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IMF WORKING PAPER

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From Centrally-Planned to Market Economies:
The Road from CPE to PCPE

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February 1991

Abstract

This paper deals with the early stages of transformation of centrally-
planned economies (CPEs) into market economies during which expectations
play a key role. It focuses on the transitional phase during which the
economy is not any more a CPE but has not yet become a market economy.
During this phase the economy is referred to as a "previously centrally-
planned econony" (PCPE). A simple model is developed to analyze the
consequences of expected price liberalization. The CPEs undergoing
transformation lack depth and breadth of financial markets. The analysis
illustrates the benefits from an early development of such markets. It
demonstrates the cost of a fine-tuning strategy and the benefits from a
quick implementation of price reform. The paper also examines means to
reduce "liquidity overhang," and shows that they involve taxation of one
form or another. The consequences of privatization are analyzed and the
benefits from an early development of an effective tax system highlighted.

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Summary

The transformation of centrally planned economies (CPEs) into market economies is long and complex. The early phases of transformation involve uncertainty and vulnerability since the old system has collapsed, but the new system is still not in place. This paper deals with issues arising during the early stages of the transformation. It focuses on the transitional phase during which the economy is not any more a CPE but has not yet become a market economy. During this phase the economy is referred to as a "previously centrally planned economy" (PCPE).

An important theme in the analysis is that observed patterns of exchange rates, asset holdings, and economic activity in general reflect at the same time policy measures already in place, as well as measures whose implementation is anticipated. The anticipatory character of economic behavior is of special relevance in the early stages of the transformation process. The consequences of expected price liberalization for the exchange rate and the current account are analyzed by means of a simple model.

A major focus is given to credit markets. The lack of information necessary to assess risk and creditworthiness complicates the conduct of credit policy. This consideration underscores the benefits from an early development of financial markets, as well as the desirability of finding ways to "clean" the balance sheets of enterprises and banks from bad debts.

Wage and interest rate policies designed to offset the disruptions are explored with the conclusion that a fine-tuning strategy should be rejected in favor of a quick implementation of price reform.

The paper also examines alternative means to reduce "liquidity overhang." It demonstrates that the alternative means involve taxation of one form or another. In this context, the consequences of privatization are examined and the benefits from an early development of an effective tax system are underscored. The analysis calls for a comprehensive reform program encompassing the entire economic system and supported by an appropriate set of safety nets. In this regard, the paper argues that the safety nets should not interfere with incentives to work, save, and invest, nor should they tamper with monetary and exchange rate policies. Rather, they should be allowed for in the budget and effected through income transfers.

I. Introduction

This paper deals with key issues arising during the early stages of transformation of centrally-planned economies (CPEs) into well-functioning market economies (MEs). The analysis is motivated by the recent experience with economic transformation and restructuring in Eastern Europe and the U.S.S.R. The economic system in CPEs launching such a transformation is highly distorted. Prices do not represent real social costs, incentives systems are absent, losses of unprofitable state-owned enterprises are automatically financed, legislations vital for the functioning of markets are not in place, private ownership and property rights are underdeveloped, markets are missing, shortages prevail and, occasionally, inflation is high.

In analyzing this transformation, it is relatively simple to characterize the initial conditions of CPEs, as well as to specify the features of MEs. It is more difficult to provide an analytical framework that highlights the process of transition. During the transition period the old central-planning system is dismantled (or is collapsing) while the new market system (and its associated institutions and policies) is still not in place. This transition period may last for a significant period of time during which the economy is not any more a CPE but has not yet achieved the status of a ME. During that period the economy is referred to as a "previously centrally-planned economy" (PCPE). On its way to reform, a CPE is very likely to spend a significant period as a PCPE before becoming a ME.

There are many ways to transform a CPE into a ME. Since neither history nor economic theory provide a clear guide to the optimal pace and sequence of reform measures, it is unlikely that a "master blueprint" for economic transformation could be found. Rather, it is plausible to expect that the solution for the optimal pace and sequence of reform measures depends on the special circumstances prevailing in each of these economies. 1/

The process of economic transformation and restructuring is bound to be long and complex. Typically, there is also a lengthy delay between the time of the political decision to launch a transformation program, and the time of its actual implementation. During this transitional pre-reform period, economic policies are negotiated and designed, political consensus is cemented, and key features of the institutional infrastructure are developed. In the pre-reform period actual policy reform measures are not yet implemented, and many of the basic features of the economic system is still of the CPE variety. However, the private sector, being clearly aware that fundamental changes are planned, begins to modify its patterns of consumption and assets holdings. Such anticipatory behavioral changes are

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1/ Recently, there has been a flurry of interest in issues related to the transformation of centrally-planned economies. Examples of recent, relevant literature are Calvo (1990), Dornbusch (1990), Fischer and Gelb (1990), Klaus (1990), Kornai (1990), Lipton and Sachs (1990a), Marer (1990), McKinnon (1991), Portes (1990), and Wolf (1990).

reflected in prices, exchange rates, and rates of interest, among other important economic variables.

The purpose of this paper is to highlight some of the main forces set into motion during the pre-reform period. During that period--as illustrated by the recent experience in Czechoslovakia and, to some extent, in the U.S.S.R.--economic actions on the part of the private sector are governed by the expectations of the reform rather than by the policy measures themselves. To examine this feature of the transformation process we analyze in some detail the implications of an anticipated price reform.

Most economic reform programs designed to transform CPEs into MEs place great emphasis on the removal of subsidies which distort the prevailing price structure. It is reasonable to assume, therefore, that the private sector in anticipating the removal of subsidies expects a rise in the price level--the experience in Poland in early 1990 is a case in point. There are various reasons for such expectation. First, with lower subsidies, retail prices--typically set according to mark-up pricing rules--will rise so as to reflect the higher cost. Second, even with a more competitive determination of prices, it is likely that prices are somewhat less flexible downwards than upwards. Therefore, the changes in relative prices consequent on the removal of subsidies result in a higher price level. Third, policymakers might be expected to react to the unemployment associated with the reallocation of resources by adopting expansionary measures, thereby, fueling inflation.

In Section II we develop a simple model of the CPE designed to clarify the key mechanisms and effects of anticipatory behavior induced by expected price reform. This model is used in Section III to illustrate the dynamic behavior of the economy during the pre-reform period. Many of the changes occurring on the way to reform may have disruptive effects and, unless fully understood and comprehended, may provide confusing signals to both the private sector and to policymakers. Our analysis identifies the key forces set in motion and thereby sheds light on the evolution of the economy on the road to reform.

Armed with this information the model is then used to analyze the effects of expected price reform. We study the detailed anticipatory responses taking place during the pre-reform period and focus on the evolution of exchange rates, asset holdings, and aggregate demand. In this context, we pay special attention to the consequences of wage indexation, an issue that has figured prominently in recent reform programs. It is shown that a high degree of wage indexation carries with it the danger of transforming microeconomic distortions into macroeconomic difficulties. This consideration must be taken into account in designing domestic safety nets supporting the transformation efforts.

One of the central pillars of economic policy during the process of transformation is credit policy. Section IV contains an analysis of the implications of credit policies in CPEs, in which typically credit and financial markets are poorly developed. We highlight the various channels

through which such policies exert their influence, and identify key factors responsible for the vulnerability of these economies to excessively tight credit policies.

In Section V we examine alternative policies designed to offset some of the disruptive effects of anticipatory behavior. Special attention is given to reactive wage and interest rates policies. We show that such reactive policies require a high degree of fine-tuning, and may themselves be extremely disruptive.

In Section VI we study the relation between excess liquidity ("liquidity overhang") and the budget. The analysis, which is motivated by the recent experience in the U.S.S.R. and, to some extent, in Romania and Bulgaria, examines alternative means to eliminate excess liquidity and argues that all means involve a tax policy of one form or another. In this regard, the choice of policies depends on the "incidence of the tax," and on efficiency considerations. We pay special attention to the interdependence between privatization, tax policies, and credibility. Finally, Section VII contains concluding remarks.

II. A Simple Model of the CPE

In this section we develop a simple model embodying pertinent features of the CPE, especially those related to the imperfection of domestic financial markets. The formal model, which is designed to highlight key mechanisms of anticipatory dynamics, abstracts from many potentially important factors. Therefore, it is not intended to be fully applicable to concrete cases without some modifications. Its main conclusions, however are likely to prevail in more realistic formulations. The model consists of two basic building blocks: the assets market and the goods market. In what follows we discuss the characteristics of these markets. 1/

1. Assets market

In the absence of well-functioning capital markets and fully-developed system of property rights and private ownership, asset holders are assumed to hold liquid assets. These assets can be domestic-currency denominated (e.g., saving accounts or cash), or foreign-currency denominated. The latter may consist of foreign exchange or other liquid assets whose value depends directly on the exchange rate (e.g., foreign cigarettes). The desired composition of this somewhat restricted portfolio of liquid assets is governed by the difference between the rates of return on these assets. Specifically, the desired ratio of domestic to foreign-currency-denominated assets, is assumed to depend on the difference between the domestic rate of interest and the expected percentage change in the nominal exchange rate.

1/ The structure of the model is related to the one developed in Calvo and Rodriguez (1977) and Frenkel and Rodriguez (1982).

Formally, asset-market equilibrium is represented by equation (1):

(1) $$L(\epsilon - i_m) = M/EF$$

where E denotes the nominal exchange rate--the price of foreign exchange in terms of domestic currency--M denotes domestic-currency-denominated assets, F denotes foreign-currency-denominated assets (which, in what follows, are occasionally referred to as foreign exchange), ϵ denotes the expected percentage change in the exchange rate, and i_m denotes the rate of interest earned by holders of domestic-currency deposits. A rise in ϵ reduces the desired ratio of domestic to foreign currency denominated assets, while a rise in i_m raises that ratio. Assuming equality between expected and actual exchange rate changes, equation (1) can be rewritten as:

(2) $$\dot{E}/E = \ell(M/EF) + i_m$$

where the function ℓ depends negatively on the ratio M/EF. As indicated by equation (2), asset holders are willing to absorb a higher ratio of domestic to foreign-currency-denominated assets only if the rate of return on domestic saving accounts, i_m, rises, or if the expected (equal to actual) rate of depreciation, $\dot{E}/E$, falls.

2. Goods market

The second key building block of the model is the goods market. The economy is assumed to produce internationally tradable goods as well as nontradable goods. We consider, first, the market for tradable goods. To set the stage for the subsequent analysis in which credit market conditions play a central role, we postulate that the level of production of tradable goods depends positively (at least for some range) on the availability of official credit. In this vein, credit enables firms to acquire working capital which facilitates supply. The dependence of supply on official credit reflects the segmentation of the underdeveloped domestic credit market. Accordingly, we denote the supply of tradable goods by θy_T, where y_T denotes the supply of tradable goods obtained under conditions of full availability of credit, and θ denotes a coefficient, whose value ranges between 0 and 1, indicating the degree of tightness in the credit market. Accordingly, a tighter control over credit policy lowers the coefficient θ. The fall in θ reflects the inability of firms to offset the reduction in official credit through a greater reliance on alternative sources of finance. This inability, in turn, stems from the segmentation of credit markets. Moreover, it stems from the reluctance of lenders to extend credit to economic entities about which information concerning creditworthiness is limited. The lack of information may be particularly acute in situations where the government, prior to assuming a tighter control of credit policy, permitted enterprises to enjoy "soft budget constraints" by providing unprofitable enterprises with automatic access to credit. Where enterprise losses are automatically financed, the government is viewed as the lender of last resort and as the provider of implicit credit insurance without charging competitive risk premia; under such circumstances, information about creditworthiness is unlikely to be available since with "free"

government insurance the private sector has no incentive to collect such information.

The demand for tradable goods is assumed to depend negatively on their relative price--i.e., the real exchange rate--and positively on real wages. The specification of the demand function as depending on real wages rather than on total income (including profits) reflects another key structural feature of the CPE. In it, the behavior of state enterprises as demanders is largely unrelated to profits and economic performance. Furthermore, the absence of private ownership and the lack of a developed stock market imply that the economic performance of state enterprises, as measured by profits, is not fully capitalized into private sector wealth and, thereby, does not exert a direct impact on demand. Reflecting these considerations, the demand for tradable goods can be written as:

$$(3) \qquad\qquad D_T(E/P, W/P),$$

where W denotes the nominal wage, P denotes the price of the domestic (nontradable) good and, hence, E/P is the real exchange rate, and W/P is the real wage (in terms of domestic goods). 1/

The excess supply of tradable goods represents the accumulation of foreign exchange by the private sector and the government. To simplify, we abstract from official holdings of foreign exchange and focus on the behavior of the private sector. In doing so, we assume that currency transactions are carried out at the free (or black market) exchange rate. Formally, the rate of accumulation of foreign exchange (foreign-currency-denominated assets), $\dot{F}$, is specified by equation (4):

$$(4) \qquad\qquad \dot{F} = \theta y_T - D_T(E/P, W/P).$$

Thus far, we examined the equilibrium condition in the market for internationally-tradable goods--governing the dynamics of foreign currency holdings. We consider next the market for nontradable goods and assume that the demand, D_N, depends positively on the real exchange rate and on the real wage. Formally, let the demand function be

$$(5) \qquad\qquad D_N(E/P, W/P).$$

The conditions governing the supply of nontradable goods depend on more detailed specific circumstances. In some cases, where productive resources are underutilized, supply adjusts to meet demand. Under these "Keynesian" circumstances, demand fluctuations induced by changes in the real exchange

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1/ It would be more appropriate to specify the demand function as depending on the wage bill rather than the wage rate. The latter is used for the sake of simplicity. For the present purposes, however, this simplification does not alter the main thrust of the analysis. Similar reasoning applies to the exclusion of other relevant variables like interest rates, real balances, and other assets.

rate and real wages result in corresponding supply response, and are reflected in the degree of capacity utilization and unemployment. In other cases, where capacity is fully utilized, but inventories are ample, demand fluctuations are reflected in accumulation or decumulation of inventories. Yet, in other cases, where capacity is fully utilized and inventories do not adjust, demand fluctuations are reflected in shorter or longer delivery lags and queues. 1/

Which of these three patterns of adjustment in the market for nontradable goods prevails depends on structural considerations, as well as the policy stance. For example, relevant factors would include: the degree of flexibility of labor markets, labor hoarding practices, credit policies governing the holding cost of inventories of intermediate and final goods, credit availability, and the like. In practice--as demonstrated by the experience in Poland during 1990--the three patterns of adjustment can coexist. Accordingly, *a rise in the demand consequent on a rise of the real* exchange rate or of the real wage results in lower unemployment and inventories, and possibly in longer delivery lags and queues.

III. Dynamics and Expected Price Reform

In this section we analyze the dynamics of the model. Our focus on dynamics aims at illuminating economic processes set in motion during the early phases of the economic transformation program by the expectations of future policy actions. We start with a diagrammatic exposition of the model that serves to highlight its dynamic characteristics, and then proceed to examine in detail the dynamic consequences of expected price reform.

1.   The dynamics of the model

In analyzing the dynamics of the model, we recall that during the pre-reform phase, prices and wages are determined administratively, while official currency convertibility is absent. We assume that during that phase the rate of return on saving accounts, nominal wages, the price of domestic goods, and the money supply are determined by the central authorities. Thus, in equations (2) and (4)--which constitute the dynamic building blocks of the model--we treat i_m, W, P and M as exogenously given.

1/ The difference between the patterns of adjustment in the markets for tradable and nontradable goods is introduced to highlight the diversity of adjustment mechanisms that are called for in the absence of full price flexibility. In our specification the flexibility of the (black) market exchange rate captures the anticipatory feature of the pre-reform period. Thereby, this flexibility introduces a mechanism of adjustment in the market for tradable goods which is absent in the domestic-goods market, and underlies the assumption that output in the tradable-goods sector is not governed by domestic demand.

As indicated by equations (2) and (4), the dynamics of the model is governed by the evolution of the nominal exchange rate, E, and the stock of foreign exchange rate, F. Figure 1 is used to describe the model. The $\dot{E}=0$ schedule shows combinations of exchange rates and foreign exchange holdings which are consistent with equilibrium in the portfolio of assets as specified in equation (2). Along that schedule the rate of change of the nominal exchange rate is expected to be zero, and the prevailing ratio of domestic to foreign-currency-denominated assets, M/EF, is willingly held. Since the nominal money supply, M, and the rate of interest paid on domestic deposits, i_m, are constant, the domestic currency value of foreign exchange, EF, is also constant along the $\dot{E}=0$ schedule. This schedule is negatively sloped (and its elasticity is unity) since a rise in F must be offset by an equiproportional fall in E in order to maintain EF intact. A rise in the foreign currency holdings will be willingly held only if asset holders expect a depreciation of the domestic currency in terms of foreign exchange. Thus, as indicated by the vertical arrows in Figure 1, all points to the right of the $\dot{E}=0$ locus correspond to situations in which $\dot{E}>0$ and vice versa.

The $\dot{F}=0$ schedule shows the unique value of the nominal exchange rate that is consistent with no accumulation or decumulation of foreign exchange holdings by the private sector, as specified by equation (4). Since the price of domestic goods and the nominal wage rate are assumed to be given, changes in the nominal exchange rate result in equivalent changes in the real exchange rate, while the real wage (in terms of domestic goods) is given. Under such circumstances, there is a unique value of the nominal exchange rate that generates a demand for tradable goods which equals the domestic supply, θy_T. The latter is also assumed to be given since, for the time being, the domestic credit conditions governed by θ are unchanged. A rise in the nominal exchange rate lowers the demand for tradable goods and results in an accumulation of foreign exchange. Thus, as indicated by the horizontal arrows in Figure 1, all points above the $\dot{F}=0$ schedule correspond to situations in which $\dot{F}>0$ and vice versa.

The steady state of the model is shown by point A at which both the nominal exchange rate and the stock of foreign assets remain constant. Any other combination of E and F would trigger dynamic changes in the direction indicated by the arrows in Figure 1. As is evident from the Figure, there exists a unique path that yields a motion of these variables converging to the steady state of the system. This path is indicated by the bold-faced schedule in the Figure. Given the parameters of the model, any combination of E and F other than those along the bold-faced schedule set in motion dynamic forces that move the economy away from the steady state. For example, if the economy were at point B, then the dynamic forces set in motion would call for a depreciation of the currency and a further accumulation of foreign exchange. The path would never converge to the steady state and would not be governed by the "fundamentals" of the model. The only path that is not explosive is the one which leads towards the steady state of the system. This path is consistent with the fundamentals: since the latter are assumed to be stationary over time, the former should not be explosive. This path is represented by the bold-faced schedule in Figure 1. To ensure that the economy does not follow an ever-diverging

path, given its foreign currency holdings corresponding to point B, the exchange rate E will need to fall instantaneously to point C along the converging path. We restrict our analysis to such paths.

In order to gain insight into the working of the model and lay the foundations for the subsequent analysis, we consider an initial equilibrium at point A, and suppose that both nominal wages and prices rise by the same proportion. Since these changes do not impact on the portfolio of assets, they do not alter the position of the $\dot{E}=0$ schedule. The rise in P, however, lowers the real exchange rate, E/P, and raises the demand for tradable goods. As a result, the private sector decumulates foreign exchange. To maintain equilibrium in the tradable goods market with constant holdings of foreign exchange, the nominal exchange rate must rise in the same proportion as the price level so as to restore the initial value of the real exchange rate. It follows that the $\dot{F}=0$ schedule shifts upwards to the position indicated by the $\dot{F}'=0$ schedule in Figure 2. The new steady state equilibrium is obtained at point C and the instantaneous equilibrium is shown by point B along the bold-faced locus.

The percentage depreciation of the domestic currency necessitated by the requirement of achieving initial conditions along the converging path is smaller than the percentage rise in wages and prices. The resultant decline in the real exchange rate stimulates demand for tradable goods and induces a decumulation of foreign exchange. At the same time, the initial depreciation of the currency raises the domestic currency value of foreign exchange holdings and alters portfolio composition. The new ratio of assets is willingly held only if it is accompanied by a further expected depreciation of the currency. Accordingly, along the path towards the new steady-state equilibrium, $\dot{F}<0$ and $\dot{E}>0$. Along the path the percentage depreciation of the currency is smaller than the percentage decumulation of foreign exchange and, thus, the domestic currency value of foreign exchange, EF, falls. It follows that in order to maintain portfolio equilibrium along the path, the expected percentage depreciation of the currency declines, and reaches zero as the economy reaches the new steady-state equilibrium at point C. In the new steady-state equilibrium the real exchange rate and the ratio M/EF return to their initial values, while the holdings of foreign exchange fall by the same proportion as the initial rise in wages and prices.

The preceding analysis illustrates the working of the model by considering the dynamic consequences of an exogenous rise in wages and prices. We build on this analysis below.

2. Expected price reform

One of the important features of the transformation from a CPE to a ME is the replacement of the prevailing centrally-administered prices, which are governed by large subsidies, by market-determined prices, which reflect the "true" production cost. The removal of subsidies is likely to result in a significant rise in the prices of the subsidized goods. In what follows, we analyze the implications of an expected rise in the price level
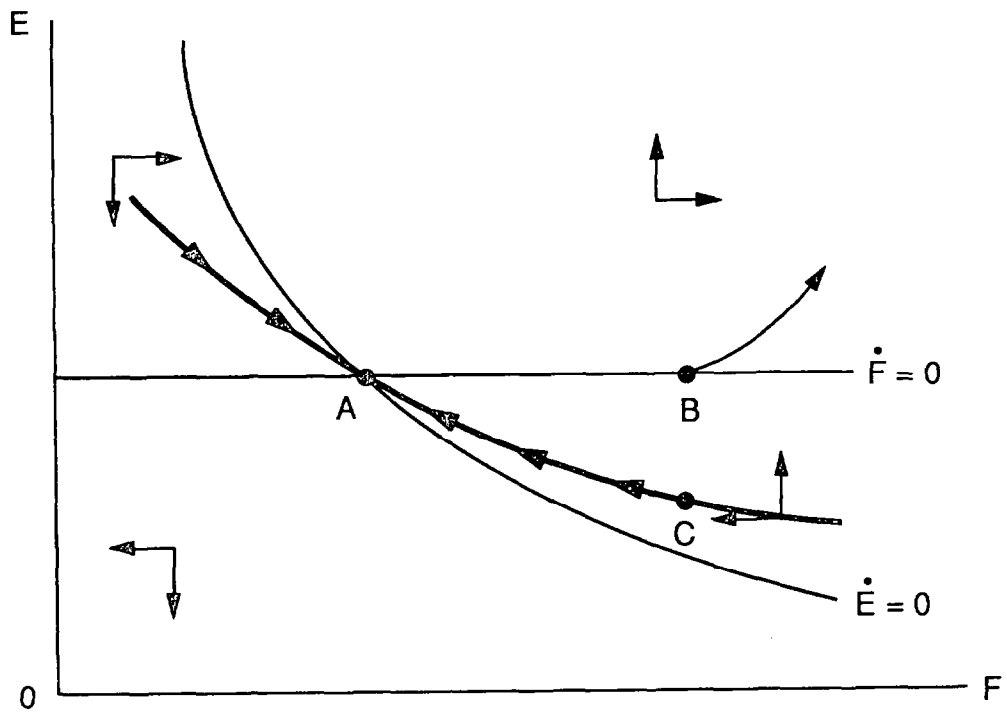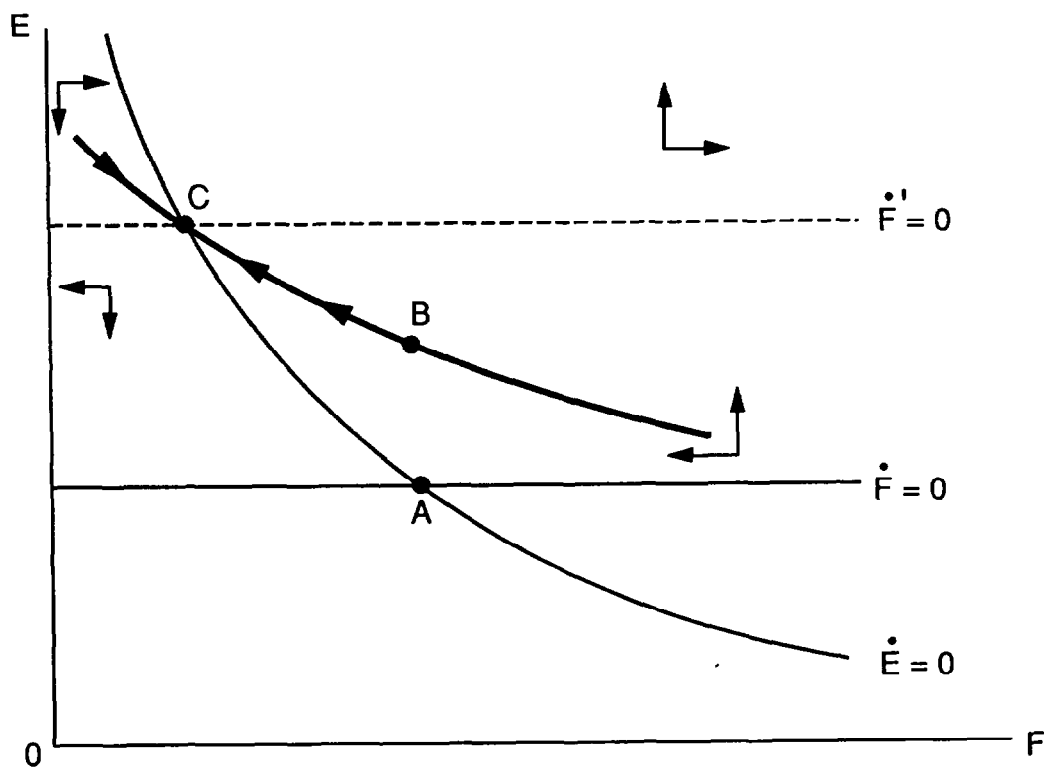
Figure 1

Figure 2

consequent on the removal of the subsidies. As noted earlier, during the first phase of the transformation process the economic actions of the private sector are governed by the expectations of such price changes, since the actual changes in prices take place only later when the price liberalization plan is implemented.

To capture key elements of the economic response to the expected price reform, we can use the simple model developed above. As an expository benchmark we assume first that wage earners expect to be compensated fully for the rise in domestic prices; this assumption serves to highlight the role of wage indexation in the analysis. Accordingly, we examine the effects of an expected future rise in domestic prices accompanied by an equiproportional rise in wages.

In Figure 3 the initial pre-reform steady-state equilibrium is shown by point A, indicated by the intersection of the $\dot{E}=0$ and the $\dot{F}=0$ schedules. As indicated in the previous analysis, once prices and wages rose equiproportionately, the new steady-state equilibrium is shown by point C, indicated by the intersection of the (unchanged) $\dot{E}=0$ and the $\dot{F}'=0$ schedules. The converging path associated with the new equilibrium is indicated by the bold-faced schedule. Of course, as long as prices and wages have not changed, the dynamic forces governing the economic system are those prevailing in the pre-reform period, indicated by the arrows in Figure 3.

In determining the economic response to the anticipated price liberalization, we first note that any abrupt change in the exchange rate results in correspondingly abrupt capital gains or losses. Consequently, asset holders attempting to benefit (or mitigate the losses) from expected sharp exchange rate changes will attempt to modify in advance the composition of assets in anticipation of such changes. It follows that expected abrupt changes in the exchange rate cannot occur along an equilibrium path. If on the basis of new information asset holders conclude that at some future date abrupt exchange rate changes were to be necessary, then the anticipatory response of asset holders would result in an immediate change in the exchange rate. The immediate change would be in a magnitude which precludes any further expected abrupt change.

Applying this principle to the analysis in Figure 3, we note that upon receipt of the information that the price reform is expected, the domestic currency depreciates immediately, as the exchange rate jumps from point A to point B. At point B the domestic-currency value of foreign exchange, EF, has risen as has the real exchange rate, E/P. The new portfolio composition is willingly held only if the currency is expected to depreciate further, as implied by the arbitrage condition in equation (2). Likewise, the reduced demand for tradable goods consequent on the rise in the real exchange rate implies an accumulation of foreign exchange, as implied by equation (4). Accordingly, the dynamic forces operating on the economic system move the equilibrium towards point B'; the precise configuration of the dynamic path is determined by the dynamic arrows that are governed by the pre-reform situation. As is evident, in the transition between the equilibria indicated by points B and B', the holdings of foreign exchange, as well as

the nominal and the real exchange rates, rise. Throughout that period the expected percentage depreciation of the currency also rises. These are the general characteristics of the period up to the actual implementation of the price-reform program. Once the reform is implemented, the economic system is governed by the dynamic forces corresponding to the new situation (not drawn), and the equilibrium path becomes the bold-faced schedule passing through point C in Figure 3. The previous argument implies that when the price reform is implemented as expected, further abrupt changes in the nominal exchange rate are ruled out. It follows that the economy reaches point B' precisely at the time of the rise in prices. This consideration determines the magnitude of the initial jump in the exchange rate, and is reflected in the precise position of point B.

Once the economy reaches the equilibrium at point B', domestic prices and the wage rate rise abruptly, thereby resulting in a sharp fall in the real exchange rate. The rise in the demand for tradable goods induces a decumulation of foreign exchange. Furthermore, since at point B' the domestic-currency value of foreign exchange exceeds its corresponding steady-state equilibrium level (at points A and C), it follows that the currency is expected to depreciate further. The resulting path of foreign currency holdings and the exchange rate is portrayed by the bold-faced schedule. Along this path the real exchange rate rises, foreign currency holdings fall, and the domestic-currency value thereof also declines. This dynamic process ends once the economy arrives at its new steady-state equilibrium. In that equilibrium, the magnitudes of the real exchange rate, the composition of assets, and the domestic-currency value of foreign exchange are the same as in the pre-reform steady-state equilibrium (point A). However, foreign currency holdings have fallen while the domestic currency has depreciated. The proportional change in both equals (in absolute value) the proportional rise in prices and wages.

So far we have assumed that nominal wages, W, are fully indexed to the domestic price, P. Consequently, the demand for tradable goods (and thereby changes in the holdings of foreign exchange) was influenced only by changes in the real exchange rate. To examine the sensitivity of the analysis to the degree of wage indexation, it is useful to explore the implication of the opposite extreme case in which nominal wages are completely unindexed. Our interest in the role of wage indexation stems from the fact that recent economic reform programs have paid great attention to the appropriate degree of wage indexation. This attention reflected interest in the macroeconomic and income-distribution consequences of the price reform.

Under circumstances in which nominal wages are completely unindexed, nominal wages are fixed and the expected rise in domestic prices lowers post-reform expected real wages. This, in turn, lowers the post-reform demand for tradable goods, D_T. To stimulate the demand for tradable goods to the level prevailing before the fall in real wages, the real exchange rate would need to fall. It follows that the displaced $\dot{F}=0$ schedule in Figure 3 must lie the below $\dot{F}'=0$ schedule (along which the real exchange rate equals its pre-reform level). However, since the post-reform $\dot{F}=0$

Figure 3
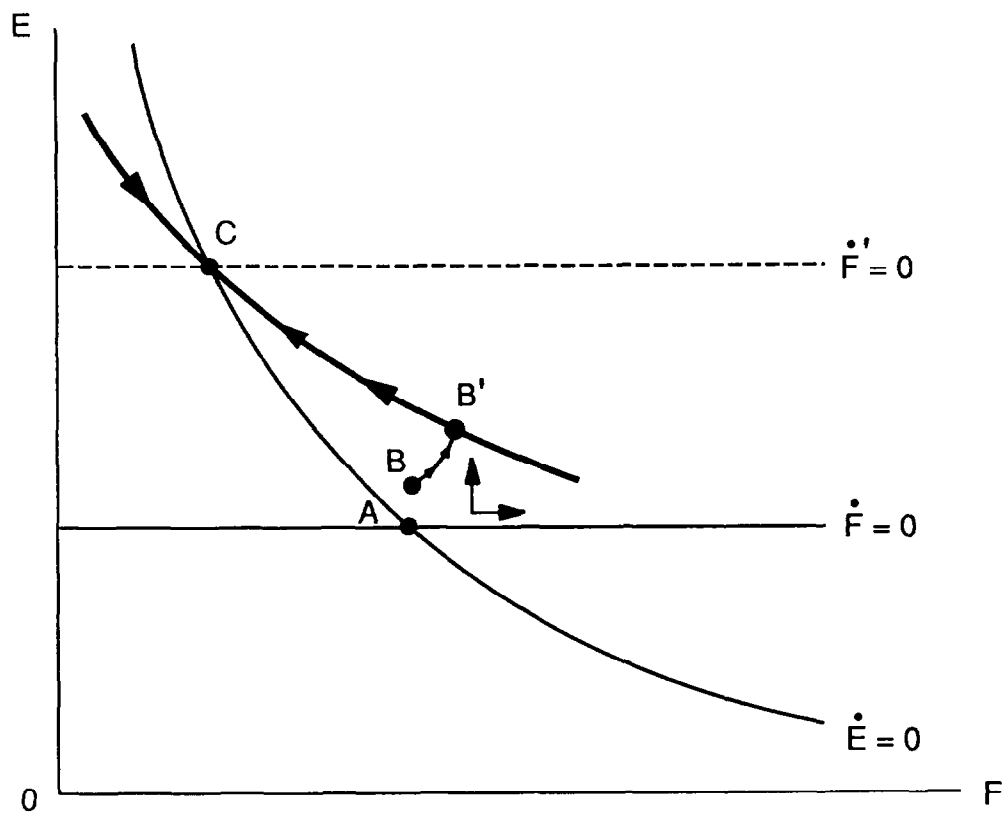
schedule is displaced upward, the qualitative characteristics of the previous analysis remain intact. 1/

As is evident, the dynamics of the system depends critically on the degree of wage indexation. In particular, the evolution of the nominal exchange rate during the transition period, may have profound implications for the inflationary consequences of the price reform. The higher the degree of wage indexation, the larger the depreciation of the currency, and the greater are the inflationary pressures. As argued in subsequent sections, these pressures may result in a credit crunch, reducing working capital and affecting negatively the supply of output. It follows that a high degree of wage indexation carries with it the danger transforming a microeconomic problem (associated with the subsidized prices) into a macroeconomic problem (associated with a flare-up of inflation). Thus, the more effective is the domestic safety net designed to protect wage earners, the more likely it is that macroeconomic problems ensue. Therefore, there is a trade-off between the degree of domestic political support for the economic transformation program (a support which is enhanced by high wage indexation) and the degree of price and output stability during the transition period.

Our analysis of the effects of an expected price reform can now be extended to examine the effects on the market for nontradable goods. We first recall from the analysis in Figure 3 that with wages fully indexed to domestic prices, the real exchange rate rises throughout the period of transition towards price reform, it then drops sharply once the reform is implemented and, subsequently, it rises back towards its initial pre-reform level. These changes in the real exchange rate result in an initial rise in the demand for nontradable goods followed by a sharp decline occurring at the time of implementation of the price reform. During the subsequent period the demand recovers gradually until is reaches its pre-reform level. Depending on the pattern of adjustment in the market for nontradable goods, these demand changes induce corresponding fluctuations in employment, capacity utilization, etc. To simplify matters, consider the situation in which the supply of nontradable goods (and thereby the level of employment and capacity utilization) adjusts to satisfy the demand. Under these circumstances, the level employment rises during the initial phase, it then suffers a sharp decline once the price reform is implemented. Subsequently, the level of employment recovers gradually until it returns to its initial pre-reform level.

1/ To verify this result we note that, using the homogeneity postulate, the demand for tradable goods in equation (3) can equivalently be specified as a function of P/W and E/W. Without wage indexation, the excess demand for tradable goods induced by the expected rise in the domestic price, can be eliminated by an appropriate rise in E. Thus, in that case, once the domestic price rises, the $\dot{E}=0$ schedule is displaced upwards. This upward displacement reflects the implicit gross-substitution assumption. A similar analysis applies for partial wage indexation. The higher the degree of wage indexation, the larger the upward displacement of the $\dot{E}=0$ schedule.

If the degree of wage indexation are less than complete, then the initial rise in the real exchange rate in the level of employment are less pronounced, their subsequent fall upon the implementation of the price reform are more pronounced, and their recovery during the subsequent period are incomplete. It follows that the level of employment and capacity utilization obtained with a low degree of wage indexation are lower than the corresponding levels obtained with a high degree of wage indexation. A parallel analysis applies to the evolution of inventories and queues if, in the face of fluctuating demand, these are the dominant forms of adjustment in the market for nontradable goods.

The foregoing analysis of price reform presumed that the rise in price consequent on the removal of subsidies is determined by the free operation of market forces. In practice, as illustrated by the experience in Poland and Romania, especially in the area of energy pricing, governments have attempted to avoid an excessively large price shock by adopting a strategy of administered pricing. This strategy permits the spreading of what otherwise would have been a once-and-for-all price rise over a lengthy period of time. However, our previous analysis of anticipatory behavior suggests that some of the benefits from administratively spreading the price rise over time may be illusory. For, the private sector, being familiar with the administered-pricing strategy, is likely to modify its behavior in anticipation of future price rises. The resulting pattern of adjustment may be much less "smooth" than the one envisaged by the designers of the gradually-adjusted administered-pricing strategy. The possible disruptions stemming from such anticipatory behavior point to the benefits of an early replacement of administered- by market-determined pricing. Such a replacement, which could be followed by an eventual dismantling of the administered-pricing apparatus, would provide a useful signal of the commitment of the government to the program of economic transformation and restructuring. 1/

IV. Credit Policy

The analysis in the previous section focused on the implications of an anticipated future price reform. To simplify matters, we examined the "pure" case in which prices are expected to rise due, for example, to a removal of subsidies. We have not incorporated into the analysis anticipatory responses to other policy measures which are likely to be an integral part of the policy-reform package. Specifically, the restoration of credit control is viewed as one of the central pillars of economic policy programs aimed at transforming CPEs into PCPEs. Indeed, tight credit control is seen as one of the most important measures necessary to combat

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1/ In addition to these considerations it is also noteworthy that administered-prices changes are unlikely to deal effectively with the huge distortions in relative prices that are so prevalent in the CPEs and the PCPEs. The identification and the correction of such relative-price distortions will need to rely on market forces.

inflation and establish credibility. Therefore, in anticipating future price reform the private sector is likely to assume that the removal of subsidies is accompanied by a tight credit policy. In this section we analyze the mechanisms through which credit policy influences the economy. 1/ To gain insight, we examine first another "pure" case in which credit policy is taken in isolation rather than in conjunction with the expected removal of subsidies.

The main rationale behind the use of restrictive credit policy to combat inflation is well known; it is grounded in theory and is substantiated by experience. The conventional channel through which credit contraction influences the economic system is through its restraining effect on aggregate demand. However, as was indicated in Section II, in economies that are not yet fully developed, MEs (like the CPEs and the PCPEs) official credit may have strong effects on aggregate supply.

Consider the effect of a contractionary credit policy. This policy influences the economy through three channels: the supply of output, the demand for output, and portfolio choice. Starting with the supply side, we note that the credit crunch lowers working capital and provokes a decline in output. The reduced supply of tradable goods result in a depreciation of the currency, upward pressures on the prices of tradable goods and, thereby, on the general price level. 2/ These pressures are more pronounced the higher the degree of wage indexation. Moreover, high wages and prices increase the need for working capital and aggravate the credit crunch. It follows that the severity of the credit crunch increases with the degree of wage indexation. In this example credit contraction (in particular, under conditions of wage indexation) results in stagflation: it reduces output and exerts inflationary pressures.

The negative supply-side effects may be of special relevance for PCPEs. As emphasized earlier, with segmented and underdeveloped financial markets, the reduction in working capital induced by an official credit contraction has adverse implications on the enterprise sector. Firms whose access to other sources of finance is limited will attempt to mitigate the shortage of working capital by relying on interenterprise credit. An expansion of the

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1/ For a related discussion on the role of credit policy, see Calvo (1990).

2/ In terms of the model, the credit contraction reduces the credit coefficient, θ, and results in lower output of tradable goods. The reduced supply of tradable goods, in and of itself, results in an upward displacement of the $\dot{F}=0$ schedule in Figure 2 to the position indicated by the $\dot{F}'=0$ schedule. Consequently, the domestic currency depreciates instantaneously, and the initial equilibrium shifts from point A to point B in Figure 2. Thereafter, the nominal exchange rate and the holdings of foreign exchange move along the bold-faced schedule towards point C. During the transition, the currency continues to depreciate in nominal and real terms, while the private holdings of foreign exchange decline, both in terms of foreign as well as domestic currency.

interenterprise credit network may reduce the severity of the credit crunch on output in the short run, but is unlikely to completely offset it. Furthermore, as discussed below, an excessive reliance on interenterprise credit network has profound macroeconomic consequences for both the effectiveness of monetary policy and the efficiency of resource allocation.

We consider next the mechanisms through which the credit crunch affects demand. First, firms whose access to credit market is limited attempt to build up working capital both by running down inventories of inputs and final goods, and by reducing demand for the products of other firms. Second, to the extent that the credit crunch raises interest rates, it contributes further to a reduction in excess demand.

The combined effect of the changes in supply and demand depends on their relative magnitudes. If the net effect of the credit crunch is dominated by the fall in supply, then the qualitative results of our earlier analysis of the negative supply-side effects hold. If, on the other hand, the reduction in demand more than offsets the fall in supply (with proper allowance given to inventory change), then it can be shown that the contraction in official credit induces an instantaneous appreciation of the currency. 1/

The analysis, thus far, has focused on the effects of credit policy on the market for internationally tradable goods. As a result, the economic consequences of that policy depended entirely on whether it generates excess demand or supply. Parallel to its effect on the market for internationally tradable goods, the credit crunch also influences the market for nontradable goods through its effect on the demand and the supply of these goods. As in the previous analysis, the supply effects may be distributed between changes in output and capacity utilization, changes in inventories, as well as in queues.

The third mechanism through which the credit policy affects the economy is through its effect on portfolio choice, especially if the credit contraction is associated with a rise in the deposit interest rate. It can

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1/ In terms of the model, if the fall in supply dominates the reduced demand, then the $\dot{F}=0$ schedule shifts upwards, and the dynamic analysis follows along the lines indicated in the previous footnote. If, however, the fall in demand exceeds the reduction in supply, then the $\dot{F}=0$ schedule shifts downwards, and the currency appreciates instantaneously. This is followed by a transition period during which the currency continues to appreciate, thereby exerting downward pressures on prices. Throughout, the holdings of foreign exchange (measured in terms of domestic, as well as foreign currency units) rise.

be verified that, in and of itself, this factor provokes an instantaneous appreciation of the domestic currency. 1/

The foregoing discussion highlighted the three main factors that need to be taken into account in the analysis of the economic consequences of credit policy: the supply effects, the demand effects, and the portfolio effects. Which of the three effects dominates depends, of course, on the specific circumstances. Furthermore, the relative importance of these three effects varies over time. Specifically, effects associated with changes in inventory holdings are by their nature more pronounced in the short run; they play, therefore, a more important role immediately after the implementation of the credit crunch. On the other hand, other effects like those associated with changes in financial portfolios may prevail for a longer period. Since the effects of credit policy on the economy may change significantly over time, close attention should be given to its dynamic consequences.

Having discussed the evolution of the economy following the credit squeeze, it should be evident that a similar analysis applies to the effects of an expected future credit crunch. In that case, market participants will respond immediately to the anticipated future change in credit policy. As a result, the exchange rate, foreign currency holdings, and other key economic variables will change, even though no policy action has yet taken place. The model can be readily used to illustrate the dynamics induced by these anticipatory phenomena. Such dynamic considerations are of special relevance for the PCPEs in which the depth and breadth of financial markets, as well as the volume and nature of interenterprise credit change over time.

A credit crunch resulting in a sharp rise in both deposit and loan rates of interest may be especially damaging under the institutional environment prevailing in PCPEs. In such an environment, the increased fragility of the banking system (induced by the rise in deposit rates) superimposed on the financial vulnerability of enterprises (induced by the rise in loan rates) puts significant strains on the economic system. These strains may be especially severe in these economies due to the elaborate network of interfirm credit and underdeveloped financial system. Under such circumstances, financial difficulties of one firm may spread to other firms through the credit network.

This interdependence of firms linked through the network of interfirm credit impedes the effectiveness of the signal provided by the price system for an efficient allocation of resources. In MEs with well-functioning markets, the price mechanism helps to distinguish between firms that should

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1/ In terms of the model, a rise in i_m raises the desired ratio of domestic to foreign currency in private-sector portfolios and induces a downward displacement of the $\dot{E}=0$ schedule. It can be verified that the instantaneous appreciation of the domestic currency is followed by a transition during which the currency depreciates to its original level, while foreign currency holdings decline.

go out of business and those that should survive. This important allocative function of the price mechanism is impaired in the PCPEs since the interdependence among enterprises makes it difficult to distinguish between "good" and "bad" firms. Thus, the credit crunch designed to reduce macroeconomic distortions may give rise to further microeconomic distortions.

V. The Dangers of Fine-Tuning

The analysis in the previous sections examined the implications of anticipatory reactions to price reform and the implications of credit policies. The two analyses have been conducted separately so as to highlight the dynamic processes set in motion in each of the "pure" cases. In practice, the expected rise in prices consequent on the removal of subsidies--designed to reduce microeconomic distortions--is likely to be accompanied by current or expected future credit policies--designed to prevent a flare-up of macroeconomic distortions. The two "pure" cases provide the ingredients relevant for the analysis of the more complex case in which both phenomena appear simultaneously.

Rather than going through the tedious procedure of combining the two "pure" cases, we turn next to an examination of some specific policy responses that can be used to mitigate, or even offset, some of the undesirable dynamic consequences that were illustrated by the "pure" cases. In this context, we focus on wage and interest rate policies. The results of this examination demonstrate the difficulties associated with fine-tuning.

Consider, for example, the effect of a rise in the price of nontradable goods. As shown in the previous analysis, such a price rise induces an immediate depreciation of the domestic currency, followed by a transition period during which the currency continues to depreciate, while foreign currency holdings decline (see Figure 2). Is there a wage policy that would prevent this adjustment while keeping the system at the initial equilibrium? In principle, the rise in demand for tradable goods induced by the real appreciation of the currency can be offset by an appropriate fall in the real wage. Thus, if the real wage were to fall in this fashion, the system would remain at its initial equilibrium, and the cost of adjustment could be avoided. 1/ However, such a decline in the real wage aggravates the reduction in demand for nontradable goods induced by the real appreciation of the currency. As a result, the output of nontradable goods falls, inventories of unsold goods accumulate, and a recession ensues.

1/ In terms of the analysis in Figure 2, a fall in the real wage, W/P, compensating for the real appreciation of the currency (i.e., the fall in E/P), keeps the $\dot{F}=0$ schedule in Figure 2 intact. Hence, the initial values of the nominal exchange rate and of foreign currency holdings do not change, and the initial equilibrium prevails.

The same principles apply with greater force to the case in which the rise in prices has not yet taken place, but is expected to occur in the future (see Figure 3). In that case, the real wage policy necessary to maintain external balance, will need to change continuously so as to offset the dynamics of the system. However, in analogy with the previous analysis the maintenance of external balances induces a recession in the market for nontradable goods.

The complexity of the policy attempting to offset the dynamic evolution of the system, and the extraordinary degree of fine-tuning that such policy necessitates is not specific to the above example in which the burden of adjustment falls on real wages. Rather, it is a general characteristic of policy responses designed to offset anticipatory dynamics. For example, the monetary authorities may attempt to offset the effects of the anticipated price rise by altering the interest rate paid on deposits and, thereby, affecting portfolio balance. As in the previous analysis, it can be verified that, to be successful in offsetting the undesirable consequences of anticipatory dynamics, the monetary authorities need to adopt an extremely complex fine-tuning interest rate strategy. 1/

Using an interest rate policy to offset the dynamics of anticipatory adjustment may be especially tempting since, in principle, the rate of interest can be modified in short intervals. It can be shown, however, that such a policy cannot be sustainable and, in fact, is likely to be explosive. The maintenance of initial "equilibrium" requires an ever-rising deposit rates. Ultimately it will put in question the viability of the banking system. In addition, the rise in deposit rates may exert upward pressures on loan rates and, thereby, put in question the viability of enterprises. Both of these developments may undermine the credibility of the policymakers as market participants lose confidence in the viability of the entire policy strategy. Indeed, one of the main difficulties faced by policymakers in PCPEs is the possible lack of credibility of announced policy intentions. Under such circumstances, a policy strategy that relies on continuously changing policy actions and, as in this particular example, on continuously tightening credit, is unlikely to contribute to the buildup of credibility.

This last conclusion is of special relevance since it limits somewhat the force of the argument that a tight credit policy contributes to the buildup of credibility through demonstrating the resolve of policymakers. While, as a general guide, especially when implemented in the context of a comprehensive economic program, this argument makes a lot of sense, the drawbacks associated with an excessive reliance on tight credit may, in fact, erode credibility. The negative supply-side effects of a credit

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1/ In terms of our model, the fine-tuning policy of a rise in the deposit rate, i_m, induces a downward displacement of the $\hat{E}=0$ schedule in Figure 3, and sets in motion a new equilibrium path. The complexity of a fine-tuning policy would be enhanced once one allows for the possibility that the sharp change in the economic regime associated with the economic transformation process induces changes in the behavioral patterns of economic agents.

crunch in PCPEs reflect the "infancy" of credit markets in such economies. A key implication is that to restore the conventional potency of credit policy, efforts should be directed at financial-markets reform aimed at the development of domestic credit markets, coupled with the development of appropriate regulatory and supervisory systems.

VI. "Liquidity Overhang" and the Budget

Our analysis of the process of transformation from CPE to PCPE focused on the early phases of the transition during which the expected removal of subsidies to consumer and intermediate goods induces anticipations of future price rise. These anticipations may arise from the observation that in many occasions the removal of subsidies results in sizable price jumps, as illustrated by the recent experience in Poland. They are grounded on the belief that the economy has a "liquidity overhang." For the present purposes we define a "liquidity overhang" as a situation in which price liberalization and the removal of subsidies bring about a rise in the measured average price level. In addition to the direct effects of the removal of subsidies, the measured price level rises because elements of cost (reflected in queues and delivery lags) which were not included in measured prices before the reform, become explicit afterwards.

There are essentially three mechanisms to reduce the "liquidity overhang." First, by increasing the attractiveness of domestic liquid assets through a rise in the rate of interest paid on domestic currency deposits; second, through a rise in prices associated with the price liberalization; and, third, through a reduction in liquidity. The first mechanism raises the demand for real liquid assets, while the latter two lower the real supply of these assets. These three mechanisms have been emphasized, to varying degrees, in connection with the debate on the various means to reduce the "liquidity overhang" in the U.S.S.R., and, to some extent, in Romania and Bulgaria.

In analyzing the first of these three mechanisms, we note that a rise in the deposit rate, especially in circumstances prevailing in PCPEs, may have adverse implications on the government budget. In such economies the banking system is "owned" to a large extent by the government. Therefore, a rise in the rate of interest paid by banks is a drain on the budget. In fact, in many respects, bank deposits may be regarded as public debt, and interest on deposits may be viewed as public-debt service. From this perspective, credit and budget policies are closely linked to each other, and the rise in the deposit rate will need to be financed through new taxes. The budgetary drain induced by the higher deposit rate will be higher, the lower is the interest elasticity of the demand for real liquid assets. The effectiveness of this mechanism of alleviating the "liquidity overhang" will depend on the capacity of the tax system to generate the necessary tax revenue, and on the distributive and efficiency implications of the associated "incidence of the tax." Furthermore, an assessment of the desirability of this mechanism will need to take into account the implications of the deteriorated budget on credibility.

The second mechanism for eliminating the "liquidity overhang"--through a rise in the measured price level--was analyzed implicitly in the previous sections. There, the anticipatory behavior of the private sector was based on the assumption that the price reform results in a price rise. For concreteness, in terms of our notation, we identify the measured price level with P. While here we do not elaborate further on this mechanism, it is worth noting that the price rise is a tax on the real value of domestic liquid asset. Therefore, an evaluation of this mechanism also depends upon the specific "incidence of the tax," and on its effects on the political support, the efficiency of resource allocation, and on policy credibility. These effects depend, in turn, on the capacity of the government to avoid the transformation of what in principle should be a once-and-for-all price rise into an inflation spiral.

Consider next the third possible mechanism for the elimination of the "liquidity overhang"--a reduction in liquidity. In principle, the excess liquidity could be reduced either through direct confiscation (a monetary reform), or through open market sales of assets. The adoption of a monetary reform may be highly effective in bringing about a rapid elimination of the overhang. Indeed, there have been several historical episodes in which monetary reforms were implemented successfully, especially in the context of a comprehensive program dealing with hyperinflation. Since, however, the "incidence of the tax" associated with a monetary reform is not distributed evenly across the population, it may erode the political support necessary for a successful implementation, and may require appropriate income policies designed to provide social safety nets and to secure the political support. Furthermore, the direction of the effects of this confiscatory policy (along with the accompanying income policies) on economic efficiency and on credibility is not unambiguous.

The elimination of "liquidity overhang" through open market sales is also subject to some limitations. In PCPEs the possibility of conducting open market sales are limited by the absence of conventional financial instruments and by underdeveloped capital markets. However, in such economies, the government owns a large portion of the existing assets and, in many cases, wishes to undertake a privatization program. Under such circumstances, the excess liquidity can be absorbed through open market sales of the housing sector and of state enterprises. In addition, the increased size of the market economy resulting from the privatization process may increase the demand for liquidity and reduce the size of the "overhang" as transactions shift from the barter to the monetized sector.

The difficulties in designing an effective privatization program are well known. 1/ They include the problems of establishing a "fair" market price for an enterprise without the help of a well-functioning market place,

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1/ Examples of recent analysis of issues arising in privatization efforts in PCPEs are Frydman and Rapaczynski (1990) and Lipton and Sachs (1990b). For an examination of these and other privatization schemes see Borensztein and Kumar (1990).

developing the legal infrastructure necessary for the effective use of entrepreneurial drive, developing domestic credit and financial markets necessary for intermediation, the redistribution of rents, the potential for corruption, etc. In addition to these and other difficulties associated with the "incidence of the tax," privatization has profound implications on the budget. On the one hand, sales of state enterprise generate (nonrecurring) revenue (however, such a revenue cannot be spent for, otherwise, a new "liquidity overhang" would be generated); on the other, the transfer of income-producing assets to the private sector results in a (recurring) loss of future revenue. To make up for this lost revenue the government needs to find a new source of recurring income.

In searching for a new source of recurring income, the government will be tempted to levy new (previously unannounced) taxes on the enterprises just sold to the private sector. Such a strategy would, however, be counterproductive. In setting their bids for state enterprises, potential buyers will take into account the possibility that the government will be tempted to raise taxes. Such anticipations tend, therefore, to lower the market price of state enterprises, reduce the proceeds from privatization, and leave the "liquidity overhang" problem unsolved. To prevent the erosion of privatization proceeds, the government must provide reliable and believable signals that such "surprise" taxes will not be levied. To produce such credible signals, the government must demonstrate its capacity and unequivocal commitment to tap new sources of tax revenue. These new sources of tax revenue must cover the entire loss of recurrent revenue induced by the privatization program. Thus, for a privatization program to be implemented effectively the government must levy new taxes on entities other than the newly-privatized enterprises.

The foregoing analysis of the various means to eliminate "liquidity overhang" through a reduction in real liquidity reveals that in all cases the private sector ends up being taxed by the full amount of the overhang. In deciding on the policy response for the "liquidity overhang," the government must recognize that the various solutions differ in their "incidence of the tax." 1/

Additional important factors that should be taken into account in choosing among the various solutions to the "liquidity overhang" problem include their differential effects on the efficiency of resource allocation and on the reputation and credibility of the government. The beneficial effects of privatization on the efficiency of resource allocation can be significant if the privatization of state enterprises and the housing sector provides incentives for higher productivity and better maintenance of the capital stock. Such benefits are especially pronounced in circumstances

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1/ Similar considerations apply to proposals to absorb the "liquidity overhang" by sales of housing. Unless the government reduces significantly the rent-control provisions (representing thereby a specific incidence of the tax) there will not be great incentives for tenants who pay ridiculously low rents to offer high price for housing.

where domestic capital markets are in their infancy. Indeed, in most CPEs and PCPEs these markets are underdeveloped, segmented, and lack the know-how necessary for their effectiveness. In this regard the opening of the economy to foreign investment can be highly beneficial. In addition to providing financial and managerial capital, privatization programs that encourage direct foreign participation can be useful in providing access to international capital markets. Foreign investors bring with them know-how, contacts, and information. Their presence and active participation yield the added benefit of improving the functioning of domestic capital markets.

The preceding discussion suggests that the government could announce its intention to accompany the price reform with one of the three types of mechanism discussed above. If fully credible, the announcement of such a "policy package" would eliminate the anticipatory dynamics, and make it unnecessary to resort to costly policies of fine-tuning during the transition period. *Full credibility is the sine-qua-non for the success of* this strategy. It must be recognized, however, that as a general rule governments finding themselves on the road from CPE to PCPE, do not possess the full details of the future economic programs. Furthermore, the private sector lacks experience with the operation of markets in transition. In addition, policymakers and the private sector alike are keenly aware that other experiences of economic transformation (especially during the early phases) have occasionally been associated with a rise in prices and departures from previously-planned policies. Against this background, it is very likely that government pronouncements are not fully credible. Thus, it is improbable that the government can prevent the anticipatory dynamics during the transition period unless it resorts to costly fine-tuning. Furthermore, to achieve credibility, the government may need to adopt "front-loaded" measures. Therefore, in practice, the government may not have the possibility to delay the adoption of the accompanying measures until the date of the price liberalization. These considerations suggest that the transitional pre-reform period characterizing the early stages of the transformation from CPE to PCPE should be as short as possible.

VII. Concluding Remarks

The transformation of centrally-planned economies into market economies is long and complex. Invariably, the early phases of the transformation involve a great degree of uncertainty and vulnerability. During the early phases, the old system has collapsed, but the new system is still not in place. The "rules of game" are still vague, and the detailed policy course unknown. While the policy strategy is debated, the economic behavior of households and investors is governed by expectations. This paper deals with issues arising during the early stages of the transformation of centrally-planned economies, and identifies key factors governing its evolution.

An important theme in the analysis is that observed patterns of exchange rates, asset holdings and economic activity in general reflect at the same time measures of economic policy already in place, as well as measures that are anticipated to be implemented only in the future. The

anticipatory character of economic behavior is of special relevance in the early stages of the transformation process. During these stages there are expectations for comprehensive future policy actions while policy measures actually in place are few and limited in scope. To highlight this anticipatory feature, we developed a simple model in which asset-holders behavior plays a critical role. The model was used to analyze the consequences of expected price liberalization. We demonstrated how the expectations of future price reform induce a depreciation of the currency, sharp changes in the current account of the balance of payments (driven by defensive actions on the part of asset holders), and corresponding changes in economic activity. In this context, we paid special attention to the role of wage indexation and showed that a high degree of wage indexation carries with it the danger of transforming a microeconomic problem (associated with subsidized prices) into a macroeconomic problem (associated with a flare-up of inflation).

A major focus of our analysis is given to the role of credit markets and the effects of credit policies. In this regard, we noted that the special circumstances prevailing in these economies include lack of depth and breadth of financial markets and a complex network of interenterprise debt. The critical dependence of firms on working capital, and the lack of an information system necessary to assess risk, creditworthiness and, more generally, to distinguish between "good" and "bad" firms, complicates the conduct and effectiveness of credit policy. The analysis illustrates the pitfalls of transplanting policies appropriate for market economies into an environment lacking the basic institutional infrastructure--including regulatory and supervisory systems--necessary for the operation of credit and financial markets. This consideration underscores the benefits from an early development of domestic credit and financial markets, as well as the desirability of finding ways to "clean" the balance sheets of enterprises and banks from bad debts.

The benefits from trade liberalization also depend on the quality of capital markets. Trade liberalization provides the economy with the "right" price signals. Exposure to world prices helps to demonopolize the economy, enhance competition, and improve the allocation of resources. However, in adjusting to the removal of protection, even "good" and economically viable firms may require credit. The adoption of "hard budget constraints" eliminates the automatic financing of enterprises' deficits by the government. Without sufficient access to capital markets such "good" firms may be forced out of business, thereby reducing the benefits from trade liberalization. Moreover, in attempting to protect themselves, the "good" but endangered enterprises may be tempted to join the "bad" and economically non-viable enterprises in lobbying against trade liberalization, thereby reducing the likelihood that liberalization will be adopted. These considerations imply that the benefits from, and support for, trade liberalization can be significantly enhanced by an early development of domestic capital markets.

The dynamic evolution of the economy during the early stages of transformation is complicated, costly, and disruptive. The profound

changes in the "rules of the game" and in the policy regime may result in fundamental changes in the behavioral patterns of market participants. Policymakers may be tempted to use the arsenal of policy instruments in attempts to offset disruptive changes in key economic variables. To examine the consequences of such efforts, we analyzed the implications of wage policies as well as interest rate policies designed to offset the anticipatory changes. We showed that, to be successful, the authorities must adopt an extremely complex fine-tuning strategy of policy response. The lack of full credibility of announced policies, superimposed on infant credit markets, increase the likelihood and costs of policy mistakes. We rejected, therefore, the fine-tuning strategy and emphasized the desirability of a quick implementation of price reform.

Under circumstances of a "liquidity overhang" the removal of subsidies associated with price reform induces a significant jump in the price level. *We examined alternative means by which such a "liquidity overhang" can be alleviated.* In addition to a rise in prices, such means include a rise in interest rates and a fall in the nominal money stock. We showed that all of these means involve taxation of one form or another. The choice among the various alternatives depend on (i) the capacity of the tax system to generate tax revenue, (ii) the distributive and efficiency implications of the incidence of the tax, (iii) its effects on the political support, and (iv) policy credibility. In this context our analysis examined the consequences of privatization as a means to absorb excess liquidity. Aside, of course, from the obvious efficiency benefits that private ownership entails, we showed that to be fully effective privatization must be accompanied by increased taxes in the amount of the "liquidity overhang." In the absence of such increased tax revenue, privatization results in medium-term budget deficits and a rise in public debt. This consideration underscores the benefits from an early development of an effective tax system.

Our analysis illustrated the interdependence between price reform, trade liberalization, financial and capital markets reform, economic stabilization, budget and tax reform, and the like. Obviously, the adoption of a comprehensive reform program encompassing the entire economic system is desirable. Indeed, simultaneously introduced measures of macroeconomic and structural reform, are likely to reinforce each other, provide confidence and momentum, and reduce the risk that the process be reversed. The enhanced confidence would lengthen the planning horizon of savers, investors, and enterprises, stimulate domestic and foreign investment, and contribute to the credibility of the transformation process.

In practice, however, it is unlikely that the prevailing socioeconomic conditions can always generate the political support necessary for the adoption of a rapid, comprehensive and all-inclusive reform. Frequently, choices need to be made as to the appropriate pace and sequence of reform measures. In this regard, there is no blueprint. Indeed, as indicated in the Introduction to this paper, the optimal pace and sequence of reform measures depends on circumstances which differ across countries. These circumstances reflect diversities of historical backgrounds, economic,

legal, and political institutions, entrepreneurial traditions, as well as attitudes towards the role of markets and incentives. Such disparate circumstances imply that the economic reform programs of different countries may differ in their areas of vulnerability. For example, one society may be highly sensitive to the effects of the reform on the level of employment, while another is especially susceptible to foodstuffs' prices. Likewise, one society may be highly sensitive to the effects of the reform on income distribution, while another wishes to protect the real value of private sector savings. Such differences in sensitivities may reflect themselves in the choice of the sequencing of reform measures, as well as in the characteristics of safety nets.

In choosing among alternative safety nets, one should be aware that there is no way to protect all segments of society. A comprehensive reform program must involve sacrifices by a substantial share of the population. Furthermore, in designing the mechanism through which the safety net is effected one should avoid as much as possible the introduction of new distortions. In this regard, the safety nets should not interfere with the incentives to work, save and invest, nor should they tamper with monetary and exchange rate policies. Rather, they should be allowed for in the budget and effected through income transfers.

While different countries may wish to choose different sequences of reform measures, in many cases such a choice may not be available since policy options are overtaken by events. In view of the fast-changing circumstances in these economies, it might well be preferable to adopt a timely, albeit somewhat imperfect, comprehensive reform program than to search for the perfect program, encompassing a fine-tuned sequence of policy measures. The danger of a lengthy probe for the perfect sequence under conditions of fast-changing circumstances is that, once implemented, the program may turn out to be outdated and irrelevant.

Whatever the choice of sequence, the early steps must reflect the notion that a necessary condition for a successful transformation is its credibility. A well-designed economic program will not be effective if it is not credible. In this regard, a crucial early step must be a fundamental change in the mentality and attitude of the policymaker. The policymaker should recognize the limitations of discretionary policies, the virtues of transparent and simple rules which encourage entrepreneurial pursuits and, above all, should be cognizant of the fact that policy actions (and inactions) convey powerful signals to the market place. In this regard the early steps must be meaningful and bold. They must convey the credible message that the government's support for the economic reform process is absolute, that the government is aware that some setbacks along the path are inevitable but, at the same time, that postponements and reversals of policy commitments would entail very high political cost. Such a message is likely to reduce the degree of uncertainty, increase the confidence of consumers, lengthen the time horizon over which economic plans are made, stimulate domestic and foreign investment, and contribute to the success of the economic transformation progress.

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