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Savings, Investment, and Growth in Eastern Europe*

Prepared by Eduardo Borensztein and Peter J. Montiel

Authorized for Distribution by Mohsin S. Khan

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Abstract

Even modest investment rates may achieve satisfactory rates of growth in the reforming economies of Eastern Europe because their relative capital scarcity implies high rates of productivity for capital. The most serious obstacle to private investment is uncertainty about the reform process, which can potentially rule out all but the most profitable projects. This problem sharply increases the payoff from accelerating the structural reform process. Regarding savings, critical aspects are the changes in methods of financing resulting from economic reform, and the availability of foreign savings, both in the form of loans and foreign direct investment.

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Summary

This paper evaluates the nature of the policy challenge facing Eastern European countries in the areas of growth, saving, and investment, focusing on Czechoslovakia, Hungary, and Poland. An attempt is made to assess the contribution that physical investment can make to the achievement of desirable rates of economic growth in the particular context of these economies and then to consider separately some of the problems that they may face in attempting to generate the required levels of investment and savings. The findings of the paper are mixed --on the one hand, by taking into account the relatively favorable endowment of complementary factors of production in the Eastern European economies, it is shown that impressive per capita growth rates may be attainable with relatively modest rates of investment --certainly much lower rates than were achieved in these economies under central planning. On the other hand, achieving even modest rates of investment may be difficult in these countries' new circumstances, and supporting the necessary investment with domestic and foreign savings will be a challenging task.

The most serious obstacle to the emergence of strong private investment demand is the extent of uncertainty accompanying the reform process itself. From the standpoint of individual investors, the irreversibility of many types of capital investment makes it optimal to wait before committing funds to new activities, except for projects with very high yields. This effect is likely to prove especially strong in Eastern European economies, where it can be expected that much of the uncertainty will be resolved in two to three years. The clear implication for policy is that the reform process must proceed quickly, especially with regard to the "rules of the game" that will govern private enterprise. In addition, there may be scope for well-designed measures that seek to stimulate private investment today, possibly by offering specific benefits to enterprises that undertake investment early in the reform process.

The severity of the savings problem depends on the degree of success that can be achieved in generating investment. If sufficient investment demand is forthcoming, then it will be necessary for these economies to produce adequate levels of savings in order to avoid the emergence of macroeconomic imbalances. In this regard, the main difficulties are likely to emerge not from the oft-cited monetary overhang but rather from the need to transform the methods of financing the public sector and from the effects of privatization on household saving. In the short run, the availability of foreign savings--or at least its private component--is likely to depend on factors similar to those affecting private domestic investment, since both, in effect, represent claims on the economy.

I. Introduction

The achievement of high and sustainable rates of economic growth is one of the primary objectives of the reform process currently under way in Eastern Europe. While improvements in the efficiency of resource use will go a long way toward meeting this objective, sustained economic growth must, in Eastern Europe no less so than elsewhere, be achieved in part by the accumulation of productive resources via investment. This poses the challenge of ensuring that economic agents--both domestic and foreign--have the incentive to acquire productive assets in the economies of the previously centrally-planned economies (PCPE's). Encouraging such investment demand is, however, only half of the challenge; equally important is the promotion of sufficient domestic and foreign saving to permit the accumulation of productive resources to indeed materialize.

This paper evaluates the nature of the policy challenge facing the Eastern European PCPE's in the areas of growth, saving, and investment, focusing on the cases of Czechoslovakia, Hungary, and Poland. We assess the contribution that physical investment can make to the achievement of desirable rates of economic growth in the particular context of these economies and then consider separately some of the problems that they may face in the process of generating the required levels of investment and saving. Our findings are mixed--on one hand, by taking into account the relatively favorable endowment of complementary factors of production in the PCPE's, we find that impressive per capita growth rates may be attainable with relatively modest rates of investment--certainly much lower than previously achieved in these economies under the central planning regime. On the other hand, however, achieving even modest rates of investment may be difficult in the new circumstances, and that supporting such investment levels with adequate domestic and foreign saving will also prove to be a challenging task for a variety of reasons.

The paper is organized as follows: in the next section we present some calculations of likely growth rates for Czechoslovakia, Hungary and Poland under alternative assumptions about the behavior of investment. This is followed by an assessment of the prospects for improved public investment and the activation of private investment in Section III. Section IV evaluates several factors expected to govern the behavior of domestic saving, including the monetary overhang, privatization, and financial liberalization. The role of foreign saving is discussed in Section V. Finally, the paper concludes with a brief summary of our evaluation of the prospects for medium-term economic growth in these three countries.

II. Investment and Growth Possibilities

The principal concern with regards to an acceptable growth performance in the countries of Central and Eastern Europe is to determine the required investment needs and the feasibility of its financing. Collins and Rodrik (1991), for example, summarize different approaches followed in several studies that attempt to measure the quantity of investment required and the consequent financing needs for Eastern Europe. One generally followed approach is to determine some growth target--for example, catching up with Western economies in a specified period of time--and then use some technological assumption about production to obtain the required investment

in physical capital. Studies that follow this approach tend to arrive at staggeringly high investment needs, on the order of 50 to 60 percent of GDP during several years.

Our assessment of the level of investment needed to obtain a satisfactory growth is more optimistic. This view reflects our belief that the switch to a market economy will produce a relative shortage of capital in PCPE's, implying that investment should be very productive--at least initially--and therefore that even a moderate ratio of investment to GDP will make a large contribution to economic growth. The reason for this is that a large fraction of the currently existing capital will be of little value in the context of a market economy. In the past, investment decisions were not made on the basis of profitability but instead were determined by central plan objectives, by the bargaining power of different enterprises, and other nonmarket criteria. Because once in place capital is by and large irreversible, in the sense that it is very difficult to put it to a use different from the original intention, the stock of "useful" capital that could be productively employed in a market economy might be only a small percentage of the existing capital stock in PCPE's. 1/

The above reasoning suggests that the ratio of capital to labor may be very low in PCPE's at the beginning of their transformation into market economies. This fact is consistent with common observations about Eastern European economies as being characterized by low wages and an abundant labor force, and with the movement of labor to Western economies that have higher capital endowments. In open economies there is a tendency to the equalization of factor prices (and hence of capital/labor ratios) through movements of both goods and factors. Although that equalization is impeded to various degrees by, among other things, barriers to international trade and capital movements, sovereign default risk, and adjustment costs, one can still expect high rates of capital accumulation and/or labor emigration for Eastern Europe as its economies become more open. From a purely economic standpoint both types of adjustment would be equivalent if scale economies or externalities are not important.

To obtain some quantitative indication of the growth prospects and investment requirements in Eastern Europe in the near future, a first step is to estimate the size of the useful capital stock. For this purpose, we made use of econometric results on the determinants of growth rates in a cross section of countries by Mankiw, Romer, and Weil (1990, MRW henceforth). Our strategy is to apply the regression results to data on Czechoslovakia, Hungary, and Poland to measure the extent of excess investment in these countries and thus to obtain a corrected measure of the capital stock. That is, the regression estimates can be used to determine how much "efficient" investment would have been needed to attain the per capita GDP level that currently prevails in these Eastern European countries; the cumulative difference between actual investment and necessary investment thus measured is substracted from the capital stock and this corrected measure is used in our growth projections. 2/

1/ Collins and Rodrik (1991) also provide useful insights into the relative scarcity of capital in PCPE's.

2/ This calculation allocates all the inefficiency to capital investment. Later, we extend this framework to include misallocated labor as well.

The framework used by MRW is an extension of the Solow growth model (Solow (1956)) that explicitly accounts for human capital accumulation in the production function. Using a production function that depends on physical capital, human capital, and labor, MRW obtain a cross-country steady-state relationship between the *level* of output per employee, the ratio of investment to GDP, the level of human capital, and the rate of growth of the labor force. The regression is estimated for a sample of 75 countries for which the data coverage in the Summers-Heston data set satisfied some quality standards (see Summers and Heston (1988)). The steady-state level of output per employee is approximated by the 1985 level of GDP divided by working-age population; the steady-state levels of the other variables are approximated by their average for the period 1960-85; a very nonspecific concept of human capital is utilized, namely, the proportion of high school enrollment in the eligible population.

Estimation of a Western-comparable GNP measure for socialist economies is exceedingly difficult. Available estimates span a broad range, with some of the highest exceeding the lowest by a factor of 3 in some cases. We take a point estimate halfway between the highest and the lowest estimates available for the year 1985, as reported by Fink and Havlik (1989), Table 6. The highest estimates are those of Summers and Heston and the lowest are those of the World Bank. 1/ The resulting average places per capita GDP in these three PCPE's at levels between 26 and 40 percent of that of the United States. For the investment to GDP ratio we combine data from *International Financial Statistics* (IMF) for the more recent years with data from *Economic Survey of Europe* (UNECE) for the earlier years. For data on educational levels we follow MRW in using UNESCO yearbooks. 2/

The results, shown in Table 1, indicate that the extent of wasteful investment for the three countries is in the range of 50 to 75 percent. The three countries have low population growth rates and relatively high levels of human capital; on both accounts, the level of investment that would be required to achieve their present level of per capita GDP is very modest. Since the actual levels of investment have been relatively high, this suggests a substantial misallocation of resources. Of the three countries, Czechoslovakia appears to have obtained the most favorable results for its level of investment. Because the sample of countries against which the efficiency of these three PCPE's is being judged is very broad and includes many developing countries whose economies are also highly distorted and whose economic performance has been far from successful, the standard of efficiency employed in this exercise is not very demanding.

We utilize these estimates of excess investment to make a correction of the existing capital-output ratio for the three countries. The correction is simply proportional to the estimated degree of overinvestment. This correction would be accurate if the estimate of overinvestment were exactly capturing misallocated investments that cannot be converted to a different productive activity. It would

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1/ Fischer and Gelb (1990) present some estimates below the lower bound of those reported by Fink and Havlik.

2/ The data coverage is for 1965-85.

Table 1. Czechoslovakia, Hungary, and Poland. Investment and Factor
Employment Necessary for Observed Growth Performance 1/

	GNP (as % of U.S.)	Average population growth	Average Secondary Enrollment	Average Investment/ GDP (1)	Required Investment/ GDP (2)	(2) as percentage of (1)	Unemployed Resources (in %)
Sample Averages 2/	34.7	2.2	39.9	19.4	--	--	--
United States	100.0	1.5	92.5	21.1	--	--	--
Czechoslovakia	40.0	0.78	72.1	26.3	12.5	47.5	17.0
Hungary	29.0	0.075	63.1	28.8	7.1	24.6	29.2
Poland	26.0	1.0	67.2	24.0	6.5	27.1	28.0

1/ See text for a description of methodology.

2/ Sample of 75 (industrial and developing) countries included in MRW regression (see Mankiw, Romer and Weil (1990)).

not be accurate if the estimate of overinvestment were simply capturing idle capacity, over and above levels which are typical in the Western economies on which the econometric results are based. On the other hand, the switch to a market economy and the exposure to international competition will render superfluous some of the capital that was viable under central planning because of changes in relative prices, an effect which must partially offset the possible unused capacity bias of our measure.

On the basis of the above estimates, it is possible to make some projections of the rate of growth in Czechoslovakia, Hungary, and Poland in the near future. For this purpose, we utilize the production function implied by the preferred regression in MRW. 1/ We assume that population growth will continue at the same rate as in the period 1960-85, and that investment in human capital will take place at a rate that would generate a growth rate in human capital that equals the observed average growth during 1960-85. We further assume that physical investment will be constant at 22 percent of GDP. This value is not proposed as an estimate or a desirable target but simply as an illustrative assumption to calculate the resulting growth rate. In Section III we discuss factors and obstacles affecting investment in the near future. Incidentally, this investment to GDP value, although roughly commensurate with average investment ratios in countries with similar levels of GDP, is substantially lower than the average of the last 20 years in Czechoslovakia, Hungary, and Poland.

If investment (of the efficient variety) materializes at this rate, the prospects for economic growth appear quite favorable, particularly for Hungary and Poland. In those two countries the rates of growth in per capita GDP over the next five years will average between 6 and 7 percent. For Czechoslovakia we obtain more moderate but still healthy growth rates averaging about 3 1/4 percent for the first five years. The reason for this asymmetry is the different starting positions of the three countries. Using the econometric evidence in MRW resulted in higher estimates of wasteful investment for Hungary and Poland; in addition, Poland has a lower initial capital stock because its total investment has been lower. For these reasons, the marginal product of capital is higher initially in Poland and Hungary. The results are displayed in Table 2.

These simulations illustrate how high rates of economic growth can be achieved with relatively moderate levels of fixed investment when the capital-labor ratio is as low as it appears to be in these three PCPE's of Eastern Europe. It is worth noting, however, that the simulations are based simply on the assumption that technical production possibilities are fully and efficiently taken advantage of and that moderate rates of investment will be achieved. They do not portray a full general equilibrium model of the economy in which macroeconomic balances must be achieved and, in particular, they do not address how the assumed levels of investment will be attained or how to generate the level of saving required for consistency with projected investment. We discuss issues associated with domestic and foreign savings in Sections IV and V.

Economic growth can support increases in wages of a consistent magnitude. There are two types of labor in the model used in this simulation: raw labor and skilled labor (human capital), which enter the production function as separate factors. The

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1/ The precise simulation procedure is described in the Appendix.

Table 2. Czechoslovakia, Hungary, and Poland. Growth Simulation 1/

Years	Investment/ GDP	Growth rate of GDP	Per capita growth rate	Real wage growth rate
Czechoslovakia				
1 to 5	.22	4.02	3.24	2.47
6 to 10	.22	3.77	2.99	2.05
steady state	.22	2.77	2.00	0.00
Hungary				
1 to 5	.22	5.90	5.82	4.99
6 to 10	.22	4.74	4.66	3.48
steady state	.22	2.07	2.00	0.00
Poland				
1 to 5	.22	7.66	6.66	5.64
6 to 10	.22	6.12	5.12	3.65
steady state	.22	3.00	2.00	0.00

1/ Assuming that labor is fully employed and that physical investment is irreversible. Figures correspond to averages for the periods.

wage rate paid to each type of labor is assumed to be equal to the value of its marginal product, as would be the case in a perfectly competitive economy. Taking the reported real wage as the weighted average of the remunerations to the two types of labor, real wages would show steady growth, with annual rates of increase averaging 5 to 5.6 percent over the first five years for Hungary and Poland and nearly 2.5 percent in the case of Czechoslovakia.

The production function used for the simulation--consistent with the regression results in MRW-- is not of the "endogenous growth" variety because the endogenous factors that determine growth are subject to diminishing returns. In the long run, the rate of increase in per capita GDP is thus determined by the rate of growth of labor productivity, which is exogenously fixed at 2 percent in all three cases. Varying this assumption would change the calculated growth rates on a one for one basis. 1/ Regarding labor, skilled labor becomes predominant in the long run because its accumulation proceeds at a rate that makes the ratio of skilled to raw labor grow at a rate equal to the rate of growth of per capita GDP. The average rate of increase of wages thus converges to zero, because the marginal product of skilled labor approaches a constant.

The above calculations suffer from the shortcoming of assuming that all the inefficiencies result from the misallocation of physical capital. In fact, there is also considerable evidence of widespread redundancy of labor in public enterprises under central planning (see Solimano (1990)). Therefore, the poor growth performance should be accounted for by an overstatement of the true levels of *both* capital and labor resources that are actually necessary for the current production levels. This form of inefficiency can be estimated by using the same regression equation as above and calculating the factor of proportionality by which all three productive factors (labor, human capital, and physical capital) have been accumulated in excess of the amounts required to obtain the observed output performance. The estimated factor of proportionality can be interpreted as a common rate of unemployment or underutilization for all productive factors.

The estimated underutilization rates--for all productive factors--range from 17 percent for Czechoslovakia to nearly 30 percent for Hungary and Poland (see the last column in Table 1). The estimated underutilization rates may also represent an upper bound of the initial unemployment that may arise during the transformation into a market economy. If market liberalization were to transform enterprises overnight by eliminating all the excess labor and capital from the production process the rate of unemployment would be equal to our estimated rates. But it is not at all likely that such an upper bound of unemployment could be reached. Even though adjustment costs and lags of different types imply that contraction of activity may occur faster than expansion or entry of new firms, some degree of expansion in growing productive

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1/ Easterly (1990) presents an endogenous growth model with policy distortions in socialist economies, and Fischer (1991) and De Gregorio (1991) perform empirical tests that find that macroeconomic variables affect investment and growth. For a survey of analytical and empirical literature on the relationship between macroeconomic policies and growth, see Khan and Villanueva (1991). The use of an endogenous growth model would not affect the main contention of this section, namely the initially modest investment requirements in the starting conditions of PCPE's in Eastern Europe.

sectors would start from the very beginning. Furthermore, some adjustment in relative prices (wages, exchange rates, etc.) would take place immediately and would allow some of the unemployed labor to be absorbed back into some productive activity.

There is, however, an important asymmetry between capital and labor with regards to the possibility of becoming employed again in a different productive activity. While, for the most part, capital is (or becomes after its installation) specific to a productive activity, raw labor and general human capital are transferable to different branches of production. To be sure, there is at least some physical capital that is transferable and there is an important component of human capital which is acquired through work and that may be activity-specific or even firm-specific. In our calculations of the growth potential, however, we will assume that all real investment is irreversible and that all labor can be reallocated. Since an increase in the reversibility of investment would increase the projected growth rates and a decrease in the reversibility of labor would reduce the projected growth rates, we surmise that the two biases somehow offset each other. Besides, our assumption about the reversibility of labor is also consistent with the empirical measure of human capital used in MRW, which is a very general and nonspecific one, namely, high school education. 1/

Under the assumption that the unemployed labor can be absorbed back by enterprises over a period of ten years (in equal numbers each year) the estimated growth potential for the three Eastern European economies generates results that are of the same order of magnitude as those that arise when all the misallocated productive potential is attributed to capital. Compared to the case in which only capital becomes unemployed, the calculated growth rates for Czechoslovakia are slightly higher and those calculated for Hungary and Poland are a little lower. The differences arise from the different sources of growth. While under the previous assumptions the high productivity of capital was the main factor stimulating growth, it is the addition of new workers and human capital that come out of unemployment that provides the stronger stimulus in this case. These results are portrayed in Table 3.

These calculations only represent a potential for growth in the economies of Czechoslovakia, Hungary, and Poland. They focus only on potential output and abstract from the effects of business cycles, macroeconomic recessions, oil price shocks, etc. that could be very important in the short run. Moreover, the projections assume that real investment will materialize at rates comparable to those observed in other market economies at similar levels of income, but that is by no means guaranteed. The generation of a certain level of investment requires the existence of private or public investment demand and a sufficient supply of (private, public, and foreign) savings. There are many obstacles and uncertainties regarding investment demand and the availability of domestic and foreign savings in the near future. The main factors that may affect these variables in the context of the reforming Eastern European economies are discussed in the following sections.

1/ In fact, the empirical growth literature uses proxies such as school enrollment ratios for human capital. See for example Levine and Renelt (1990).

Table 3. Czechoslovakia, Hungary, and Poland. Growth Simulation 1/

Years	Investment/ GDP	Growth rate of GDP	Per capita growth rate	Unemployment rate
Czechoslovakia				
1 to 5	.22	4.22	3.44	12.2
6 to 10	.22	4.06	3.28	1.87
steady state	.22	2.77	2.00	0.00
Hungary				
1 to 5	.22	5.58	5.51	21.1
6 to 10	.22	5.24	5.16	5.90
steady state	.22	2.07	2.00	0.00
Poland				
1 to 5	.22	6.75	5.75	19.9
6 to 10	.22	6.29	5.29	5.30
steady state	.22	3.00	2.00	0.00

1/ Assuming that all resources are proportionally unemployed but that only physical investment is irreversible. Figures correspond to averages for the periods.

III. Investment

The empirical analysis above suggests that the rates of return to investment may be very high in the reforming Eastern European economies. While expected profitability is a necessary condition for investment to take place, in the current transitional stage other factors will exert important influences on investment. In particular, a high level of uncertainty, and the prospects that uncertainty may be (partially) resolved in the near future may represent a strong incentive for private firms to delay investment projects. Furthermore, in the public enterprise sector, which will necessarily continue for some time to account for a substantial fraction of the industrial sector, the transition to a market economy generates unclear incentives for management teams that are likely to dampen their "animal spirits." Despite some common elements, we discuss investment in the private and public sectors separately.

1. Private Investment

There are important legal and institutional conditions that must be in place (at least to some degree) before private investment can materialize. These include a system of private property rights, the removal of legal barriers to entry by private entities into both existing and new activities, and access for the private sector to financial markets. Although a major revamping of the legal system in this direction is clearly under way in many PCPE's, sorting out existing claims on assets will take longer to solve because of issues such as restitution of property, the rights of worker councils, etc. Furthermore, since the financial system is likely to remain predominantly in government hands for some time--even with free entry into this sector as well--it may not be assured that private enterprises will be able to compete effectively for funds with public enterprises.

Even with these conditions in place and the promise of high expected returns, investors may be slow in committing themselves because of the uncertainty involved in the transition process. The recent literature on "irreversible investment" has focused on this type of effect on investment. In brief, many investments-- particularly in physical plant and equipment--once undertaken, are likely to have little value in alternative uses. This means that such "irreversible" investments can be considered, from the standpoint of the investor, to be "sunk costs," not recoverable if the investor chooses to withdraw from the activity. Thus, when an investor evaluates a particular project he or she considers not only its current expected return but also the expected return to waiting and undertaking the project only if more favorable conditions prevail in the future. When uncertainty about the future is high waiting and investing only under more favorable conditions may have higher value. Furthermore, if uncertainty is expected to be "resolved" to some extent at some point in the future it is even more likely that waiting is the more profitable strategy. 1/

1/ See Pindyck (1991) for a both intuitive and technical introduction to investment under irreversibility.

Clearly, the reforming economies in Eastern Europe are at present fraught with uncertainty for private investors. Since the nature of the reforms is so far-reaching, there are a wide range of possible outcomes with realistic probability of occurring. These outcomes, moreover, concern not only the standard sources of uncertainty for investors in the West, such as prevailing market conditions and particular policy actions, but the very "rules of the game" under which the markets where they are considering to invest will operate. Additionally, since the experiment under way in Eastern Europe is an unprecedented one, there is little basis on which to formulate forecasts.

The whole legal and institutional framework in which businesses will operate in countries like Czechoslovakia, Hungary, and Poland is still in the process of development. This concerns not only the sanction of a commercial legal code, but a number of regulations and practices than can only be established slowly over time in a number of areas, such as the legal enforcement of contracts, public health and environmental standards, financial market regulations, etc. Furthermore, it will take the authorities some time to establish a record of policy actions that can support credibility from the viewpoint of the private sector regarding policies that directly affect variables, such as the exchange rate or interest rates, that may be critical for the profitability of projects. Moreover, even the structure of relative prices—and therefore costs—is likely to be subject to important changes. This means that even though price and trade liberalization is very advanced in these countries, important gains in efficiency can be expected in the near future (especially as privatization and trade liberalization progress) which will further change relative prices. Uncertainty from all these sources is likely to be significantly reduced in the next two to three years, which may act as a powerful incentive to wait.

Apart from the factors just enumerated, a particularly important source of uncertainty for private investors in these economies is the nature of the privatization process. Prospective investors must consider the possibility that it may be cheaper to undertake an economic activity by acquiring an ongoing concern in the context of privatization than to create a new firm. Whether this proves to be the case will depend on how privatization is eventually carried out. In the meantime, however, the value of waiting is enhanced by the possibility that state enterprises may be available, particularly to domestic private investors, at rock-bottom prices. Uncertainty over the course of privatization may therefore exert a particularly powerful negative effect over the emergence of private investment in the PCPE's.

To be sure, there are also factors that may encourage investors to accelerate rather than postpone investment projects. These might be strategic reasons to establish themselves early on in the fledgling new markets (to "beat the competition"). But it is unlikely that such factors could outweigh uncertainties. In a recent survey, large European, Japanese, and American potential investors in Eastern Europe were asked to value the importance of several perceived obstacles to investment on an index ranging from 1 to 5. The two reasons that received the highest ranking (with average index values of 4 and 3.9) were "political uncertainty" and "uncertainty about economic policies." 1/

1/ See Collins and Rodrik (1991).

This situation implies several desiderata for the reform process. First, institutional measures that enhance the credibility of policy announcements, such as free elections to establish the political legitimacy of the government leading the reform, or the active involvement of the international community with substantial resources conditional on the progress of reform, or a well-functioning social "safety net" to more equitably distribute the costs of structural change, can make important contributions to the stimulation of private investment. Second, in the sequence of reforms, measures that increase the likelihood that other intended structural changes will be implemented should receive high priority since, in addition to whatever direct economic benefits they may produce, they generate the side effect of reducing uncertainty. This may suggest, for example, that privatization should be pursued with an urgency that transcends its direct contribution to economic efficiency in the relevant enterprises. 1/ Third, certain "rules of the game" that directly affect private investors, such as the legal framework for corporations, bankruptcy law, the tax system, and the trade regime, should be established early. Fourth and finally, it is important to resolve quickly particular macroeconomic problems that represent substantial sources of uncertainty. This would be the case, for example, for the debt overhang that is considered to exist in Poland and Hungary. In addition to these, it might be desirable to adopt specific policies designed to create incentives to invest now rather than later. A temporary investment tax credit is an obvious example. A problem with this, however, is that such credits have tended to acquire a permanent character elsewhere and, if they are perceived to be permanent, they would not be effective. Alternatively, firms that invest today may be granted preferential access to public assets that are to be privatized. Since the privatization process will be of finite duration, such a measure is assured to be a temporary incentive.

Pending such measures, the contribution of private investment is likely to come in the form of activities that either yield extremely high expected rates of return, and therefore attain a positive net present value even after taking into account the possible resolution of uncertainty, or activities that involve small amounts of capital and are liquidated quickly, such as retail trade. Projects of these types cannot be expected to result in a large volume of private investment in the PCPE's during the early stages of the reform process. The message for that process is that rapid and thoroughgoing change is indispensable for the quick achievement of satisfactory rates of investment and thus economic growth.

2. Public Investment

Even though in the context of a move toward a market system it is desirable that investment decisions be made by the private sector, it is important to recognize that in the near term most investment decisions will continue to be made by agents in the public sector, for at least two reasons. First, many economic activities will remain in the public sector even after the reform process is complete. As in Western European economies, investment decisions concerning public infrastructure (roads, bridges, harbors, etc.), natural monopolies such as water and electricity supplies,

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1/ Blanchard and Layard (1990) and Frydman and Rapaczynski (1990) make the case that privatization would make the move to a market economy an irreversible one.

and to an uncertain extent, health and education, will continue to be made by the public sector. Second, privatization of other activities will take time, and in the meantime the major share of investment decisions will be made by public enterprises.

In the transition period that will precede privatization, the system of incentives for investment by public enterprises does not appear very favorable. The system is one in which even though enterprises do not respond to a central plan, which is no longer operational, they also do not follow a clear profit maximization objective because management is not answerable to private owners. Furthermore, the tenure of the management teams after privatization may be highly uncertain. In such conditions, there are stronger incentives for managers to sell enterprise assets (and increase wages, including their own remuneration) than to initiate new investments. This perverse system of incentives had the consequence of spurring a number of "spontaneous privatizations" in Hungary and Poland, where managers sold enterprises under very favorable conditions for buyers (see Lipton and Sachs (1990)). Although measures have been taken to prevent such excesses, and wage taxes are used to keep wage increases under check, such regulations are very hard to enforce. Enterprises continue to search actively for joint ventures and other arrangements with private (mostly foreign) firms, and perhaps they should do so in order to improve their efficiency. 1/ But the oversight of all such activities is an overwhelming task. What is needed is a change in the incentive system.

A step in the direction of achieving profit maximization on the part of public enterprises (and therefore investment efficiency) is to fully liberalize prices and to impose "hard" budget constraints on the enterprises. Price liberalization has been basically implemented in Czechoslovakia and Poland, and is progressing in Hungary. Unfortunately, it is much easier to liberalize prices than to impose hard budget constraints. Hard budget constraints require the removal of subsidies, realistic interest rates for credit from public-sector financial institutions, and the allocation of credit according to profitability criteria. The last conditions may be problematic with a state financial sector.

Under a private banking system, lending rates would be differentiated by the perceived riskiness of borrowers, and some loan applications with little prospect of repayment would be denied access to funds. With both enterprises and banks owned by the public sector, the perception of risk may be distorted. In the first place, banks may feel that the state will ultimately prevent the bankruptcy of a large public enterprise with thousands of employees, and may feel that any amount of credit to a large public enterprise is safe. In the second place, banks start with a number of loans of questionable value in their books, and they may continue to lend to the same borrowers in order to give them a chance to recover, or merely to postpone the day of reckoning in their balance sheets.

But even if hard budget constraints could be effectively imposed, it is doubtful that the system would select investments in an efficient way. If the hard budget constraint is the only mechanism of discipline for managers, they would in fact be

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1/ See the survey of Polish firms by Jorgensen, Gelb, and Singh (1990).

encouraged to take too little risk. 1/ A further problem arises from the fact that the supervision function--on both enterprises and banks--will have to be performed by the government. An important difficulty is presented here by the absence of organized securities markets to provide an objective evaluation of each firm's performance. Even acknowledging that experience in Western economies is full of examples of financial market distortions of several types, speculative bubbles, etc., the existence of a group of interested private investors, that are ready to risk their own resources when they believe a firm to be misvalued by the market, probably provides the best basis to value enterprise assets and assess their performance. In the absence of such markets, enterprise valuations will have to be performed by the

government, perhaps with the aid of outside financial experts. 2/ But given that privatization will not proceed instantaneously in any event, perhaps better investment decisions and enterprise performance could be attained by designing performance-based incentives for managers of public enterprises. The incentive structure may be reinforced in this case by the prospect of privatization if the tenure of the firm's managers upon privatization is perceived to be dependent on how the firm is managed during the intervening period of liberalized prices and decentralized decisions.

IV. Savings

Macroeconomic balance requires that investment be accommodated by an ex-ante commensurate levels of savings. The PCPE's must therefore not only grapple with the problem of how to generate sufficiently high levels of investment demand during the reform process, but also with how to finance such demands. There are two possible sources of financing--external and domestic. The former can take the form of increased inflows from abroad, either as new lending or, in the case of heavily-indebted Eastern European countries such as Poland and Hungary, as reduced external debt service, including through debt reduction and forgiveness. The possible contribution of external financing will be taken up in Section V. However, by way of motivating the present section, we note that, in reforming Eastern Europe as elsewhere, the bulk of financing for domestic investment will have to come from domestic sources.

This section will address issues that arise with regard to the mobilization of domestic saving in the reforming economies. Such saving can be generated by both the public and private sectors, and we shall consider each of these in turn. The first part of the section will consider issues related to the mobilization of public saving, while the second part examines saving by the private sector. Interactions

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1/ In well-developed market economies, direct supervision by controlling owners and the risk of proxy fights and takeovers operate as discipline mechanisms for enterprises that are not about to go bankrupt but whose management could be improved.

2/ Confirming skepticism on the efficacy of such a system of management evaluation, Frydman and Rapaczynski (1990, Appendix 1), describe a very poor study on the valuation of an enterprise made by a highly competent international accounting firm for the Polish government.

between the saving behavior of the two sectors, which may play an important role in the case of PCPE's, will be taken up in context.

1.   Public Saving

The role of the public sector is, of course, at the center of the reform process in Eastern Europe. Because what is involved is a revolutionary change in the nature and scope of this sector, issues concerning public sector saving are inextricably enmeshed with the nature and scope of the transformation process, about which much uncertainty remains in every Eastern European country. Nevertheless, some generalizations can be made.

The first of these is that, if adequate levels of investment are to be achieved in the reforming economies, public sector saving will have to make an important contribution. The reason for this is that other sources of saving--namely domestic private saving and foreign saving--are unlikely to make decisive contributions. As indicated in the next subsection, there is little on the horizon to suggest possible increases in private saving, and the international financial environment is not at present conducive to large transfers of funds to the PCPE's on a scale, say, comparable to what the now heavily-indebted developing countries received during the seventies.

The second such generalization is that this resource mobilization will require a substantial revenue effort, because even the newly-streamlined public sectors of the PCPE's will be confronted with acute spending needs. These will take the form of creating a social safety net as well as providing for the retraining of displaced workers, establishing a modern productive infrastructure, and addressing pressing environmental problems.

Moreover--and this is the third generalization--the revenue problem might be complicated by the process of privatization. As argued elsewhere (see Borensztein and Kumar (1991)), in whatever form privatization takes place in the individual PCPE's, the transfer of assets from the public to the private sector is likely, for largely technical reasons, to involve a substantial giveaway element. At present, government revenues in the reforming economies are dominated by taxes on enterprises, often levied at rates that would be disastrous for private firms, but which were feasible under the zero-profit central-planning regime. Since such taxes in effect represent transfers within the public sector, the sector in the aggregate has essentially been profit-financed. That is, it has been financed by the returns to socially-owned capital. Because of the onerous nature of the present taxes on enterprises, leaving the present tax system in place would create enormous distortions in a market system. Thus, the relinquishing of this capital stock to the private sector must be accompanied by an overhaul of the tax system. To the extent that the existing system of enterprise taxation is abandoned, but the capital is given away and not sold (i.e., is not replaced by other income- earning assets), the government will be faced with a substantial revenue shortfall.

What is required, by implication, is no less than the design, from the ground up, of an entirely new revenue system. To minimize distortions, a desirable feature of such a system is that it be broad-based, with low and uniform tax rates. This suggests, for example, that the system of enterprise taxation will have to be

replaced by one that relies on taxation of labor income as well as income from capital--that is, a general income tax. Moreover, an implication of the preceding discussion is that if the PCPE's are to achieve the levels of investment needed to generate sustained growth without resulting in macroeconomic imbalances, the new tax system will have to produce substantial levels of revenue unless government spending is sharply reduced. Both for this reason and to encourage private saving, a strong argument can be made for supplementing the income tax with a tax on consumption--in other words, a value-added tax (VAT) on the Western European model. The combination of a broad income tax, with sufficiently high rates to constitute the bulk of public-sector revenue, with a value-added tax, can form the basis for an important public-sector contribution to the financing of domestic investment in the Eastern European PCPE's.

The public sectors of Czechoslovakia, Hungary, and Poland appear to be taking substantial steps to meet this public saving challenge. All three countries showed significant improvements in their general government balances and are showing budget *surpluses* in 1990. Poland, in particular, showed an improvement in the budget balance of nearly 10 percentage points of GDP. The reduction of subsidies that accompanied price liberalization measures played a key role in this development. 1/ Furthermore, tax reform is also under way in the three countries, with substantial reductions of enterprise taxes. However, maintaining the strength of the fiscal position may prove to be difficult, but governments should continue to make every effort towards this objective.

2. Private Saving

Several issues affecting the prospective behavior of private saving in the Eastern European PCPE's are specific to these particular economies. These include the role of the "monetary overhang" and the implications of privatization for private saving. Other issues, such as the effects of changes in the structure of the financial system during the reform process on the volume and composition of private saving, are in principle little different in this application from those that arise elsewhere, particularly in developing countries undertaking financial liberalization. We examine each of these in turn.

a. The Monetary overhang

The existence of a "monetary overhang" in many of the formerly centrally-planned economies, especially in those countries that have not yet fully liberalized prices, seems to be widely accepted. In brief, the concept relies on the notion that, since under the price-control regime of the centrally-planned economy goods were rationed at below market-clearing prices, households that were unable to purchase goods simply saved their excess income in the form of money. This represented involuntary saving since, at the prevailing vector of official prices, these households would have chosen to consume more if the goods had been available. The existence of stocks of money accumulated in this fashion would be expected to directly affect private

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1/ See Tanzi (1991) on the importance of subsidies in the fiscal positions of socialist economies.

saving, because it implies that, if goods were to be made available, households would choose to consume at very high levels relative to their current incomes, thus depleting their excess money stocks.

The empirical relevance of this phenomenon, however, is not clear. The existence of a monetary overhang is typically defended on a priori grounds based on widespread goods rationing under central planning. The empirical case relies on the observation of very low levels of velocity in PCPE's. Velocity is judged "too" low either by the standards of the country's own past (presumably less controlled) history, or by comparison with "similar" countries--non-centrally planned economies-- at similar levels of development. Table 4, for example, shows that, by the standards of some representative developing countries, the PCPE's had relatively high ratios of money to income during the second half of the eighties.

There are both theoretical and empirical reasons, however, to question whether a "monetary overhang", in the sense described above, could have accumulated to a very significant extent in many PCPE's. To begin with, much of the monetary accumulation that took place during central planning may have been the outcome of voluntary behavior, for several reasons. First, the existence of excess demand for some goods does not imply a state of generalized excess demand for goods, as spillover effects are felt in markets that are not in excess demand. Second, as a special case of this general principle, labor supply could in some cases adjust as households opt to withhold labor. To the extent that they did so, the scope for involuntary asset accumulation would have been reduced. Third, the existence of black markets implies that price controls could be evaded. This means that at the margin households could have purchased goods with the cash balances that they are said to have accumulated passively. This opportunity signifies that the accumulation of assets would have been voluntary. It also means, however, that the "true" price level should also include parallel market prices.

If this is true, how are we to interpret the observed low levels of monetary velocity in the reforming economies? Does this not constitute empirical evidence of a "monetary overhang" in spite of whatever theoretical reasons may be adduced to question it? The answer is, not necessarily. The mechanism that is alleged to generate a monetary overhang is in fact capable of creating only a wealth overhang. That is, even if households accumulate assets passively because they are unable to obtain goods, in principle there is no reason why such assets should be accumulated in the form of money. The observation that velocity is "unusually" low in PCPE's does not constitute evidence of such a wealth overhang. The reason is, of course, that in a setting where physical assets are owned communally, households are unable to accumulate wealth in a form other than money. Thus, even if households hold their desired wealth/income ratio, their money/income ratio may greatly exceed what is observed in countries where the menu of assets available to private agents is much richer. The implication is that, while private agents may indeed wish to reallocate their financial portfolios away from money if presented with attractive opportunities to do so in reforming economies, they may not necessarily wish to spend in excess of income to work off a "wealth overhang".

Moreover, theory suggests that, even if the stock of wealth owned by households in the PCPE's had been acquired involuntarily, one should be skeptical of a "wealth reduction" motive for consumption. Such a motive would imply a short-term consumption binge until wealth is reduced to a desired level, after which consumption would become smooth. However, such a time profile of consumption is unlikely to be

Table 4   Broad Money Over GDP, 1985-1989
(in percent)

Country	1985	1986	1987	1988	1989	Average
Argentina	21.3	23.9	28.0	33.1	23.3	25.9
Indonesia	23.9	26.9	27.2	29.6	35.2	28.6
Korea	35.3	36.2	37.1	38.2	41.2	37.6
Pakistan	40.7	43.3	45.3	41.7	38.8	42.0
Kenya	26.7	30.3	30.4	28.7	28.4	28.9
Nigeria	29.4	29.6	26.1	28.0	28.4	28.3
Czechoslovakia	63.7	64.4	66.7	71.5	73.0	67.9
Hungary	48.2	49.8	48.5	43.5	41.4	46.3
Poland	42.1	42.7	43.8	40.9	59.6	45.8

optimal. Instead, an optimal path for consumption would be smooth from the outset. The presence of a "large" initial stock of wealth simply means that the present value of future consumption can be correspondingly "large", not that its profile over time would be affected, as is suggested by the notion of an overhang-induced binge.

What, then, is left of the "monetary overhang"? One way to reconcile this concept with the theory of consumer behavior is to regard it as a statement about the demand for consumer durables. The composition of the smooth profile of consumption planned by households in PCPE's would include services from consumer durables. If the total level of household consumption rises with the inception of reform, or if the consumption of the services of consumer durables was quantity-constrained under the previous regime, the demand for the services of consumer durables would rise. To achieve the desired level of consumption would entail a once-for-all increase in the stock of durables held by the household. Among the forms in which households may wish to reallocate their financial portfolios, then, would be toward the purchase of consumer durables. While this would not represent a consumption binge, it would nevertheless appear as a spending binge, with the associated effects for aggregate demand and for measured household saving.

b.   Privatization

Because household saving behavior is unlikely to be dominated by the monetary overhang problem, the most important factor affecting private saving behavior over the near term can be expected to be the privatization process. Since this involves the transfer of an enormous stock of real assets to the private sector, its potential implications for private wealth, and therefore for private saving behavior, cannot be overestimated. As indicated in the previous subsection, however, privatization is likely to have very substantial budgetary implications. For concreteness, assume once again that the privatization involves a substantial transfer element (i.e., the enterprises are given away, rather than sold), that government consumption remains unchanged and that the required financing for this government spending is obtained from broad-based income taxes and a consumption tax.

The effect of privatization of private saving in PCPE's depends on whether households are Ricardian. Consider first the case of Ricardian households. Privatization by itself does not increase the perceived net wealth of such households because the acquisition of equity is matched by a higher tax liability of equal value. But the value of household net wealth increases due to the anticipated productivity gains associated with improved efficiency in the enterprises, and this increase takes place as soon as privatization is expected. This will be reflected in higher consumption from the moment in which the prospect of privatization becomes credible--i.e., before the income gains themselves materialize. The result, of course, would be a reduction in the private saving rate. The private saving rate would rise only when the privatization is actually implemented, because private income will then rise as expected.

If households are not Ricardian they would perceive no change in wealth before privatization, but a larger increase in wealth when they actually receive the equity of the privatized enterprises. This is because non-Ricardian households would perceive the increase in the value of their assets as the total market value of the distributed equity--which includes the value of productivity gains--but they would account only partially for the increase in future tax liabilities required to finance

the level of government consumption. Private consumption therefore rises after privatization, by an amount that exceeds the increase in private disposable income, reducing the private saving rate. Thus, in the case of Ricardian households the private saving rate falls before privatization and rises afterward, while for non-Ricardian households there is no effect on private saving before privatization, but a reduction in private saving after.

c. Financial liberalization

The reform process in PCPE's will involve important changes in the structure of financial systems. The initial condition is typically one in which a few large, government-owned commercial banks offer a limited menu of deposits which pay either no interest or very low administered interest rates. In the early stages of the reform process, the financial system is likely to continue to remain dominated by these institutions, even if entry is opened into the financial industry. Nevertheless, the rates of return paid to domestic savers is likely to increase substantially, and the menu of assets available to them can be expected to be significantly enriched. These changes may in principle affect both the volume and composition of the private saving rate.

With regard to the rate of return paid to savers, stabilization programs in the Eastern European PCPE's have thus far featured either interest rate liberalization or increases in administered interest rates. These changes have been intended to dampen aggregate demand pressures and to contribute to mopping up whatever "monetary overhang" may be in existence, but higher domestic interest rates is precisely what is to be expected under a competitive banking system if the marginal product of capital increases at the inception of the reform process, as assumed in Section II. With respect to the enrichment of the asset menu, several channels can be foreseen. First, as more branches of economic activity are opened up to the private sector, household saving may be directly attracted to investment opportunities yielding high rates of return. Second, to the extent that the formal financial system is not fully liberalized, "curb" loan markets are likely to emerge outside the formal financial system, as has been the case in many developing countries. Third, most proposals for privatization mechanisms in PCPE's envisage the creation of an equity market. Fourth, to the extent that exchange controls are removed, individuals will have access to world capital markets, and the Eastern European PCPE's are likely to quickly become integrated into the European capital market. Finally, fiscal reform in the PCPE's will likely involve the creation of at least a primary market for government securities. All of these changes imply an expansion in the portfolio options available to private savers.

Unfortunately, although financial market liberalization can dramatically improve resource allocation, there is little evidence that increasing the rate of return on financial assets or expanding the asset menu can substantially increase the private saving rate. While the likely effect on saving may be positive, this result is not unambiguous. For example, to the extent that financial liberalization reduces the incidence of liquidity constraints on households, an important motive for saving--the precautionary motive arising from the anticipation that liquidity constraints may become binding in the future--may be significantly weakened. Even if the net effect on saving proves to be positive, quantitatively this effect cannot be expected, based

on experience elsewhere, to be very large. 1/ Instead, the contribution of these developments will be to improve the efficiency with which saving is allocated, and thus the productivity of investment, in the reforming economies. This also seems to be the lesson learned from financial liberalization in developing countries.

A further effect of financial liberalization will be, sooner or later, the emergence of consumer credit markets. Presently, consumers must save in advance in order to purchase consumer durables. When credit becomes available, consumers would instead go into debt in order to make purchases of durable goods. This will change the net savings position of consumers, implying a temporary fall in consumer savings. This effect may be to some extent offset by the enterprise sector. Under central planning the extension of credit to finance enterprise expenditures was more or less automatic; in a market system, in contrast, enterprises often choose to self-finance part of their investment spending. Overall, financial liberalization cannot be counted on to offset the stimulation of consumption likely to emerge from the process of privatization. On the whole, then, the reform process can be expected to be characterized by a shortfall of private saving--the private sector, in other words, will in all likelihood be a deficit sector.

V. Foreign Debt

If a successful reform brings about strong investment demand, foreign savings wi have an important role to play as a supplement to domestic savings. An excessive level of foreign indebtedness may, however, become a roadblock for foreign savings. Highly-indebted countries that have been or may become unable to meet debt service payments do not obtain new credits very easily in private financial markets. Furthermore, a level of foreign debt that is too high increases uncertainty and affects incentives to invest and produce in the debtor country. With this poorer economic performance, the creditworthiness of the country suffers and foreign borrowing becomes even more difficult.

In addition to debt flows, a high level of indebtedness may impede much needed foreign direct investment flows. The reason is that a potentially conflicting debt situation could indirectly affect the returns on foreign direct investment. If the debtor country faces a balance of payments crisis as a result of its difficulty in meeting foreign debt service payments, it may resort to capital controls or to multiple exchange rates; foreign investors may then be unable to remit dividends or would have to do so at a much less favorable exchange rate. Moreover, if the country enters a state of open default and some of its assets are attached by its creditors abroad, the debtor country could target foreign direct investments for retaliation, either by directly expropriating them, or by levying exceptionally high taxes on them. Therefore, country risk associated with foreign debt applies to some extent to foreign direct investment.

The foreign debt situation of the three countries in which we focus is very different. Czechoslovakia has very low foreign debt and good potential access to

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1/ See Aghevli et al (1990).

foreign savings. Hungary has very high foreign debt but has always been current in its payments to creditors and has maintained some degree of access to private financial markets. Its ability to increase foreign indebtedness appears, however, fairly limited. Poland has just obtained substantial relief on its official debt. Prior to that debt relief Poland also had very high foreign debt, at a level not unlike that of Hungary's, but with a poor record of meeting debt service payments since 1981. It is still unclear how far the debt reduction currently under way will go towards restoring access to voluntary credit from private sources.

Table 5 summarizes the most relevant economic indicators referring to the level of indebtedness at the end of 1989. Relative to GDP, the levels of debt of Poland and Hungary were roughly equivalent, standing at 65 to 70 percent. As a reference point, it can be noted that the average debt-to-GDP ratio for the group of fifteen highly indebted countries is under 40 percent. Other indicators, however, did show a more difficult debt situation for Poland. Debt (and debt service) is much larger relative to fiscal resources; this is an important indicator because for both Poland and Hungary all debt is in fact official debt and its repayment therefore requires a concomitant surplus in the budget. Interest payments absorb almost one fifth of government revenues in Poland, while accounting for only half of that in Hungary. Because of the large share of the government in these economies, these figures are still low relative to other highly-indebted countries, where the typical burden of interest payments on revenues amounts to about 33 percent. With respect to the level of exports, again the situation for Poland looked more difficult. The ratio of debt to exports of goods and nonfactor services (in convertible currencies only) was twice as high in Poland as in Hungary. This reflects the fact that Poland is a less open economy, and may have more difficulty in transferring resources to the traded sector of the economy to generate the necessary external surplus to repay debt. However, the sharp growth in exports since market liberalization was adopted in 1990 (almost 40 percent) has been closing the gap in this respect. After the official debt forgiveness, fiscal and international trade indicators of the foreign debt situation of Poland would be comparable to those in Hungary. 1/

The apparently very different debt situation for Poland and Hungary does seem somewhat of a puzzle given that overall indicators of indebtedness do not show such a strong contrast. In secondary markets, Polish commercial debt commanded a price of about 15 cents on the dollar, while Hungarian debt is traded at about 80 cents on the dollar. Two types of explanations can be suggested: one stresses the difficulty of achieving the fiscal and external adjustment required for servicing debt. As noted above, Polish debt is larger relative to fiscal revenues and to the size of its external sector. This implies that the required adjustments to obtain the fiscal and external surpluses would be proportionally larger in the case of Poland. Furthermore, a country with a more open economy is a much better risk. The reason is that if a debtor country defaults on its external debt it is likely to suffer "sanctions" from its creditors that affect its international trade; these sanctions may take the form of curtailment of financing of trade operations, direct trade embargoes, etc. A more open economy would suffer more from the application of such trade sanctions; this makes it less likely to default on its external obligations

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1/ For a more in-depth discussion of the debt situation in Eastern Europe, see Diwan and Saldana (1990).

Table 5.   Debt Indicators

	Poland	Hungary	Czechoslovakia
Debt (billion $)	45.9	20.9	7.5
Debt/GDP (percent)	70.4	64.6	16.4
Debt/Exports (percent)	390	174.6	90.4
Share of Private Creditors	20	72	97
Secondary Market Debt Price (cents per dollar)	15	80	--
Interest/GDP (percent)	6.0	5.3	1.3
Interest/Exports (percent)	33.2	14.3	7.2
Debt/Fiscal Revenues (percent)	229.3	124.0	29.3
Interest/Fiscal Revenues (percent)	19.5	10.2	2.3
Terms of Trade Loss from CMEA Reform (percent of GDP)	3.0	4.5	7.0

Sources: Diwan and Saldana (1990), and Prust and IMF Staff Team (1990).

even under very difficult repayment conditions. 1/

The second explanation is based on the strategic considerations involved in the relationship between debtors and creditors. Poland's debt is mostly with official creditors while Hungary's debt is owed mostly to private creditors (commercial banks and bond holders in roughly 60/40 proportion). For this reason, maintaining a reputation for prompt payment of obligations may be more valuable for Hungary, as it would signal to creditors a commitment to repay foreign debts as well as the ability to do so; this signal could translate into lower interest rates in loan and bond markets, and perhaps wider access to credit. In contrast, the preponderance of official borrowing in the case of Poland may imply that a spotless record of debt service may not be the most important consideration leading to increased foreign borrowing or more favorable loan conditions. Instead, Poland may feel it more profitable to try to directly negotiate debt relief with official creditors, which certainly reduces the incentive to avoid payment arrears. 2/ In addition, differences in the domestic political and economic conditions in Poland and Hungary may make the sacrifices necessary for repayment of debt more difficult in the case of Poland. The current economic recession is deeper in Poland on the one hand, and the role of Poland in pioneering economic and political transformations in Eastern Europe may have created the expectation of an entitlement to considerable debt relief on the other hand, which makes heavy debt payments politically less acceptable.

The external positions and savings of Czechoslovakia, Hungary, and Poland are going to suffer from the dismantling of the CMEA trading system. The reason is that trade at nonmarket prices is estimated to represent a net foreign subsidy for all three countries. This foreign subsidy will be eliminated with the switch to market prices in trade among CMEA members. Estimates of the size of this external subsidy appear to be substantial, particularly in the case of Czechoslovakia, which has a high proportion of its foreign trade with CMEA partners. In addition, the dismantling of the CMEA raises some questions about the value of accumulated claims within that trade system when trade starts to take place in convertible currencies. Only Czechoslovakia appears to have a significant positive position, and is liable to suffer some potential losses on this account as well.

Even a quick glance at the debt situation indicates that at least in the case of Hungary and Poland it is unlikely that significant foreign savings would be available on a commercial basis. However, the creditworthiness of these two countries could be improved in the context of the economic reforms under way if the state passes on to the private sector some of its liabilities along with its assets. If the governments privatize enterprises along with some of their foreign liabilities (explicitly not assuming payment guarantees) the financial situation of the government would be improved. This could have a positive effect on the creditworthiness of the country because, as the experience of Latin American debtors since 1982 has shown, the fiscal aspect of the foreign debt problem can become the most important constraint. A

1/ For a discussion of the potential effects of trade sanctions in a debtor economy see Borensztein and Ghosh (1989).

2/ In fact, Poland has not serviced its Paris Club debt since 1981. The recently-negotiated debt relief agreement contains some interest payment deferrals as well.

bankrupt government generates all sort of negative externalities that affect all domestic investors, so that an improvement in the financial position of the government would generally improve prospects for access to foreign borrowing.

VI.   Conclusions

The fundamental force driving the process of economic reform in the previously centrally-planned economies of Eastern Europe is the aspiration of their populations for improved living standards. The achievement of satisfactory rates of economic growth in the not too distant future may thus prove crucial to the sustainability of the reform effort. The behavior of private investment holds the key to the rate at which these economies can move to a sustainable path of healthy economic growth.

Unfortunately, our analysis leads us to the conclusion that the activation of private investment is likely to present a very difficult problem in these economies, at least in the near term. The most serious obstacle to the emergence of strong private investment demand is the extent of uncertainty that accompanies the reform process itself. The irreversibility of many types of capital investment makes it optimal from the standpoint of individual investors to wait before committing funds to new activities, except in the case of projects with very high yield. This effect is likely to prove especially strong in situations such as the present one in the Eastern European PCPE's, where it can be expected that much of the uncertainty will be resolved in a span of two to three years. The problem is, of course, that the failure of each individual to invest worsens the credibility problem and decreases the attractiveness of investment for all others, so these economies risk getting caught in a stagnation equilibrium. The message for policy is that the reform process must proceed quickly, especially with regard to the "rules of the game" that will govern private enterprise. In addition, there may be scope for well-designed measures that seek to stimulate private investment today by offering specific benefits to enterprises that undertake investment early in the reform process.

The severity of the savings problem depends on the degree of success that can be achieved in generating investment demand. If sufficient investment demand is forthcoming, then it will be necessary for these economies to produce adequate levels of saving to avoid the emergence of macroeconomic imbalances. In this regard, the main difficulties are likely to emerge not from the oft-cited monetary overhang, but from the need to transform the methods of financing the public sector and from the effects of privatization on household saving. In the short run, the availability of foreign saving--or at least its private component--is likely to depend on factors similar to those affecting private domestic investment, since both in effect represent claims on the domestic economies in the PCPE's.

All this being said, however, we are nonetheless more sanguine about the short-to-medium term prospects for growth in these countries than these considerations might seem to suggest. Although it may indeed prove difficult to sustain high levels of investment in these economies over the next few years, we believe that reasonably high rates of growth will prove to be attainable with more modest investment rates--certainly rates much lower than these economies have generated in the past. The reason for this conclusion is that the reform process will leave the PCPE's in a situation of relative capital scarcity, implying that the

marginal product of capital will prove to be relatively high. This means not only that the investment that does occur will be very productive in terms of economic growth, but also that projects offering a sufficiently high yield so as to warrant undertaking, even in the presence of moderately high levels of uncertainty, may be relatively abundant. In short, the potential near-term payoff from moving quickly and resolutely with the reform process in the Eastern European PCPE's may be substantial.

Method to Compute Overinvestment and Potential Growth

We make use of the following regression estimated for 75 countries by MRW (reported in Table 2 in MRW):

$$\text{(A1)} \quad \ln \frac{Y}{L} = 8.90 + .59\ln \frac{I}{Y} + .76\ln(\text{School}) - .54\ln(n+g+\delta)$$

where Y/L is 1985 GDP per working age person, I/Y is the 1960-85 average ratio of investment to GDP, School is the 1960-85 average high school enrollment as a fraction of the eligible population, n is the population growth rate, and $g+\delta$ is the sum of the rates of exogenous technological growth and the depreciation rate of capital (common to both physical and human capital); this sum is assumed to be equal to .05 for estimation purposes. We estimate the level of required investment as:

$$\text{(A2)} \quad (I/Y)^* = \exp\left[\frac{\ln(Y/L)-8.90-.76\ln(\text{School})+.54\ln(n+g+\delta)}{.59}\right]$$

This estimate provides a measure of the proportion of useful capital, α:

$$\alpha = \frac{(I/Y)^*}{I/Y}$$

which is used to correct the stock of capital available for production which is our starting point in the growth projections. The stock of available capital-output ratio is obtained by:

$$\text{(A3)} \quad \frac{K}{Y} = \alpha \frac{I/Y}{y+\delta}$$

where y is the average growth rate of GDP 1960-85, and δ equals .04.

The production function used to calculate growth is the following:

$$\text{(A4)} \quad Y_t = K_t^{1/3} H_t^{1/3} (A_t L_t)^{1/3}$$

where K is the stock of physical capital, H is the stock of human capital, $A_t = A_0 e^{gt}$ is the level of technology, and L is raw labor. This production function is roughly consistent with the econometric results in MRW. Physical and human capital are accumulated according to the following equations:

(A5) $K_{t+1} = (1-\delta)K_t + I_t$

(A6) $H_{t+1} = (1-\delta)H_t + I_t^H$

Human capital is measured as:

$H_t = \text{School} * L_t$

We assume a constant ratio of investment in human capital to GDP, which is equal the implicit average human capital investment for the period 1960-85:

$$\frac{I^H}{Y} = (h+\delta)\frac{H}{Y}$$

where h, the rate of growth of human capital, is equal to the rate of growth of school enrollment plus the rate of population growth, again measured in averages for the period 1960-85.

In the second set of simulations we assume that there is a common rate of unemployment for all productive factors. This unemployment rate, λ, is obtained from:

(A7) $\ln \dfrac{Y}{\lambda L} = 8.90 + .59\ln(\lambda \dfrac{I}{Y}) + .76\ln(\lambda \text{ School}) - .54\ln(n+g+\delta)$

The unemployment rate λ determines the initial amounts of (both kinds of) capital and labor used in the production function. Thus the total human capital and the labor force are divided in the following way:

$\bar{H} = H + H^U$

$\bar{L} = L + L^U$

where H and L are human capital and raw labor employed in production. The dynamic evolution of H and L is given by the following two equations:

$$H_{t+1} = (1-\delta)H_t + I^H + \frac{1}{T-t+1} H_t^U$$

$$L_{t+1} = (1+n)L_t + \frac{1}{T-t+1} L_t^U$$

where T is the number of years it would take to reemploy the idle resources, assumed to equal 10 in the simulation. The dynamic evolution of the unemployed resources is given by the following two equations:

$$H^U_{t+1} = \left(1 - \frac{1}{T-t+1}\right) H^U_t (1-\delta)$$

$$L^U_{t+1} = \left(1 - \frac{1}{T-t+1}\right) L^U_t$$

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