably led to overinvestment in residential construction in the United States and to underinvestment in Japan. As a consequence, these tax rules are likely to have reduced welfare in both countries. Moreover, these international differences in tax rules have tended to affect negatively the current account of the balance of payments of the United States and positively that of Japan (see Vito Tanzi, 1987a and 1988b; and Mitsuhiro Fukao and Masahara Hanazaki, 1987). This example points to the need to coordinate among industrial countries the tax treatment of investment and interest income as well as the treatment of interest expenses.

The second best theory in welfare analysis tells us that removing some distortions in a world where many distortions remain does not necessarily improve welfare. Therefore, liberalizing international trade and international capital flows (i.e. removing some distortions) will not necessarily improve world efficiency if this process of international liberalization is not accompanied by domestic liberalization. The world economy will reap the full benefits from liberalizing international markets only if economic integration is accompanied by the removal of domestic distortions.

II. Relationship Between Supply-Side and Demand Management Policies

This section outlines various reasons why structural policies are becoming increasingly important in determining domestic demand as international markets become more integrated. In closed economies and in the absence of extreme assumptions, such as full Ricardian Equivalence, expansionary demand management policies often succeed in raising domestic absorption by raising aggregate demand, especially if some usable resources are unemployed or underemployed. In these economies, the authorities can raise the level of consumption by increasing disposable income through fiscal means (tax cuts or increased transfers). Moreover, they can stimulate investment by lowering the cost of capital through a more expansionary monetary policy. When a country's economy becomes more closely integrated with the economies of other countries, the success of demand management policies in stimulating economic activity will come to depend progressively more on the structural policies that the country pursues. Structural rigidities can easily reduce or even invalidate the effectiveness of traditional demand management policies.

To raise absorption and to attract more domestic and foreign investment in integrated world financial markets, a country must be able to offer a sufficiently competitive after-tax rate of return to induce investors to invest in that country rather than elsewhere. Macroeconomic policies are potentially useful in providing a stable economic environment for the economy. However, if these policies are not complemented by supply-side reforms, they are not likely to alter, for more than the very short run, the rate of return to capital. As a consequence, these policies are unlikely to raise by themselves the permanent (as compared with the current) income of consumers.

The rate of return to investors and the income of consumers can be raised credibly and permanently only by alleviating structural distortions caused either by tax systems or by implicit taxes due to regulations on the use of labor, capital, or land. The more enforced regulations constrain the efficient use of resources, the higher are the implicit taxes associated with these regulations. These implicit taxes must be added to the explicit taxes to determine the full distortive impact of government intervention on economic activities. For example, regulations related to the hours when shops can remain open are implicit taxes imposed on at least some of the resources used in retailing as well as on consumers who are forced to do their shopping in hours that they value more than alternative hours.

In countries where labor markets are heavily regulated, where working hours are rigidly fixed, where tax systems introduce large wedges between before- and after-tax rates of return, or favor some activities over others, and where investors have the option of investing abroad, traditional fiscal and monetary policies are not likely to go far in increasing the rate of growth, and in reducing the rate of unemployment.

In these countries, knowledgeable policymakers who are aware of the existence of domestic distortions but are unable to reduce or eliminate them may be reluctant to even attempt to use traditional demand management policies. They recognize that their country would suffer a net welfare loss from investing all its savings domestically, where these savings would earn a lower before-tax return than abroad. If the country, despite a low before-tax return on its domestic capital stock, attracts foreign savings by offering foreigners a competitive after-tax return, it also reduces its national income because, in this case, the cost of foreign financing exceeds the before-tax return to domestic investment. ^{1/}

There are other reasons why structural rather than macroeconomic policies offer the most room for stimulating domestic demand. As regards fiscal policy, for example, many countries have good reasons to

1/ Tanzi (1988a) argues that in several Asian developing countries domestic investment financed by foreign borrowing reduced incomes in these countries because of the existence of domestic distortions. These distortions misallocated investment into activities with a productivity of capital below the costs of foreign funds.

aim at reducing government spending, budget deficits, and public debt over the medium term. 1/ These legitimate objectives limit the scope for using expansionary fiscal policy to stimulate domestic demand. Moreover, in some cases, the removal of structural rigidities is needed to achieve demand growth without adverse implications for inflation objectives.

In view of the increased importance of structural policies in determining domestic absorption, structural or supply-side policies are becoming a more important part of the surveillance process conducted by international organizations, particularly the IMF. It is becoming increasingly evident that these policies can contribute to the reduction of external imbalances among industrial countries by redistributing absorption across these countries.

III. Interdependence and the Externalities of Unilateral Supply-Side Measures

This section analyzes the international effects of supply-side reforms on the part of a large country. After describing the effect of recent investment incentives in the United States on the rest of the world, it examines the transmission of structural policies more generally, and in particular the effects of these policies on the external current account and on domestic resource allocation.

Perhaps the most important recent example of the international implications of supply-side policies is provided by the change in tax rules introduced by the United States in 1981 and 1982. These changes, and particularly those associated with the Accelerated Cost Recovery System (ACRS) that sharply reduced, for tax purposes, the lives of assets, increased by several percentage points the after-tax rate of return on marginal investments in the United States. 2/ However, the before-tax rate of return on these investments did not change. If anything, the differential tax treatment of assets and industries brought about by these tax changes may have reduced the average before-tax rate of return on marginal investments.

The considerable increase in the after-tax rate of return to investment in the United States (in the absence of similar increases in other countries) made the American capital market much more attractive to foreigners and, consequently, contributed to increasing capital inflows into the United States. Several authors have highlighted the importance of this factor in explaining the massive trade and current

1/ Especially in countries with open financial markets, large fiscal imbalances may hurt domestic investment because these imbalances may signal high levels of future taxation.

2/ These changes implied a considerable reduction in the net cost of capital compared with what that cost would have been under 1980 tax laws. See U.S. Council of Economic Advisors (1982, especially pp. 122-25); Stephen Meyer (1984); and Leonard Sahling and M. Akhtar (1984-85).

accounts deficits experienced by the United States in recent years. ^{1/} According to Hans-Werner Sinn (1987b, p. 1), for example, "A conservative estimate of the long run U.S. capital imports resulting from ACRS was \$1 trillion." In only a few years the United States went from being a net foreign creditor to being the world's largest net foreign debtor.

The 1981 and 1982 tax changes were not revenue neutral. The U.S. fiscal deficit rose sharply in part because of the adverse effect of the fiscal incentives on tax revenues. In view of the size of the U.S. economy, the U.S. fiscal deficit absorbed a large share of net world savings. The combined result of the large fiscal deficit and the investment incentives, therefore, was to raise real interest rates, not only in the United States but also in the rest of the world. ^{2/} Whereas for U.S. investors the effect of the increase in interest rates was, at least in part, offset by the tax incentives, this was not the case in other countries. ^{3/} In Europe, for example, rising real interest rates may have reduced the level of investment. In a recent book, Jean-Paul Fitoussi and Edmond S. Phelps (1988) have in fact argued that the slowdown in economic activity and the sharp increase in unemployment in Europe in the 1980s was due largely to the "imported" increase in real interest rates in conjunction with the absence of European supply-side measures aimed at stimulating investment. In heavily indebted developing countries, higher interest rates not only hurt investment but also increased the cost of servicing foreign debt.

When a country independently pursues supply-side reforms that increase the expected after-tax rate of return to investment in that country, the short-run effect is likely to be an increased flow of resources toward that country. Thus, although supply-side measures are aimed at raising domestic supply, in the short run they generally raise domestic demand relative to domestic output. This inevitably leads to a deterioration of the external current account.

There are several reasons why supply-side measures, especially if they raise the return to investment, are likely to change, at least initially, the investment-saving balance in favor of investment. First, supply-side measures, typically widen fiscal imbalances because they are often introduced in a revenue-losing manner. At a given level of public expenditure, tax rates and tax revenue may both be reduced, thus setting the stage for a Keynesian-type expansion. This is clearly what happened

^{1/} According to Paul Masson and Malcolm Knight (1986), investment incentives contributed to these developments. However, shifts in fiscal balances played a more important role.

^{2/} Other factors, such as the change in monetary policy, contributed to the increase in interest rates. For the relationship between fiscal deficits and interest rates, see Vito Tanzi (1985), Martin Feldstein (1986), and Hans Bovenberg (1988b).

^{3/} It is interesting to note that in the United States, the ratio of gross private domestic investment to GNP hardly changed in the period since 1981. For example, it was 16.0 percent in 1980, 16.9 percent in 1981, and around 16 percent in 1985-87.

in the United States. 1/ Second, even if supply side policies are introduced without widening the fiscal deficit, to the extent that these policies elicit a positive reaction on the part of private investors, they may create additional investment demand before they generate any additional output capacity. In other words, the demand-side effects of structural policies often precede their supply-side effects.

Third, the reduction in marginal tax rates on personal income generally reduces the sensitivity of income tax revenue with respect to future economic growth. Taxpayers who anticipate a future reduction in their tax bills may spend more, especially on durable goods, because they expect a higher present value of their future stream of net-of-tax income. 2/ Fourth, the effect just mentioned may be reinforced if taxpayers come to believe that the supply-side policies will bring about higher future incomes because of a more efficient use of resources and higher overall productivity. For example, if we assume that many Americans believed the public pronouncements made in the early 1980s about the future rate of growth of the economy, we may have part of the explanation for the low and falling private saving rate in the United States in recent years. In the 1980s household saving, as a proportion of disposable income, fell more sharply in the United States and in the United Kingdom, the two countries that implemented more structural reforms than in the remaining G-7 countries (see Table 3).

Fifth, unilateral structural policies generally worsen a country's trade balance by raising its rate of economic growth relative to that in other countries. Finally, these policies may improve the investment climate in the country introducing those policies compared with the climate in other countries. Therefore, these measures may attract foreign investment and portfolio investment from other countries.

The effects on aggregate demand and, consequently, on the current account of the balance of payments in the country that initiates the supply-side reforms could be offset by accompanying supply-side measures that succeeded in increasing that country's national rate of saving by a sufficient amount. In fact, in 1981 the United States authorities aimed at raising household savings through the introduction of specific savings incentives (IRA, etc.).

In addition, the large reduction in the marginal personal tax rates on capital incomes was expected to stimulate household savings by increasing the after-tax rate of return to saving. However, most evidence now available indicates that savings incentives are generally not very effective in raising the overall level of saving in spite of theoretical and empirical arguments that have been advanced in support of such incentives. The truth is that we still know very little about the relative importance of the factors that induce individuals to save

1/ It can be argued that the supply-side measures (lowering of tax rates, etc.) prolonged the duration of the Keynesian-type expansion.

2/ This assumes that they do not react in the way theorized by Robert Barro (1974) by taking into account the future tax liabilities associated with a rising stock of public debt.

Table 3. Major Industrial Countries: Personal Savings Rates, 1980-87
(In percent of personal disposable income)

	1980	1981	1982	1983	1984	1985	1986	1987
Canada	13.3	15.0	17.8	14.6	14.8	13.9	11.5	9.3
United States	7.1	7.5	6.8	5.4	6.1	4.5	4.3	3.7
Japan	17.9	18.2	16.5	16.3	16.0	16.0	16.4	16.1
France	17.6	18.0	17.3	15.9	14.6	13.9	14.0	12.8
Germany, Fed. Rep. of	14.0	14.8	13.9	12.2	12.8	12.7	13.4	13.5
Italy	20.9	23.5	23.8	22.4	22.2	21.9	20.8	20.3
United Kingdom	14.2	13.0	12.2	10.5	10.5	9.2	7.5	5.9
Seven major countries above 1/	12.0	12.5	11.8	10.5	10.8	9.7	9.5	8.9

Source: IMF, World Economic Outlook (April 1988).

1/ Composite for group is average of individual countries weighted by the dollar value of their respective GNPs in 1987.

more or less. Furthermore, the importance of these factors varies between countries and, possibly, even between different time periods in the same country. Factors that are difficult to influence by economic policy, such as demographic characteristics, are likely to play important roles in determining savings behavior. Thus, measures aimed at stimulating private saving are unlikely to compensate for the widening of the investment-savings imbalance due to the effects of supply-side policies on both domestic investment and the fiscal deficit. Therefore, if supply-side measures are introduced unilaterally, a deterioration in the current and trade accounts of the balance of payments is a likely outcome, especially if these measures reduce fiscal revenue.

Let us now examine the effects of supply-side policies raising the after-tax return on capital in country X on its trading partners Y. The policy changes in X will relocate capital away from Y by raising real interest rates on world financial markets. World savings and reduced investment in Y will finance both X's additional investment and X's larger fiscal deficit. We have, thus, a sort of crowding out at the international level. The more integrated capital markets become, the more substantial will be the capital movements away from Y.

Structural rigidities in Y also play a role in determining the transmission effects. The outflow of resources from Y will generally contribute to an initial real depreciation of the exchange rate and a fall in Y's terms of trade. The real depreciation will favor tradable activities compared to nontradable activities and this may lead to substantial distributional shifts within Y. In the absence of wage rigidities, and assuming that labor markets function efficiently, real consumption wages will typically fall. However, if these real wages are rigid in Y, the exodus of capital and the accompanying fall in the terms of trade are likely to raise the unemployment rate. Thus, the capital outflow highlights the costs associated with domestic distortions and rigidities and therefore the need to increase domestic rates of return on capital through, for example, reforms in the tax system and labor markets.

For country X, the policy effects are different. A country that unilaterally implements major structural reforms typically experiences large capital inflows, which will cause its exchange rate to appreciate in real terms, at least for a while. This appreciation will result both in a loss of international competitiveness and in significant distributional shifts as nontradable sectors gain at the expense of tradable sectors. Inevitably, some workers will lose their jobs and some tradable industries will suffer losses. Even though the displaced workers could be absorbed in labor-intensive nontradable sectors, and X's total unemployment rate may in fact fall, trade frictions and protectionist pressures will typically intensify. Thus, some of the initial objectives of structural reform may, in part, be frustrated by these developments.

Large trade imbalances are generally associated with increased uncertainty about policies and exchange rates. Eventually, X's trade deficits associated with a resource allocation biased toward the

nontradable sectors must be reversed when the country starts to transfer capital income abroad. If the misalignment of the exchange rate extends over a substantial period, say, a few years, some of X's tradable industries may suffer structural damage.^{1/} Some markets as well as sector-specific human and physical capital may be lost, thus requiring substantial investments to regain markets and rebuild capital.

IV. The Case for Coordinating Structural Reforms

This section presents some of the arguments in favor of international policy coordination in the structural area. It also addresses some of the difficulties in coordinating structural policies.

The previous section has pointed out that in a highly interdependent world, and with a high degree of international capital mobility, unilaterally pursuing major supply-side reforms may generate substantial spillover effects on the rest of the world. In particular, unilateral policies generally set in motion large capital movements. Coordination of structural policies may avoid some of the international capital and trade flows that give rise to large exchange rate fluctuations, distributional shifts, protectionist pressures, increased uncertainty about movements in real exchange rates, and large resource flows between tradable and nontradable activities associated with dislocation of production factors. Thus, coordination of structural policies may prevent that the growing internationalization of capital markets indirectly leads to increasingly closed goods markets. This would happen if large capital movements would lead to trade tensions and successful protectionist pressures.

We have already mentioned that the unilateral pursuit of structural changes accompanied by large capital movements can generate significant distributional effects between as well as within nations. Some structural policies have more direct distributional effects. As an example, the unilateral liberalization of agricultural or trade policies may cause excessive losses for one country or for particular sectors within a country. Coordination of liberalization in these areas will typically mitigate some of these major distributional shifts.

International coordination of structural reforms not only mitigates large distributional shifts but also makes structural measures more credible. This increased credibility is likely to enhance the efficiency gains associated with the structural reforms because the economic decision makers will have more confidence that policymakers

^{1/} The literature relating to the adjustment problems of countries richly endowed with natural resources can provide some insights into these issues. According to this "Dutch disease" literature, tradable sectors contract and the real exchange rate appreciates when the resource sector expands. See, for example, Peter Neary and Sweder van Wijnbergen (1986).

will not reverse structural measures. Thus, the private sector will respond more quickly to the changed signals introduced by the reforms.

Another important advantage of international coordination of structural policies is that it may prevent the private sector from exploiting, for its own advantage and at the expense of world welfare, inefficiencies at the international level. This exploitation of inefficiencies due to divergent policies is increasingly facilitated by the much improved flow of information and by a more efficient communication system.

This point can be illustrated by international differences in taxation. Given the different ways in which corporate profits are now taxed by different countries--differences that relate to rates, to depreciation allowances, to the treatment of dividends, and so on--the private sector will locate capital-intensive activities in countries providing generous investment incentives. In these countries the before-tax rate of return to capital, in contrast to the after-tax return, is likely to be below that in other countries. The efficient allocation of resources on a world scale requires that the before-tax rates of returns in different countries, and not the after-tax returns, be equalized. Thus, from an efficiency point of view, the "playing field" should be leveled not just within a country but also across countries. If the international playing field is not leveled, the international mobility of capital and other factors of production is likely to bring about an equality of after-tax rates of return to investment that does not correspond to an equality of before-tax rates of return. Thus, an unleveled international playing field implies an inefficient allocation of world resources.

The second-best theorem in welfare theory points to another important reason for the international coordination of structural policies. Removing distortions in one country without coordinating that action with other countries will not automatically improve the world's allocation of resources. In fact, in particular circumstances it may even achieve perverse results. For example, the removal of trade barriers against a product that is heavily subsidized abroad may be counterproductive. Similarly, removing capital controls while international trade is distorted by tariffs and quotas may well reduce welfare (see, e.g., Sebastian Edwards and Sweder van Wijnbergen, 1986). Reducing taxes on investment income in one country may reduce intertemporal distortions but may at the same time raise intratemporal distortions in the allocation of capital if other countries continue to tax savings and investment more heavily. This would, for example, be particularly relevant if the supporters of consumption-based taxes

succeeded in replacing existing income taxes by those taxes in a large industrial economy. ^{1/}

Thus, a strong case can be made in support of the proposition that structural policy changes need to be coordinated especially among the large industrial countries. The objective of this coordination should be the leveling of the international playing field so that distortions are removed not only within a country but also across countries.

When policymakers sit down to discuss the possible coordination of structural policies they will, however, face several difficulties. The first problem with the objective of leveling the international playing field is that it can be leveled at different levels. Thus, in the face of international differences in social objectives, some agreement must be achieved as to the desired level. To a large extent structural policies have differed among countries because the policymakers of those countries attached different weights to the various social objectives, perhaps in response to the perceived desires of the citizens. For example, European countries typically have assigned more importance to equity and security than to growth. Labor legislation, tax legislation, and so forth have reflected this. Should, for example, European labor laws, which on the one hand generally provide more security for those already employed but on the other hand are likely to reduce the total demand for labor, be changed along the lines of the labor laws in the United States, which encourage more demand for labor but which reduce the security of particular jobs? In other words, is employment creation a more important objective than the job security for those already employed? Or should American laws become more similar to those of Europe? Should current U.S. tax legislation become the norm for Europe or should some middle ground be found?

Second, policymakers would face difficulties when they try to agree on the effects of particular structural measures. Economists themselves are often in sharp disagreement on the effects of certain policies--for example, the effects of tax incentives on private savings and labor supply. These disagreements become more pronounced when the discussion relates to the effects of these policies in an international context.

^{1/} According to the calculations of the U.S. Department of the Treasury, the introduction of the Accelerated Cost Recovery System increased the joint subsidy effect from accelerated depreciation and other investment allowances to a level equal to, or even more favorable than, an immediate write-off. This tax reform, therefore, could be seen as an important step towards removing the intertemporal distortions due to income taxation. However, the reform dramatically reduced the profitability requirement for American investment below that for capital invested abroad, thereby creating significant distortions in the worldwide allocation of capital. Sinn (1987a, Chapter 11, p. 363) argues that the United States could have prevented that its tax reform caused a less efficient allocation of world capital. In particular, the United States could have introduced the source principle for interest taxation in order to ensure that more American savings would have been invested in foreign capital yielding a higher before-tax rate of return.

Third, supply-side measures may involve major redistributive effects within a nation. They, therefore, affect the vested interests of specific groups. Small homogeneous groups tend to be more effective in preventing legislation that they oppose than broader and less homogeneous groups are. The control that policymakers of different countries have over the enactment of structural policies and their commitment to them are likely to vary considerably.

Finally, there is always the possibility that coordination among policymakers may result in collusion to implement policies that are more distortionary than the policies they replaced. This may happen if the current favorable winds for supply-side policies were replaced by winds that favored more state intervention, as was the case in the 1960s and early 1970s. For example, as Larry Summers (1987) has argued, the ability of multinationals to move profits across borders by manipulating transfer prices and altering their means of financing has increased the difficulty of taxing capital income earned by multinationals. If one believed that capital taxation is a bad thing, one would welcome this development because it makes it less likely that future governments will face strong incentives to tax capital.^{1/} However, international coordination might allow governments to increase taxes on capital, even if capital is internationally mobile, by jointly increasing capital taxes and/or exchanging information. This possibility may lead some observers to argue that competition in introducing supply-side reforms may be preferable to cooperation.

In sum, provided that there is some general agreement among policymakers on policy objectives; provided that they can agree on how those objectives can be promoted by structural changes; and provided that the policymakers have some political leverage in bringing about the needed changes, there is much to be said in favor of international coordination of at least some structural policy changes.

V. Future Agenda for Supply-Side Reforms

This section discusses some areas of structural policy in which international coordination is most urgent. In addition, it draws some lessons for supply-side policy in Germany.

Structural reforms may be dictated more by political considerations than by economic desirability. This is true for both the choice of the specific policies and the order in which those policies are introduced. Normally, the easier policies are introduced first and

^{1/} In this context some of the recent literature on the time consistency of optimal economic policies is relevant. Kenneth Rogoff (1985) shows that international coordination may be undesirable if optimal policies are time inconsistent. Guido Tabellini (1987) demonstrates that international cooperation may enable governments to exacerbate the fiscal deficit bias that is caused by political distortions.

the politically most difficult ones are introduced later, if at all. This sequence of reform is in part a consequence of the fact that the introduction of the easier reforms often exposes the costs of distortions arising from the not-yet-reformed areas.^{1/} More generally, the international experience with structural changes over the past decade indicates that the liberalization of financial markets typically comes first. It is then followed by tax reforms (often sweetened by tax reductions), by other public sector reforms (including privatization, cuts in public spending, and so forth), and, finally, by trade and labor markets reforms.

Structural reforms should not be introduced too frequently. Too much activism in this area is as undesirable as it is in the demand management area since it raises uncertainty, even when the changes are in the right direction. Frequent tax changes in recent years, for example, have created too much uncertainty.

Coordination may reduce the uncertainty about future tax policy. When similar reforms are made simultaneously in several countries, individuals will perceive these reforms as more permanent than when they are made in only one country by a government that may not be in power for long.

Reforms in particular areas, such as labor markets, privatization, and so forth, can and should be pursued unilaterally since the scope for formally coordinating these reforms among countries is extremely limited. Even though these reforms have international implications, these implications are only indirect and not obvious. There are other areas, however, where the need for coordination is greater because reforms in these areas directly affect other countries. Moreover, structural reforms in these areas may result in significant inefficiencies in the allocation of world resources unless they are carefully coordinated internationally. Important examples of these structural areas are trade and tax policies. The need for coordinating trade policies does not require elaboration. That for coordinating some areas of tax policy, even among countries that are not members of a common market, is perhaps less obvious.

One aspect of tax policy that would benefit from international coordination is the determination of the taxable base for the imposition of corporate income taxes. It is possible for a country to erode its corporate income tax base by granting investment credits and allowing accelerated depreciation allowances. In a world of increasing international capital mobility, diverging policies in this area typically lead to a misallocation of the world's pool of savings because they tend to make the international playing field less level. Once again, these issues were less important when capital was less mobile internationally. If, in addition to coordinating the determination of the tax base, countries could also coordinate the level of the rate and

^{1/} The recent experience of New Zealand in implementing structural policies illustrates this.

the tax treatment of dividends, it would be all for the better. But again it is essential that coordination brings about desirable changes rather than undesirable ones from the point of view of world efficiency.

Another aspect of the tax system where there is also a need for coordination is the tax treatment of interest incomes and interest deductions. These aspects are particularly important in determining household savings as well as in determining household spending for housing and, perhaps, for other durable goods. Different rules in these areas have probably contributed to the external current account imbalances of major industrial countries, such as Japan and the United States. The United States is much more generous than Japan in allowing deductibility for mortgage payments. As a consequence, in contrast to Japan, the United States probably allocates much more resources to housing than it should. Moreover, in a country with a low savings rate, such as the United States, interest deductibility for individual taxpayers worsens the investment-savings imbalance.

Both of these examples relate to the direct taxation of capital. However, the international aspects of indirect taxation need to be carefully examined also--and not just within the European Community as they normally are. One aspect that has important international implications is the taxation of energy. The low level of energy taxation in the United States, compared to that in most other industrial countries, may result in an inefficient worldwide allocation of energy and may also cause an inefficient allocation of capital. As energy and capital typically are complementary in production, the relatively low after-tax cost of energy in the United States may attract too much capital to that country by raising the after-tax return on capital relative to that in most other industrial countries. It may also lead to overspending in those durable goods that use much energy (refrigerators, cars, water heaters, air conditioners, etc.). ^{1/}

Let us conclude now with a few words on the implications of this paper for structural policy in Germany. The paper suggests that structural policy measures in Germany could make an important contribution to the international macroeconomic adjustment process. As we have argued, in an integrated world economy, microeconomic policies and macroeconomic adjustment are increasingly linked. In particular, policies that address rigidities in labor markets and lift government regulations would help to reduce the German investment-savings imbalance through various channels.

First, these supply-side policies would reduce implicit taxes on capital employed in Germany. They would, thus, stimulate domestic investment demand by raising the profitability of investment.

^{1/} Robert E. Lipsey and Irving B. Kravis (1987) show that U.S. households invest a larger share of their savings in consumer durables than households in other industrial countries.

Second, these policies might provide some stimulus to consumer demand, especially for durables, by improving consumer confidence and increasing perceived permanent incomes.

Third, in the absence of structural policies, the rate of return on German capital may remain below the rate of return on foreign capital. Under these circumstances, policymakers in Germany may be hesitant to pursue expansionary policies for the reasons discussed in section II.

Fourth, supply-side measures would increase the flexibility of the German economy. This would make less costly the change in the domestic production structure, required by the international adjustment process, away from tradables toward nontradables. Moreover, relocating production factors in a heavily regulated economy typically requires large relative price movements. These relative price effects generally imply substantial distributional effects.^{1/} This may make the restructuring of the production structure more difficult to implement, both economically and politically.

Fifth, using structural policies to stimulate the Germany economy would leave the policymakers freer to pursue policies aimed at reducing public debt and fiscal deficits.

As regards specific structural policies, the worldwide movement toward reduced marginal tax rates has left the marginal personal income rates in Germany above those in other major industrial countries and, in particular, those in the United States and the United Kingdom (see Tanzi, 1987b). High marginal tax rates may put upward pressure on wages, thus reducing the profitability of the corporate capital stock and increasing the unemployment rate.

The statutory corporate income tax rate of 50 percent on retained earnings exceeds that of most other industrial countries (see Tanzi, 1987b).^{2/} The higher corporate tax rate in Germany may discourage multinationals from investing in Germany because many American multinationals will be in an excess credit position after the 1986 U.S. tax reform. Moreover, the higher German corporate tax rate encourages debt financing. This may erode the German corporate tax base as multinationals shift interest expenses to Germany and taxable profits to countries with lower statutory rates (see Harry Grubert and John Mutti, 1987).

Numerous regulations and subsidies in Germany imply very different explicit and implicit tax burdens on various activities. These taxes vary from large subsidies (e.g., for agricultural activities or owner-occupied housing) on the one hand, to heavy taxes (e.g., for equity in

^{1/} Bovenberg (1988a) demonstrates that the redistributive effects associated with capital relocation rise if investment behavior becomes less elastic with respect to price signals.

^{2/} In the United States and the United Kingdom the statutory corporate income rates are 34 and 35 percent, respectively.

some corporate sectors) on the other hand. The internationalization of world markets has raised both the national and worldwide welfare costs associated with these differential treatments.

Finally, structural policies in other countries pull capital away from Germany. These policies, therefore, expose the costs associated with German distortions by discouraging investment in Germany. This, in turn, negatively affects Germany's employment creation. The adverse employment effects are especially serious if rigidities in the labor market prevent the real wage from adjusting to the consequences of the exodus of capital, which include both a falling terms of trade and a declining marginal productivity of labor. ^{1/} Thus, structural policy developments in other countries make German action on this front more desirable and more urgent.

^{1/} Evidence in Michael Burda and Jeffrey Sachs (1987) suggests that institutional reasons impede labor market adjustments and, in particular, the reallocation of labor through changes in real wages.

References

- Barro, Robert J., "Are Government Bonds Net Wealth?" Journal of Political Economy, November-December 1974, 82, pp. 1095-1117.
- Bank for International Settlements, Fifty-Seventh Annual Report, 1st April 1986-31st March 1987 (Basle, Switzerland: BIS, June 1987).
- Bovenberg, A. Lans, "Capital Income Taxation in Growing Open Economies," Journal of Public Economics, December 1986, 31, pp. 347-76.
- _____, "The Corporate Income Tax in an Intertemporal Equilibrium Model with Imperfectly Mobile Capital," International Economic Review, May 1988a, 29, pp. 321-40.
- _____, "Long-Term Interest Rates in the United States: An Empirical Analysis," International Monetary Fund Staff Papers (Washington, D.C.), June 1988, 35, pp. 382-90.
- Bruni, Franco, Alessandro Penati, and Angelo Porta, "Financial Regulation, Implicit Taxes, and Fiscal Adjustment in Italy," paper presented at Conference on Fiscal Policy, Economic Adjustment, and Financial Markets, Milan, Italy, January 1988.
- Bryant, Ralph C., International Financial Intermediation (Washington, D.C.: The Brookings Institution, 1987).
- Burda, Michael C., and Jeffrey D. Sachs, "Institutional Aspects of High Unemployment in the Federal Republic of Germany," NBER Working Paper, No. 2241 (May 1987).
- Edwards, Sebastian and Sweder van Wijnbergen, "The Welfare Effects of Trade and Capital Market Liberalization," International Economic Review, February 1986, 27, pp. 141-48.
- Feldstein, Martin S. (1985), "Debt and Taxes in the Theory of Public Finance," Journal of Public Economics, November 1985, 28, pp. 233-45.
- _____, "Budget Deficits, Tax Rules, and Real Interest Rates," NBER Working Paper, No. 1970, Cambridge, MA: National Bureau of Economic Research, July 1986.
- Fischer, Stanley, "International Macroeconomic Policy Coordination," NBER Working Paper, No. 2244, May 1987.
- Fitoussi, Jean-Paul, and Edmund S. Phelps, The Slump in Europe: Reconstructing Open Economic Theory, Oxford: Basil Blackwell, 1988.
- Fukao, Mitsuhiro, and Masaharu Hanazaki, "Internationalisation of Financial Markets and the Allocation of Capital," OECD Economic Studies, No. 8 (1987), pp. 35-92.

- Grubert, Harry, and John Mutti, "Taxes, International Capital Flows and Trade: The International Implications of the Tax Reform Act of 1986," National Tax Journal, September 1987, 15 (3), pp. 315-30.
- Lipsey, Robert E., and Irving B. Kravis, "Is the U.S. a Spendthrift Nation?", NBER Working Paper, No. 2274 (June 1987).
- Masson, Paul R., and Malcolm Knight, "International Transmission of Fiscal Policies in Major Industrial Countries," Staff Papers, International Monetary Fund (Washington, D.C.), Vol. 33 (September 1986), pp. 387-438.
- Meyer, Stephen A., "Tax Policy Effects on Investment: The 1981 and 1982 Tax Acts," Federal Reserve Bank of Philadelphia Business Review, November-December 1984, pp. 3-14.
- Neary, Peter, and Sweder van Wijnbergen, Natural Resources and the Macroeconomy, Oxford: Basil Blackwell, 1986.
- Rogoff, Kenneth, "Can International Monetary Policy Cooperation be Counterproductive?", Journal of International Economics, May 1985, 18, pp. 199-217.
- Sahling, Leonard, and M. A. Akhtar, "What is Behind the Capital Spending Boom?", Federal Reserve Bank of New York Quarterly Review, Winter 1984-85, 9, pp. 19-30.
- Sinn, Hans-Werner, Capital Income Taxation and Resource Allocation, Amsterdam: North-Holland, 1987a.
- _____, "The Policy of Tax-cut-cum-base-broadening: Implications for International Capital Movements," Paper presented at 43rd Congress of the International Institute of Public Finance (Paris, France, August 1987b).
- Summers, Lawrence H., "International Taxation in a Small World: The Need for Cooperation," Paper presented at a conference on "Tax Policy in the Twenty-First Century" (Washington, D.C., October 1987).
- Tabellini, Guido, "Domestic Politics and the International Coordination of Fiscal Policies," Paper presented at an NBER conference on "The Political Economy of International Macroeconomic Policy Coordination" (Andover, MA, November 1987).
- Tanzi, Vito, "Fiscal Deficits and Interest Rates in the United States," International Monetary Fund Staff Papers (Washington, D.C.), December 1985, 33, pp. 551-76.
- _____, "Income Taxes, Interest Rate Parity, and the Allocation of International Savings in Industrial Countries," Working Paper 87/53, International Monetary Fund, August 1987a.

_____, "The Response of Other Industrial Countries to the U.S. Tax Reform Act," National Tax Journal, September 1987b, 15 (3), pp. 339-55.

_____, "The Public Sector in the Market Economies of Developing Asia," Asian Development Review, 1987c, 5 (2), pp. 31-57.

_____, "The Tax Treatment of Interest Incomes and Expenses in Industrial Countries: A Discussion of Recent Changes," forthcoming in National Tax Journal, 1988.

U.S. Council of Economic Advisers, "The Annual Report of the U.S. Council of Economic Advisers," in U.S. President, Economic Report of the President to the Congress (Washington, D.C.: U.S. Government Printing Office, February 1982).

