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The International Transmission of Disturbances
A Framework for Comparative Analysis

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1. Introduction

Economists' concern with the transmission of disturbances has tended to wax and wane with the degree of international economic instability. Contributions to the subject have come in clusters, in and after periods of acute instability. Fortunately for our understanding of the subject, the cycle in research has been imposed upon a trend. Each cluster of new contributions to the subject has made use of new insights and tools.

The last great wave of interest in the subject occurred in the wake of the depression of the 1930's and illustrates our point. Economists of many intellectual persuasions sought to explain the spread and depth of the depression, but the most influential contributions were those of Metzler (1942), Machlup (1943), and Polak (1947), which extended the Keynesian analysis of income determination to an open economy and used it to explain why business fluctuations would spread from one country to another and how, in the process, they might be amplified. Inspired in turn by these contributions, Neisser and Modigliani (1953) and Polak (1953) built the first econometric models of international trade to measure marginal propensities to import and the sensitivity of foreign trade to the business cycle.

In the decades that followed these developments, attention turned to other issues. Believing as so many did in the 1950's that we knew how to

beat the business cycle, economists began to ask how to reconcile external and internal targets. Symptomatic of the new mood was the supposition adopted by Meade (1951) in his classic book on the balance of payments that monetary and fiscal policies would be deployed effectively to maintain internal balance. And two decades of comparative stability in the major industrial countries reinforced this mood.

But recent events have altered the situation and have caused us once again to concentrate our efforts on the causes and consequences of international economic instability. We have witnessed in quick succession a rapid world-wide inflation, a deep recession, and a slow recovery from that recession. There are those who say that we are entering a period of slow growth, with the risk of intensified conflict within and between countries over the distribution of incomes and markets. Individual countries have suffered wide swings in their terms of trade, on account of wide cyclical swings in commodity prices and on account of developments in individual markets. Oil, wheat, and copper come quickly to mind.

There are those who say that the comparative stability of the 1950's and 1960's was an aberration -- the result of unusual stability in the United States, for which economists and economic policy should not try to take credit, and the preponderant role of the United States in the world economy. On this view, we have returned to a more normal state of affairs. There are those who go further, warning that the world economy has started to ride the down side of a long cycle, which would explain the slow revival of capital formation during the recent recovery.

Others would say that we have suffered a run of bad luck -- of mistakes in policy, of acts of God, and of acts of OPEC. This too, they say, will pass. It will take time and effort to restore stability, but it can be done.

Even those who adhere to this view, however, are prepared to subscribe to the weak form of Murphy's Law: If something can go wrong, it might.

All would appear to agree, however, that there has been an amplification of instability in recent years, and that no national economy is completely immune to its consequences. The integration of national economies that was one of the chief achievements of economic diplomacy in the 1950's and 1960's has had as its inevitable counterpart an intensification of vulnerability to external disturbances. Interdependence has costs as well as benefits.

With these events there has come a reawakening of interest in the international transmission of economic disturbances. This reawakening, like the last one after the depression of the 1930's, has been marked by an attempt to modernize our understanding of the process by taking account of recent developments in economic analysis, especially of lessons taught by the monetary approach to balance-of-payments theory and by recent developments in the theory of exchange rates. We will mention many of the new contributions in subsequent sections of this paper.

The apparent amplification of instability in the international economy has been of major concern not only to advanced industrial nations and to the less developed countries that have long been participants in the international exchange of goods and services but also to the centrally planned economies (CPE's) whose trade with market economies has expanded dramatically in recent years, partly as a consequence of economic reforms introduced to improve internal efficiency. Between 1965 and 1974, total CPE imports from developed market economies increased nearly sixfold (in nominal terms) while CPE exports to the same economies increased nearly fivefold. The rapid growth of commodity trade and to a lesser extent trade in services (largely

tourism) has been accompanied by a dramatic climb in CPE borrowing from international credit markets, borrowing that has in part been symptomatic of instability in the world economy, insofar as it has reflected large, unanticipated fluctuations in trade between the CPE's and the rest of the world. Thus, it is estimated that total Eastern indebtedness stood at a record $40 billion at the end of 1976, up 300% from its 1973 level.

The growth of trade and capital flows between East and West has increased the vulnerability of the CPE's to economic disturbances originating outside their borders. Coming at a time when disturbances have grown larger too, this has had traumatic effects. In some countries, there has been a retreat from economic reforms, permanent or temporary, and a partial return to traditional insularity. Nevertheless, the level of East-West trade has remained high relative to historical standards, and the CPE's continue to be more markedly exposed to international market conditions than they were just a decade ago. Consequently, the impact of various types of international disturbances and the availability of policy responses are topics of major concern to economic decision-makers in East and West alike. Indeed, it is the importance of these issues that has inspired the theoretical and empirical papers presented at this conference.

2. An Outline of a Framework for Studying Transmission and Response

Reflecting the new concern with instability and vulnerability, the literature on international trade and finance has come to focus anew on the transmission of disturbances from one country to another or from a set of world markets to a single national economy.[1] The notion of transmission, however, has not been well defined; it has meant different things to different authors. Some have used the notion narrowly to denote the manner in which a

disturbance arising outside a country's borders affects the foreign trade or traded-goods sector of the economy. For example, transmission is frequently used to describe the process whereby changes in world demand or prices affect outputs and prices of traded goods produced within an economy. Others have used the notion broadly to include all of the processes by which an external disturbance affects an economy's performance, including its influence on outputs and prices in all sectors. This broad usage encompasses not only effects reflecting the immediate responses of producers and consumers to changes in external market conditions but also those reflecting their responses to endogenous changes in the domestic money supply, the exchange rate and other macroeconomic variables and to policies adopted by the country to combat unwanted effects of the disturbance.[2]

To endow the notion of transmission with clear analytical meaning appropriate to the context of this conference, we present in this paper a five-stage taxomony to characterize what we shall call the process of transmission and response.[3] The first or generation stage identifies the type of foreign disturbance in question. Disturbances can arise in factor, commodity, or asset (financial) markets, or in some combination of the three. They can have nominal or real origins, and they can have nominal, real, or joint manifestations when viewed from the standpoint of the country to which they are transmitted. The second or channels-of-impact stage identifies the various routes by which a disturbance impinges on the external sector of an economy. The channels include changes in the general level of world prices, changes in particular prices, and by implication, changes in the terms of trade, changes in the quantities of exports demanded, and changes in foreign interest rates or in quantities of financial assets demanded or supplied. The channels through which a disturbance flows depend

in each instance not only on the source and type of disturbance but also on the nature of the economic links between a particular country and the outside world.

The third or transformation stage identifies the structural or institutional features of the national economy, including certain of its policies, that determine the manner and extent to which a foreign disturbance will be reflected in prices and other variables affecting domestic decisions. The character of transformation will differ for each country, depending on its exchange-rate regime, on whether capital flows are controlled, on whether there are ad valorem or specific tariffs (or quantitative trade controls) and on whether it employs a tax-subsidy system to separate domestic from foreign prices. The fourth or propagation stage examines the ways in which the initial disturbance, after transformation into initial domestic effects, is spread or propagated internally by the endogenous responses of domestic economic agents to changing market conditions.[4] This stage thus encompasses many of the traditional "transmission" mechanisms, including Keynesian income-multiplier effects and real-balance or wealth effects. The agents include producers, consumers, and financial institutions, and their responses are defined as the actions they take (or would take) in the absence of offsetting policy actions by the state.

The fifth or containment stage identifies the policy responses of the state to minimize or contain the domestic and balance-of-payments effects of a disturbance. The distinction between the propagation and containment stages rests on a distinction between the actions of individual economic agents and those of central policy-makers. Policy-makers are viewed as having implict or explicit policy targets that shape the containment policies they adopt in response to the economic effects of an external

disturbance and of the endogenous domestic reactions to it. Containment policies characteristic of recent years include changes in monetary and fiscal policies, the switch from a pegged to a floating exchange rate (or the devaluation or revaluation of a pegged rate), and the introduction or strengthening or price and wage controls, trade controls, and capital-market controls.[5] In planned economies, where trade and capital flows are managed by a state foreign trade monopoly, containment also has to encompass the deliberate quantitative adjustment of these flows. In all economies, containment also includes attempts at structural or systemic reform to reduce import dependence or to promote or diversify exports.

There is an implicit sequential nature to the five-stage scheme outlined here. The transmission and response process begins with the generation of an international disturbance which then filters through trade, financial, and factor flows linking a particular country with world markets, affecting the price and quantity signals received at the country's border. During the transformation stage, these changes cross the border after being modified by existing sets of institutional and policy arrangements, and they then appear as changes in domestic prices or quantities. Transformation is the economic manifestation of national sovereignty, testifying to the existence of national boundaries that separate sovereign states, each with its own sets of institutions and goals.[6] In the absence of national boundaries and the institutional arrangements that give them economic meaning, changes in external price and quantity signals would have an immediate, unmodified impact on an economy, just as changes in price or quantity signals coming from one region of a single country are received without modification by other regions. When markets are divided by state boundaries, government policies and policy-related institutional arrangements can modify the strength

and form of a foreign disturbance, at least in the short run, and the transformation stage focuses on this central aspect of the transmission process.

Once the transformed effects of a disturbance come into play within an economy, they induce further changes within that economy during the propagation stage, and these will differ from country to country more than they will differ from region to region within a single country. Cross-country differences at the propagation stage are the consequence of differences in rules and habits of behavior and of institutional and policy constraints that structure or condition decision-making by individual economic agents. Such differences are most pronounced between market economies on the one hand, where producers and consumers are relatively free to react in what they perceive to be optimal ways, and planned economies on the other, where the (lawful) scope of discretionary market decisions by individual agents is severely limited.

Finally, at the containment stage, the state will respond to the domestic economic situation created by the actions of individual agents during the transformation and propagation stages. It may introduce new policies, modify existing polices, or alter existing institutions to safeguard its domestic and international economic objectives. Propagation and containment may, of course, occur together, but whenever a disturbance is not instantly and accurately anticipated, they can occur only after the disturbance has occurred and has been transformed into a set of initial domestic effects.

We now turn to a detailed exposition, in an attempt to relate the stages we have just described to the existing literature on the international transmission of disturbances between market economies. It is our purpose to show

how most of the concepts and insights furnished by that literature can be fitted into our scheme. Most importantly, for the purposes of this conference, we will seek to show how our framework can be used to examine the transmission of disturbances to non-market economies and their responses to them, issues about which the conventional literature has had little to say, and how the framework can be used to compare the effects of external disturbances on market and planned economies.

3. The Generation Stage

To a large extent, the recent rebirth of concern with the transmission process was stimulated by the worldwide inflation of 1973-74. Most economists agree that the simultaneous appearance of inflation and, thereafter, recession in all of the major industrial market economies was in large part due to the speed and power of the transmission process. Yet there is widespread disagreement about the origins of the disturbances that set it in motion, about the roles of the various channels involved, and about the degree to which its propagation was endogenous or was aggravated by uncoordinated but coincident changes in national policies.

Some have identified the initial disturbance as an exogenous real or supply shock, saying that leftward shifts in world supply curves for a handful of essential primary commodities, such as oil and wheat, raised the prices of these commodities and led to leftward shifts in the aggregate supply curves of the economies consuming those commodities.[7] By their very nature, it is argued, supply shocks are at once inflationary (price-increasing) and deflationary (output-depressing), and no single set of government policies can offset them completely. Hence there was inflation and unemployment in the major industrial market economies that were the major

consumers of the commodities in whose markets the exogenous supply shocks took place.[8]

But others insist that recent macroeconomic history must be explained by a demand-shock interpretation. Thus, economists of a monetarist persuasion[9] dismiss as absurd the idea that exogenous increases in the prices of a few commodities can cause inflation throughout the world. If monetary policy had been geared to stabilize or limit the growth of aggregate demand, they say, increases in prices in certain sectors, no matter how large, would have been offset by decreases in prices in other sectors, leaving unchanged the aggregate price level or rate of inflation. On this view, an excessive expansion of the money supply in certain major countries, especially in the United States, was the culprit, and inflationary pressures originating in these countries were transmitted internationally by commodity arbitrage and especially by reserve flows under the system of pegged exchange rates that remained in place until the spring of 1973, after the process of inflation was already under way.

The distinction between supply shocks and demand shocks is popular, but a more useful distinction is one that focuses on the markets in which disturbances originate. It asks in particular whether a disturbance originates in commodity markets or in financial markets. Adopting this approach, one would interpret the supply-shock analysis of recent history as saying that the recent inflation and recession were the result of disturbances in certain commodity markets, and one would interpret the monetarist analysis as saying that they were the result of disturbances originating in financial markets. This approach has the particular virtue that it leads one to ask what kinds of effects might be produced. Two classes of effects are possible:

real effects that change relative prices and lead thus to changes in real variables in domestic and world markets, and nominal effects that may merely change the general price level, leaving real variables unchanged in the long run.

The usefulness of this distinction becomes fully apparent when applied to contrast the effects of recent disturbances on market and planned economies. Taking a supply-shock view, the disturbance was generated initially in certain commodity markets, and its immediate effect was real: it gave rise to excess demand in those commodity markets, raising the prices of the commodities relative to prices of other commodities and worsening the terms of trade of major market and CPE importers. The deterioration in the terms of trade imposed real income losses on all of the affected countries. One is then led to ask how cross-country differences in the transformation, propagation, and containment stages of the transmission process affected the manner in which these losses were borne within different economies -- how the burden was distributed internally and how or whether the change in the terms of trade produced additional domestic effects on account of the responses of individual economic agents or the state's decisions.

The real income losses caused by the commodity-market disturbances need not have been translated into a general increase of national or international price levels. Many such disturbances might cause nothing more than microeconomic effects -- changes in relative prices and in the commodity composition of total output and final demand. But the recent disturbances in food and fuel markets were so large in size and involved commodities of such importance, that they led to general macroeconomic effects, directly

and on account of policy responses in market and planned economies.

In market economies confronting a major increase in the prices of important inputs, such as oil and wheat, stability in the general domestic price level could not have been achieved without large reductions in the prices of many other inputs, which is, of course, to say reductions in factor prices. Given the patterns of wage and price determination in these economies, such reductions would have required severe cuts in output and employment, at least in the short run. Most governments were not willing to accept the political risks, and the once-for-all deterioration in the terms of trade was allowed to cause a general increase in the domestic price level. In planned economies, the continuous operation of automatic price controls (and, to a lesser degree, wage controls) precluded or sharply limited a rapid increase in the general price level. Nonetheless, even in these economies, one would look for general macroeconomic effects, taking the form of an increase in the degree of repressed inflation and its attendant supply-multiplier effects on labor supply and domestic output.[10] The extent to which these effects came into actual play depended, as in market economies, on policy responses to domestic and international conditions. Within the transmission and response framework adopted in this paper the potential and actual macroeconomic effects of a commodity-market disturbance are properly analyzed at the transformation, propagation, and containment stages, which take into account institutional arrangements affecting wage and price determination and policy responses to economic developments.

Far different from a goods-market disturbance producing real effects at the generation stage is an asset-market disturbance that is bound to have

general, macroeconomic effects even at this first stage. One need not be a zealous monetarist to agree with the assertion that rapid creation of money in major national market economies produced domestic disequilibria that could be eliminated only by increases in domestic prices (and devaluations or depreciations) or by "exports" of money through balance-of-payments deficits, or by combinations of the two. At the very least, these developments contributed to increases in domestic inflation rates and thus to sharp increases in the prices of internationally traded goods. But monetarists go much further. In their view, the real disturbances in key commodity markets contributed to the worldwide inflationary process only insofar as they invited misbehavior by governments and central banks in the major market economies. It was this misbehavior, they assert, that was the proximate cause of the world's macroeconomic disorders -- inflation, balance-of-payments disequilibria, and the rest.

It is not our purpose to adjudicate the controversies we have summarized here. We seek merely to suggest that the first step in analysis of the transmission of a disturbance is to identify the nature of the disturbance, however difficult the task. In what markets did it originate -- factor, commodity or financial? Was it manifest in microeconomic (real) effects, in macroeconomic (expenditure) effects, or in some combination of effects? These questions are crucial to an understanding of the way in which a disturbance will affect a single national economy, of the way in which policy-makers are apt to respond, and of the way in which the disturbance is apt to be transmitted from one country to another.

4. Channels of Impact

The second stage of the transmission and response scheme identifies the

various ways in which a foreign disturbance can impinge on an economy. At this stage, the economy itself is deemed to remain passive; it merely receives at its border price and quantity signals that are the consequences of changing conditions in factor, commodity, or financial markets abroad. Several channels can be distinguished.

First, an external disturbance can alter the foreign-currency prices of a country's traded goods, and if the country is "small" (i.e., a price taker in all international commodity markets), this will be the only goods-market effect. If the world prices of its exports and imports rise or fall to the same extent, the country's terms of trade are, of course, unchanged; otherwise there is a shift in the terms of trade along with the changes in absolute prices. It is to be emphasized that we deal at this stage with changes in the foreign-currency prices of traded goods at the country's border. The impact of these changes on the home-currency prices of the same or related goods depends on the transformation, propagation, and containment processes.

Second, a disturbance can alter quantities of traded commodities demanded or supplied, as distinct from changes in their prices. This can happen to a country that is not "small" in all of the relevant commodity markets, and it is hard to think of a country that is in fact "small" in all of its international markets, especially when one takes account of trade in tourist services.

Third, there are connections between credit and capital markets, and disturbances arriving through these channels will be perceived as variations in interest rates, in demands for and supplies of internationally traded securities, and in supplies of foreign credit. From the point of view of an individual country, changing financial conditions abroad can

alter rates of return available on foreign securities, the demand for those of its own domestic assets that are traded internationally, and the cost of borrowing abroad or the availability of credit.

Changes in the foreign demand for a country's currency or in its demand for foreign currencies are often identified as a fourth channel. Within our framework, however, they are properly interpreted as the counterparts of changes in flows through commodity and financial channels, except insofar as they reflect the effects of changes in exchange-rate expectations -- of changes in demands for currencies to hold rather than demands for currencies to use. Furthermore, reserve or currency flows reflecting a surplus or deficit in the balance of payments are not to be considered at this stage.[11] Changes in a country's exchange rate are more difficult to classify, because each country actually has an exchange rate for each of its trading partners. Consider, for example, a country whose currency is pegged to that of another country (or bloc of countries). Any disturbance that alters the exchange rate between the currency of the other country and the currencies of third countries will alter the exchange-rate between the domestic currency and the currencies of the third countries. This exchange-rate change is the consequence of disturbances outside the economy and is thus properly interpreted as a channel whereby those disturbances impinge on the domestic economy. Yet a change in the exchange rate via à vis the currencies to which the domestic currency is pegged has to be regarded as part of the country's response to changing international and domestic conditions, and it is therefore part of the transformation or containment stages.[12]

A final channel is supplied by connections between national labor markets.

Although labor flows are unimportant for many countries, there are several for which the export of labor to jobs abroad is at least as important for the balance of payments as the import of capital and is also important for conditions on the domestic labor market.[13] For these countries, among them Yugoslavia, Turkey, Greece, and Spain, an international disturbance that reduces the foreign demand for labor will affect significantly the inflow of foreign exchange from workers' remittances and may also affect labor-market conditions at thome.. Another channel operating through labor markets is the possibility of a connection between national wage developments stemming from demonstration effects. Labor unions in one country may seek wage increases comparable to those that have been obtained by unions in the same industries abroad, especially when the unions in question are dealing with the same multinational companies. To the extent that these effects play a role in wage determination, an international disturbance that raises wages abroad may foster wage increases at home, and the relevant channel of impact is the international linkage of national labor markets.

In summary, there are five distinct potential channels that can carry the effects of a foreign disturbance to an economy. Those that will be important in a particular instance depend both on the nature of the disturbance and on the types and extent of the links between a particular economy and the rest of the world.

5. The Transformation Stage

The transformation stage begins where the channels stage ends -- at the country's border with the rest of the world. Changes in price and quantity signals coming from international markets are transformed by the country's own economic system and policies into domestic effects. It is,

therefore, at this stage that the analysis must become detailed and specific to the characteristics of the economy involved and thus directly relevant to the problems and responses of planned economies.

The nature of transformation depends on the institutional arrangements regulating a country's international economic relations. These arrangements vary substantially from country to country. Some countries have fixed exchange rates; others allow their exchange rates to float more or less freely in response to market conditions. Some countries allow relatively unrestricted capital and labor flows across their borders; others limit these flows, and still others seek to prohibit them altogether. These and other differences in international economic policies reflect underlying differences in national policy goals. For example, a country that attaches more weight to the efficiency of resource use than to the maintenance of stable prices in domestic markets is likely to permit freer movements of goods and factors than one that is committed to stable prices in its product and factor markets. Clearly, a complete analysis of the transformation process as it unfolds in a particular country requires discussion of that country's economic objectives and its economic structure and institutions.

The most important single element in the set of arrangements and policies that define a country's transformation structure is its exchange-rate regime. It determines how changes in foreign-currency prices are first translated into changes in home-currency prices. During the subsequent propagation stage, moreover, it determines the nature and extent of the involvement of the domestic monetary system in the transmission process. This is why the bulk of the existing theoretical literature takes the exchange-rate regime

as its starting point and why controversies among international economists center on the properties of fixed and floating exchange rates.

For a "small" country with a fixed exchange rate, any international disturbance that changes the foreign-currency prices of traded goods will cause corresponding changes in some set of home-currency prices, at least initially. Furthermore, if the disturbance affects significantly the balance of payments, the country will experience accommodating inflows or outflows of reserves that have implications for its monetary system. Thus, a fixed exchange rate does not act as a buffer against international disturbances; instead it permits disturbances to pass freely from one country to another. Under the strictest and simplest fixed-rate regime, a country has no control over the domestic prices of traded goods or over the reserve flows that occur immediately in the wake of an international disturbance. And if the country does not sterilize reserve flows as part of its containment policies, it will have no control over its domestic money supply and only limited control, if any, over its domestic price level (including the prices of nontraded goods). If, indeed, it does not engage in sterilization, it is powerless not only to offset the price, reserve, and money-supply effects of a foreign disturbance, but also to use monetary policy as a domestic policy instrument, since a policy-induced change in the domestic money supply will lead to a discrepancy between desired and actual money holdings that will lead in turn to changes in trade and capital flows and accommodating reserve flows that will offset the initial change in the money supply. Monetary policy will have no permanent effect on the domestic economy.[14] This basic conclusion is not undermined by allowing for price and wage rigidities, the existence of nontraded goods,

or the existence of nontraded assets. These complications, however, will influence the speed and path of adjustment of the economy to its final equilibrium position and do imply transitory changes in real and nominal variables within the domestic economy.[15]

The outline of the fixed-rate system given here and incorporated more or less completely in the models of the global monetarists[16] is overly simplistic and fails, therefore, to reflect real-world circumstances. In most economies, the monetary authorities are not powerless to sterilize at least some of the domestic monetary effects of changes in their holdings of international assets, and they are not irrevocably committed to the defense of the exchange rate at some fixed parity. An alternative view of the fixed-rate system recognizes that governments have reserve targets related to their views about the size and frequency of the imbalances they are likely to encounter, to the risks and costs of being forced to borrow, and to the costs of adjusting to imbalances by altering the level of domestic absorption.[17] Changes in reserves are not the simple endogenous consequence of changes in international conditions and in the domestic demand for real cash balances. Instead, they reflect forced compromises between efforts to achieve reserve targets, efforts to defend the exchange rate, and efforts to attain other ofttimes conflicting domestic policy objectives. Thus, in any realistic setting, the effects of an international disturbance are not certain or simple; we can expect to observe some combination of reserve flows, changes in macroeconomic policies, changes in trade policies and capital controls, and exchange-rate changes.

In the framework adopted here, the actual mix of responses will be shaped by the actions of individual economic agents and the government during

the propagation and containment stages. As far as transformation itself is concerned, the implications of a fixed rate for transmission are clear: if a foreign disturbance causes changes in the foreign-currency prices of traded goods, the disturbance will be reflected in changes in some set of home-currency prices, and if the country is not "small" in all goods markets, it may be reflected in changes in quantities of goods demanded and supplied. To the extent that changes in the prices or quantities of traded goods affect the balance of payments, accommodating reserve flows will also occur.

Transformation under a fixed-rate regime is to be contrasted with transformation under a floating exchange rate. When the exchange rate is allowed to adjust to market conditions, a country may be able to insulate itself from the effects of some, although by no means all, foreign disturbances. In the older literature on this subject, complete insulation was predicted for the case of a "small" country with trade balanced initially when confronted by an increase in the foreign-currency prices of its imports and exports. In the absence of capital mobility and of lags in price responses in goods' markets, the exchange rate adjusts immediately to restore purchasing-power parity (i.e., to the level required to restore equilibrium in commodity markets). Domestic prices and outputs remain unchanged.[18]

The older literature also argued that flexible rates would enhance national automony in domestic policy-making by abolishing the need to use macroeconomic policies for the elimination of balance-of-payments' disequilibria. In the absence of interest-sensitive capital flows, continual, automatic exchange-rate adjustments would maintain balance-of-payments equilibrium, irrespective of domestic monetary and fiscal measures.

Once we relax some of the limiting assumptions on which these conclusions rest, however, flexible rates no longer furnish either complete automony for national policy or complete insulation from international disturbances, even from a uniform increse in all foreign-currency prices. One such assumption is that of instantaneous adjustment in goods markets. Many product markets adjust with substantial lags to price signals -- a fact that explains the perverse short-run behavior of the trade balance that sometimes follows a change in the exchange rate (the so-called J-curve effect). A second assumption is that there is no international capital mobility, and this assumption is patently unrealistic. As a matter of fact, the evolving asset-market approach to exchange-rate theory suggests that a floating rate is determined in the short run in and by the markets for financial assets given existing stocks of assets and the willingness of asset holders to hold and shift between assets denominated in various currencies.[19] Under this approach, moreover, the exchange rates established by asset-pricing processes bear no necessary relationship to the purchasing-power-parity rates required to clear commodity markets at unchanged levels and patterns of output. Making the same point in different terms, expectations and speculation may cause a floating rate to "undershoot" or "overshoot" in the short run. Indeed, most asset-market models of exchange-rate determination based on "reasonable" expectations-formation processes predict that the exchange rate will "undershoot" or "overshoot" on the way to its new equilibrium position.[20] For any or all of these reasons, external inflation can influence domestic prices and outputs in a flexible-rate system.

If a foreign disturbance confronts an economy with something other

than a uniform increase or decrease in the foreign-currency prices of traded goods, it is even less likely that a floating rate can play an insulating role. A floating-rate regime is powerless to protect an economy from the real income loss caused by a shift in international prices that implies a deterioration in the terms of trade. It is also powerless to insulate an economy against disturbances arising in foreign financial markets, such as a change in foreign interest rates. It may indeed magnify the domestic goods-market effects of disturbances arising in foreign capital markets.[21] Thus, the implications of floating rates for the transformation process depend on the nature of the disturbance, the nature of the domestic response to it, and the mix of market forces involved in exchange-rate determination. It may still be right to say that floating rates tend to moderate the initial domestic effects of disturbances arising in commodity markets, and the likelihood of insulation, perhaps with some delay, is larger the more general the disturbance -- the smaller its effect on relative prices. Beyond that, an evaluation of the insulating properties of floating rates requires detailed knowledge about the foreign disturbance, the composition of a country's external transactions, and the country's domestic economic situation.

To complicate matters, the sharp distinction between fixed and floating rates drawn in the theoretical literature has no counterpart in practice. Most of the major industrial market economies pursue managed flexibility; they allow exchange rates to fluctuate more or less freely within certain gradually shifting ranges but may intervene actively when rates move rapidly to the limits of those ranges. In a world of managed flexibility, the domestic impact of an international disturbance depends partly on the explicit

or implicit exchange-rate targets of governments and the current-account or reserve targets that may underlie the exchange-rate targets.

The theoretical literature on fixed and fluctuating rates, even some of the literature that purports to describe reality, commits another mistake. It neglects the fact that many countries, including most LDC's and CPE's, peg their exchange rates to a single major currency, such as the dollar, the pound, the franc, or the mark, or to some basket of major currencies. Although the benefits of floating rates for insulation and national autonomy are not necessarily limited to developed market economies, such an exchange-rate policy is not feasible for many LDC's and for the CPE's. Their options are constrained by (a) a lack of adequate domestic financial markets integrated with world markets and (b) the unwillingness of their governments to permit currency convertibility and to sacrifice strict capital and trade controls.[22]

It is often said that the rates at which CPE's peg their currencies to the dollar are unimportant, since these rates are used only for accounting purposes. Domestic prices and real trade flows are not affected by those pegged exchange rates, for reasons to be discussed below. This evaluation may be simplistic, however, particularly for small CPE's, such as Hungary and the GDR, that have in fact employed exchange-rate adjustment as a policy tool in recent years (see Wolf 's conference paper). In general, the policy of pegging to a particular currency when that currency is floating vis à vis other currencies can affect the transmission process in at least two ways. First, it exposes the domestic currency to exchange-rate changes that result from external disturbances on world currency markets, with actual or potential implications for the direction of trade (depending

on the sensitivity of trade flows to changing prices). Second, it exposes the pegging country to unanticipated fluctuations in the value of its foreign-currency reserves and foreign-currency debts, forcing it to diversify its claims and liabilities or to cover at high cost its short-term exchange risks.

The second major ingredient of the transformation process for a particular economy is the system of taxes and subsidies that applies to the domestic prices of traded goods. Under a fixed exchange rate, changes in foreign-currency prices translate into changes in some set of home-currency prices, but these need not be the prices that actually come to prevail on domestic markets. The latter are affected by domestic taxes and subsidies and quantitative trade controls. In the limiting case which is characteristic of traditional CPE's, the only domestic prices that are directly affected by changes in foreign-currency prices are so-called accounting (valuta) prices that are used to measure trade and payment flows with the outside world. Domestic market prices are in general set on the basis of planners' preferences or simple cost-markup formulae and are completely divorced from accounting prices by a system of variable taxes and subsidies (preisausgleich). These are automatically adjusted in the manner described by Wolf 's paper to maintain stable domestic market prices in the face of changing foreign prices. In modified CPE's, such as Hungary and, to a lesser extent Poland, complete price separation is practiced only in respect of certain traded goods. Changes in the foreign prices of other traded goods are translated into domestic price changes at constant pegged exchange rates and constant taxes and subsidies.[23] The insulation of domestic prices <u>via</u> a variable tax-subsidy scheme is most

commonly associated with CPE's and modified CPE's. It is worth noting, however, that the same practice is followed by the European Economic Community, which employs variable levies and commodity-specific exchange rates to insulate domestic farm prices under the Common Agricultural Policy.

It is frequently assumed that a variable tax-subsidy scheme separating domestic prices from foreign prices can insulate the domestic economy from all international disturbances that manifest themselves in changing world prices. This conclusion is not always correct. It is obviously untrue when changes in world prices imply a deterioration in the terms of trade, imposing an unavoidable real income loss that requires, sooner or later, a cut in real absorption. It is likewise untrue when trade is not balanced initially, so that a uniform increase in world prices increases the size of the trade surplus or deficit measured in foreign currency when real trade flows are held constant. Even if taxes and subsidies are adjusted exactly to stabilize domestic prices, there will still be reserve flows, lending or borrowing, or an eventual change in real absorption. These examples indicate -- and the extended discussion in Wolf 's paper demonstrates -- that a tax-subsidy scheme usually serves to transform rather than to eliminate the domestic impact of an international disturbance. Only in a very special set of circumstances -- trade balanced initially at world prices and an equiproportionate change in the world prices of imports and exports -- will a tax-subsidy scheme act exactly like an equilibrating exchange-rate in that it will insulate the domestic economy completely from the increase in world prices.

A third ingredient of the transformation process, related to the system

of taxes and subsidies but analytically distinct, is the decision-making structure within the traded-goods sector of an economy. The locus and nature of the authority to make foreign-trade decisions within the constraints set by international market conditions will determine where and how the effects of changes in those conditions are felt initially. In a decentralized market economy, in which decisions about the volume and composition of trade are made by automonous, private agents, changes in foreign price or quantity signals that are not automatically offset by exchange-rate or tax-subsidy adjustments will affect the profitability of international transactions as perceived by those agents. How they then adjust outputs and prices has important implications for the economic situation as it develops during the propagation stage.

In traditional CPE's, in which decisions about the volume and composition of trade are monopolized by central state agents, the enterprises that are the counterparts of private producers in market economies are shielded from the price effects of an international disturbance by the automatic tax-subsidy scheme, as long as government decision-makers decide against altering production, trade, or capital flows. The initial effects of the disturbance are then felt only within the public agencies involved in foreign trade, including the foreign trade organizations (FTO's) and the central bank. The effects show up as changes in the foreign-currency trade balance and offsetting reserve flows. State decision-makers respond to these effects during the containment phase of the transmission process. If the CPE is "large," however, an international disturbance may be felt as quantity changes in commodity markets, and state decision-makers can no longer shield enterprises and other economic agents

from the disturbance via the automatic tax-subsidy scheme. Real trade flows will change, and enterprises will feel the initial effects of the disturbance at the transformation stage. Finally, in modified CPE's, in which state agencies and enterprises share authority over trading decisions, both will feel the initial effects of changes in international commodity-market conditions, the former in the form of changes in the net trade balance and reserve flows, and the latter in the form of changes in the profitability of international transactions.

There is one more point to be made about the use of tax-subsidy systems to insulate the domestic economy from the effects of changes in foreign-currency prices. An increase in subsidies or decrease in taxes designed to offset an increase in foreign-currency prices will have the effect of enlarging the government's budget deficit (or reducing the surplus). If, indeed, enterprises and individuals are shielded completely from the effects of the disturbance, so that there are no changes in the surpluses (profits) of enterprises and no changes in the incomes of individuals, the home-currency equivalent of the deterioration in the trade balance recorded in foreign currency on the books of the central bank will exactly equal the deterioration in the budgetary position of the state. The familiar national-accounting identities apply ex post to all economies: when enterprises and individuals are fully insulated from a disturbance, so that there is no change in investment or saving, a change in the trade balance must have as its counterpart a change in the government's surplus or deficit.

A final ingredient of the transformation process is the set of capital-market controls in the economy. These determine whether and how disturbances in international capital markets impinge upon the domestic economy. Under conditions characteristic of both traditional and modified CPE's,

where capital-market controls effectively prohibit transactions in foreign assets by private citizens, so that all capital flows reflect state actions, the economy is insulated from capital-market disturbances or from the capital-market consequences of other foreign disturbances, except insofar as they influence the prospects for borrowing abroad. In market economies, by contrast a variety of interest-sensitive capital flows occur freely, and even those that are proscribed often occur surreptisiously. In these economies, however, capital-market controls are frequently the first policies to be adopted or tightened during the containment stage.[24]

5. The Propagation Stage

The initial "transformed" effects of an international disturbance alter the parameters influencing the decisions of both economic agents and policy-makers. Their responses to these changes and the effects of those responses on domestic and international activity form the subject matter of the propagation and containment stages of the transmission and response model. Propagation is defined to encompass all of the various mechanisms whereby the initial domestic effects of a disturbance or the effects of containment policies introduced to minimize its consequences are spread through the economy by the discretionary actions of economic agents other than the state itself. Containment is reserved to encompass the decisions of the state -- the policy responses introduced to combat "undesired" domestic effects of the disturbance or of endogenous domestic responses to it. The distinction between propagation and containment thus rests on a distinction between the actions of economic agents and the actions of policy-makers.

It may seem artificial, even erroneous, to apply such a distinction

to traditional CPE's, in which the scope for discretionary economic decision-making by anyone other than the state policy-making apparatus is usually thought to be severely limited. In models of traditional CPE's, the state planning organization, along with the ministry of foreign trade and the central bank, are deemed to make all decisions regarding both domestic and external economic activity. As Rosefielde argues in his conference paper, however, reality is significantly different. Even in traditional CPE's, economic decisions are made both by "planners" and by what Rosefielde describes as "independent microplanning enterprises," which have a good deal of discretionary decision-making power at their disposal, because of the impossibility of fullscale command planning.

The household sector is another locus of discretionary decision-making power in CPE's. Consumers are free to determine their own consumption levels and patterns, given their incomes and existing supplies and prices of consumer goods and are free to determine within limits their choice of job and outlay of effort. Finally, enterprises, consumers, and state agents are all free, subject to the risk of disciplinary action, to participate in the "black," "grey," and "white" markets, i.e., the illegal and semilegal markets that account for a large portion of economic activity.[25]

In modified CPE's, of course, the scope for legal discretionary action is broadened significantly, because the defining characteristic of these economies is the devolution of decision making to decentralized agents who are instructed to respond to changing price and quantity signals in accordance with certain agreed-upon profitability criteria.

It is important to emphasize, too, that the distinction between propagation and containment does not imply anything about the sequence of

responses of economic agents and policy-makers. A containment policy may be adopted and implemented before any action by economic agents that would tend to propagate the initial effects of the disturbance. Indeed, in traditional CPE's, the policy-makers' decisions to adjust real trade flows in response to the disturbance -- decisions that are properly interpreted as part of the state's containment policies -- are usually the first domestic responses to the disturbance. Propagation then occurs only insofar as economic agents respond to the changes in supply conditions for commodities created by policy adjustments to trade flows. In market economies, by contrast, the sequence is frequently reversed. Policy-makers may remain passive in the face of a disturbance waiting to see how endogenous market responses influence domestic and international policy targets. If actual economic developments diverge too sharply from these targets, explicit containment policies will then be introduced in an effort to modify market behavior.

Clearly, as the domestic economic situation changes, containment and propagation are likely to occur simultaneously in both market and planned economies. Policy-makers will continue to modify their decisions in response to developing economic conditions, and economic agents will continue to modify their behavior in response to these same conditions and to changing policies.

It is thus difficult to say anything definite about propagation except in a specific country context. Nonetheless, the existing literature on international trade does suggest at least three potential propagation mechanisms that are of potential or actual importance in market economies: multiplier effects, real-balance effects, and price-substitution or resource-allocation effects.

Multiplier effects are most easily described in the context of a Keynesian macroeconomic model, but they are not unique to such a model. As such a model demonstrates, any shift in the trade balance resulting from an international disturbance constitutes a change in the global demand for domestic goods. In the absence of offsetting variations in the domestic components of demand, any such shift in the trade balance will have multiplicative effects on aggregate expenditure. These effects, in turn, will induce some combination of changes in prices and real output (employment), with the mix depending in large part on the initial level of resource utilization. The multiplicative effect on expenditure, moreover, will partially reverse the initial trade imbalance, bringing the economy part way back to its original trade balance.

The traditional wisdom, given its most forceful and lucid expression in the work of Holzman (1974), asserts that the multiplier effects of a shift in the trade balance are relatively unimportant in CPE's and, by implication, in modified CPE's as well. The level of real domestic resource utilization in these economies, it is argued, is determined by direct planning controls. Consequently, the full employment of domestic resources is guaranteed, and variations in aggregate demand coming from the trade balance will be offset automatically by adjustments in domestic components of demand, leaving output to be determined solely by supply-side conditions. Implicit in this argument is the assumption that the state's containment policies include plan adjustments that maintain full domestic resource utilization in the face of a deterioration in the trade balance. As Rosefielde argues in his paper, however, any change in the real trade balance will have an impact, since changes in the level or composition of

trade will impinge on domestic resource allocation, causing adjustments in the assortment and quality of goods available and the productivity of domestic resource use. To the extent that planners determine these adjustments, they are properly assigned to the containment stage. To the extent that microplanning enterprises make them autonomously, they are properly examined as part of the propagation process.

Although demand multiplier effects are thought to be relatively unimportant in the propagation of international disturbances in CPE's and modified CPE's, two supply-side multiplier effects have been identified in the literature on these economies. The first of these, called by Holzman (1974) the "bottleneck multiplier effect," comes into play when an international disturbance changes the domestic availability of intermediate inputs. For example, a reduction in intermediate imports (or an increase in intermediate exports), which would improve the trade balance, may cause real domestic output to decline even at unchanged levels of domestic resource utilization, owing to a decline in the productivity of domestic resource use brought about by the input substitution and resource reallocation required by the import shortfall (export increase). Production or supply-side multipliers of this variety are likely to be important in the propagation and containment stages of CPE's and modified CPE's when an international disturbance is localized in world markets for basic intermediate goods that have limited or imperfect domestic substitutes. These conditions may have had some relevance to the problems of the smaller CPE's in 1972-74, when international disturbances upset conditions on world raw material and fuel markets.[26]

An altogether different set of supply-side multipliers may come into

play in a CPE or modified CPE under conditions of repressed inflation. Many students of these economies attest to the existence of inflationary pressures which are repressed by direct controls over commodity allocations in the enterprise and government sectors and by price controls and rationing by queuing in the consumer-goods sectors. As Brada (1977) and Portes (1976) have recently pointed out, an international disturbance that reduces the availability of consumer goods will intensify these repressed inflationary pressures unless policies are introduced to reduce consumer incomes accordingly. If shortages of consumer goods do become more severe, workers' incentives and labor-force participation may decline, reducing domestic output. Thus, the reduced availability of consumer goods may have a "multiplier effect" on the domestic supply of all goods. The conference paper by Richard Portes describes these effects in greater detail and discusses the tradeoff between domestic and international objectives that may confront policy-makers in the CPE or modified CPE as a consequence of these effects. For the purposes of our paper, it is sufficient to note that these effects come into play because of the discretionary decision-making power accorded to the consumer sector in CPE's. They are thus an obvious example of the kind of discretionary activity by economic agents that can propagate the domestic effects of an international disturbance in a CPE, and they are thus analogous to the demand-multiplier effects of an international disturbance that occur in a market economy.

Real-balance effects -- changes in expenditure resulting from changes in the real money stock produced by an international disturbance -- are thought to be a second propagation mechanism operating in market economies.

An inflow of reserves, for example, enlarges the foreign component of the domestic monetary base. If the change in the base is not offset by sterilization (an increase in reserve requirements or open-market sales of domestic assets by the central bank) and if the money market is in equilibrium initially, the inflow will produce an excess supply of money and will thereby stimulate expenditure. It will do so directly insofar as money holders attempt to substitute goods for money (i.e., reduce their savings); it will do so indirectly insofar as they attempt to substitute other assets for money.

The strength of the real-balance effect in the propagation process depends on the institutional arrangements linking international reserve flows to the domestic money supply. In most market economies, the crucial issues are whether, to what extent, and for how long the monetary authorities can offset reserve flows by changes in the rate of domestic credit creation. As Branson (1975) has pointed out, this is an empirical issue and must be evaluated for each economy individually. A second set of issues, also empirical, relates to the sensitivity and speed of response of various expenditure flows to discrepancies between desired and actual cash holdings. Debate on these issues has been intense and excessively polarized. Economists of a monetarist persuasion often assume that there can be no sterilization and that the adjustment of actual cash holdings to target levels is quite rapid. Economists of a strict Keynesian persuasion often assume that there is complete sterilization and that adjustment is slow or incomplete. In other words, there are wide differences in views about the money-supply process and about the stability of the demand function for money.

In CPE's and modified CPE's, real-balance effects are at least a theoretical possibility, although they may be relatively unimportant in practice. Attempts to assess their importance are complicated by the peculiarities of monetary institutions in CPE's. First, it is hard to define the domestic money supply, because certain holdings of currency and deposits are not money in the sense that they accord their holders discretionary purchasing power. It is the traditional view, for example, that cash balances held by consumers and enterprises should be regarded as money but that other bank depsoits, such as those held by the foreign trade ministries with the central bank, should be excluded from any working definition of money. But this distinction is simplistic, since the discretion that enterprises enjoy over the use of their deposits is strictly limited in many commodity markets, where prior permission to purchase must be obtained from the responsible planning office. In other markets, however, and particularly in illegal or semilegal markets, cash holdings of enterprises and consumers may play important roles.

Even if it is agreed that the money supply should be defined to include currency and deposit holdings of consumers and enterprises and that these agents do enjoy some discretionary buying power, it is still necessary to determine whether an international disturbance actually affects the cash holdings of consumers and enterprises. In CPE's and modified CPE's, changes in the international reserves of the central bank have no automatic effect on the money supply as they do in market economies. The international operations of the central bank are completely isolated from the rest of the monetary system. Typically, the planners attempt to set the domestic money supply so that the aggregate purchasing power of enterprises and

households will equal the aggregate transactions value of goods and services exchanged at established prices on legal markets. An international disturbance or containment policy that changes the aggregate supply of goods and services can thus be viewed as causing a monetary disequilibrium; the planned money supply will no longer match the actual transactions value of goods and services. If a disturbance results in a decline in real net imports, for example, then commodity supplies on at least some markets will decline and enterprises or households, or both, will find themselves with "excess" cash balances.[27] The disequilibrium does not develop because the disturbance has pumped more money into the system. It develops because even though a reduction in net imports is apt to increase the reserves of the central bank, fewer goods have entered the system to absorb a constant supply of cash holdings. In modified CPE's, where prices in some commodity markets are flexible, changes in real cash holdings may occur as a consequence of changing domestic prices. Such changes do not occur in traditional CPE's where domestic prices are fixed, but rising prices on illegal markets should produce the same effect even in these economies.

What are the potential effects of monetary disequilibria in CPE's and modified CPE's and what can be done by the planners to reduce these disequilibria? The effects depend, of course, on the extent to which individual agents with unwanted money holdings can use them for discretionary activity. The scope for such activity is greatest in the consumer sector, where households are free to spend their money in accordance with their own preferences. By implication, a disequilibrium in the household sector resulting from an international disturbance may change the level and patterns of consumer demand, with consequent changes in the degree of

repressed inflation (the length of queues) on legal markets, changes in prices on flexible, legal markets in modified CPE's and changes in prices and/or queues on illegal markets in both. The same general conclusions apply to enterprises, but the scope for discretionary spending is sharply curtailed by bank control over the use of enterprise deposits for legal market activity. As far as policies in traditional CPE's are concerned, the planners have two options: they can tolerate passively changes in the degree of repressed inflation in the aggregate or on certain markets, thereby running the risk of attendant supply-multiplier effects, or they can introduce measures to adjust directly enterprise and household cash balances. Such measures include changes in personal taxes or turnover taxes which affect the consumer sector, and changes in the availability of credit to the enterprise sector.[28]

In modified CPE's, the planners have an additional choice to make: they can tolerate changes in actual prices on flexible markets, accepting the implications for the domestic rate of inflation and for differentials between the prices of goods that are traded on flexible markets and those of goods whose domestic prices are controlled,[29] or they can act either to adjust money holdings through tax and credit operations, as in the traditional CPE, or to reduce price flexibility by restoring price controls. The last response implies a movement back toward the institutional structure of the traditional CPE. Within the context of our transmission and response model, the policy measures discussed here for both CPE's and modified CPE's illustrate containment policies designed to combat unwanted domestic effects of an international disturbance.

In market economies, and to a lesser extent in modified CPE's, the

third and last propagation mechanism has to do with the internal spread of domestic price changes resulting from the changes in prices of traded goods that occur at the transformation stage and the resource allocation effects to which they give rise. It is sometimes described as the process of commodity arbitrage, but arbitrage per se may be the least important element in the process, which involves all forms of substitution between commodities, including inputs (producer substitution) and final goods (consumer substitution). It also involves the pass-through of higher costs that is apt to be most important precisely when there can be very little subsitution among inputs and the pass-through of wage increases that are the result of workers' efforts to maintain real wages in the face of rising prices.

The price changes at issue here originate on the supply side of the economy and are therefore to be distinguished from price changes produced by expenditure-multiplier and real-balance effects, which are properly interpreted as reflecting changes in demand conditions. Thus, even when the aggregate-demand and real-balance effects of a disturbance are small, domestic price effects may be large and widespread if wages are particularly sensitive to the cost of living and/or if prices are largely cost-determined and affected only to a moderate degree by product demand conditions. Price effects are also likely to depend on the nature of the foreign disturbance. Thus, the disturbances of 1973-75, that raised the world prices of basic inputs, may have had an especially virulent influence on domestic prices.[30] Finally, it should be noted that markets tend to differ in the speed and degree of price response to changing supply-side pressures. On so-called auction markets, the price response is apt to be influenced by demand

conditions; on so-called administered or customer markets,[31] by contrast, prices are likely to respond rapidly and completely to increases in costs regardless of the state of demand. As a consequence of these differences in speed and degree, the propagation of the price effects of an international disturbance can cause not only changes in the aggregate price level but also changes in relative prices with implications for resource allocation.

A model designed to capture some of the price effects discussed here is the so-called Scandinavian model of a small open economy with fixed exchange rates.[32] This model disaggregates the economy into two sectors: the exposed or traded-goods sector, in which prices are determined mainly by world market conditions, and the sheltered or domestic-goods sector, in which prices are determined mainly by supply-side or cost conditions, particularly in the domestic labor market. The link between price developments in the two sectors is provided by the labor market where, by assumption, accepted standards of wage solidarity or fairness keep wage differentials between the two sectors more or less constant. Price developments in world markets and an exogenously determined growth of labor productivity, determine wage changes in the exposed sector. These changes, however, give rise to similar wage changes in the sheltered sector as workers strive to maintain the accepted wage differential, and these wage changes, together with the growth of labor productivity, lead to price changes in the sheltered sector. Thus, through the parallel development of wages, price changes experienced by the exposed sector during the transformation stage give rise to price changes in the sheltered sector during the propagation stage.

It is undeniably true that the direction and degree of price change

will be influenced by monetary policy even in the context of the Scandinavian model and other constructs that emphasize the supply side. If monetary policy is sufficiently restrictive, it may induce reductions in domestic prices sufficiently large and widespread to compensate for increases in those domestic prices that rise on account of a foreign disturbance. In any market economy, however, the employment and output costs of using monetary policy in this way may be substantial if prices and wages exhibit downward rigidities. Indeed, the arrangements governing domestic wage and price determination affect not only the extent of domestic price propagation in the wake of a foreign disturbance but also the ability of domestic policy makers to combat the process by appropriate adjustments in monetary or fiscal policy. In many market economies, these institutional arrangements guarantee that a price-raising foreign disturbance will incite a wage-price spiral that can be forestalled only by the introduction of an effective social contract for wages, prices, and profits. Such a contract may be one of the many containment measures taken by the government.

In CPE's and modified CPE's, direct controls over all or some domestic prices and, to a lesser degree wages, severely restrict domestic price propagation, and eliminate the cumulative and self-propelling wage-price spiral that is characteristic of most market economies.[33] As noted earlier, the existence of a variable tax-subsidy scheme at the border drives a wedge between domestic and foreign prices. The insulation of domestic prices is complete in CPE's. It is not insubstantial even in modified CPE's, where some domestic prices are allowed to adjust to changing international conditions, because the prices of related commodities can be held down and wage increases can be prevented or limited by the existing price-wage control

structure. Moreover, if the price and wage increases caused by price developments in flexible markets are perceived to be excessive, the planners can return to traditional price-control and variable-tax-subsidy schemes.[34]

Within the institutional structure of CPE's and modified CPE's, then, there is virtually no room for a sustained price-wage spiral or for a vicious cycle of inflation and exchange-rate depreciation touched off by an international disturbance, and the government is not confronted with the unwelcome task of combatting such a spiral by a restrictive monetary or fiscal policy. But direct controls over domestic prices and wages can produce both detrimental and benefical effects in these economies. To the extent that potential price and wage increases reflect changing supply and demand conditions, the suppression of such increases can result in costly mistakes in resource allocation, as well as a worsening of repressed inflation on some markets. It is only to the extent that potential price and wage increases reflect the attempts of economic agents to maintain their real incomes in the face of the need to reduce those incomes that the prohibition of such increases substitutes for an incomes' policy or the "social contract" that has so often been proposed but has so rarely been effective in market economies.

A review of the preceding discussion suggests that the scope for internal propagation of an external disturbance is considerably larger in market economies than in planned economies. This conclusion is not surprising in light of the fact that the extent and speed of propagation depend on the discretionary activity of economic agents, and this activity is severely limited in planned economies. What is the normative significance of this conclusion? Are planned economies better off or worse off in the

face of an international disturbance? The answer to this question would seem to depend on both the nature of the disturbance in question and on the actual characteristics of the planned economy. Consider first a "large" planned economy like the Soviet Union whose dependence on international trade is limited, at least inthe aggregate, as measured by the ratio of its trade to its output. One might be tempted to conclude that the Soviet planning system with its widespread controls "must be perceived as an extremely effective mechanism for containing unanticipated (international) disturbances"[35] without a decline in the utilization of domestic resources and without excessive cost in resource misallocation. In small traditional or modified CPE's, however, the case is not as clear, since the attempt to insulate a large portion of domestic economic decisions from world market conditions may be extremely costly, given the economy's trade dependence. The costs and benefits of the institutions of the planned economy, viewed as devices for curtailing the domestic effects of external disturbances, must be judged on a case by case basis. Nonetheless, one definite conclusion seems warranted. When an international disturbance involves a shift in relative prices and when it is likely to have substantial and prolonged inflationary effects in a market economy, then the control mechanisms of the planned economy may be better able to contain the domestic marcoeconomic effects at less cost than the price-wage mechanisms and macroeconomic policies of the market economy. Under these circumstances, the market economy requires a social contract or incomes' policy to forestall the wage-price spiral that is automatically eliminated by the direct controls of the planned economy.

7. The Containment Stage and Some Conclusions

As defined earlier, containment refers to the policy responses introduced by policy-makers to minimize the direct domestic effects of an international disturbance and the effects of internal propagation. Containment policies are to be distinguished from existing systemic and institutional features or policies that characterize the transformation stage and the propagation stage. Containment implies active policy innovation to limit or reverse undesired developments in the economic situation as it evolves during the transformation and propagation stages.

As the actual containment policies of a particular economy will be determined by its systemic features and its goals and by the nature of the disturbance in question, it is difficult to say anything definite about containment, as it was about propagation, except in a specific context. In market economies the containment policies adopted to deal with recent disturbances have been remarkably similar: monetary and fiscal measures to stimulate or cool domestic economic activity; the tightening or loosening of capital controls and, to a lesser degree, trade controls including tariffs, taxes, and subsidies, to influence directly the balance of payments; and the introduction of a variety of incomes' policies and temporary wage and/or price freezes, generally or in certain sectors, to reduce or limit the domestic inflation rate. The gradual transition from a system of fixed exchange rates to a system of flexible but managed exchange rates during 1971-73 can also be interpreted as a containment policy. Under the new system of floating rates, moreover, active intervention in currency markets is also an important containment policy.

The major policy problem in market economies is how to restore

reasonable rates of real growth and employment without stimulating "excessive" inflationary pressures. This problem has its roots in the international disturbances of the last decade, disturbances that produced major shifts in relative prices, dramatic increases in inflation rates, and dramatic changes in exchange rates, all of which have fed inflationary expectations, dampened business confidence, aggravated distributional conflicts, and produced a crisis of confidence in policy-making circles.

For the planned economies, recent international disturbances have also produced major policy dilemmas. By chance, the decisions of these economies to expand their involvement in international trade occurred on the eve of the major upheavals on world markets. The planned economies were therefore contronted very quickly with rising prices of imports and exports, shifting terms of trade, and declining foreign demands for their exports. In the modified CPE's, such as Hungary and Poland, these developments raised domestic prices and wages, but they posed economic problems for traditional CPE's as well. The actual containment policies employed by the planned economies during this period included a variety of measures, many of which are examined in detail in the country papers presented at this conference. There were readjustments in trade flows by both commodity and geographic area, readjustments in credit flows, and a gradual readjustment of domestic growth goals. Evidence of these readjustments is found in the sharp and worrisome growth of the oustanding debt of the planned economies,[36] and in the scaling down of domestic and international expansion targets apparent in the 1976-80 Five Year Plans.

Looking to the future, the major policy problem confronting the planned economies is a choice between a continuation of the tentative expansion of

trade and credit flows with the West or a reversion to traditional intra-bloc trade patterns. Inextricably related to this choice, however, are other choices that may be more profoundly significant. The planned economies must decide whether to continue or reverse the processes of liberalization and decentralization that accompanied -- and may be essential to -- a continued expansion of trade with the West. They have also to decide whether to foster or abandon the policy of political cooperation with the West that has somewhat fitfully but nonetheless perceptibly accompanied growing economic interdependence. Decisions on these broader questions will determine the extent of their future exposure to external disturbances and the manner in which they deal with the domestic consequences.

NOTES

[1]Whitman (1977, p. 19) notes that, until very recently, the notion of transmission would have been subsumed in the context of discussions of the monetary system, with perhaps some supplementary references to beggar-my-neighbor policies in discussions of trade policy. "But there is growing concern about the transmission of disturbances from one country to another and the magnification of these disturbances in the transmission process . . . and there is a sense that we face something new under the sun, a situation qualitatively different from what had prevailed earlier in the postwar period."

[2]Salant (1977, p. 132) uses the broad notion of transmission in his recent essay on the international transmission of inflation, when he argues that "the various mechanisms of international transmission are interrelated and the mechanisms conventionally described as channels of international transmission depend for their operation on assumptions about domestic monetary conditions and about other elements of intranational transmission that are rarely mentioned." Within the framework described in this paper, intranational transmission encompasses what we shall call the propagation and containment stages.

[3]The framework we adopt modifies and extends the "impact model" of the transmission process developed by Brown, Fallenbuchl, Licari and Neuberger (1978). We are appreciative of helpful clarifying comments and ideas provided by E. Neuberger on the impact model and the extended framework adopted in this paper.

[4]In Salant's terminology (1977, p. 182) propagation examines how changes in the domestic variables that are directly affected by the international disturbance are transmitted intranationally.

[5]In this paper, an endogenous change in a floating exchange rate is classified as an aspect of transformation. There is an element of artificiality here, however, because most floating rates are heavily managed, and decisions about the degree of management (intervention) are not unlike decisions to devalue or revalue, which are classified here as belonging to the containment stage.

[6]Kenen (1976) has stressed the need to consider the implications for trade and factor flows of international differences between domestic institutions, laws, and policies. Although much can be accomplished by treating nations as regions and thus treating the theory of international trade as an application of the general theory of interregional trade, national power and national policy preferences should not be neglected in the study of international economic relations. The transformation stage focuses explicitly on their implications for the transmission process.

[7]For discussions of the supply-shock interpretation of recent events, see Gordon (1975), Modigliani (1977), and Whitman (1977).

[8]As Modigliani (1977, p. 15) puts it, ". . . there is no miracle cure -- there is no macro policy which can maintain a stable price level and keep employment at its natural rate . . . In short, once a price shock hits, there is no way of returning to the initial equilibrium except after a painful period of both above-equilibrium unemployment and inflation."

[9]For discussions of the monetarist interpretation, see Genberg and Swoboda (1976), Swoboda (1977), Parkin (1977), and the papers collected in Parkin and Zis (1976).

[10]For an explanation of these supply-multiplier effects, see Section 6.

[11]The distinction between capital flows that are to be considered at this stage and reserve flows, that are not, arises from the distinction between autonomous and accommodating capital flows. The distinction goes back to Meade (1951) and has been restated by Corden (1976). Autonomous flows represent the voluntary decisions of private and public agents in international capital markets, while accommodating flows are those necessitated by temporary balance-of-payments disequilibria under either fixed or flexible exchange rates and are initiated by (or under the aegis of) the central monetary authorities.

[12]The distinction drawn here is additional to the one drawn in note 5, above, where we mentioned the problems of distinguishing between exchange-rate changes that belong to the transformation stage and those that belong to the containment stage.

[13]For a discussion of the linkage among national economies through the labor market channels identified here, see Salant (1977, pp. 188-189).

[14]In early papers by Mundell (1963) and others, this result was associated with the influence of capital mobility. Portfolio-balance and monetary models have shown, however, that the degree of capital mobility is important mainly for its effect on the speed with which monetary policy is undermined by movements in reserves. See, e.g., McKinnon and Oates (1966) and Johnson (1976).

[15]See, e.g., Swoboda (1976, 1977) and Allen and Kenen (forthcoming).

[16]Whitman (1975a) distinguishes global monetarism from the more general monetary approach by its adherents' extreme assumptions that money is completely neutral, that commodity arbitrage is perfect, (that the laws of one price and one interest rate hold in world markets), and that sterilization

is impossible. Under these assumptions, the domestic money supply is an endogenous variable and monetary policy is entirely ineffective under a fixed-rate regime.

[17]This alternative view is discussed in Whitman (1975b), Tobin (1977) and Williamson (1973).

[18]For a complete discussion of insulation of a small country from the effects of equiproportionate increases in the foreign prices of exports and imports see Prachnowny (1975); on the assumptions and issues involved see also McTeer (1968) and Tower and Willett (1976).

[19]On the asset-market approach to exchange-rate determination, see Dornbusch (1976), Kouri (1976), Kenen (1978) and Allen and Kenen (forthcoming).

[20]On "overshooting" and "undershooting" see Whitman (1975a).

[21]As Cooper (1976) points out, flexible rates are particularly likely to aggravate the effects of an external asset-market disturbance if exchange-rate expectations are elastic and if the exchange rate is the principal price that clears the market for foreign securities.

[22]Black (1976) supplies an extended discussion of the implications of pegging by LDC's to major floating currencies. His discussion is relevant to the circumstances of the CPE's which also follow a pegged-rate policy.

[23]See Wolf's conference paper and his earlier paper (forthcoming) for a complete discussion of the tax-subsidy scheme in CPE's and modified CPE's. Wolf defines modified CPE's as characterized by (1) elimination of detailed central planning of most or all inputs, outputs and foreign trade; (2) introduction of flexible prices on a set of goods; and (3) creation of an organic linkage between foreign-currency prices and domestic prices for a subset of traded goods.

[24]Whitman (1975a) argues that the major policy tools adopted in response to balance-of-payments problems in western economies are capital-account controls. In CPE's, where capital controls are a permanent systemic feature, balance-of-payments problems are countered by the strengthening of current-account controls.

[25]For a complete discussion of the many varieties of illegal and semi-legal market activity in the USSR, see Katsenelinboigen (1977) and Grossman (1977).

[26]To the extent that the smaller CPE's satisfied their raw-material requirements by imports from the Soviet Union, they were insulated from

changing conditions on world markets by a system of long-term contracts specifying both quantities and prices of raw-material imports. The Soviet Union and the other countries of CMEA did not renegotiate the terms of these contracts or adjust the terms of new contracts until 1975, long after the impact of inflationary conditions on world raw-material markets had first come into play.

[27]Wolf (forthcoming) discusses in detail the money-supply implications of a change in the trade balance in a traditional CPE.

[28]Brada (1977) discusses many of the policy measures available to the CPE to reduce excess demand for commodities arising from a decline in net imports.

[29]See Wolf (1977) for a discussion of the effects of international disturbances and exchange-rate adjustments on the prices of goods on controlled markets relative to those on flexible markets in modified CPE's.

[30]To take another example, Salant (1977) has pointed out that a rise in import prices may have quite different effects on the price level than an autonomous decline in net exports, even though both disturbances worsen the trade balance in the short run. If the real-balance effect is small, an increase in import prices, working through the price-propagation mechanism, will be inflationary. But a decline in net exports, working through the demand-multiplier mechanism, will be deflationary.

[31]The distinction between auction and administered markets is drawn by Nordhaus (1976). Dornbusch and Krugman (1976) use a similar distinction to contrast differences in speeds of adjustment of domestic prices to exchange-rate changes.

[32]For a complete and lucid dicussion of the Scandinavian model see Aukrust (1977).

[33]See Portes (1977a) who describes the ways in which the price-wage institutions of CPE's and modified CPE's protect them from the wage-price spiral.

[34]See the country study on Poland by Fallenbuchl for an illustration of this policy reversal.

[35]Rosefielde (1977) p. 9.

[36]See Portes (1977b) on the dimensions and implications of East Europe's debt to the West in recent years.

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