IMF WORKING PAPER

WP/92/85

INTERNATIONAL MONETARY FUND

Research Department

Capital Inflows to Latin America: The 1970s and the 1990s 1/

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October 1992

Abstract

During the past two years Latin America has received sizable international capital inflows. This paper compares the recent experience with that of the late 1970s. The analysis examines differences and similarities between the two episodes in three broad areas: domestic macroeconomic conditions in the recipient countries at the outset of both episodes, the behavior of the external factors that influence the international allocation of capital, and the response of key macroeconomic variables, such as the real exchange rate, reserves, and stock prices. The paper aims at assessing how vulnerable these economies are to an unexpected and swift reversal in capital inflows, and whether there are signs that the vulnerability has changed appreciably over time.

JEL Classification Numbers:
G1, F41

1/ This paper was presented at the Tenth World Congress of the International Economic Association, held in Moscow in August 1992, and is forthcoming in a Proceedings volume to be published by Macmillan. The authors thank Edmar Bacha and Peter Wickham for their helpful comments on an earlier version of the paper. The paper is part of a research project by the authors on international capital flows into Latin America, at the Research Department of the International Monetary Fund. The views expressed in this paper are those of the authors and do not necessarily reflect those of the International Monetary Fund. The authors thank Catherine Fleck for editorial assistance.

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I. Introduction

For first time since the onset of the debt crisis in the summer of 1982, capital has begun to return to Latin America during 1990 and 1991; see Calvo, Leiderman, and Reinhart (1992). In general, Latin America's re-entry into the international capital markets has been perceived as a positive development, see El-Erian (1992). However, policymakers in the region have also begun to voice concerns about the less favorable side effects of these capital inflows. First, it is feared that the real exchange rate appreciation that often accompanies these inflows will adversely affect the international competitiveness of the export sector. Second, there is concern that the inflows could be abruptly reversed, possibly doing considerable damage to the domestic financial system in the process. The fear of reversal is based on the experience of the debt crisis, which followed on the heels of the "capital bonanza" of 1978-1981.

This paper compares the recent capital inflows experience with that of the late 1970s. The analysis examines differences and similarities between the two episodes in three broad areas: domestic macroeconomic conditions in the recipient countries at the outset of both episodes, the behavior of the external factors that influence the international allocation of capital, and the response of key macroeconomic variables, such as the real exchange rate, reserves, and stock prices, to the inflow of capital. The paper aims at assessing how vulnerable these economies are to an unexpected swift reversal in capital inflows, and whether there are signs that the vulnerability has changed appreciably over time.

The paper is organized as follows. Section II reviews some basic empirical characteristics of capital inflows during the episodes of the late 1970s and the more recent experience of 1990-91. The section also examines quantitatively the extent to which these capital inflow episodes were a regional phenomenon as opposed to a country-specific event. Section III reviews various indicators of initial conditions in both episodes. Section IV examines the role playd by external factors, such as interest rates and capital account developments in the United States, which affect the pattern of capital flows in these economies. This section draws heavily on our previous work (see Calvo, Leiderman, and Reinhart (1992)). Final remarks and some policy implications are briefly discussed in Section V.

II. Empirical Regularities

We first discuss the anatomy of capital inflows, then turn to the responses of various macroeconomic variables to the inflows, and last we compare the degree of regional comovements in the previous and the current episodes.

1. Broad evidence

While the recent capital inflows to the region are sizable, amounting to $24 billion in 1990 and about $40 billion in 1991, to date these magnitudes remain to date well below those observed during the previous episode of 1978-1981. 1/ As Table 1 highlights the orders of magnitude, in dollar terms, are quite similar to those observed during 1978-79, the first two years of the earlier episode. 2/ However, when measured relative to GDP it becomes evident that the recent inflows do not match the experience of the late 1970s. The same applies to the transfer of resources to Latin America, defined as net capital inflow minus net payment of profits and interest, which in each year of the earlier episode was about double the value of the inflows in 1991 ($12 billion per year in the late 1970s compared to $6 billion in 1991); see Griffith-Jones (1992).

Chart 1 provides country-specific evidence of some of these developments. The chart illustrates that net capital inflows are larger in the current episode only in the cases of Bolivia and Mexico, where the capital account balance as a share of GDP reached 3.6 and 7.6 percent, respectively, in 1991. For Argentina, the net inflows amounted to 1.7 percent of GDP in 1991, or about one half its 3.3 percent peak in 1979. For Chile, net capital inflows in 1990 were about 6 percent of GDP, well below its level of 15 percent in 1981, the year of the largest inflows in the prior episode. Similarly, capital inflows to Brazil, Ecuador, Uruguay and Venezuela during the current episode are small in comparison to those of the previous episode.

An important difference between the two episodes of capital inflows is evident from columns (7) and (8) of Table 1. For the region as a whole, capital inflows have financed less of the current account deficits and more of the reserves accumulation in the present episode than in the earlier episode; see Calvo, Leiderman, and Reinhart (1992).

Table 2 presents a breakdown of the types of capital flows to Latin America. Net external borrowing is, by far, the key item in the capital account of the region in the late 1970s and early 1990s. However, as Renhack, Mylonas, and Szymczak (1992) suggest, the composition of capital

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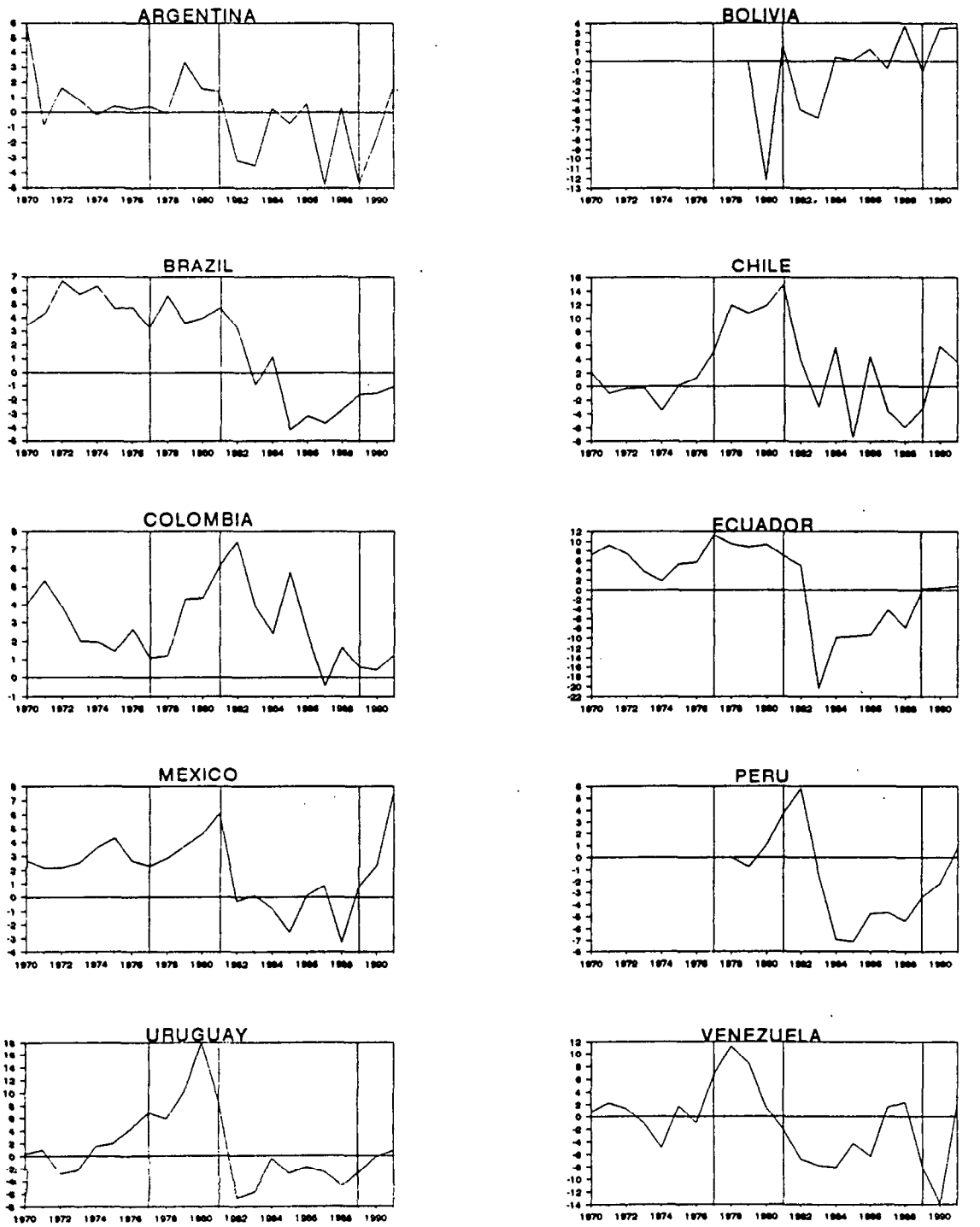
1/ See also Kuczynski (1992), Salomon Brothers (1992), and Griffith-Jones (1992).

2/ Here we refer to columns 5 and 6 of Table 1, which include errors and omissions. This calculation of the capital account balance, we believe, provides a more accurate reading of the extent to which the external indebtedness of the region is changing. Since, particularly in the previous episode, sizable and rising capital flight co-existed with the increasing inflows. It thus appears that a sizable portion of the funds that were borrowed in international capital markets were finding their way back to financial institutions in the United States and elsewhere in the form of flight capital.

Chart 1. Selected Latin American Countries: Balance on the Capital Account, 1970-91

(As a percent of nominal GDP, in U.S. dollars)



Source: World Economic Outlook, IMF, various issues.

Notes: Positive entries denote capital inflows. Capital account balance includes errors and omissions. Vertical lines denote the beginning and end (when applicable) of capital inflows episodes.

Table 1. Latin America: Balance of Payments, 1973–91

Year	Balance on goods, services, and private transfers 1/		Balances on capital account 1/		Balance on capital account plus net errors and omissions 1/		Overall Balance 2/	
	$ Billion	% of GDP	$ Billion	% of GDP	$ Billion	% of GDP	$ Billion	% of GDP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1973	−4.7	−2.4	--	--	8.5	4.4	3.8	2.0
1974	−13.5	−5.3	--	--	13.3	5.2	−0.2	−0.1
1975	−16.3	−6.1	--	--	14.7	5.5	−1.6	−0.6
1976	−11.8	−3.8	--	--	16.9	5.4	5.1	1.6
1977	−11.6	−2.7	19.8	4.6	16.4	3.8	4.8	1.1
1978	−19.4	−4.0	30.5	6.2	27.4	5.6	8.0	1.6
1979	−21.7	−3.8	35.0	6.2	32.9	5.8	11.2	2.0
1980	−30.3	−4.3	47.0	6.7	34.0	4.9	3.7	0.5
1981	−43.5	−5.5	59.4	7.4	41.9	5.3	−1.6	−0.2
1982	−42.2	−5.5	45.1	5.9	23.0	3.0	−19.2	−2.5
1983	−11.6	−1.7	22.4	3.2	13.6	1.9	2.0	0.3
1984	−3.2	−0.5	15.5	2.3	12.5	1.8	9.3	1.4
1985	−4.4	−0.6	6.7	0.9	5.5	0.8	1.1	0.2
1986	−18.9	−2.6	14.2	1.9	12.3	1.7	−6.6	−1.0
1987	−12.0	−1.6	14.5	1.9	15.3	2.0	3.3	0.4
1988	−12.4	−1.5	8.2	1.0	4.7	0.6	−7.7	−0.9
1989	−10.0	−1.1	15.7	1.7	12.1	1.3	2.1	0.2
1990	−8.8	−0.8	24.1	2.3	23.9	2.3	15.1	1.4
1991	−22.3	−2.1	38.1	3.8	39.8	3.9	17.5	1.7

Source: World Economic Outlook, IMF, various issues.

1/ A minus sign indicates a deficit in the pertinent account. Balance on goods, services, and private transfers is equal to the current accou balance less official transfers. The latter are treated in this table as external financing and are included in the capital account.

2/ Column (7) equals the sum of columns (1) and (5). A positive sign in column (7) indicates accumulation of international reserves by the monetary authorities.

Table 2. Latin America: Items in the Capital Account
(In billions of U.S. dollars)

Year	Net external borrowing	Non-debt creating flows	Asset transactions (net) 1/	Errors and ommissions 1/	Total
1973	6.0	2.5	--	--	8.5
1974	11.1	2.2	--	--	13.3
1975	11.4	3.3	--	--	14.7
1976	14.2	2.7	--	--	16.9
1977	19.4	2.8	-2.5	-3.4	16.4
1978	28.0	4.9	-2.5	-3.1	27.4
1979	30.2	7.2	-2.4	-2.1	32.9
1980	43.1	6.8	-3.0	-13.0	34.0
1981	61.0	8.2	-8.9	-17.5	41.9
1982	45.7	7.2	-7.7	-22.1	23.0
1983	18.7	4.6	-0.9	-8.8	13.6
1984	14.1	4.5	-3.1	-3.0	12.5
1985	6.2	6.1	-5.4	-1.4	5.5
1986	11.3	4.3	-1.3	-1.9	12.3
1987	10.0	6.0	-1.2	0.5	15.3
1988	3.8	8.8	-4.3	-3.5	4.7
1989	10.9	6.9	-2.1	-3.6	12.1
1990	28.0	8.6	-12.5	-0.2	23.9
1991	17.3	14.1	6.7	1.7	39.8

Source: Data for western hemisphere, World Economic Outlook, IMF, various issues.
1/ These two categories are included in net external borrowing and non-debt creating flows from 1973-1976.

inflows is markedly different in the two episodes. First, Renhack, Mylonas, and Szymczak (1992) note that private sector borrowing through bank loans and bond issues is significantly lower in the current episode. Second, foreign direct investment is much higher in 1991 (i.e., $14 billion) than it was in the late 1970s, and includes cash inflows of $3.5 billion from the privatization of state-owned enterprises (especially in Argentina, Brazil, Mexico, and Venezuela). These inflows, owing to privatization, are a relatively new phenomenon; they were not present in the 1970s. Third, the "errors and omissions" item is much smaller compared to the early 1980s. This could well indicate that the current capital flight is considerably smaller than in the earlier episode (see Mathieson and Rojas-Suarez (1992)). 1/ Put differently, net external borrowing represents a larger percentage of total capital inflows in the earlier episode than in the present one, and the opposite is true for the relative size of non-debt creating flows.

How did the region respond to the capital inflows? Consider first the behavior of official reserves, as depicted in Chart 2. It shows that in real terms the accumulation of official reserves in the current episode has matched or exceeded that of the previous episode for most countries. Reserve accumulation has been more substantial in Argentina, Bolivia, Ecuador, Mexico, and Venezuela. The accumulation of reserves that has taken place in Brazil, Colombia, Peru and Uruguay is about the same as in the earlier episode. In Chile, the accumulation of reserves is smaller in the current episode is smaller than in the earlier one.

Capital inflows are typically accompanied by real exchange rate appreciation. According to Chart 3, the current real exchange rate appreciation is similar to that observed in 1978-79, although the current level of the exchange rate remains well below the levels of the late 1970s and the early 1980s (Chart 4). 2/ The appreciation of the real exchange rate is now moderately greater in Argentina, Ecuador, and Venezuela but is about the same in the remaining countries. When comparing the timing of reserves accumulation and real exchange rate appreciation, most of the evidence in <u>both</u> episodes points to the fact that the accumulation of reserves <u>precedes</u> the real exchange rate appreciation.

Capital inflows are also often associated with stock market booms. Charts 5 and 6 indicate that the booms in the stock markets of Argentina,

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1/ Notice that in 1991 the "net errors and omissions" item became positive for the first time in several years. This may indicate the unrecorded return of capital that may have previously gone abroad.

2/ The latter is not surprising, as the terms of trade for almost all the countries in the region have deteriorated markedly since the late 1970s, with many countries registering declines in the 40-50 percent range. According to Khan and Ostry (1992), a terms of trade decline of 10 percent is likely to produce a median decline (depreciation) in the equilibrium real exchange rate of about 4 percent.

Brazil, Chile, and Mexico are roughly comparable. 1/ While part of the booms can be accounted for by the same fundamental factors that give rise to capital inflows, "speculative bubbles" may have played an important role in these booms.

2. Regional comovements: then and now

Despite wide differences in policies and conditions, there is an important degree of comovement across countries in the behavior of capital inflows, official reserves, the real exchange rate, stock market returns, and interest rate differentials (Charts 1-6). Indeed, in our earlier paper we provided statistical evidence in support of the notion that the current episode of capital inflows embodies a key common component that is of a regional, as opposed to a country-specific, nature; see Calvo, Leiderman, and Reinhart (1992). The presence of a strong common element across countries in the region was interpreted as being the result of a common external shock that affected Latin America. 2/ In this subsection we examine whether the previous episode, of 1978-81, shared this regional dimension.

In order to quantitatively assess the extent of comovement among the various economic time series considered, we used principal components analysis. The procedure starts with individual time series--say official reserves for each of the ten countries considered--and constructs a smaller set of series, the principal components, which explain as much of the variance of the original series as is possible. 3/

In principle it would have been desirable to use direct data on capital inflows. However, these data are only available on an annual basis for most of the countries in our sample. Consequently, we analyze the extent of comovement in official reserves and in real exchange rates (which are available at a monthly frequency) as proxies for capital inflows. In addition, using monthly data the extent of comovement in inflation rates is examined. The periods considered are: the previous capital inflows episode, (January 1978 to December 1981) and, for comparison purposes, the following four years (January 1982 to December 1985). Similarly, we consider the recent episode (January 1990 to March 1992), and for comparison also the period of January 1988 to December 1989. All the analysis that follows uses the logs of reserves and the real exchange rate. The inflation rate is the 12-month difference in the log of the consumer price index.

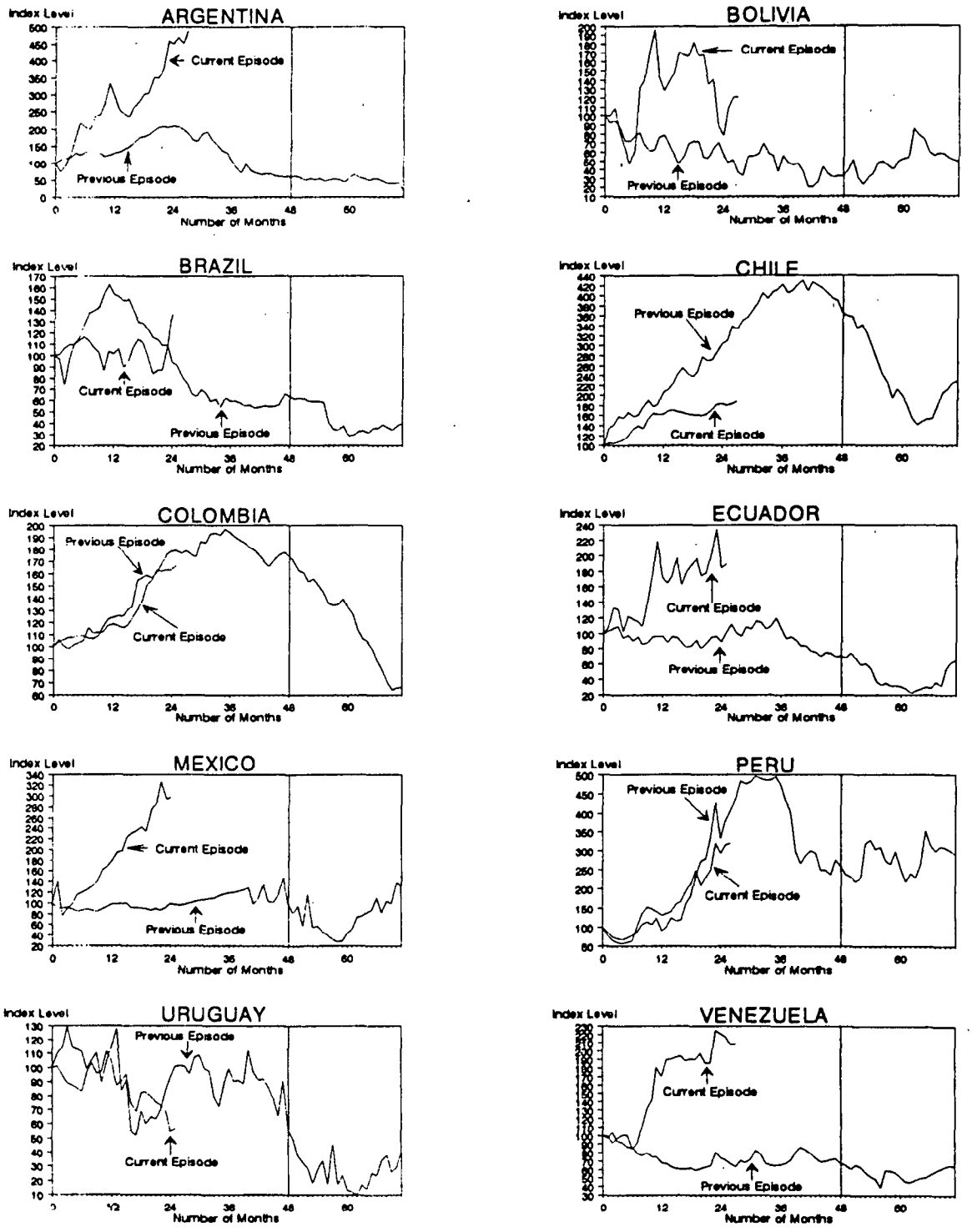
1/ Also comparable are the domestic/foreign interest rate differentials in both episodes.

2/ On the role of external shocks, see Diaz Alejandro (1983, 1984).

3/ For an exposition of principal components analysis, see, e.g. Dhrymes (1970). For an application that parallels ours see Swoboda (1983), who used this approach to examine economic interdependence across different exchange rate regimes for six of the G-7 countries.

Chart 2. REAL OFFICIAL RESERVES

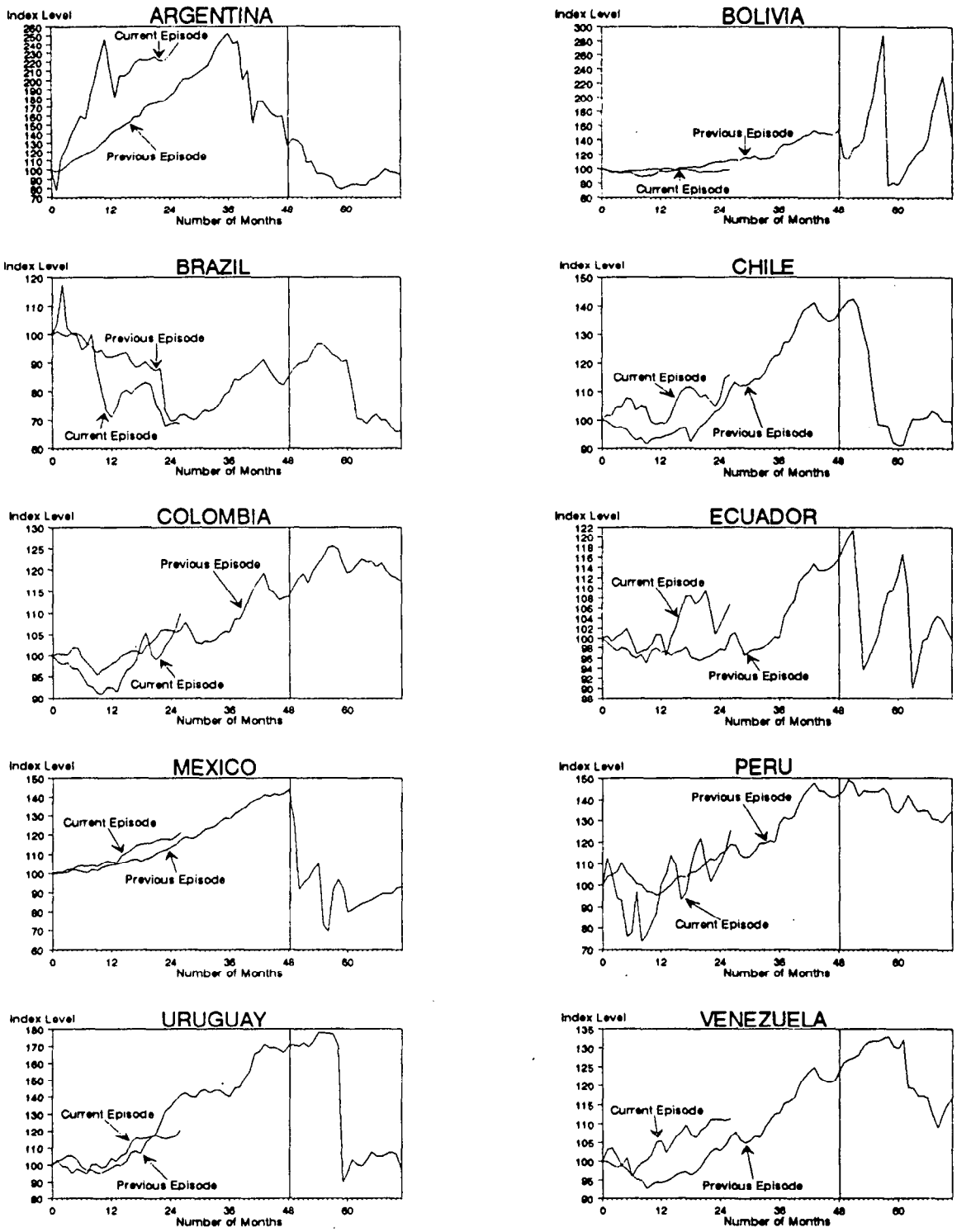
Billions of 1985 U.S. Dollars



Source: International Financial Statistics.

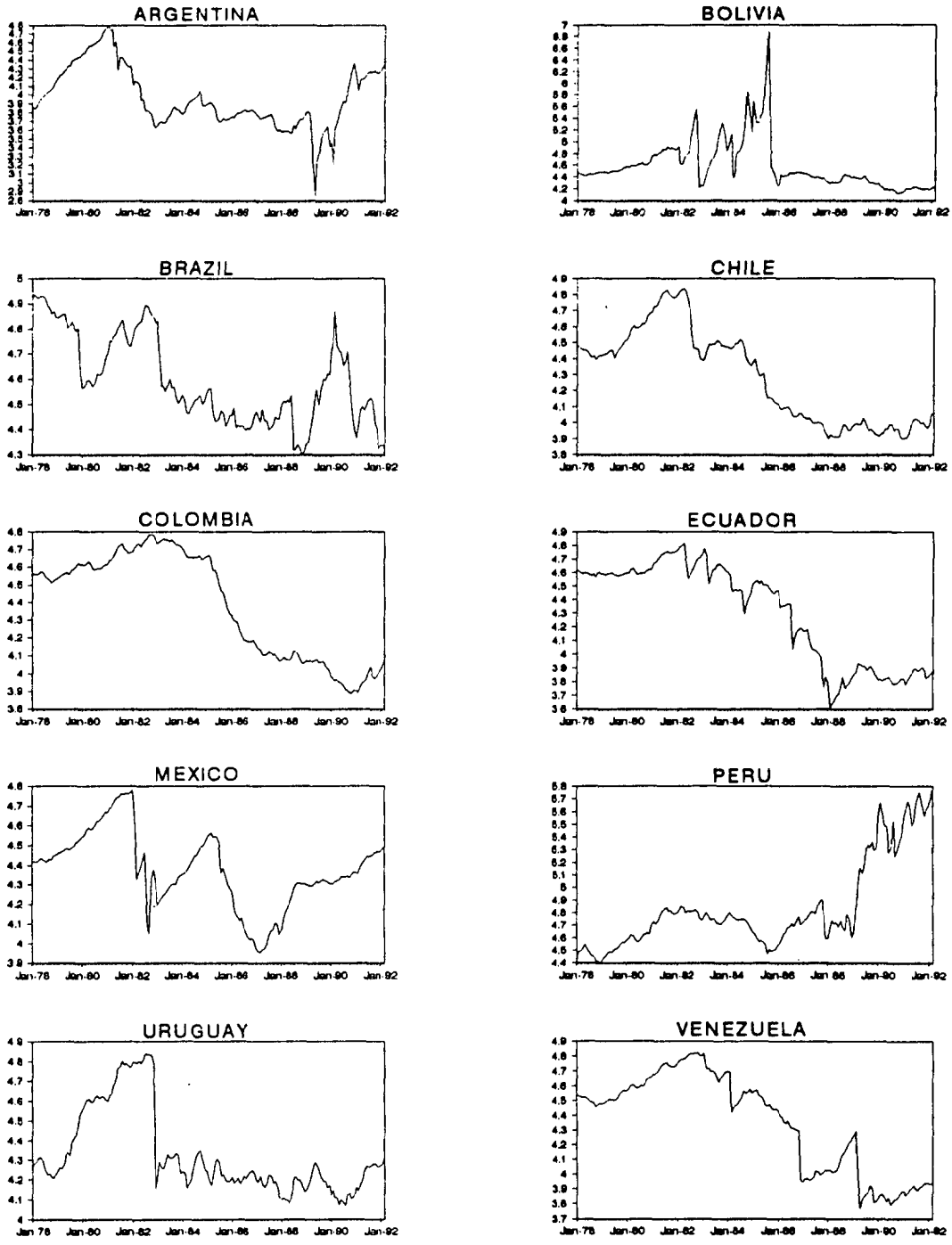
Notes: Real Reserves minus gold (in U.S. dollars) deflated by U.S. consumer price index.
Current episode: January 1990 = 100.
Previous episode: January 1978 = 100.
Vertical line denotes January 1982.

Chart 3. REAL EFFECTIVE EXCHANGE RATE



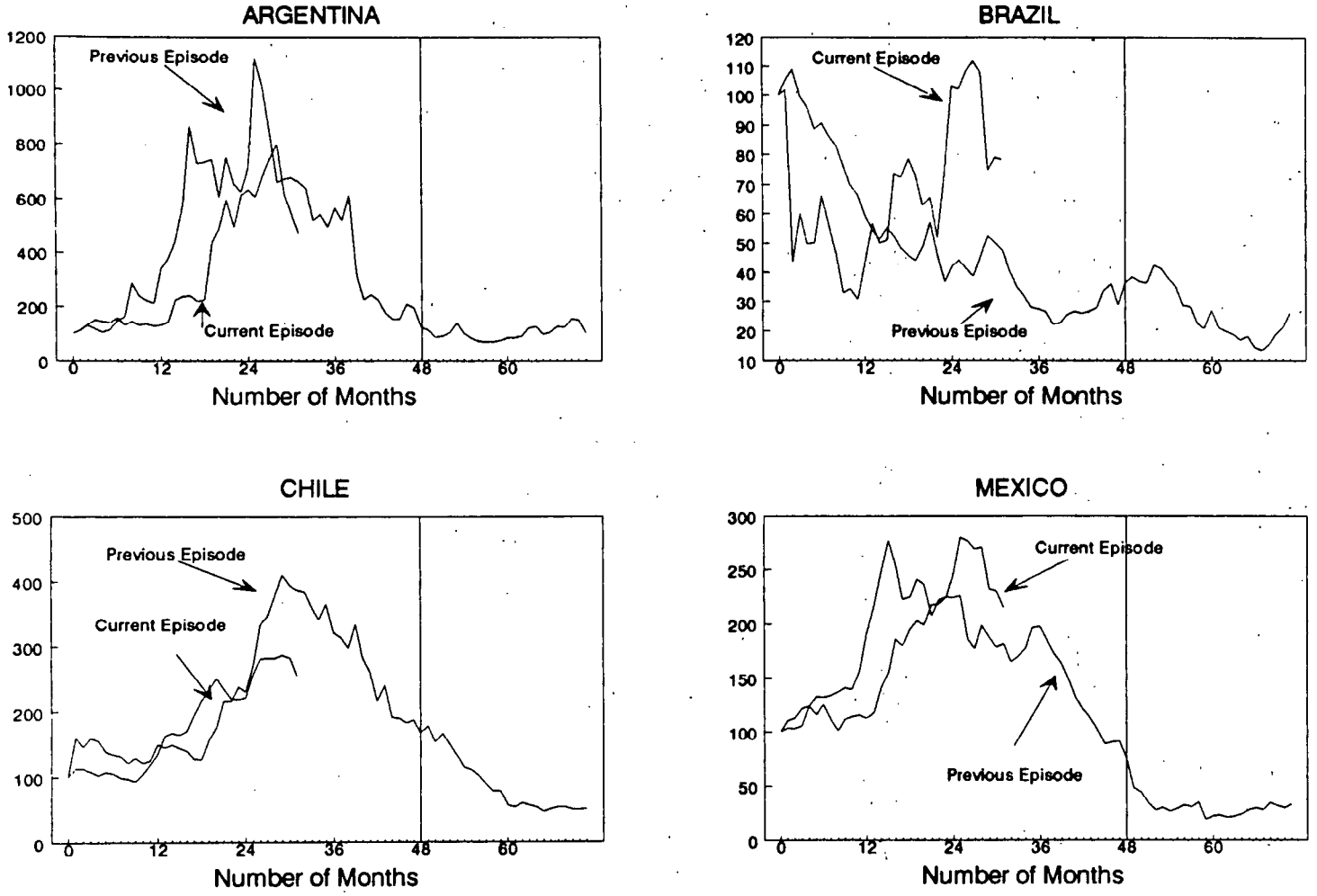
Source: Information Notice System, IMF.
Note: An increase in the index denotes a real exchange rate appreciation.
Current episode: January 1990 = 100.
Previous episode: January 1978 =100.
Vertical line denotes January 1982.

Chart 4. REAL EFFECTIVE EXCHANGE RATE



Source: Information Notice System, IMF.
Note: An increase in the index denotes a real exchange rate appreciation.

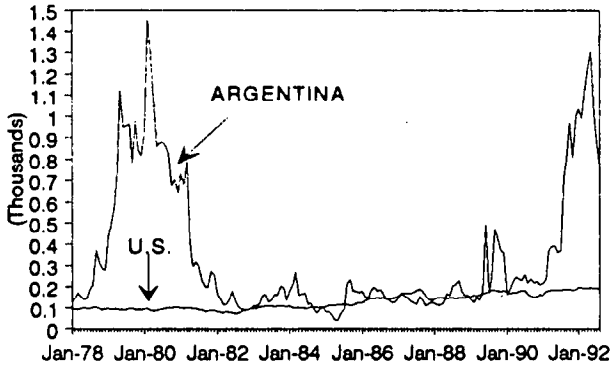
Chart 5. REAL STOCK PRICES

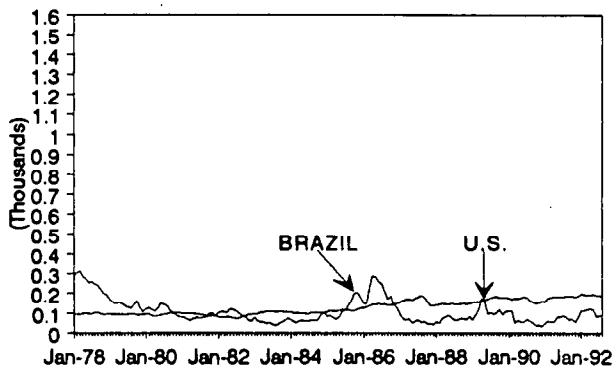


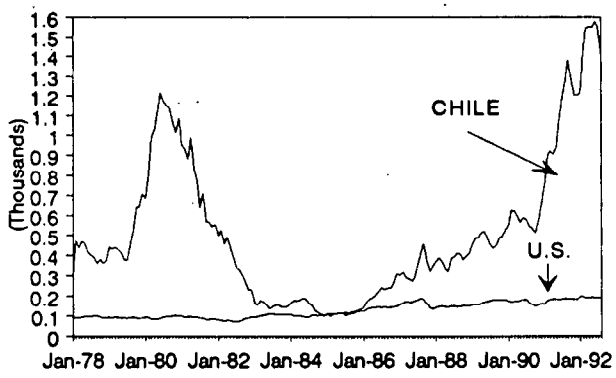
Source: International Finance Corporation, Quarterly Review of Emerging Stock Markets.
Notes: Stock prices in U.S. dollars, deflated by U.S. Consumer Price Index.
Current episode: January 1990 = 100.
Previous episode: January 1978 = 100.
Vertical line denotes January 1982.

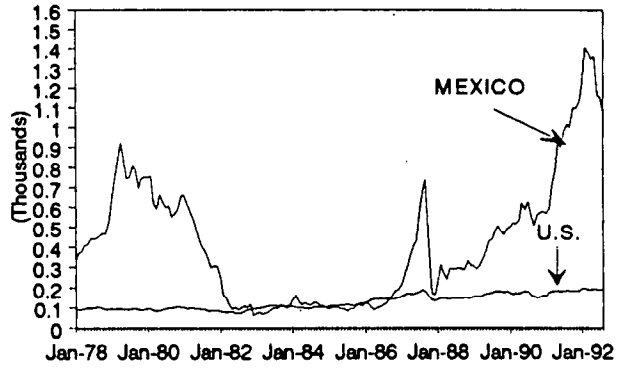
Chart 6. STOCK MARKET PERFORMANCE, January 1978-August 1992

(Real Stock Price Indices in U.S. dollars, January 1984 = 100)









Sources: Quarterly Review of Emerging Stock Markets, International Finance Corporation, Standard and Poor's, United States Department of Commerce.

Notes: All stock price indices are deflated by the U.S. consumer price index.

The key results that emerge from examining the extent of comovement across countries in reserves, the real exchange rate, and inflation are presented in Table 3 and are summarized below:

(1) The extent of comovement in reserves and the real exchange rate across countries is markedly greater in the capital inflows episode of 1978:1-1981:12 than in the debt crisis years, 1982:1-1985:12. Similarly, the degree of comovement in reserves and the real exchange rate across countries is greater in the recent capital inflows episode of 1990:1-1992:3 than in the previous two years. Increased comovements under capital inflows could possibly be explained by external shocks that are common to the region. 1/

(2) The degree of comovement in reserves across countries is greater in the current episode. Possible explanations may be: (a) greater intervention in the current episode aimed at either avoiding exchange rate appreciation or at increasing reserves as a cushion against possible adverse shocks in the future; or (b) an attempt to bring the reserve-to-imports ratios back to their "long-run" values--which could be plausible given that in the current episode eight of the ten countries were below their "long-run" reserve-to-imports ratios (more details follow below).

(3) The covariation in real exchange rates was much greater during the 1978:1-1981:12 period than in any period since then. Possible explanations may be: (a) since there was less intervention at that time, the exchange rate was allowed to react to the inflow much more uniformly; and (b) the exchange rate based stabilizations (or tablitas) in the Southern Cone during the earlier period were more synchronized than any of the stabilization programs of the past two years.

(4) The extent of comovement in the domestic inflation rate, a variable less obviously linked to external factors, diminished in the current episode of capital inflows relative to the previous two years (1988-89). While in the previous episode the extent of comovement was about the same as that which characterized the following four years.

III. Initial Conditions

Initial conditions may play a key role in determining the economic performance and response to capital inflows. They may also determine the vulnerability of a given economy or region to a reversal of those flows. Accordingly, we focus here on comparing some of the similarities and

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1/ In all cases we tested the null hypothesis that the ten series are linearly independent and found that we could reject this hypothesis at standard significance levels. The test statistics, which are distributed as --with 45 degrees of freedom, and the attendant probability values are presented in Table 2.

Table 3. Establishing the Comovement in Macroeconomic Series
The Previous Episode: 1978 to 1981

	Previous Episode 1978:1 to 1981:12	Debt Crisis Years 1982:1 to 1985:12
REAL EXCHANGE RATE		
First Principal Component	0.81	0.51
Second Principal Component	0.96	0.71
Chi-Squared(45)	1274.55	470.5
Probability Value	(0.0000)	(0.0000)
RESERVES		
First Principal Component	0.58	0.50
Second Principal Component	0.77	0.74
Chi-Squared(45)	645.28	431.26
Probability Value	(0.0000)	(0.0000)
DOMESTIC INFLATION RATE 12-month percent change		
First Principal Component	0.57	0.53
Second Principal Component	0.81	0.78
Chi-Squared(45)	744.82	783.49
Probability Value	(0.0000)	(0.0000)

	1988:1 to 1989:12	Current Episode 1990:1 to 1991:11
REAL EXCHANGE RATE		
First Principal Component	0.41	0.58
Second Principal Component	0.78	0.79
Chi-Squared(45)	302.01	286.31
Probability Value	(0.0000)	(0.0000)
RESERVES		
First Principal Component	0.48	0.67
Second Principal Component	0.69	0.80
Chi-Squared(45)	204.97	297.23
Probability Value	(0.0000)	(0.0000)
DOMESTIC INFLATION RATE 12-month percent change		
First Principal Component	0.60	0.45
Second Principal Component	0.88	0.64
Chi-Squared(45)	475.94	306.4
Probability Value	(0.0000)	(0.0000)

Notes. The cumulative R^2 gives the percentage of the variance of the original series explained by the first principal component, the first two principal components, and so on.

differences in initial conditions in the Latin American countries being studied. Initial conditions are represented by various indicators for the region for 1977-78 and 1988-89, which are the periods immediately preceding both episodes of capital inflows. Initial conditions of the relevant external factors are discussed in the next section.

The main results from this comparison are summarized below (see also Chart 8).

(1) External debt indicators suggest that most of these countries are more vulnerable to an adverse external shock, e.g. in the form of an increase in world interest rates, in the 1990s (after the debt crisis) than in the 1970s. While the sharp declines in U.S. and other international interest rates have gone a long way toward reducing the debt servicing burdens of these ten heavily-indebted countries, external debt ratios are sharply higher (Table 4) than at the outset of the current capital inflow episode. Further, as shown in the top panel of Table 4, the proportion of external debt that carries a variable interest rate is much higher now for most of the sample countries.

(2) In eight of the ten countries considered, the ratio of official international reserves to imports was higher at the outset of the previous episode, and closer to its long-run average (Table 4, lower panel). The fact that reserves at the outset of the present episode were, more often than not, below their long-run averages may explain why reserve accumulation has been greater in the current episode.

(3) Vulnerability to terms of trade shocks has been a common characteristic of most Latin American economies. This vulnerability can be partially assessed by examining the structure of merchandise exports, which provides an idea as to the extent of diversification in the export base of these countries. Table 5 presents a breakdown of exports into broad groupings for the years 1977 and 1989. The picture that emerges is mixed. Some countries, notably Brazil, Chile, Colombia and Mexico, have made considerable progress in diversifying their export bases since the late 1970s. Others have not appreciably changed the structure of exports and remain vulnerable to the vagaries of international commodity prices.

(4) The public sector was larger and showed weaker budgetary discipline in the previous episode. As Table 5 (lower panel) indicates, government consumption as a share of GDP is markedly lower in the current episode for the majority of countries (except Brazil and Colombia). Moreover, structural budget deficits are now lower than their previous levels (see Table 6). The stronger commitment to reduced government intervention in the recent episode is also evident in the volume of privatization in a number of the countries. For example, during 1991 Argentina, Brazil, Mexico, and Venezuela raised about $15 billion through the privatization of state-owned enterprises (as indicated earlier, $3.5 billion of this total amount was cashed as inflow from abroad). Financial

Table 4. Initial Conditions: External Debt and Reserves Indicators

Floating Rate Debt as a Percentage of Total Long-term Debt

	1977	1989
Argentina	39.4	83.2
Bolivia	30.9	22.3
Brazil	54.6	71.0
Chile	17.5	69.6
Colombia	9.1	46.0
Ecuador	45.5	63.7
Mexico	53.1	79.4
Peru	30.3	32.3
Uruguay	21.4	73.1
Venezuela	60.2	87.3

Ratio of Total External Debt to Exports of Goods and Services

	1980	1989
Argentina	242.4	511.3
Bolivia	258.2	433.8
Brazil	304.3	295.0
Chile	192.5	174.6
Colombia	117.1	208.3
Ecuador	203.1	386.8
Mexico	259.2	250.0
Peru	207.7	415.7
Uruguay	104.1	161.3
Venezuela	131.8	205.1

Official reserves as a ratio of nominal imports in U.S. dollars

	1977	1989	1970-91 Average
Argentina	0.88	0.4	0.63
Bolivia	0.37	0.28	0.31
Brazil	0.6	0.48	0.49
Chile	0.23	0.54	0.48
Colombia	0.92	0.8	0.71
Ecuador	0.41	0.34	0.36
Mexico	0.29	0.27	0.33
Peru	0.18	0.39	0.45
Uruguay	0.65	0.52	0.56
Venezuela	0.79	0.65	0.93

Sources: International Financial Statistics and World Economic Outlook, IMF and World Debt Tables, World Bank, various issues.

Table 5. Selected Indicators
Structure of Merchandise Exports
(Percentage share of merchandise exports)

	1977			1989		
	Fuels, minerals, and metals	Other primary commodities	Manufactures	Fuels, minerals, and metals	Other primary commodities	Manufactures
Argentina	1	75	24	4	64	32
Bolivia	79	17	4	80	15	5
Brazil	10	64	26	15	33	52
Chile	83	10	7	57	33	10
Colombia	4	77	19	26	49	25
Ecuador	50	48	2	49	48	3
Mexico	32	39	29	41	14	45
Peru	47	45	8	55	26	19
Uruguay	1	60	39	0	61	39
Venezuela	97	1	2	91	1	8

Sources: World Development Report, World Bank, various issues.

Public Consumption
(Nominal public consumption as a percent of nominal GDP)

	1977	1989
Argentina	9.41	7.89
Bolivia	13.12	10.98
Brazil	9.43	14.32
Chile	14.57	9.84
Colombia	7.71	10.55
Ecuador	14.82	9.38
Mexico	10.76	7.81
Peru	14.85	6.83
Uruguay	12.31	13.53
Venezuela	14.75	9.72

Sources: International Financial Statistics and World Economic Outlook, IMF, various issues.
Notes: All data are taken from the national income accounts.

Table 6. Investment

(As a percent of GDP)

Countries/Years	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
A. Country Data																						
Argentina																						
Total	21.2	22.1	21.9	19.6	19.3	19.5	21.5	24.4	22.1	21.9	22.8	20.1	15.3	14.1	12.5	11.6	8.9	13.3	11.5	8.8	7.5	9.9
Private I/GDP	13.1	13.5	13.3	12.7	12.6	11.8	11.7	13.1	11.8	12.8	13.9	11.5	8.2	7.6	7.9	7.6	4.3	7.6	5.4	4.8	4.5	
Public I/GDP	8.1	8.6	8.6	6.9	6.7	7.7	9.8	11.3	10.3	9.1	8.9	8.6	7.1	6.5	4.6	4.0	4.6	5.7	6.1	4.0	3.0	
Primary deficit	–	–	–	–	7.3	14.4	10.2	3.6	4.6	4.5	5.6	9.4	8.8	11.7	9.0	3.1	2.4	3.7	5.3	–	–	–
Bolivia																						
Total	–	–	–	–	–	–	–	–	–	–	14.4	11.5	11.4	7.0	6.0	4.5	4.9	5.2	5.9	5.6	5.3	5.9
Private I/GDP	–	–	–	–	–	–	–	–	–	–	7.4	4.0	5.7	2.8	3.4	2.3	2.4	2.0	2.0	1.9	1.9	2.0
Public I/GDP	–	–	–	–	–	–	–	–	–	–	7.0	7.5	5.7	4.2	2.6	2.2	2.5	3.2	3.9	3.7	3.4	3.9
Primary deficit	–	–	–	–	–	–	–	–	9.4	9.7	7.9	5.6	5.4	4.6	3.0	4.9	11.0	9.4	−1.2	–	–	–
Chile																						
Total	16.4	14.5	12.2	7.9	21.2	13.9	12.8	14.5	17.8	17.8	21.0	22.7	11.3	9.8	13.6	13.7	14.6	16.9	17.0	20.3	20.2	18.8
Private I/GDP	9.5	6.5	4.5	0.5	9.2	3.2	4.8	7.6	11.4	12.6	15.6	17.5	6.5	4.9	7.3	6.8	7.0	10.3	8.2	13.7	15.6	14.4
Public I/GDP	6.9	8.0	7.7	7.4	12.0	10.7	8.0	6.9	6.4	5.2	5.4	5.2	4.8	4.9	6.3	6.9	7.6	6.6	8.8	6.6	4.6	4.4
Primary deficit	–	–	–	–	4.2	−0.5	−6.2	−2.4	−2.9	−5.8	−6.3	−0.8	3.4	1.7	2.1	−0.3	−0.2	−2.8	−6.8	–	–	–
Colombia																						
Total	20.2	19.4	18.1	18.3	21.4	17.0	17.6	18.7	18.3	18.1	19.0	20.6	20.5	19.9	19.0	19.0	17.7	17.4	19.5	18.1	15.0	16.5
Private I/GDP	14.5	13.0	12.3	11.3	16.2	11.8	12.1	9.6	11.5	12.3	11.4	12.0	11.1	11.0	10.0	9.4	9.2	8.3	11.0	9.9	7.4	8.8
Public I/GDP	5.7	6.4	5.8	7.0	5.2	5.2	5.5	9.1	6.8	5.8	7.6	8.6	9.4	8.9	9.0	9.6	8.5	9.1	8.5	8.2	7.6	7.7
Primary deficit	–	–	–	–	–	–	1.0	1.9	0.4	3.0	4.8	5.6	7.3	7.0	4.6	0.9	−2.7	−3.6	−3.4	–	–	–
Ecuador																						
Total	16.7	21.8	18.0	17.6	18.2	23.2	22.2	23.6	26.2	23.7	23.6	22.3	22.6	16.5	15.4	16.1	18.8	22.6	21.3	20.9	18.3	21.6
Private I/GDP	10.0	14.7	11.4	10.8	10.2	14.5	13.0	13.4	16.8	14.5	14.1	11.7	13.0	8.6	9.0	9.5	9.6	13.3	12.7	11.7	10.1	
Public I/GDP	6.7	7.1	6.6	6.8	8.0	8.7	9.2	10.2	9.4	9.2	9.5	10.6	9.6	7.9	6.4	6.6	9.2	9.3	8.6	9.2	8.2	
Primary deficit	–	–	–	–	–	–	2.7	7.5	4.8	−0.4	2.0	2.2	2.2	−3.6	6.2	−7.0	−0.8	7.2	2.2	–	–	–
Mexico																						
Total	19.8	17.8	18.9	19.2	19.9	21.4	21.0	19.7	21.2	23.7	21.8	26.4	23.0	17.6	17.9	19.1	19.4	18.4	19.1	18.2	18.9	19.3
Private I/GDP	13.2	13.2	12.8	11.7	12.3	12.4	12.8	11.9	12.8	13.5	13.9	14.3	12.8	11.0	11.3	12.5	12.9	12.9	14.7	14.4	14.4	15.0
Public I/GDP	6.6	4.6	6.1	7.5	7.6	9.0	8.2	7.8	8.4	10.2	10.9	12.1	10.2	6.6	6.6	6.6	6.5	5.5	4.4	3.8	4.1	4.3
Primary deficit	–	–	–	–	3.9	6.4	4.9	2.4	2.3	2.9	3.4	6.4	7.7	−4.4	−4.9	−3.9	–	–	–	–	–	–
Peru																						
Total	–	–	–	–	–	–	–	–	–	–	–	28.8	29.7	23.7	21.0	18.2	20.5	19.8	22.1	16.2	14.2	13.2
Private I/GDP	–	–	–	–	–	–	–	–	–	–	–	21.5	21.3	15.0	12.8	12.0	15.1	15.3	17.9	12.7	12.0	
Public I/GDP	–	–	–	–	–	–	–	–	–	–	–	7.3	8.5	8.7	8.1	6.2	5.4	4.4	4.2	3.5	2.3	
Primary deficit	–	–	–	–	–	–	8.2	7.5	3.1	−1.8	1.7	5.7	6.4	8.0	1.8	−2.3	0.0	−0.1	−0.2	–	–	–
Uruguay																						
Total	11.8	11.5	9.8	9.0	10.3	13.3	15.5	15.2	16.0	16.2	16.7	15.8	15.1	13.7	10.9	9.6	9.9	11.4	11.9	12.4	12.3	13.0
Private I/GDP	8.8	8.3	7.5	7.1	7.7	8.7	9.0	8.2	8.0	9.7	11.4	10.7	7.9	8.6	6.4	6.1	6.2	7.4	7.9	7.9	8.3	8.7
Public I/GDP	3.0	3.2	2.3	1.9	2.6	4.6	6.5	7.0	8.0	6.5	5.3	5.1	7.2	5.1	4.5	3.5	3.7	4.0	4.0	4.5	4.0	4.3
Primary deficit	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Venezuela																						
Total	–	–	–	–	–	–	–	–	–	–	–	–	–	–	16.0	17.3	20.4	21.2	22.8	16.9	14.2	17.9
Private I/GDP	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10.5	10.5	10.9	12.2	12.4	7.9	4.9	6.4
Public I/GDP	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5.5	6.8	9.5	9.1	10.5	9.0	9.3	11.5
Primary deficit	–	–	–	–	–	–	−6.7	0.9	2.2	−5.2	−6.5	−6.6	2.9	−3.3	−11.5	−7.7	−3.4	−3.9	−3.8	–	–	–
B. Total for Latin America *																						
Total	16.6	16.9	17.5	16.6	19.1	19.4	20.3	20.6	21.3	21.6	20.7	21.2	18.6	15.9	15.8	15.3	15.6	17.3	17.7	17.4	16.2	
Private I/GDP	11.6	11.5	11.5	10.9	12.6	12.3	12.3	12.0	13.0	13.5	12.8	12.6	11.0	9.3	9.7	9.3	9.6	11.0	11.3	10.9	9.9	
Public I/GDP	5.0	5.3	6.0	5.8	6.5	7.1	8.0	8.5	8.4	8.0	7.9	8.4	7.6	6.6	6.1	5.9	5.9	6.3	6.4	6.1	5.5	

* Argentina, Belize, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Mexico, Paraguay, Peru, Uruguay, Venezuela.

markets have also been liberalized in a number of countries. The reduction in the size of government and the move toward privatization and deregulation suggests that the resurgence of capital inflows during 1990-91 may be taking place against a backdrop of stronger fiscal policy fundamentals.

(5) Despite these positive developments, the debt burden on the public sector is larger now than it was in the earlier episode (Table 7). Thus, from 1976-77 to 1987-88 the ratio of domestic public debt to GDP increased in Argentina from 4.6 percent to 17.1 percent, in Brazil from 10 percent to 18.6 percent, in Chile from 2.1 percent to 11.7 percent, and in Mexico from 3.2 percent to 11.3 percent. This is one of the legacies of a decade of fiscal deficits. Combining these developments with those in item (1) above indicates that between the 1970s and the 1990s there was a marked increase in both the external and the internal public debts of Latin America.

(6) As part of the capital inflows are monetized through nonsterilized central bank intervention, as in e.g. Argentina, it is well to assess the inflationary potential of these flows. If monetization is met by an increase in the quantity of real money balances demanded, then there could be no inflationary pressures arising from the inflows. To partially assess this issue, Table 7 (lower panel) presents evidence on the velocity of circulation of M1 at the start of both episodes of capital inflows. For most sample countries, the level of velocity was much higher in 1988-89 than in 1976-77. Thus, some of the increased monetization could have contributed to reducing velocity toward its earlier levels, such a move would be consistent with the reduction in the rate of inflation observed in most countries and with the reactivation of the real sector.

(7) Turning to the real sector, its initial conditions during the earlier episode were more favorable than in the current one. Between 1976 and 1977, real GDP in Latin America grew at a rate of 5.4 percent per year. In contrast, in 1988-89 real GDP growth in the region was less than 1 percent per year. Table 6 provides evidence on the behavior of real investment and its public and private sector components for the various countries; see also Pfeffermann and Madarassy (1992) and Montiel (1992). At the start of the previous episode the ratio of investment to GDP was relatively high, about 21 percent for the region as a whole. Relatively high levels were observed for both the public and private sector investment components. These relatively high ratios were maintained, and even slightly increased, during the earlier inflows of 1978-81. However, all these investment ratios were markedly reduced during the debt crisis years thereby leaving weaker initial conditions for the present episode.

Are the present capital inflows being used to finance increases in investment? This can be assessed by looking at the figures in Table 6. In most cases, no major changes in investment ratios have been observed during 1991. The exceptions appear to be Chile and Mexico, where some increases have been observed. For the region as a whole, however, it is safe to conclude that thus far the present capital inflows have not financed major

Table 7. Selected Indicators

Domestic Debt Excluding Central Bank as Percentage of GDP

	1976–77	1981–82	1987–88
Argentina	4.6	6.0	17.1
Bolivia	0.0	0.0	0.0
Brazil	10.0	12.8	18.6
Chile	2.1	1.9	11.7
Colombia	3.7	3.5	6.4
Ecuador	0.1	–	–
Mexico	3.2	2.7	11.3
Peru	1.0	0.3	0.1
Uruguay	5.5	3.5	21.7
Venezuela	1.7	5.5	8.6

Source: Guidotti and Kumar (1991).

Velocity of Circulation of M1
(Velocity = Nominal GDP/M1)

Country	1976–77	1988–89
Argentina	12.0	22.4
Chile	18.8	17.0
Colombia	7.7	10.2
Ecuador	6.4	10.6
Mexico	10.0	21.6
Peru	5.9	16.4
Venezuela	4.8	8.0

Source: Calculations based on International Financial Statistics, IMF.

increases in private or public sector investments. Thus, questions can arise as to how the Latin American countries will generate the resources required for repaying the new external debts that are associated with the current capital inflows.

(8) Latin American stock markets are typically shallow, volatile, and particularly vulnerable to developments in international capital markets. While market capitalization has universally increased in the recent past for all the larger Latin American markets, 1/ it is primarily driven by soaring stock prices. To gauge if these markets have deepened during the past decade, it may be necessary to look at other indicators as well, such as, measures of volatility and the number of companies listed in these stock exchanges. As regards the number of companies listed in the largest stock exchanges in these countries, the trend appears to run in a declining direction. In 1980 there were 278 companies listed in the Buenos Aires stock exchange and 265 companies in Chile's Santiago exchange. However, by 1989 the number of companies had fallen to 178 and 213 for Argentina and Chile, respectively. The trend is similar for Venezuela and Colombia, while the number of companies in the Mexican stock exchange is about the same now as it wasin the early 1980s. Brazil provides the exception as the number of listings rose from 426 in 1980 to 592 in 1989. 2/ Overall, stock markets appear to be at least as vulnerable now as they were at the start of the earlier capital inflows episode.

Summing up, several important indicators point to weaker initial conditions in the current capital inflows episode than in the earlier one. In particular, there is now a higher burden of domestic and external public debt, a larger portion of the external debt is now subject to variable rates, reserves are now lower relative to imports, and growth and investment (as percent of GDP) are now lower than in the earlier episode. Moreover, in most of the sample countries current capital inflows have not been used so far to finance marked increases in investment. However, other indicators work in the opposite direction. Namely, there are leaner public sectors after the debt crisis (e.g., structural deficits are lower), there is a strong commitment to lower budget deficits and inflation and to reform and privatize the various economies--all of which provide some signals of future capability to deal with debt repayments. 3/ These positive developments have probably dominated the overall outlook of the region as reflected in the recent restoration of voluntary capital market financing for Latin American countries.

1/ Argentina, Brazil, Chile, Colombia, Mexico and Venezuela are the six largest equity markets in the region.

2/ A striking contrast is Korea where the number of companies listed more than doubled during the 1980's. The source for the data cited is the Emerging Stock Markets Handbook, IFC.

3/ Moreover, it could be argued that there has been a learning process throughout the debt crisis.

IV. The External Factors

Our earlier work maintained that some of the renewal of capital inflows to Latin America in the 1990s was due to external factors, and could be considered an external shock common to the region. A comparison with the 1970s suggests that similar considerations apply there as well. The main external factors at work in both episodes are:

(1) There was a decline in nominal and real interest rates in the United States. In 1975-77 U.S. nominal interest rates reached in 1975-77 a level that was 30 percent lower than that of 1972-74, and in 1991 they were 50 percent below 1989 levels. In both episodes, ex post real interest rates were relatively low, and even negative between 1974 and 1980), (see Table 8). By reducing the external debt service on floating rate debts, the recent decline in U.S. interest rates has improved the solvency of Latin American debtors, as reflected in a rise in the secondary market prices for their loans.

(2) The value and purchasing power of Latin American exports markedly increased before or at the start of the capital inflow episodes. As detailed in Table 9, real export earnings expanded at healthy rates in all ten countries during 1972-81. Thus, despite heavy borrowing to finance current account deficits, ratios of debt to exports remained stable. Between 1975-76 and 1977-78, the value of Latin American exports rose by 40 percent and the purchasing power of exports increased by 13 percent. Similarly, between 1986-87 and 1988-89 the value of Latin American exports increased by 29 percent and the purchasing power of exports rose by 14 percent. These developments cannot be accounted for by fluctuations in the terms of trade alone. In fact, the terms of trade were rising at the start of the earlier episode, but were decreasing at the start of the current one; and their level during the latter was about 20 percent lower than at the start of the previous episode. Interestingly, it is precisely at times of improved export performance that Latin American countries borrow more from abroad.

(3) In both episodes of capital inflows, external conditions resulted in an increase in the availability of loanable funds in international capital markets. In this respect, the recycling of petrodollars played an important role in the 1970s. However, since industrial countries drifted into recession, the funds were loaned elsewhere, and Latin America was one of the main recipients. In this connection, Sachs (1989) indicates that during the two years of 1980 and 1981, total bank exposure to the major debtor countries nearly doubled over the level of 1979. In the two years after the rise in real interest rates (1980 and 1981) the commercial banks made about as many net loans to the major debtors as during the entire period 1973-79. Similar considerations apply to the 1990s, in that in addition to low interest rates, there were weak performances in equity and real estate markets in the United States (Table 8). Real stock prices are somewhat stronger in the current episode than during most of the 1980s,

Table 8. External Factors: Selected U.S. Indicators

	Balance of the U.S. with Latin America and other Western Hemisphere on (millions of U.S. dollars)			Interest rates 3-month treasury bill (annual avg.)	Inflation (CPI year-over-year percent change)	Ex-post real interest rate	Real GDP growth (percent)	Real capital gains/losses S&P500 index	Real capital gains/losses real estate
	Current account	Private capital account							
	(1)	(2)	(3) *	(4)	(5)	(6)	(7)	(8)	(9)
1970	1,466			6.46	5.90	0.56	-0.30	n.a.	n.a.
1971	1,314			4.35	4.30	0.05	2.80	13.2670	1.1903
1972	821			4.07	3.30	0.77	5.00	7.5447	1.9968
1973	1,566			7.04	6.20	0.84	5.20	-7.3810	-12.1100
1974	-816	-5,800	1,540	7.89	11.00	-3.11	-0.50	-30.5400	0.3734
1975	3,412	-8,546	-3,489	5.84	9.10	-3.26	-1.30	-4.7060	0.8922
1976	2,875	-11,956	-2,622	4.99	5.80	-0.81	4.90	11.9720	2.2441
1977	1,853	-6,507	-2,185	5.27	6.50	-1.23	4.70	-9.5960	6.4144
1978	4,664	-6,770	-6,046	7.22	7.70	-0.48	5.30	-9.1660	5.5603
1979	7,283	3,904	-8,322	10.04	11.30	-1.26	2.50	-3.4980	7.1230
1980	14,451	-23,701	-14,474	11.51	13.50	-1.99	-0.20	1.4969	-7.2540
1981	20,306	-7,167	-14,220	14.03	10.40	3.63	1.90	-2.3020	-6.5860
1982	7,615	-15,792	-5,759	10.69	6.10	4.59	-2.50	-11.9300	-2.9840
1983	-8,287	17,047	6,122	8.63	3.20	5.43	3.60	29.8220	8.4684
1984	-13,755	23,428	13,933	9.58	4.30	5.28	6.80	-4.0570	-0.5810
1985	-10,036	21,542	10,493	7.48	3.80	3.68	3.00	12.4430	8.4216
1986	-6,446	11,886	6,693	5.98	1.90	4.08	2.90	24.1080	14.5950
1987	-13,350	-4,079	10,144	5.82	3.70	2.12	3.10	17.0650	5.2819
1988	-9,385	52,886	9,464	6.67	4.00	2.67	3.90	-10.9500	3.3310
1989	-10,834	18,044	11,378	8.11	4.80	3.31	2.50	15.8620	4.4535
1990	-12,943	20,699	11,691	7.51	5.40	2.11	1.00	-1.6240	-3.5650
1991	-2,127	11,581	2,202	5.41	4.20	1.21	-0.70	4.5930	-1.8390
1972-81 avg.	5,642	-7,864	-6,201	7.79	6.46	-0.69	2.75	-4.62	-0.13
1982-91 avg.	-7,955	15,724	7,637	7.59	4.12	3.47	2.36	7.53	3.56
1978-81 avg.	11,876	-8,434	-10,766	10.70	10.73	-0.03	2.38	-3.37	-0.79
1982-89 avg.	-8,060	15,620	7,809	7,087.00	3.95	3.92	2.91	9.05	5.12
1990-91 avg.	-7,535	16,140	6,947	6.46	4.80	1.66	0.13	1.48	-2.70

* Includes statistical descrepancy.

Notes: Real equity and real estate prices are obtained by deflating the nominal indices by the CPI. The price of existing homes is the indicator used for the real estate market.

A minus sign on the capital account denotes a capital outflow from the United States to Latin America.

Table 9.
External Indicators: Real Export Earnings
(percentage change)

	Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador	Mexico	Peru	Uruguay	Venezuela
1972 to 1981 avg.	8.00	12.11	7.48	7.20	6.07	16.27	18.45	2.63	5.26	13.07
1982 to 1991 avg.	1.32	−1.42	4.36	7.50	9.26	−1.32	1.64	−3.48	5.01	−2.83
1978 to 1981 avg.	7.66	12.89	0.73	8.73	−2.42	6.23	32.45	11.35	5.91	12.83
1982 to 1989 avg.	−1.00	−2.76	7.70	9.47	9.27	−1.79	−0.02	−2.39	5.88	−5.24
1990 to 1991 avg.	10.59	3.97	−8.99	−0.39	9.22	0.58	8.30	−7.88	1.52	6.81

Volume of Exports
(percentage change)

	Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador	Mexico	Peru	Uruguay	Venezuela
1972 to 1981 avg.	6.96	6.98	11.05	5.76	4.47	8.72	12.51	1.39	5.22	−5.87
1982 to 1991 avg.	8.20	4.05	4.01	7.93	11.75	6.10	7.18	0.48	3.68	2.70
1978 to 1981 avg.	10.03	16.27	16.38	6.87	12.65	−1.12	21.63	7.60	9.24	−2.05
1982 to 1989 avg.	4.96	2.58	6.61	7.78	12.61	7.01	7.25	0.53	4.35	0.84
1990 to 1991 avg.	21.16	9.94	−6.36	8.52	8.33	2.45	6.90	0.27	1.01	10.14

while real estate is weaker. In both cases it is clear that the investment climate in the United States was relatively unattractive, and investors had incentives to seek opportunities elsewhere, for example in Latin America. This reallocation of international capital flows is evident from columns (1)-(3) in Table 8, which show a marked rise in capital outflows from the United States to Latin America during both episodes.

When these foreign factors are quantified in the form of principal components--as in Calvo, Leiderman, and Reinhart (1992)--it is found that they account for a sizable fraction (i.e., about 50 percent) of the forecast error variance of official reserves and real exchange rates of the ten countries in our sample. Thus, while the economic and political reforms that have taken place in a number of these countries have been instrumental in the re-entry of Latin America in international credit markets--and indeed there is a significant statistical residual to be accounted for--the evidence suggests that economic conditions in the United States may have played an important role in shaping the patterns of capital inflows into Latin America in both these episodes. 1/

V. Concluding Remarks

The restoration of voluntary access to international credit markets is, without a doubt, a positive development for Latin America. However, given that the previous episode of capital inflows ended in the debt crisis of the 1980s, there are well-founded concerns that the present trends are reversible. The reversible nature of the inflows would be particularly marked if a sizable share of the capital inflows are of the "hot money" variety. It is therefore necessary to assess the extent to which these economies are vulnerable to a sudden withdrawal of international capital.

There are a number of areas where Latin American countries stand on firmer footing now as opposed to the late 1970s. For example, governments have reduced their spending and structural deficits, policies are oriented toward privatization and deregulation, and inflation is being brought under control in a number of countries in the region. In addition, during the decade of the 1980s most of these countries learned to cope with adverse terms of trade shocks and have successfully maintained growth of real export earnings through an expansion in the volume of exports. There is also evidence that some of these countries were successful in further diversifying their export base. This scenario contrasts with the late 1970s when the favorable export performance was largely due to favorable terms of trade developments. As the experience of the 1980s shows, the external shock was fully reversed in an abrupt manner. It appears that much of the

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1/ This proposition is formally tested for the recent episode in Calvo, Leiderman, and Reinhart (1992). The results indicate that in nine of the ten countries considered the external factors were significant in explaining the behavior of reserves and the real exchange rate.

aggressive lending by commercial banks during 1979-81 was based on the expectation that the favorable terms of trade environment would persist.

While there are a number of important areas where these economies have become more resilient over the past decade, there are also areas where their vulnerability has increased. As the key debt ratios show, external and internal public sector indebtedness remains at levels that are sharply above those of the late 1970s. Further, the proportion of variable rate debt is now much greater. Taken together, the facts suggest that these economies are now more vulnerable to an increase in world interest rates than they were during the late 1970s. Stock markets have not deepened to any significant extent since the boom-bust of the late 1970s and early 1980s, rather, some of the evidence suggests the opposite. As a consequence, these markets are quite susceptible to speculative inflows that could be reversed in short notice. The banking system also remains vulnerable to a sudden withdrawal of deposits, particularly if their investments are anything less than fully liquid and if reserve requirements on short-term deposits are low. In sum, while the renewed optimism about the re-integration of Latin America in world capital markets is warranted, some of the stylized facts and economic indicators of these countries suggest that optimism should be toned down by caution.

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ID_Doc: WP/92/86

JOBNO 9903

SERIES WP

Docdate 10/01/1992

IMF WORKING PAPER

WP/92/86

INTERNATIONAL MONETARY FUND

Research Department

Structural and Macroeconomic Determinants of the Output Decline in Poland: 1990-91

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Authorized for distribution by Peter Wickham

October 1992

Abstract

This paper addresses two questions relating to the output decline in Poland since the initiation of market-oriented reforms at the beginning of 1990. First, to what extent is the decline in output a generalized phenomenon, rather than reflecting the short-term effects of resource reallocation in response to the new relative price structure? Second, what have been the main macroeconomic determinants of the output decline? In response to the first question, the paper finds relatively little evidence to favor a "structural change" view of the output decline. As far as the second question is concerned, the paper finds that both supply-side and demand-side factors have played a role, depending on the specific time period being considered.

JEL Classification Numbers:
E2, O5, P5

1/ An earlier version of this paper was presented at the IIASA Conference on Eastern Europe held in Vienna, March 5-7, 1992. We thank Fabrizio Coricelli, John Huizinga, Carmen Reinhart, Alan Stockman, Rachel van Elkan, and conference participants for helpful comments and discussions, and Ravina Malkani for assistance with the data.

Contents

I. Introduction

In the two-year period since 1990, the real value of output in Eastern Europe declined by about 23 percent, and output in the former Soviet Union declined by about 19 percent (Chart 1). There were, however, significant cross-country differences in the extent of the output drop, related to many factors including the extent and type of reform measures that were put in place. Clearly, however, the initiation of market-oriented reforms was not a necessary condition for output to decline, as the experience in the economies of the former USSR clearly shows; nor is it the case that the cumulative decline in output was largest for countries that reformed earlier, as is illustrated for example by the Bulgarian case. Although the structure of central planning in many Eastern European countries had already largely been dismantled by the beginning of 1990, the situation of "neither plan nor market" that emerged (in which state enterprises could function as autonomous units but did not face appropriate market incentives) was not exactly conducive to robust output growth. Output was already on a downward path even before the initiation of reforms in much of the region and it is not immediately obvious what the counterfactual to the reforms might look like, that is how much of an output decline would have taken place had the reforms been postponed.

There is no shortage of explanations of the output collapse in Eastern Europe, the extent of which took many observers (and official forecasters) by surprise. Some have argued that the magnitude of the decline has been overstated by official statistics, either because their coverage excludes all or part of the growing private sector (Berg and Sachs (1991)), or simply because, beginning from an initial situation of widespread shortages, standard price and quantity indexes generally overstate the drop in output and the increase in the price level associated with price liberalization (Osband (1992)). Such explanations do not, however, claim that the decline in output is entirely an artifact of the official statistics.

Some observers have viewed the output decline as being related to the price shock that followed economic liberalization. This "demand side" view would argue that the decline in real wages, money and credit associated with the (greater-than-expected) price increase depressed domestic absorption and thereby contributed to the decline in output. Other demand side factors might include high real interest rates and, in 1991, the change in CMEA trading arrangements and the ensuing collapse in trade among the countries of the region (although this latter factor is not of course entirely exogenous). In contrast, a "supply side" view would characterize the output decline as resulting from the increase in domestic energy prices which, because of overly tight credit ceilings imposed on state enterprises, did not allow firms to pay for their inputs, forcing them both to contract supply and to enter into arrears vis-à-vis their suppliers.

For a country that faces a new relative price structure--as was the case for Poland at the beginning of 1990--one would expect that, over a period of time, resources would move toward sectors whose relative output

prices had risen and away from the other sectors. Comparative advantage would imply that, if the country faced world market prices for its inputs and outputs, resources would flow towards those sectors where comparative costs were lowest, thereby gradually increasing the value of goods and services produced. A transitional period might, however, be required before factors were allocated to their efficient uses. During this period, the process of structural change might be associated with a decline in aggregate output, especially if, as seems likely, an expansion of activities that were profitable under the new relative price structure was delayed by the presence of significant adjustment costs and uncertainty. To the casual observer, the resulting decline in output would appear very similar to what would occur in a typical recession caused by macroeconomic factors such as fiscal and monetary austerity together with sharp increases in administered energy prices.

One of the objectives of this paper is to present some evidence on the extent to which the output collapse in Poland may be attributed to the ongoing process of structural change as opposed to more generalized demand- and/or supply-side macroeconomic factors. We do this by examining in detail sub-sectoral price and output developments within the Polish industrial sector. We focus on the industrial sector because, as is discussed in greater detail below, the output decline has been concentrated in this sector (as opposed to others such as agriculture, trade, and services) and because many of the explanations for the output collapse relate to the drop in production of enterprises in the (state) industrial sector.

In particular, we use principal components analysis to investigate what proportion of the variance of industrial output can be accounted for by a small number of common macroeconomic factors. We compare these results with those obtained for a benchmark country, taken for our purposes to be the United States. Our results suggest that the behavior of industrial output across sub-sectors has been more variable in Poland than in our benchmark country, thus tending to lend support to the structural change hypothesis. However, one must be cautious in interpreting this finding for at least three reasons. First, if structural change were really taking place, this should be reflected in employment data as well as output data, with labor moving towards sectors with relatively low comparative costs. Unfortunately, the relevant employment data do not suggest that much structural change has taken place, in the sense that the first few principal components account for a similar fraction of the variance of the employment series in Poland as in the benchmark country. Second, the findings from a multi-country study that attempted to decompose the output decline into country-specific (that is national or macroeconomic) and sector-specific factors, found that the latter played only a very minor role, again suggesting that, as yet, not much structural change has taken place in the industrial sectors of these countries. 1/ Third, if structural change is taking place, there should be some evidence that resources are moving

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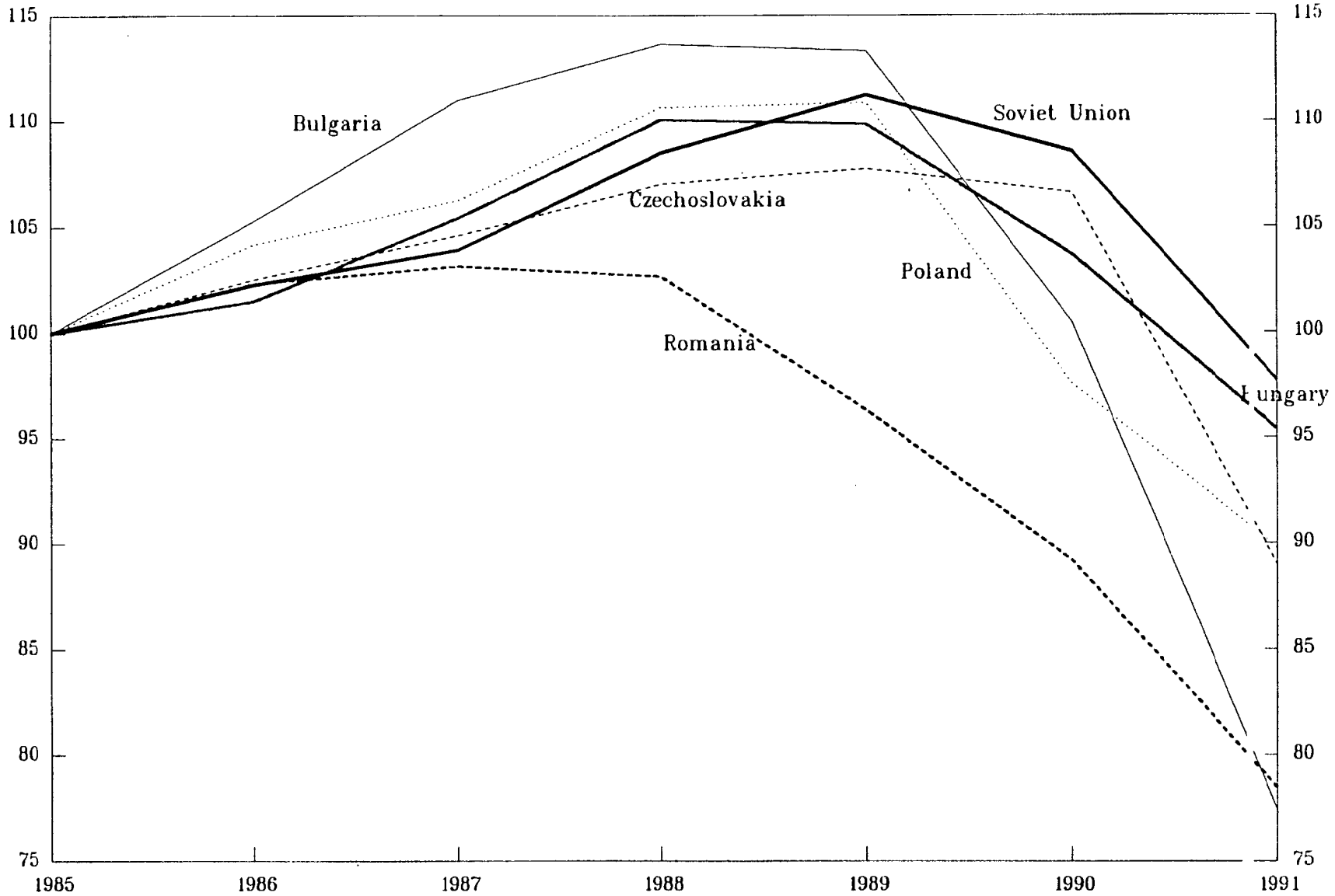
1/ See Borensztein, Demekas, and Ostry (1992).

Chart 1

Evolution of Real GDP



towards those sectors where comparative costs are lowest. Unfortunately, in regressions of output and employment changes on two different measures of domestic resource cost (our proxy for comparative advantage), little evidence is found that resource movements can be predicted on the basis of comparative advantage.

A second objective of the paper is to distinguish the roles of supply-side and demand-side factors in the output decline. As implied by a simple supply-demand model, a preponderance of supply-side shocks would result in a predominance of negative correlations between price and output changes; conversely, if demand-side factors were more important, relative prices and outputs would tend to show mostly positive correlations. The calculated correlations suggest that supply-side factors were relatively more important in the second halves of both 1990 and 1991, while demand-side factors played a more prominent role in the first halves of 1990 and 1991.

As a further test of the relative importance of demand and supply factors, we estimate a set of sectoral supply-demand models for each of seven major industrial sectors in Poland. Estimation of sectoral supply and demand functions provides a basis for decomposing the source of output fluctuations between supply and demand factors. In addition, the estimates shed some light on the relative importance of various macroeconomic factors (energy price increases, credit contraction, wage increases) in accounting for the output decline. The results suggest that the importance of various macroeconomic factors varies across sectors, but give some support to the view that both energy price increases and tight credit conditions may have influenced the behavior of industrial output in Poland during the two-year period since the initiation of reforms.

The remainder of this paper is organized as follows. In Section II, we describe the main elements of the economic reform program in Poland and also the principal developments in output, employment, wages, and prices since the initiation of reforms. The results of our empirical work are discussed in Section III. Section IV contains the main conclusions of the paper. An appendix develops a simple example of how the type of energy tax/subsidy changes implemented at the outset of the Polish program might generate a decline in aggregate output.

II. Developments in Poland in 1990-91

1. The first year of the program 1/

In January 1990, the Polish Government initiated a comprehensive program whose goal was both to stabilize a rapidly deteriorating macroeconomic situation and to begin to lay the groundwork for the

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1/ For a detailed analysis of the first year of the Polish program, see Lane (1992).

establishment of a market economy. As far as stabilization measures were concerned, the budget balance was programmed to shift from a deficit position equivalent to 7 percent of GDP in 1989 to approximate balance in 1990. This was to be achieved through strict control of government expenditure on goods and services, large reductions in subsidies, and improvements in revenue collection. Monetary policy was programmed to be relatively tight in the early part of the year, but allowance was made for an expected remonetization in later months as inflation came down. Interest rates were increased sharply and were targeted to remain positive in real terms, in contrast to the sharply negative real rates in 1989. The exchange rate was devalued and then fixed at a rate of 9,500 zlotys to the dollar, a level that was believed would hold for a period of three months or so. 1/ Another crucial element of the program was the introduction of a tax-based incomes policy, which penalized enterprises strongly for wage increases above a norm that was a specified fraction of the monthly increase in consumer prices. For the year as a whole, the incomes policy was designed to effect a reduction in real wages of about 30 percent.

As far as liberalization measures were concerned, food subsidies had already been eliminated at the end of 1989, while in January 1990 most remaining controls on the prices of goods and services were removed. 2/ As for the prices that continued to be subject to administrative oversight, the most important were those of coal and electricity which, notwithstanding very sharp increases (of between 300 and 600 percent) at the beginning of the program, remained significantly below world levels. Other measures included a significant liberalization of foreign trade, and currency convertibility for transactions in goods and nonfactor services. Finally, the government indicated its intention to develop plans for privatizing state enterprises; and initiated plans for breaking up monopolies; clarifying bankruptcy legislation; and modernizing the banking system.

The program was successful in many areas. Inflation, after a (larger-than-expected) surge in the early months of 1990, was reduced to about 3 percent per month by midyear. The incomes policy was successful in holding down the growth in wages and, in fact, wage growth in the first half of the year was lower than allowed for under the terms of the policy, with the consequent drop in real wages being greater than programmed. The budgetary situation also showed greater improvement than anticipated, aided

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1/ Relative to December 1989, the official rate of devaluation was about 81 percent, while the devaluation on the free market was about 25 percent.

2/ Prices that were not freed included those of: housing (rents); public utilities; passenger transportation; hard coal; coke; and electricity. In total, only 10 percent of all prices remained subject to administrative oversight at the beginning of 1990, compared to 50 percent in the latter part of 1989.

by a much improved financial position of enterprises and banks. 1/ The budget swung into sharp surplus in the first half of 1990 (equivalent to about 4 percent of annual GDP), compared to an anticipated position of small deficit. Again contrary to expectations, convertible-currency exports surged and imports fell sharply, with both the current account surplus and increase in reserves being much larger than programmed. 2/ Consistent with the balance of payments performance, monetary policy proved to be somewhat tighter than envisaged at the outset of the program, with both money and credit to nongovernment falling sharply in real terms. Finally, in addition to the program's unexpected financial performance, significant progress was also made on the microeconomic side, particularly as regards the elimination of shortages, privatization of small firms, and to some extent demonopolization.

While the financial performance of the program--as measured by the turnaround in the budget and the balance of payments--exceeded expectations, developments in the real economy--particularly the behavior of output--were cause for serious concern. In January 1990, sold production of socialized industry fell by about 30 percent, and remained relatively flat until the middle of the year. 3/ Although the decline in real GDP is likely to have been much smaller, owing to a relatively better performance of other sectors of the economy such as services, construction, agriculture, and private industry, developments in these sectors would have been insufficient to alter the conclusion that at the beginning of 1990, Poland entered a depression of historical proportions. The unemployment rate, which had been effectively zero at the end of 1989, rose to 3 percent by midyear.

In part as a result of these developments, fiscal, monetary, and incomes policies were all eased in the second part of the year. 4/ To some extent, developments in the second half of the year reflected these changes, with the monthly inflation rate rising from a low of 1.8 percent in August to an average 5.5 percent monthly in the last quarter, 5/ and

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1/ Enterprise profitability was boosted by a number of factors including: the very sharp drop in real wages; and large capital gains on holdings of inventories and of foreign currency deposits (a sizable portion of which were liquidated in the early months of 1990). The financial position of banks was aided by the very large interest rate spreads that emerged in the early part of 1990.

2/ Despite an exchange rate that was appreciating in real terms from January onwards.

3/ This figure is adjusted for the larger number of working days in January than December.

4/ This was in addition to the planned easing of financial and incomes policies that was already embedded in the program.

5/ The increase in inflation can be attributed not only to the easing of policies, but also to seasonal factors and to the effect of moving domestic petroleum prices to world levels (which were boosted by the Gulf crisis) in October.

output of socialized industry recovering 4 percent from its level in the first half. 1/, 2/ Despite the recovery in the second half of 1990, production of socialized industry (for the year as a whole) was down 25 percent on the level of 1989, and real GDP was down by about 12 percent. Finally, as far as the program of systemic change was concerned, especially privatization of the large state enterprises, development of competitive labor and housing markets, banking system reform, and reform of the tax system, the bulk of the work remained to be carried out in subsequent years.

2. The second year of the program

Reflecting both the easing of financial policies in the latter part of 1990 and large administered price increases at the beginning of 1991, inflation rose to nearly 13 percent in January, with the "underlying" rate estimated to have been in excess of 4 percent. To get inflation back under control, monetary policy was tightened at the beginning of 1991 by increasing the NBP's refinance rate; incomes policy was firmly targeted to reduce the level of real wages which had risen sharply in the latter part of 1990; and calls for a devaluation of the zloty were resisted despite the very sharp real appreciation that had taken place in the latter part of 1990. 3/ The discretionary elements of fiscal policy were programmed to remain tight in 1991, although a significant worsening of the budget (to a position of small deficit) was envisaged. This reflected mainly a reduction in corporate income tax revenues, itself the result of many factors, including: (i) the nonrecurrence of capital gains on inventories and enterprise foreign currency deposits, which would contribute to a reduction in state enterprise profits; and (ii) the narrowing of interest rate spreads which would reduce bank profits. On the expenditure side, significant increases in appropriations for unemployment compensation and other safety nets would also serve to increase the deficit.

On the microeconomic side, the program for 1991 embodied a commitment to reduce state ownership in the economy by about 15 percent. This was to be achieved both through a program of mass privatization involving the free

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1/ Real wages were also up on the first half, by about 12 percent.

2/ Industrial output in the second half of 1990 was down about 20 percent on the second half of 1989, while output in the first half of 1990 was down about 30 percent on the first half of 1989. Clearly, therefore, even on a seasonally-adjusted basis, there was some recovery in the second half of 1990.

3/ Incomes policy was targeted to reduce real wages from the high levels recorded in the latter part of 1990; however, in year-average terms, the policy was for a small increase in real wages, in line with a programmed increase in labor productivity. Another change between 1990 and 1991 as far as incomes policy is concerned is that excess wage tax was now to be assessed against the average wage rather than the total wage bill, in order to eliminate any anti-employment bias in the previous legislation.

issue of vouchers to the public, 1/ and by traditional methods (public offerings, private placements, and joint ventures). There was also a renewed commitment to make bankruptcy a reality for nonviable enterprises in the state sector. Systemic change was to continue on other fronts as well, including strengthening competition policy, liberalizing foreign investment legislation, financial sector reform, and further liberalization of those prices remaining under administrative control (energy, transportation, and alcohol). Based on this program, the authorities believed that output would begin to recover in the second half of the year and that, relative to 1990, GDP would rise by 3-4 percent in real terms, reflecting a continued strong expansion of an increasingly important private sector. This estimate was consistent with a substantial decline (about 60 percent in volume terms) in exports to the CMEA area, and with the shift of CMEA trade to world market pricing which represented a considerable deterioration in Poland's terms of trade (on the order of 15-20 percent).

In the event, performance in 1991 was much worse than foreseen. While industrial output was expected to be flat in the first half of the year, followed by a recovery in the second half, in fact, sold production of industry (which from 1991 includes the larger private enterprises), actually fell by over 20 percent over the first six months of 1991, and displayed virtually no recovery in the second half. 2/ For the year as a whole, industrial production is estimated to have been about 12 percent below the 1990 level (which itself was 25 percent below the 1989 level), while GDP in 1991 is believed to have declined by about 7 percent relative to 1990, reflecting the resilience of some other sectors-- notably agriculture, private trade, and construction--in the face of the continuing deep depression in industry.

The decline in activity in 1991, and particularly its extent, came as a much greater surprise than the decline in 1990, which many believe to have been a necessary accompaniment to the stabilization-cum-reform measures that were enacted in that year. While a full explanation of the decline is still lacking and is considered in more detail below, among its main proximate causes were clearly a greater-than-foreseen decline in exports to the CMEA area in the wake of disarray in the U.S.S.R., 3/ and the loss of much of the former GDR market following German unification; and a largely unanticipated shift in domestic demand toward imports. Several factors may have contributed to the latter, including: (i) the continued erosion of Poland's competitiveness, and a substantial increase in the purchasing power

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1/ Under the Polish scheme, however, vouchers would not be convertible directly into shares in the enterprises; instead, recipients would lodge them with investment funds which would use them to bid for shares through a competitive auction.

2/ In fact, on a seasonally adjusted basis, industrial output in the second half of 1991 was below that in the first half of the year.

3/ See Rodrik (1992) for an attempt at quantification of the effect of the CMEA trade shock on Polish output.

of wages measured in foreign currency terms, consequent on the maintenance of a fixed exchange rate; (ii) an increase in demand for foreign inventory goods (following the considerable destocking of 1990), particularly for new private firms; and (iii) a lagged response to the liberalization of the trade and payments system that had taken place in 1990.

Weaker-than-expected activity had other ramifications. Enterprise profitability fell sharply at the beginning of the year (by about 50 percent) and continued to fall for much of the year. Apart from the decline in sales and the reversal of transitory accounting profits referred to above, the decline in profitability during 1991 may also have been related to a significant increase in unit labor costs--to which both the decline in productivity and a sharp increase in real product wages would have contributed--and to an increase in energy costs associated with the reform of CMEA trading arrangements. 1/

The declines in output and enterprise profitability had a profound impact on the budget, where revenues were nearly 5 percent of GDP lower than originally envisaged and 11 percent of GDP lower than in 1990. 2/ Despite some very sharp expenditure cuts, the budget deficit for 1991 reached about 6 1/2 percent of GDP, or 6 percent more than projected under the program. To finance the deficit, credit to government increased sharply and, despite a much smaller than envisaged expansion in credit to nongovernment, the result was considerable overshooting of the program's inflation target--the

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1/ Of course, the increase in energy costs makes the decision of Workers' Councils to grant substantial wage increases all the more inappropriate, and offers some insight not only into the decline in enterprise profitability, but also into the decline in investment in much of this sector, even while private consumption was buoyant.

2/ The decline in profitability also had implications for the solvency of the banking system. According to audits of seven state-owned banks conducted in mid-1991, 62 percent of outstanding loans were classified as substandard or worse. By mid-1991, provisioning needs had increased to 35 percent of the gross risk portfolio; fulfilling these provisioning needs would result in the seven commercial banks being insolvent in the aggregate.

through-the-year rate was 60 percent instead of 36 percent as originally envisaged--and a marked deterioration in the external accounts. 1/

Finally, as concerns the structural reforms, there was a significant scaling back of the mass privatization program, in part because of the recognition that the viability of many firms originally included in the list had been overestimated, but also because of a genuine shift in the direction of policy, towards more active involvement of the state in restructuring the large enterprises (industrial policy), and a reduced priority accorded to transferring ownership to the private sector. With the program of ownership change being pushed back, the anticipated supply response to improved market incentives would be delayed further.

3. The anatomy of the recession

This section looks in detail at the main features of the depression that Polish industry entered at the beginning of 1990. The reasons for focusing on industry, rather than on GDP as a whole, are first that the depression was really concentrated in the industrial sector, so that if we want to explain why GDP declined so much, we should direct our attention to industry, rather than agriculture--which was not much affected by the changes initiated in 1990--or private trade, which was booming for most of the period since 1990. Second, most of the explanations that have been advanced for the decline in output--such as the credit-crunch view, the deficient-demand view, and others--seem mostly relevant for the industrial sector, rather than at the whole of aggregate supply. Finally, one of the issues that we will wish to investigate below is whether, looking at a disaggregated level, there is any significant difference in the behavior of the various subsectors of industry, as would be the case in an economy undergoing structural change, or whether all sectors were similarly affected, as might be the case if a single common shock were driving output.

Chart 2 plots monthly data on output, employment, productivity, and real product wages for the industrial sector for the two-year period beginning in December 1989, i.e., the month prior to the initiation of the Polish stabilization program.

1/ The associated reserve loss contributed to a decision to devalue the zloty by 14 percent in mid-May. A decision was also taken at that time to peg the zloty to a basket rather than to the dollar. In mid-October, the authorities abandoned the fixed exchange rate altogether (which, apart from the May devaluation, had been in place for 19 some months), and moved to a crawling peg arrangement according to which the zloty is depreciated against the basket at a preannounced rate of 1.8 percent per month, or somewhat less than the underlying inflation rate. It is noteworthy that the move to a crawling peg in October was not preceded by a maxi-devaluation of the zloty, and hence did nothing to mitigate the effect on the real exchange rate of the three-to-fourfold increase in the Polish price level that had taken place since the beginning of 1990.

a. Output

As far as output is concerned, there is a very steep fall in January 1990, stagnation until midyear, followed by a recovery in the second half of 1990. 1/ At the beginning of 1991, there is another steep fall, a continuing downward trend until midyear, followed by a largely seasonal pickup in the closing months of 1991.

Within the industrial sector, and particularly within manufacturing (which makes up the bulk of industry), there are some interesting subsectoral differences. For example, the change in output in January 1990 ranged from minus 32 percent in electro-engineering to plus six percent in the metallurgical sector, with the average for manufacturing as a whole being minus 19 percent. Similarly, after 12 months, the average decline in manufacturing was 17 percent, and the range was from minus 34 percent in the chemicals sector to plus 4 percent in the food sector. After two years, the cumulative decline in manufacturing was about 33 percent, with the largest decline (52 percent) being recorded in the electro-engineering sector (which is heavily dependent on trade with the former-CMEA area) and with the food sector actually recording a small increase relative to its end-1989 level.2/

b. Employment

Given the extent of the decline in output, the very slow adjustment in employment is perhaps remarkable. While one would generally expect employment reduction to follow output reduction with some lag, the Polish data suggest that even after a period as long as two years, industrial employment has declined by only half as much as output. Moreover, the employment reduction has been very smooth, and there is little evidence for example that, following a large negative output shock, there is an accelerated effort to adjust the level of employment. Nevertheless, there is some correlation between the magnitudes of output and employment changes, with two of the three sectors recording the largest declines in output (electro-engineering and light industry) also recording the largest reductions in employment. There is also evidence that pressures to adjust the labor force are increased in enterprises with below-average profitability. 3/ Finally, the relatively slow adjustment of employment

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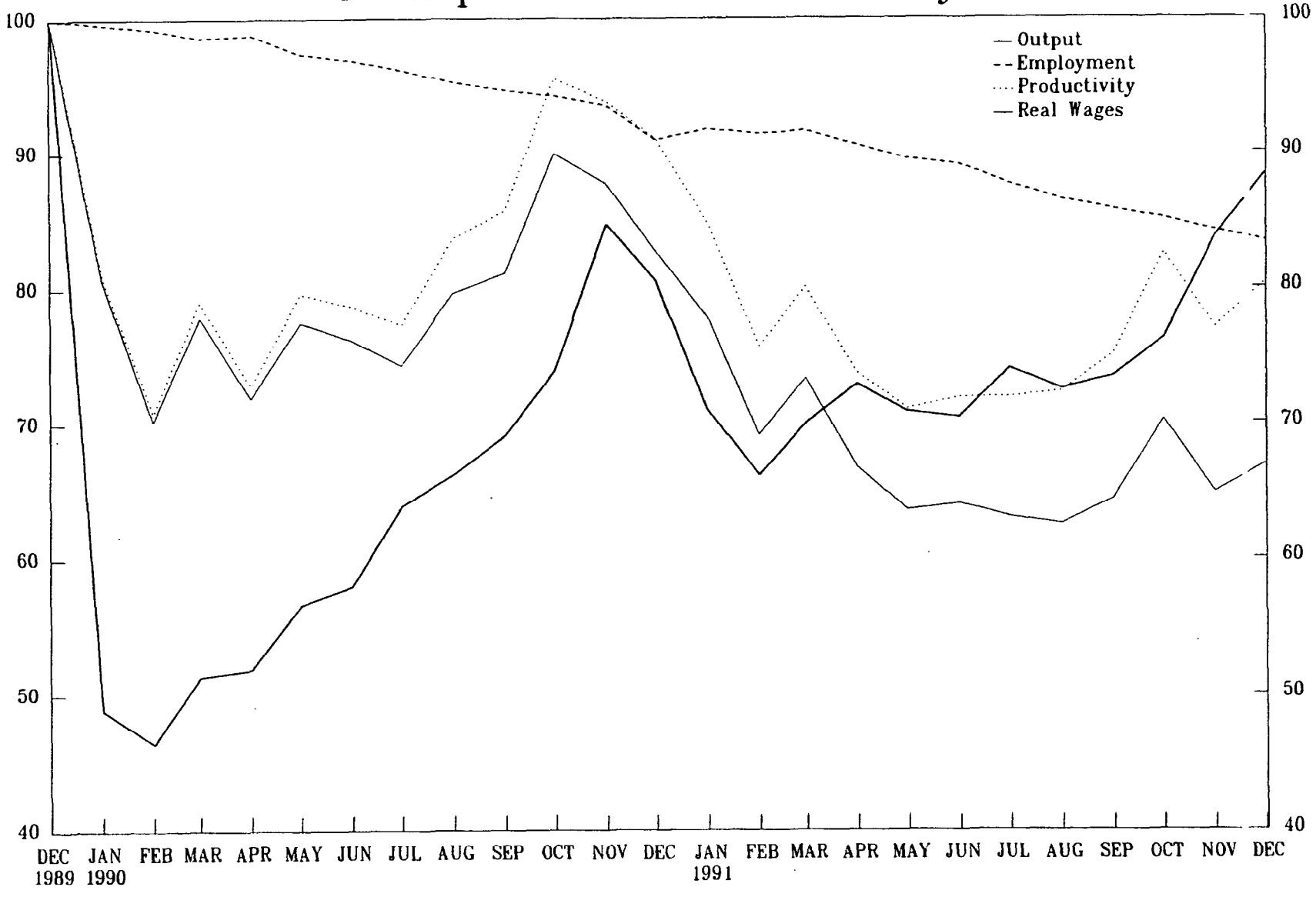
1/ As mentioned earlier, the recovery was partly policy-induced. However, the seasonality of the Polish economy also is such that the second half of the year is generally up on the first half.

2/ While these differences may indicate the onset of a reallocation of resources across sectors, they may also simply reflect different sensitivities to business-cycle factors.

3/ Theoretically, of course, the correlation could go either way since low profitability might reflect lack of adjustment on the employment front. The data, however, seem to suggest that firms with subnormal profits have undertaken relatively more labor force adjustment.

Chart 2

Developments in Total Industry



to output changes may be taken as evidence of perceptions, on the part of enterprise managers, that the output decline is temporary. With adjustment costs, if managers feel that the output fall will be short-lived, they would reduce employment by only some fraction of the decline in sales. Obviously, if the output decline is viewed as temporary, it cannot at the same time be the result of structural change, which would presumably be viewed by managers as permanent.

c. Productivity

The counterpart to the relatively slow adjustment in employment has been a pronounced decline in productivity (output per worker) throughout manufacturing. While an initial decline might have been expected, it is interesting to note that labor productivity is actually lower after two years than it was at the end of the first year of the program. In the electro-engineering, wood and paper, and light industry sectors, which recorded the sharpest declines, productivity at the end of 1991 stood at about 60 percent of its end-1989 level, while the average decline in productivity for total industry over the past two years is nearly 20 percent.

d. Real product wages

As noted previously, real wage developments for 1990 as a whole were broadly in line with program targets. In order to compensate for (i) excessive (in light of productivity developments) real wage increases in the three years leading up to the program, and (ii) the removal of the subsidy implicit in sharply negative real interest rates at the end of 1989, a downward adjustment in real wages of about one third was thought necessary to maintain the viability of many state enterprises. 1/ In 1991, however, both real wage and productivity behavior have not been consistent with the maintenance of enterprise profitability, as is attested to by the latter's continuing decline through the year. 2/ Real product wages (excluding premia from profits) in industry have increased on average by about 18 percent in 1991 relative to their average level in 1990. 3/ Within manufacturing, the change in real product wages ranges from minus 5 percent

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1/ It should be noted, however, that the decline in productivity in 1990 was considerably larger than originally envisaged so that unit labor costs in 1990 would, other things equal, have been higher than foreseen under the program. One might therefore wish to think of the actual real wage in 1990 as being an upper bound on the market clearing real wage.

2/ As discussed previously, the sharp decline in profitability at the beginning of 1991 had other causes as well.

3/ We focus on product wages here since the discussion is related to employment and enterprise profitability. The different behavior of real product wages and real consumption wages is due to the fact that, largely as a result of administered price changes, consumer prices rose much more quickly than industrial prices in 1991 (the opposite was true in 1990).

in the fuel and power sector to over 20 percent in the electro-engineering, wood and paper, and mineral sectors, and over 30 percent in the light industry and metallurgical sectors. 1/ In addition to the increase in real wages, productivity in industry has declined by an average of nearly 8 percent between 1991 and 1990, implying an increase in unit labor costs on the order of 25 percent over the same period. It would seem to follow therefore that, in addition to the shocks coming from the demand side (including the collapse in CMEA exports and the increase in import demand), and other supply-side factors (such as tight credit and energy price increases), an increase in wage costs may have played some role in accounting for the continuing decline in output in 1991. This is in sharp contrast to developments in 1990 when producers were able to increase prices much more quickly than wages, thereby offsetting the impact of cost pressures coming, inter alia, from higher input prices and the move to positive real interest rates. In 1991, both the change in CMEA trading arrangements, and the increase in labor costs, are consistent with a view of the output decline being partially related to the emergence of a significant price/cost squeeze for firms operating in the tradable goods sector. 2/

III. Empirical Findings

In this section we perform statistical analysis on monthly industrial production data disaggregated by branches, for the period since the initiation of reforms in Poland, in an attempt to shed some light on the relative importance of different exogenous factors in accounting for the decline in output. Because the initiation of market reforms is a relatively recent phenomenon, the amount of data at our disposal is relatively modest, essentially covering two years in the case of Poland. 3/ In the cross-sectional dimension, the sample covers about 20 industrial sectors.

1/ In sectors that benefited from trade under the "old" CMEA arrangements (for example, electro-engineering), a case could be made that the "equilibrium" product wage fell substantially between 1990 and 1991, owing to the negative terms of trade shocks experienced by such sectors. In this case, the increase in real product wages provides a (perhaps gross) lower bound of the magnitude by which real wage costs are currently out of line.

2/ An interesting parallel emerges here between Poland and Eastern Germany following unification. East German producer prices rose much more slowly than consumer prices (indeed they fell in some instances) in the period following unification, implying a much larger increase in product wages than in consumption wages, and the emergence of significant pressures in both labor and product markets. While Polish producer prices rose more quickly than consumer prices in 1990, alleviating pressures in labor and product markets, this trend was reversed in 1991, at which point significant parallels between the Polish and East German experience began to emerge. On the East German case, see Akerlof, Rose, and Yellen (1991).

3/ A change of methodology adopted by the Polish Statistical Office (GUS) at the beginning of 1992 also limited the sample size at our disposal.

Nonetheless, the variance of estimators will tend to be high, and the sample may be too short to capture the proper lag structure of the adjustment to the economic shocks. Subject to these caveats, however, there is still important information that can be extracted from the data, particularly if the shocks that have affected the Polish economy are relatively large, as they appear to have been.

Our empirical work deals with two questions that may contribute to the explanation of the output decline. First, we try to differentiate between structural change on the one hand (as evidenced by changes in the structure of the industrial sector over time), and macroeconomic or aggregate factors on the other, which arguably would tend to affect the various sectors in a similar fashion. Second, we try to assess the relative importance of demand-side and supply-side factors, by examining price-output correlations and by developing and estimating simple sectoral supply-demand models.

1. Structural versus macroeconomic factors

There is no doubt that the process of economic reform in the PCPEs must generate a reallocation of productive resources on a massive scale, and that such a process must already have begun as price and trade liberalization have exposed enterprises to domestic and foreign competition, and enterprise budget constraints have been "hardened" as automatic bank financing has dried up. But the true extent of structural change in the productive core of the Polish economy remains a matter of debate. Although public enterprises are no longer mere executors of the central plan in this transitional period, it is safe to say that they have not yet become fully profit-maximizing entities in the same way that their private counterparts are in a market economy. 1/

But why would structural change cause a fall in output rather than merely a shift in the composition of output? One reason is that an asymmetric response may be expected between those sectors that become unprofitable and must contract, and those that find increased opportunities for profitable expansion. On the one hand, enterprises might be forced to immediately stop loss-making production by limitations on their financial resources or by a complete disappearance of demand; on the other hand, a sizable expansion of production might require more time, particularly if it required significant increases in specialized factors of production. Moreover, public enterprises are unlikely to engage in substantial fixed investments in the highly uncertain environment of the transition phase, in

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1/ For example, it is hard to reconcile the fact that enterprises paid wages above established norms and were penalized by excess wage taxes of several hundred percent--especially in view of the "softness" of the labor market--with purely profit-maximizing behavior. In 1991, excess wage taxes amounted to Zl 39 trillion (nearly 5 percent of GDP), with actual collections equal to Zl 27 trillion.

which ownership changes are contemplated and the potential new owners may wish to significantly alter business strategy.

In order to gauge the extent to which output developments have reflected a process of structural change rather than a response to some common macroeconomic disturbances, we apply the technique of principal components to sectoral industrial production and employment data. Principal components is a technique that finds (mutually orthogonal) linear combinations of a set of variables accounting for the largest proportion of the variability (sum of the variances) of those series. The first principal component accounts for the highest fraction of the variability of the series, the second for the second highest, and so forth. 1/ Naturally, there are as many principal components as there are series.

As far as the data on industrial production are concerned, the results in Table 1 show that the first few principal components account for a smaller proportion of the variability of the series in the Polish case than in the case of the benchmark country (the United States). The results are based on a sample of industrial production data from about twenty subsectors of industry in the case of Poland. The interpretation of the figures is that the higher is the fraction of the variability of the change in industrial production that is accounted for by each principal component, the smaller is the extent of structural change that has taken place within the industrial sector. In the limit, if one hundred percent of the variability of the change in output were explained by a single factor, output of all sectors would be proportional, and this would be interpreted as indicating that a single macroeconomic variable were responsible for most of the output decline and that virtually no structural change had taken place. 2/ To have a benchmark for comparison, we use data on production of subsectors of industry in the United States over the same period (1990-91), with a roughly similar level of disaggregation. 3/

1/ See, for example, Dhrymes (1978).

2/ Note that there are some ambiguities in the interpretation of the results. For example, if there were two or more independent macroeconomic factors that explained most of the variability of output, we would tend to interpret the results as indicative of structural change instead.

3/ In the computations leading to the results reported in Table 1, we use a sample of only two years for the United States, in order to make it more directly comparable to the Polish case. Changes in the sample do have a bearing on the results, however. When principal components are computed for US industrial production for the 1970-91 period, the fraction of variability explained by the first few principal components decreases by some 5-6 percentage points. This suggests that, at high frequencies, business cycle developments may exert a stronger influence and impose more uniformity across sectors, while at lower frequencies a somewhat higher degree of structural change is present.

Table 1. Poland: Cumulative Fraction of Variance Explained by Principal Components

	Log Differences of Output	
Principal component	Poland	U.S.A.
1	0.51135	0.74052
2	0.65373	0.84525
3	0.72740	0.90481
4	0.77971	0.93052
5	0.82843	0.95339
6	0.87247	0.96773
7	0.90860	0.97680
8	0.92673	0.98337

	Log Differences of Employment	
Principal component	Poland	U.S.A.
1	0.36421	0.30797
2	0.48550	0.47682
3	0.58305	0.58091
4	0.65851	0.67464
5	0.72038	0.74665
6	0.77353	0.80331
7	0.82040	0.85184
8	0.86051	0.89047

Thus, the results of the first panel of Table 1 indicate that the most important common macroeconomic factors are less capable of accounting for the behavior of output across the different industrial subsectors in Poland than in the United States. 1/ In isolation, this result would suggest that within the industrial sector, more structural change has taken place in Poland than takes place in the course of a (hopefully) standard business cycle in the benchmark country. Given the very large relative price changes that the Polish economy was subjected to, this result is at one level perhaps not very surprising. However, if one looks for additional supporting evidence for the structural change hypothesis, the case for structural change becomes harder to make. For example, if resources were really being shifted towards sectors with lower comparative costs, one would expect this to be reflected in the employment data. Unfortunately, as the second panel in Table 1 shows, these data do not suggest that employment across the various subsectors has been particularly variable, as one would expect if structural change were really taking place. 2/ Moreover, results of a multi-country study that attempted to decompose output developments into country-specific (that is, macroeconomic) and sector-specific factors found that the former was capable of explaining virtually all of the variability of output in all of the PCPEs considered (including Poland), thereby again casting some doubt on the structural change hypothesis. 3/ Finally, our attempts to correlate output changes with available measures of comparative costs do not suggest that the direction of resource shifts has been towards activities in which Poland has some comparative advantage.

This last finding is reported in Table 2, which examines the extent to which output changes can be predicted on the basis of estimates of comparative advantage. For this purpose we make use of two studies that compute domestic resource costs (DRCs) for Poland prior to price and trade liberalization. 4/ Domestic resource costs are defined as the ratio of value added at domestic prices to value added at international prices (that is, valuing products and inputs at their estimated domestic-currency equivalent to the world price). The lower the DRC, the more competitive a sector will be after price and trade liberalization because the price of its output will rise more than the cost of its inputs.

It should be noted at the outset that the estimates of DRCs are highly tentative because of the large number of judgmental assumptions necessary to value products at world prices, including problems arising from the existence of nontraded goods, substantial quality differences, and peculiar

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1/ The data cover 21 industrial sectors for Poland and 16 for the United States.

2/ Specifically, the first few principal components account for a similar proportion of the variance of the employment series in Poland and in the United States.

3/ See Borensztein, Demekas, and Ostry (1992).

4/ See de la Calle (1990) and Hughes and Hare (1992).

Table 2. Poland: Output and Employment Changes and Comparative Advantage 1/

	DRC (1)	DRC (2)
Output changes	-0.17	-0.19
	(1.50)	(0.77)
R^2	0.13	0.04
DW	2.35	1.95
Employment changes	-0.11	-0.22
	(1.43)	(0.16)
R^2	0.12	0.11
DW	2.04	1.71

1/ Cross section regressions of overall change in output and prices on a constant and: (1) Inverse of domestic resource cost as calculated by de la Calle (1990) and (2) inverse of domestic resource cost as computed by Hughes and Hare (1992) Table 2. Figures in parenthesis correspond to t-statistics (in absolute value).

exchange rate arrangements in the CMEA area. 1/ At a more fundamental level, DRCs are based on the assumption of a fixed coefficient technology and do not consider the possibility of different elasticities of substitution across sectors. As is well known, energy was generally the most underpriced input in many of the PCPEs. This implies that, according to the DRC methodology, sectors with high energy intensity will appear to be the most uncompetitive. However, it might be that these sectors employed highly energy-intensive technologies because they had the highest elasticities of substitution between energy and other inputs (labor and capital). If this were the case, the DRCs would be misleading as far as providing a ranking of comparative advantage. Notwithstanding all these caveats, the DRC estimates are the only available measures of comparative advantage, and for this reason they cannot be overlooked.

To determine the extent to which output changes are correlated with this measure of comparative advantage, we ran regressions of the cumulative output change since the beginning of the reform program on (transformed) measures of DRC. The transformation is necessary because DRCs are not a monotonic measure: They are negative for those sectors that produce negative value added at world prices; when the DRC is positive, a higher DRC indicates a less competitive sector. To overcome this non-monotonicity, we applied the transformation suggested by Hare and Hughes (1992): for positive DRCs, we use the inverse of the DRC while for negative DRCs we use the ratio of value added at international prices to the domestic price.

The results presented in Table 2 do not provide much support for the structural change hypothesis since there is little evidence on the basis of the regressions that output is moving in the direction dictated by the available estimates of comparative advantage. 2/ As explained above, however, the construction of the DRC measures is subject to numerous pitfalls and the results may partly reflect the imperfections associated with this measure of competitiveness.

2. Supply and demand shifts

The issue of whether demand shocks or supply shocks have been predominant in accounting for the output decline is an important element in our understanding of developments in the early stages of reform in Poland. While it seems obvious that both types of shock have been present, it is not clear which has exerted the largest influence. The tight financial policies pursued in order to ensure domestic stabilization and a satisfactory balance of payments position on the one hand, and the exogenous component of the drop in export demand from other former CMEA countries on the other,

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1/ It should be mentioned that, for some sectors, the coverage in the Hughes and Hare study is more disaggregated. For comparability, in those cases (3 out of 17), a simple average was used to aggregate the data.

2/ Our transformation of the DRC is such that the higher is the measure, the more competitive is the sector.

certainly had a restraining effect on aggregate demand. But the increase in a number of administered prices--notably for energy--and liquidity restrictions affecting enterprises is also likely to have had a negative impact on aggregate supply. 1/

It is important to note that the demand-shock versus supply-shock question is not entirely the same as the structural-change versus macroeconomic-recession question. Although business cycle fluctuations have traditionally been associated with aggregate demand shocks, and supply shocks have frequently been taken to indicate a reallocation of resources, this interpretation may not always be valid, particularly in the circumstances of Poland. For example, a drop in demand may be the result of increased import competition, which reflects only structural change. Or a contraction in supply may be caused by a credit squeeze on enterprises, clearly a macroeconomic shock.

a. Price-output correlations

The correlation between price and output changes is, in principle, a good summary indicator of the predominance of supply or demand shifts. In any given market, a positive correlation between price and output changes would indicate that demand shifts were relatively more important than supply shifts. Similarly, the sign of the correlation between price and output changes in a cross-section of industrial sectors would indicate whether demand or supply shifts have been predominant in the economy.

The (cross-sectional) quarterly price-output correlations suggest that demand shocks were relatively more important in the first halves of both 1990 and 1991 (when the correlations are positive), while supply shocks predominated in the second halves of these two years (Table 3). One interpretation may be that fiscal, monetary, and incomes policies were all very tight in the first half of 1990, but were eased later in that year, and, to some extent, this pattern was repeated again in 1991. An alternative interpretation, and one that receives some support from the regression results reported in the next subsection, is that although supply shocks (in the form of large administered energy price increases) were indeed prevalent at the beginning of both 1990 and 1991 (and would, other things being equal, result in a negative correlation between price and output, contrary to what is actually observed in the data), the relative inelasticity of demand for various industrial goods implies that the impact

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1/ It is far from obvious that an increase in administered energy prices would contribute to an aggregate output decline in the case of perfect markets and costless substitution among factors. However, as shown in the appendix, it is straightforward to develop an example of an economy with irreversible investment, in which such price increases can indeed lead to short-run declines in output.

Table 3. Poland: Correlation Between Quarterly Price and Output Changes

	Industrial Output Growth	Industrial Price Increase	Y-P Correlation
1990:1	-0.27137	0.80140	0.08567
1990:2	-0.01364	0.05810	0.20954
1990:3	0.04082	0.07252	-0.56320
1990:4	0.10263	0.10966	-0.29421
1991:1	-0.16723	0.16657	0.30667
1991:2	-0.12610	0.03838	0.08451
1991:3	-0.02291	0.06366	-0.08214
1991:4	0.06180	0.05220	-0.15669

of such supply shocks on the correlation between price and output will be relatively small. 1/

b. A simple supply and demand model

Price-output correlations are an imperfect indicator of the extent of supply and demand shifts. For example, as mentioned previously, the sign and magnitude of such correlations are influenced not only by the size of the shocks affecting demand and supply, but also by the price elasticities of the underlying supply and demand functions. To better assess the relative importance of supply and demand shocks, estimation of a simple structural supply-demand model for each of the industrial subsectors would seem to be advisable.

In the contemplated framework, demand in sector i is given by

$$(1) \quad \log D_t^i = \alpha_0^i + \alpha_0^i \log P_t^i + \alpha_2^i \log Y_t$$

where P^i denotes a (relative) price index for sector i and Y is a scale variable that proxies aggregate spending (on a monthly basis). 2/ Supply in sector i is given by

$$(2) \quad \log S_t^i = \beta_0^i + \beta_1^i \log P_t^i + \beta_2^i \log w_t^i + \beta_3^i \log P_t^E + \beta_4^i \log C_{t-1}$$

where w^i is the real wage, P^E is an index of the price of energy input and C is the real stock of bank credit to enterprises. That is, supply is a function of the price of the product and of the cost of the relevant inputs (labor and energy). All of these prices and the stock of credit are deflated by the overall industrial price index. We also incorporate the stock of bank credits to enterprises in real terms in order to proxy for the possible effect of an overall liquidity constraint that might have been relevant during this period (as argued by Calvo and Corricelli (1992)). 3/

Equations (1) and (2) were estimated using three stage least squares--with the price of the product treated as an endogenous variable--for seven industrial subsectors. As can be seen from Table 4, the results are encouraging, since the vast majority of the coefficients have their

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1/ Of course, for the correlation to be positive as observed, demand curve shifts would have to be relatively large in the case of a highly inelastic demand curve.

2/ We use aggregate industrial production for all sectors except food (the demand for which is likely to come from final consumers rather than firms) where total household consumption spending is used. It should be noted that, from the point of view of each of the individual subsectors, aggregate industrial production is effectively exogenous.

3/ In their model, credit may be viewed as an input, like labor and energy, into the production process.

Table 4. Poland: Demand and Supply Estimation Results 1/

	Metallurgy	Electro-Engineering	Chemical	Wood & Paper	Light Industry	Food	Mineral Industry
DEMAND							
Constant	-1.42	-3.82	-1.15	0.13	-3.49	5.94	-0.45
	(1.42)	(4.87)	(4.54)	(0.23)	(6.06)	(36.41)	(0.38)
Relative price	0.04	-0.09	-0.09	-0.42	-0.34	-0.07	-0.16
	(0.29)	(0.57)	(2.23)	(3.39)	(1.88)	(0.69)	(1.01)
Aggregate spending	1.29	1.74	1.15	0.90	1.66	0.52	0.91
	(5.83)	(9.95)	(20.48)	(7.06)	(13.37)	(7.96)	(4.07)
R-squared	0.60	0.81	0.95	0.74	0.88	0.78	0.43
Durbin-Watson	0.63	0.87	1.54	0.74	1.43	1.66	0.73
SUPPLY							
Constant	1.28	3.74	-5.74	-3.36	2.60	3.94	-28.67
	(1.08)	(2.58)	(1.13)	(0.54)	(3.85)	(12.34)	(0.16)
Relative price	1.84	4.53	9.51	7.53	4.25	1.75	24.90
	(4.00)	(2.41)	(1.91)	(1.21)	(4.45)	(3.70)	(0.19)
Real credit (-1)	0.78	1.70	4.56	4.14	1.12	0.03	9.90
	(2.50)	(1.31)	(1.85)	(1.16)	(2.30)	(0.17)	(0.18)
Coal price	-1.10	-2.37	-5.37	-3.61	-1.37	-0.51	-12.90
	(4.78)	(2.49)	(1.98)	(1.29)	(4.75)	(2.68)	(0.19)
Real wage (-1)	-0.16	-1.85	3.23	-3.02	-0.61	0.26	-3.51
	(1.10)	(1.36)	(1.71)	(1.07)	(1.04)	(1.19)	(0.18)
R-squared	0.61	0.48	0.12	0.06	0.41	0.57	0.20
Durbin-Watson	0.83	0.49	0.77	1.26	0.66	1.11	0.57

1/ Estimation is by Three Stage Least Squares; sample period is 1989:12-1991:12; numbers in parenthesis below estimated coefficients are t-statistics (in absolute value).

theoretically-predicted signs. 1/ However, the relative price variable in the demand function and the (lagged) product wage variable in the supply function do not perform very well. As far as the former is concerned, the price elasticity of demand is usually estimated to be fairly small, with most of the estimated elasticities falling between 0.1 and 0.3. There are two possible interpretations of this result. One is that the demand functions are in fact highly inelastic. The other interpretation is that the demand equation is not well identified by the set of instrumental variables used in the estimation. As far as the finding that product wages do not seem to have played a substantial role over the estimation period is concerned, this may partly reflect the fact that firms did not believe that the very low real wages at the beginning of the program would be sustained. In this case, real product wages would underestimate the effective cost of labor over the relevant time horizon of firms and, therefore, firms would have been less likely to expand output on the basis of the very low wages at the beginning of the program, particularly if employment changes carried significant costs of adjustment.

As mentioned previously, and notwithstanding these two shortcomings of the estimation, the model produces on the whole reasonable parameter estimates. As far as the supply regression is concerned, the results suggest that energy price increases were a significant determinant of output developments in five of the seven sectors, while the real credit variable turns out to be significant in three of seven cases.

Using the above estimates, it is possible to decompose the total decline in output into a fraction caused by shifts in variables that affect the supply function and a fraction caused by shifts in variables that affect the demand function. Since the fit of the regressions is not perfect, there is a remainder, which is explained by the random disturbances, and which cannot in general be allocated because the disturbances to the demand and supply equations are not independent. The output change in sector i caused by changes in the exogenous demand-side variables can be computed as

$$(3) \quad \Delta\log Q^i_{DS} = [\beta^i_1/(\beta^i_1 - \alpha^i_1)](\alpha^i_2 \Delta\log Y),$$

where the operator Δ indicates the cumulative change in the variable. Similarly, the change due to supply-side shifts is

$$(4) \quad \Delta\log Q^i_{SS} = [\alpha^i_1/(\alpha^i_1 - \beta^i_1)][\beta^i_2 \Delta\log w^i + \beta^i_3 \Delta\log P^E + \beta^i_4 \Delta\log C].$$

Both the horizontal shifts in supply and demand functions (that is, evaluated at a constant price) as well as the equilibrium change in output due to those shifts (as given in equations (3) and (4)) were computed. We used the median value of the estimated coefficients and we estimated the shifts for the first quarter of the reform program in Poland (first quarter

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1/ In roughly 40 percent of the cases, however, the standard errors are large relative to the estimated coefficients.

of 1990), for the first half of 1990, and for the full years 1990 and 1991 (relative to levels at the end of 1989 and 1990, respectively). 1/ The results indicate very large supply shifts in the first quarter of 1990, but more moderate supply shifts over the rest of the period. Because our median estimate of the demand function is essentially completely inelastic, shifts in supply generate increases in price but little decline in output, as can be seen from the column identifying the change in output due to supply-side shifts in Table 5. However, as mentioned above, the inelasticity of demand functions may not be a robust finding.

It should be noted that, since the demand and supply shifts are not independent, there is no clear way of fully decomposing their effects. This is because, for example, an exogenous change in the price of energy may have some effect on aggregate demand, and thus would show up as both a demand-side and supply-side shock. However, to the extent that the dependence between demand and supply shocks is characterized by a longer lag structure, the decomposition that we perform would still give reasonable results for short periods.

IV. Conclusions

This paper has sought to address two fundamental questions relating to the output decline in Poland in the two-year period since the initiation of market-oriented reforms at the beginning of 1990. First, to what extent was the decline in output simply a reflection of the short-run response to the new relative price structure which called for a reallocation of resources across sectors? Second, to the extent that macroeconomic forces played a role, were demand-side shocks or supply-side disturbances relatively more important?

After characterizing the salient features of output developments in Poland as well as the main elements of the economic program undertaken by the Polish Government, the paper turned to an analysis of the first question, namely the relative importance of structural versus macroeconomic factors in the output decline. We applied principal components analysis to output and employment data from Poland's industrial sector. As concerns the output data, we found that, relative to the benchmark country (the United States), the first few principal components of the output series accounted for a somewhat lower fraction of the variability of these series, thus tending to lend some support to the view that structural change had at least begun to take place within Poland's industrial sector. We were skeptical, however, about pushing this conclusion too hard, because other data, notably on employment, failed to support the structural change hypothesis. In addition, attempts to correlate the sectoral output changes with available

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1/ In interpreting the results, it should be borne in mind that Poland experienced a relative recovery in the second half of 1990.

enterprise efficiency, it also undermined the tax system, since the notional rate of corporate tax (55 percent) was rarely applied; instead most enterprise income tax took the form of contractual obligations. Moreover, to soften the impact of the increased borrowing for financing enterprise investment, loan amortization (as well as finance charges) was made tax deductible. The first generation of these contracts, signed by at least 90 percent of the enterprises, was in place by 1988.

To accompany these changes, a bankruptcy law was enacted in 1986, and became effective in 1988, but it has hardly been used against state-owned enterprises. In 1988 the authorities also enacted an Enterprise Law which seeks to transform the SOEs into fully autonomous legal entities that are responsible for their own profits and losses. Detailed regulations giving effect to the broad provisions of the law began to be implemented in 1992.

Although the initial impact of the reforms was a recovery in the output of the SOEs, price controls persisted, production quotas for sale to the state remained part of the contracts, the SOEs had access to certain amounts of cheap raw materials, credit was readily available for investment or working capital purposes, the budget provided support for loss-making enterprises, and little advantage was taken of reforms to wage and employment practices. In addition SOEs faced an uneven competitive environment, in that marginal tax rates varied substantially, costs differed according to each enterprise's access to raw materials at state fixed prices, while sales receipts depended on the proportion of output than could be sold on the free market. In short, the SOEs continued to face a soft budget constraint.

The incompleteness of the reforms jeopardized macroeconomic management, with SOEs contributing to the rapid rate of credit expansion in the late 1980s and early 1990s, mounting demands on the state budget to cover enterprise losses, low revenue buoyancy, the accumulation of large inventories of unmarketable goods (either because of excess production or low quality), and the associated growth of inter-enterprise arrears. To address these problems, the authorities announced some 20 measures during 1991, 12 of which were to improve the operations and external environment of the SOEs (Table 4), the others aimed at facilitating the operation of market forces on the SOEs. Some measures, such as reducing mandatory planning, were further steps toward a market economy, but others, such as preferential access to credit and tax concessions continued existing interventionist policies. Indeed, during the rectification program of 1988 and 1989, a large number of SOEs were given preferential access to credit and raw materials under a "mutual pledge" or "double-guarantee" system, which obliged them to deliver specified amounts of their output to the state.

Experiments were started in the early 1990s with new forms of contracting that would separate taxes from profit, end the deduction of loan amortization, and allow a lower uniform tax rate (33 percent as opposed to 55 percent). Under the new generation of contracts in 1990-91, the authorities chose to retain the existing form of contracting, although it

addition, TVEs were initially given concessional tax treatment, supplemented by access to bank credit. One notable departure from the past was the freedom granted to TVEs to sell their products at market prices. Another was the change in the wage system. Previously, wages were paid to production teams, and were then distributed to individual members of the team. The newly established TVEs shifted to direct and performance-based wage payments, greatly improving individual incentives and productivity.

The key to the TVEs' early success lay not in any change in ownership--they remain owned by the collectives-- but in the extent to which market forces were allowed to sculpt their development. First, the supervising government agency had every incentive to ensure the success of the enterprise since it was a source of revenue. Second, the TVEs faced a hard budget constraint; the townships did not have the resources to support failing enterprises, the banks would similarly be disinclined to extend credit in the absence of government financing, and unlike SOEs, TVEs have no "captive" markets for their products or inputs. Indeed, during the rectification program, bank credit to TVEs was largely suspended, and many of them closed with considerable loss of employment. Third, they were not obliged to provide social support services to the same extent as the state enterprises, and were able to employ according to need and to determine their own wage levels (which generally were higher than in the state sector).

b. State-owned enterprises (SOEs)

Until reforms were initiated, the SOEs had little autonomy. Their production, pricing, and investment decisions were subject to the planning process, they transferred all surplus funds to the state budget, and they relied on the budget for subsidies to cover losses and grants for investment. There were few incentives available to workers or management; wages were set by centrally determined scales, and managers' main responsibility was to fulfil production quotas.

Early reforms aimed to increase enterprise autonomy and accountability. After some initial experimentation, in 1983 it was decided to introduce a variant of the responsibility system that had evolved in the rural areas. Automatic profit transfers to the budget were phased out in favor of direct taxation, and from 1986 the Government reduced the extent of day-to-day intervention through the introduction of contracts for large and medium sized enterprises. 1/ Under this contract responsibility system (CRS), targets were specified for the enterprise over a three or four year period concerning its performance, its production quota to the state, and financial obligations to the Government--ordinarily taxes and dividends (Appendix Table 1, Section 4). While this may have had a positive impact on

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1/ At the same time, it introduced various forms of leasing arrangements for smaller enterprises, and, to a very limited degree, the incorporation of joint stock companies.

enterprises to negotiate high levels of inputs and low levels of output, and second, by the scope for corruption that the system offers. Such persistent distortions led the authorities to decide to phase out the two-track system, and as a first step, the prices of several industrial raw materials were unified in 1991, as the authorities took advantage of the excess supply which had led to market prices falling close to or below the state price. No time-table has yet been set for the complete abolition of the system, but in September 1992 the authorities announced the liberalization of the price of a large number of industrial inputs representing over four-fifths of all such commodities previously under control. 1/ For the remainder of goods it may be expected that the role of mandatory planning would be eroded by the continuation of two processes: increases in the prices of goods allocated under the plan, 2/ and reductions in the proportions of goods allocated in this way.

The implementation of price guidelines has generally been left to provincial governments 3/ so that the intensity of price control varies across regions of the country; for instance, some provinces had decontrolled many non-staple food prices by 1988. The authorities are also shifting away from direct price controls into "indirect" price management through the use of buffer stocks of certain basic commodities at the provincial level. First used in the case of grain, it is planned to extend the device to other foodstuffs and some raw materials in an effort to contain inflation to targeted levels. A further consequence of devolving price-setting powers to local governments--rather than the market--has been the emergence of market fragmentation, with a tendency for inter-provincial barriers to develop against the movement of goods that remain subject to mandatory planning.

5. The enterprise sector

a. Nonstate enterprises

The various forms of nonstate enterprise--township and village enterprises (TVEs), foreign funded enterprises, and private businesses--have proved to be the most dynamic sector of the economy. Restrictions affecting nonagricultural activities were progressively rolled back, allowing rapid growth of rural enterprises, absorption of surplus labor, and rising foreign exchange earnings. From the start, TVEs were allowed to retain profits and achieved significant productivity gains through reinvested earnings. In

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1/ Media releases indicated that of the 737 types of industrial inputs under control at the end of 1991, 89 would remain under state control with a further 21 set by local authorities. The relative importance of these, for instance in terms of the value of industrial output, was not announced.

2/ For instance petroleum, coal, and gas prices were adjusted by 20, 45, and 65 percent respectively in 1990 although their prices remained far below international levels.

3/ With the exception of the rectification program when many controls were recentralized.

One important cost arose from a lack of comprehensiveness in the reforms. Although procurement prices were increased substantially, the prices to urban consumers of grain and edible oil sold under ration were not adjusted and, as a result, subsidies rose sharply. Eventually, in 1991 and again in 1992, large percentage increases in the ration prices of these goods were implemented for the first time in about 25 years, bringing the urban sales price up to the procurement price, but still leaving subsidies on distribution and processing costs.

4. Prices and mandatory planning

Until 1979, since most prices were controlled by the state, with only infrequent changes, domestic prices did not reflect either relative scarcities or prices on international markets. The prices of consumer goods were kept low to protect welfare, and industrial products and raw materials were allocated by widespread mandatory planning. Price reform has consisted of adjustments to administered prices as well as partial liberalization.

The first steps of price reform involved substantial adjustments to agricultural procurement prices, and were followed by increases in the prices of many non-staple food items, although the prices of grain and edible oil sold under ration were not changed until 1991. The next major stage in the transition toward a more liberal pricing structure was the development of the two-track pricing system. First introduced in the rural areas, under this system farmers would sell their products (especially grain) up to the quota amount to the state at the state-fixed price, and could then sell above-quota amounts on the open market or to the state at negotiated prices. For several years, the system was largely confined to agriculture and a few enterprises on an experimental basis. In 1984, this two-track pricing was extended to cover a widening range of commodities, and over time, the proportion of goods subject to mandatory planning was gradually reduced. By 1988, 53 percent by value of retail sales were transacted at market prices, 1/ 28 percent took place at fixed prices, with the remainder being subject to "state-guidance" (Appendix Table 1, Section 3). Progress on price reform subsequently slowed under the rectification program.

The prices of industrial materials have also been partially liberalized, although to a lesser extent than at the retail levels, at least through 1991. The two-track system contributed to increased efficiency, by providing clearer signals for production decisions at the margin than plan prices. However, these gains are offset first, by the incentives for

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1/ Market prices are not entirely free of official intervention, there being three further groups of commodities. There is a small group of perhaps 20-30 items where producers are obliged to report their intention to increase prices. A second group consists of items where there is strong seasonal demand, and periodically price caps are imposed. Other commodities are free of any official intervention.

3. Agriculture

Until 1979, agricultural production was organized under communes which were further divided into brigades and production teams (of 20-30 households), the latter being the basic unit of production. Production decisions were passed down from higher level authorities and often did not take local conditions into account. Techniques of production were generally labor-intensive, being based on methods long-traditional among the rural population. Worker remuneration was based on the income of the commune and did not reflect individual productivity, although households were allowed small private plots on which they could produce goods for own-consumption or sale at rural trade fairs. Under this system, agricultural growth in the pre-reform era was barely sufficient to keep up with population growth.

Under the reforms initiated in 1979, private plots were enlarged, more diverse production was encouraged, and restrictions on rural markets were relaxed (Appendix Table 1, Section 2). Experiments with various forms of incentives to individuals or households eventually led to the emergence of the household responsibility system (HRS) as the dominant arrangement by 1984. Under this system, plots of collectively owned land were made available to households for a fixed period under contracts which obliged the household to supply a share of the production team's mandatory production quota, to pay agricultural taxes, and to contribute to collective services. 1/ The remaining output could be disposed by the household on the free market, or by selling to the state at negotiated prices. In the last three to four years, considerable attention was focussed on the development of agricultural wholesale markets as a means of reducing the role of state involvement in agricultural production and procurement and gradual progress is being made in developing forward and futures trading.

So successful was the initial liberalization of the agricultural sector in realizing diversification into nongrain crops, that grain production stagnated in the mid-1980s. After a short-lived move away from rigid quotas in 1985 when grain procurement by the state fell, farmers were again required to sell fixed amounts of grain to the state at fixed prices. The state's concern with maintaining grain production over the long term influenced its allocation of state investment in agriculture and led to an increase in the procurement prices offered by state agencies in the late 1980s. As a result, grain production surpassed previous levels in 1990, prompting the introduction of a market price support mechanism because the market price of grain had fallen below the state procurement price, threatening farm incomes.

1/ The initial contract period of five years was extended to 15 years for annual crops and to 50 years for tree crops in 1984. The transfer of land use rights was legalized in 1988 to encourage private farm investment. A further adaptation in recent years is discussed in Section V below.

c. Exchange system

During the early stages of reform, various arrangements were tested for sharing foreign exchange with the objective of improving incentives for exports. A retention system evolved, under which exporters surrender their actual foreign exchange, and are issued retention quotas by the State Administration for Exchange Control (SAEC) equivalent to a portion of such earnings. In the period through 1990, a complex set of regulations had developed that allocated foreign exchange differently according to industrial type and provincial location (i.e. the coastal provinces were more favored). In 1991 a significant simplification occurred under which a uniform retention rate for enterprises was set throughout the country, and standard formulae were established for the sharing of foreign exchange between the center and the localities.

Until 1980, several exchange rates were used for trade transactions between the FTCs and domestic enterprise with which they were trading. In 1981, a single exchange rate was established for the internal settlement of trade transactions which remained more depreciated than the official exchange rate. Over the succeeding three years the official exchange rate was progressively devalued, and in 1984 the rates were unified.

A dual exchange rate reemerged in 1986 with the establishment of the foreign exchange adjustment centers (FEACs) at which approved enterprises were permitted to buy and sell retention quotas at rates that were, in principle, determined on the market. Initially, participation was limited to foreign-funded enterprises as a means of enabling them to meet a prevailing exchange control requirement that they should maintain a balanced foreign exchange position. In 1988, as experience was gained, all enterprises with foreign exchange retention quotas were granted access to the centers. Through 1988, the premium on the exchange rate at the FEACs widened (to 80 percent), reflecting an increased number of participants at the same time as aggregate demand was surging. In 1989, the premium fell sharply, and thereafter the differential between the two rates narrowed slowly (to 8 percent), but widened in mid-1992 (to about 20 percent).

With the new exchange arrangements in 1986, the official exchange rate was in effect pegged to the U.S. dollar. 1/ There were two devaluations in 1989 (21 percent) and 1990 (9 percent), and in 1991, small frequent adjustments in the official rate began to be made. The authorities have indicated that the ultimate goal is unification of the exchange rate, but no timetable has been specified, nor is it clear at what level a unified rate would be set.

1/ Formally the exchange rate has been classified by the IMF as a more flexible arrangement (other managed float) since 1987 (e.g. see the IMF Annual Report on Exchange Arrangements and Restrictions, (various issues)).

implementation of policies is highly decentralized. While it is clear that, in principle, China's exchange and trade system remains subject to many restrictions and distortions, the speed and degree of China's integration in the global economy would suggest that the actual application of external policies tends to be relatively liberal, albeit selectively so.

b. Trade system

Until 1978, China's foreign trade was conducted through 12 state-owned foreign trade corporations (FTCs) organized along product lines. These corporations procured and traded the quantities directed by the central plan and all profits and losses were absorbed by the state budget. In turn, production enterprises, which did not have direct access to foreign markets, were given production targets under the plan for supply to the FTCs. By this system, the tradable goods sector was insulated from the rest of the world, and the trade plan provided a means by which the balance of payments could be controlled.

Under the reforms, the FTCs were progressively given greater autonomy and steps began to be taken to make them more accountable for their operations, while administration of the system was decentralized to the provincial authorities, who were given authority to establish their own FTCs. By 1989, most local branches of national FTCs had become independent entities responsible for their financial results, bringing the number of FTCs to about 4,000 (Appendix Table 1, Section 1).

At the same time, the degree of mandatory planning was being reduced and an element of guidance planning was introduced. The mandatory plan continues to provide for specified exports and imports of key commodities, while the guidance plans assign targets to provinces and FTCs for the values of exports and imports of a range of products (in some provinces the guidance was given de facto mandatory status by the local governments). 1/ As the role of the trade plan has declined, direct control over exports and imports has continued through a licensing system for both exports and imports; external trade taxes have also played an increasing role in influencing the quantity and commodity composition of trade flows.

During 1991 and early 1992, a number of new measures were taken to liberalize trade, in part stimulated by China's efforts to make its trade conform with international practices in the context of its application to resume its membership in the GATT (Appendix Table 1, Section 1).

1/ In 1991, the mandatory plan covered about 30 percent of exports and 20 percent of imports; the guidance plan accounted for 15 percent and 20 percent respectively.

will set the orientation of policy in China for the next five years. To a large extent the Congress will do no more than endorse decisions and events that are already in progress. Already, in 1992 specific measures announced have included: the "opening up" of a number of new regions; opening new sectors to foreign participation; further trade liberalization; accelerated price reform; an overhaul of enterprise taxation; and new regulations for the state owned enterprises. In addition, many developments of an institutional, regional, or sectoral nature indicated the presence of a groundswell of reform at the microeconomic level. Further evidence of the new momentum lies in the surge in direct foreign investment--both commitments and actual inflows--that occurred in the first half of 1992.

The remainder of this section reviews in more detail the key reforms undertaken since 1978, which are summarized in Appendix Table 1.

2. Opening up and the external sector

a. Opening up

One of the key features of Chinese reform was the gradual opening of the economy that occurred and the concomitant change in the official attitudes to foreign investment. As noted above, the approach was initially conceived with the relatively modest goals of transferring technology to China, of boosting export earning to acquire essential imports for industry, and to minimize recourse to foreign borrowing. The investment was initially focussed in the coastal regions of China, specifically four special economic zones (SEZs, three in Guangdong and one in Fujian) that were established for the purpose--to a degree modelled after export processing zones in other Asian countries--and which offered preferential tax arrangements. During 1983-84 it was decided to extend foreign investment privileges to 14 coastal cities, and to Hainan Island, which was eventually established as a separate province, and designated as an SEZ in 1988.

These zones were also used as laboratories for market-oriented reform measures, on the presumption that they could be isolated from the rest of the economy. However, their strong performance and growing provincial autonomy in government led to pressures for greater integration with the domestic economy. A major step in this direction was the establishment in 1990 of the Pudong development zone (in Shanghai) which, while retaining an outward orientation, is a much larger undertaking with explicit linkages to the surrounding domestic economy. In 1992, the authorities announced their intention to open a number of interior cities and border regions to foreign trade and investment. Further aspects of China's regional policy are discussed in Section V.2.

The process of opening the economy necessitated the reform of policies and institutions in the external sector. China has undertaken progressive and extensive reform of its exchange and trade systems, which nonetheless remain complex, restrictive and lacking in transparency. Assessing the precise degree of liberalization is complicated in a system where the

maintaining domestic economic structures intact. This may help to explain an apparent lack of integration between reforms affecting domestic and external aspects of the economy, at least in the early stages of the reform process.

China's reform efforts may conveniently be viewed in several distinct periods. In the first, starting in late 1978, the household responsibility system--under which communally owned land was contracted to households for fixed time periods--evolved in the rural areas from the previous arrangements where individual farmers had been allowed small privately managed plots. In parallel, incentives (agricultural procurement prices) were increased substantially, and households were given greater freedom to sell their products in the free market. As the favorable results of this experimentation became evident, the authorities encouraged the growth of rural enterprises as a means of absorbing the surplus labor released from agriculture by rising farm productivity. This allowed the development of the township and village enterprises (TVEs), which were to become the most dynamic component of the industrial sector in the following years.

With the second phase of reform starting in 1983, the authorities began the more difficult task of introducing new forms of economic management into the urban and industrial sectors of the economy, with particular emphasis on the state-owned enterprises. Reforms, many of which were intended to increase enterprise autonomy, were initiated in the areas of prices, wages, and taxation. During this period, a "two-track" pricing system introduced many enterprises to market forces, while enterprises were permitted to retain their profits, instead becoming subject to tax and assuming responsibility for financing their investment. During 1986-88, these practices were crystallized into the contract responsibility system (CRS). In parallel, wide-ranging reforms took place in the financial sector, as the banking system emerged from the prevailing monolithic banking structure.

The third phase, from mid-1988 to mid-1991 represented a period of retrenchment. Plans had been laid for a new round of price reforms, but, in the light of the surge of inflation in 1987-88, these were deferred, and there was some reversal of earlier reforms as price controls were tightened or recentralized under a "rectification" program that was introduced in 1988 to restore macroeconomic stability. In late 1990 and 1991, there was some evidence of a renewed momentum to press forward with reforms: adjustments were made to administered prices; significant moves of trade liberalization were introduced; and initiatives were launched to assist the ailing state enterprises.

In late 1991, the authorities signalled the end of the rectification program, and during the succeeding months a number of initiatives and measures indicated that a fourth phase of reforms was underway. Further impetus to reform was provided in early 1992 in speeches by Mr. Deng Hsiao Ping which were widely interpreted as signalling an important policy shift on the part of the authorities. These economic reforms were the focal point of the Fourteenth Party Congress convened in October 1992, whose decisions

Table 3. Selected countries: Growth rates of GNP and GNP per capita, 1960-76

(Annual percentage change)

	GNP	GNP per capita
Korea	9.6	7.3
Singapore	9.5	7.5
Japan	9.1	8.0
Taiwan, Province of China	9.0	6.2
Hong Kong	8.7	6.4
Thailand	7.7	4.6
Malaysia	6.7	3.9
Pakistan	6.1	3.2
China	5.7	3.6
Philippines	5.4	2.4
Indonesia	5.2	3.1
India	3.5	1.2
Myanmar	2.9	0.7

Source: World Bank Atlas, 1978, and China Statistical Yearbook, 1991

growth in total factor productivity. Moreover, there were sharp swings in output growth associated primarily with the waves of centralization and decentralization. The economy faced chronic and fundamental economic difficulties, many similar to those encountered by other centrally planned economies, including a distorted pricing system, inefficient resource allocation, concentration of investment in heavy industry at the expense of basic infrastructure and the resultant bottlenecks, stagnation in agricultural production with shortages of non-grain products, isolation from foreign competition, a pervasive emphasis on quantity rather than on quality, and slow growth in consumption with sometimes acute shortages of consumer goods and housing.

China's economic growth during the 1960s and the first half of the 1970s was much lower than its East Asian neighbors (Table 3). Moreover, due to the essentially autarkic regime of the previous three decades, China had made little technological progress. Chinese leaders increasingly recognized that unless the technological disparity between China and her neighbors was effectively addressed, these output gaps would only widen.

Following the death of Chairman Mao in 1976, internal political conditions in China proved to be powerful forces leading to change. Although there was little disagreement between the two factions that had emerged within the Communist Party about the key economic problems that needed to be addressed, there was considerable division as to the nature of the economic system that should be promoted in China. The reform faction, headed by Deng Xiaoping, advocated fundamental restructuring of the economy and the explicit repudiation of the Cultural Revolution, while others advocated a more modest pace of reforms and some still favored minimal deviation from Mao's doctrines. The adoption of the 1978 reform program reflected the ascendancy gained by the reform faction at that time. 1/

III. Elements of Reform Since 1978 2/

1. An overview

Although much of China's economic reform involved changes in the domestic economic structure, a key element throughout the reform period, was the policy of "opening up" to the rest of the world. As in most areas of reform, this proceeded on a selective basis through experimentation, but it would in time affect China's exchange, trade and payments systems, and would entail a shift in attitude toward the role of foreign financing. Indeed the process of opening the economy--which was initially confined to selected coastal regions--was viewed by many policy-makers as a means of acquiring the technology that would enable China to modernize its economy while

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1/ The basic guidelines for the direction of reforms were laid out during the Third Plenum of the Eleventh Party Central Committee in December 1978.

2/ This section draws heavily on and updates Blejer et al(1991).

Table 2. Selected Countries: Debt and debt service indicators, 1980-1990

	1980	1985	1986	1987	1988	1989	1990
External debt as a ratio to GNP							
China	1.5	5.7	8.5	11.6	11.3	10.7	14.4
Argentina	48.4	84.2	70.5	76.4	66.5	119.1	61.7
Brazil	31.2	49.0	43.7	42.3	34.3	25.6	22.8
Czechoslovakia	...	11.7	12.0	12.8	14.4	15.7	18.6
Hungary	44.8	70.2	74	77.9	69.5	73.7	65.6
India	11.9	19.3	21.3	22.0	21.7	24.5	25.0
Indonesia	28.0	43.8	55.9	72.1	65.8	61.1	66.4
Korea	48.7	52.5	45.5	31.0	21.1	15.6	14.4
Malaysia	28.0	71.9	87.7	81.7	64.2	53.8	48.3
Mexico	30.5	55.2	82.5	82.1	60.4	47.2	42.1
Poland	...	48.7	51.5	69.9	64	66.7	82.4
Thailand	26.0	47.8	45.4	42.4	37.0	34.4	32.6
Debt service ratios							
China	4.4	7.7	8.2	8.5	8.7	9.8	10.3
Argentina	37.3	58.9	76.2	74.3	44.5	36.2	34.1
Brazil	63.1	38.6	47.0	41.9	48.2	29.8	21.8
Czechoslovakia	...	8.6	8.0	7.9	8.8	9.6	10.4
Hungary	18.9	36.8	37.9	31.1	28.9	27.6	48.7
India	9.3	22.7	32.0	29.4	29.8	26.5	26.8
Indonesia	13.9	29.8	38.7	38.7	41.2	35.0	30.9
Korea	19.7	27.3	26.7	32.3	14.8	11.8	10.7
Malaysia	6.3	30.7	22.5	21.2	23.3	16.0	11.7
Mexico	49.5	51.5	54.2	40.1	48.0	37.9	27.8
Poland	...	15.5	12.8	14.2	10.6	9.4	4.9
Thailand	18.9	31.9	30.1	22.0	20.2	16.3	17.2

Source: World Debt Tables, 1990

Table 1. China: Selected Macroeconomic Indicators, 1952-1991

(Annual percentage change, unless otherwise specified)

	Real net material product	General retail prices	Government budget balance 1/	Exports 2/	Imports 2/	Trade balance 2/
1952	...	...	1.3	0.8	1.1	-0.3
1953	14.0	3.4	0.4	1.0	1.4	-0.4
1954	5.8	2.3	2.2	1.1	1.3	-0.2
1955	6.4	1.0	0.3	1.4	1.7	-0.3
1956	14.1	--	-0.2	1.6	1.6	0.0
1957	4.5	1.5	0.7	1.6	1.5	0.1
1958	22.0	0.2	-1.9	2.0	1.9	0.1
1959	8.2	0.9	-5.3	2.3	2.1	0.2
1960	-1.4	3.1	-6.7	1.9	2.0	-0.1
1961	-29.7	16.2	-1.1	1.5	1.5	0.0
1962	-6.5	3.8	0.9	1.5	1.2	0.3
1963	10.7	-5.9	0.3	1.6	1.3	0.3
1964	16.5	-3.7	0.0	1.9	1.5	0.4
1965	16.9	-2.7	0.5	2.2	2.0	0.2
1966	17.0	-0.3	1.0	2.4	2.2	0.2
1967	-7.2	-0.7	-1.5	2.1	2.0	0.1
1968	-6.5	0.1	0.1	2.1	2.0	0.1
1969	19.3	-1.1	0.0	2.2	1.8	0.4
1970	23.3	-0.2	0.7	2.3	2.3	0.0
1971	7.0	-0.8	0.6	2.6	2.2	0.4
1972	2.9	-0.2	0.0	3.4	2.9	0.5
1973	8.3	0.6	0.0	5.8	5.2	0.6
1974	1.1	0.5	-0.3	6.9	7.6	-0.7
1975	8.3	0.2	-0.2	7.3	7.5	-0.2
1976	-2.7	0.3	-1.2	6.9	6.6	0.3
1977	7.8	2.0	1.1	7.6	7.2	0.4
1978	12.3	0.7	0.3	9.8	10.9	-1.1
1979	7.0	2.0	-5.1	13.7	15.7	-2.0
1980	6.4	6.0	-3.5	18.1	20.0	-1.9
1981	4.9	2.4	-0.6	22.0	22.0	0.0
1982	8.2	1.9	-0.7	22.3	19.3	3.0
1983	10.0	1.5	-0.9	22.2	21.4	0.8
1984	13.6	2.8	-0.8	26.1	27.4	-1.3
1985	13.5	8.8	0.3	27.4	42.2	-14.8
1986	7.7	6.0	-0.9	30.9	42.9	-12.0
1987	10.2	7.3	-0.9	39.4	43.2	-3.8
1988	11.1	18.6	-0.7	47.5	55.2	-7.7
1989	3.5	17.8	-0.7	52.5	59.1	-6.6
1990	4.8	2.1	-1.0	62.1	53.4	8.7
1991	7.2	2.9	...	71.9	63.8	8.1

Sources: China Statistical Yearbook, 1991

1/ Revenue minus expenditure in percent of net material product
2/ In billions of US dollars

addressed as China expands its reform agenda, while Section VII contains an assessment and conclusions.

II. Initial Conditions

The Soviet-style "command" economy model was initially chosen to guide the development strategy, following the establishment of the People's Republic of China in 1949, but in time Chinese leaders became increasingly disenchanted with some aspects of this model, particularly the high degree of centralization. The central planning apparatus was overhauled in 1957; the central government retained control over important large- and medium-scale industrial enterprises, but for other enterprises, particularly those engaged in light manufacturing, control was transferred to local authorities. Although there were periods before 1978 when central control was tightened and then loosened again, China never returned to being centrally planned to the same degree as the former Soviet Union or some Eastern European countries.

What was the economic legacy of the development strategy pursued in the two and half decades prior to 1978? Despite the depression and famine following the Great Leap Forward (1958-59) and the political upheavals of the Cultural Revolution, China had achieved growth rates averaging 6 percent per annum between 1952 and 1978 (Table 1), albeit with significant variability. Measured inflation was for the most part low, and government budget deficits and external imbalances were rarely large. Measured in terms of the production of electric power, cement and steel, China's industrial base in the late 1970s was comparable to that of Japan and the Soviet Union in the 1960s, and the record on income distribution and on social indicators compared favorably with those of middle-income countries. Reflecting an aversion to foreign borrowing during the three decades prior to 1978, China entered the reform period with virtually no external debt--the total stock of debt in 1978 is estimated to have been 12 percent of exports. 1/ This stood in contrast to other developing countries in Eastern Europe and elsewhere where relatively heavy external borrowing was used primarily to finance consumption and inefficient investment (Table 2). In short, the Chinese economy, unlike those of other former centrally planned economies did not find itself in a deep crisis of macroeconomic instability just prior to the implementation of reforms. Thus, the question arises as to the factors that provided the impetus for economic reforms and that explain their scope.

The reform process that began in 1978 had both economic and political precipitants. Although no crisis was apparent at the macroeconomic level, there was growing discontent with the system, especially in the rural areas. The recorded economic growth prior to 1978 was achieved largely by increasing the amounts of labor and capital employed, with little or no

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1/ See Cheng (1982).

widespread private ownership. This led to a search for solutions that simulated the institutions of a market economy, while retaining dominant public ownership albeit in a greatly decentralized form.

There can be little doubt that the reforms had a positive effect on China's economic performance. In contrast with other cases where output collapsed, unemployment rose, and real incomes declined, China's output growth accelerated and living standards improved, in some cases dramatically. However, the gradual approach and the resultant incompleteness of reform perpetuated some distortions and contributed to pronounced macroeconomic cycles which were marked by surges in credit growth, inflation, and external disequilibrium. The inadequacy of indirect instruments to effect macroeconomic management meant that in responding to excess demand the authorities reverted to administrative means, thereby slowing the pace at which reform could proceed.

This paper undertakes a largely retrospective review of China's reform experience since 1978. It provides an overview of the major reforms undertaken and seeks to identify some of the special conditions which may have affected China's capacity to implement reforms, and in particular those where China may differ from other countries implementing reform, including former CPEs. A further consideration is the choice of the sequence and pace of reform and the structural or institutional changes that are needed to move the economy toward a market orientation.

It should be noted that in 1992, there has been a pronounced acceleration in the pace of reform and of opening the economy to foreign investment; indeed the agenda for the Fourteenth Congress of the Communist Party of China in October 1992 (an approximately quinquennial event) sets the stage for more rapid and sustained progress in reform in the coming years. The decisions of this Congress will serve to ratify a process of more vigorous opening up and reform that was set in motion in late 1991 and was given a further boost by initiatives by Mr. Deng Hsiao Ping in early 1992. Although this paper discusses a few of the reforms announced during 1992, it cannot do justice to the new wave of reform that appears now to be under way. Thus this paper is a precursor to further work on reform and opening up in China which will reflect developments in 1992 more fully. 1/

The rest of the paper is structured as follows: Section II reviews the conditions at the start of the reform era; Section III contains an overview of the reform process and a more detailed presentation of the main measures implemented during the period; Section IV assesses the impact of the reforms on the structure of the economy and their implications for macroeconomic management and stability; Section V examines selected features of the economic environment that were of particular note during the reform era; Section VI describes a number of the elements of reform which are being

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1/ It is anticipated that this will take the form of an Occasional Paper to be issued in Spring 1993.

I. Introduction 1/

For three decades after the 1949 revolution, China pursued a strategy of socialist economic development based on self-reliance and the centrally directed allocation of resources to key sectors through largely administrative means. In the late 1970s, even though most political and economic institutions remained intact, China's policy-makers recognized the untenability of traditional methods of economic management and began to overhaul the economic system. While maintaining the overall framework of predominant public ownership, China adopted a policy of opening up trade and investment links with the rest of the world and began to reform its domestic economic structure. In the context of these reforms, China gradually relaxed mandatory central planning, decentralized economic decision making, allowed market forces to influence an increasing number of prices, permitted a larger role to the nonstate sector, and began transforming institutions and structures critical for the conduct of macroeconomic policy including fiscal policy, the financial sector, and the trade and payments systems.

In large measure, the reforms proceeded without a detailed blueprint under a style that was generally incremental and experimental. It seems almost certain that at no time did China's leadership consider adopting a "big bang" approach, given that the absence of an immediate macroeconomic crisis--as was to occur in other reforming CPEs--permitted other options. Much of the early reform consisted of piecemeal measures involving experiments in selected sectors and regions of the country. However, the widespread preference for a gradual approach, did not prevent a growing acceptance by China's policy-makers of the need for comprehensive reform.

The first steps of domestic reform consisted of experimentation in the rural areas, which was then generalized and extended into other sectors as lessons were learned. However, progress was not uniform and the authorities have been hesitant to proceed with nationwide reform until new mechanisms have been shown to succeed. This approach, combined with varying degrees of enthusiasm on the part of provincial authorities and the comparative advantages of the provinces across the country, has led to considerable regional variation in the pace of reform and may have contributed to considerable disparities in regional development.

Despite the absence of a detailed blueprint, the authorities were cognizant of the importance of the market and the strength of individual incentives to stimulate production, a perception that was reinforced as time progressed. At the same time, there was intense resistance to any form of

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1/ It should be noted that the term "country" used in this paper does not in all cases refer to a territorial entity that is a state as understood by international law and practice. The term also covers some territorial entities that are not states but for which statistical data are maintained and provided internationally on a separate and independent basis.

Summary

For three decades after the 1949 revolution, China pursued socialist economic development based on self-reliance and the centrally directed allocation of resources. In the late 1970s, China's policymakers recognized the untenability of this approach and began to overhaul the economic system.

They undertook the reforms without a detailed blueprint under a style that was generally incremental and experimental. Despite the absence of a blueprint, the authorities recognized the importance of the market and the strength of individual incentives to stimulate production. At the same time, their resistance to widespread private ownership led to a search for solutions that simulated the institutions of a market economy while retaining public ownership.

A key element of reform involved gradually opening China to the rest of the world, which policymakers viewed as a means of acquiring modern technology. In the area of domestic reform, China first experimented in the rural areas, and then, when new mechanisms were successful, extended the reforms to other sectors. Partly for this reason, progress in the various areas of reform has not been uniform.

There can be little doubt that the reforms had a positive effect on China's economic performance. In contrast with other reforming countries, where output collapsed, unemployment rose, and real incomes declined, China's output growth accelerated and living standards improved, in some cases dramatically. However, the gradual approach and the resultant incompleteness of reform perpetuated some distortions and contributed to pronounced macroeconomic cycles marked by inflation and external disequilibrium. Because indirect instruments were ineffective for macroeconomic management, the authorities reverted to administrative means to contain excess demand, thereby slowing the pace of reforms.

China's reform experience differs from that of other countries undertaking structural reform for a number of reasons, including favorable initial macroeconomic conditions; continuation of the prereform political order; a very small external debt burden; and the benefit of having withdrawn from the CMEA arrangements many years earlier. Thus, the favorable results of China's reform to date cannot necessarily be attributed wholly to the more gradual approach that it has followed.

Beginning in early 1992, the pace of reform accelerated markedly, indicating the onset of a new stage in China's reform efforts. Detailed analysis of developments during 1992, including the decisions of the Fourteenth Party Congress in October 1992 will be the subject of a further study.

Appendix Tables

Charts

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IMF WORKING PAPER

WP/92/89

INTERNATIONAL MONETARY FUND

Central Asia Department

China: An Evolving Market Economy - A Review of Reform Experience

Prepared by Michael Bell and Kalpana Kochhar 1/

Authorized for Distribution by Ichiro Otani

November 1992

Abstract

This paper examines China's reform experience since 1978, reviewing major initiatives taken and assessing their impact on economic structure and their implications for macroeconomic management and stability. It identifies some of the special conditions before and during the reform process that impinged on China's capacity to implement reforms, and, in particular, those where China may differ from other countries undertaking reform, including former CPEs. A further consideration is the choice of the sequence and pace of reform and the structural and institutional changes that are needed to reorient the economy towards the market.

JEL Classification Number:
053, 057, P20, P50

1/ The authors gratefully acknowledge comments and suggestions from Pierre-Richard Agenor, Bijan Aghevli, Steve Dunaway, Martin Fetherston, Martin Gilman, Yusuke Horiguchi, Hoe Ee Khor, Linda Koenig, Shoukang Lin, Jun Ma, Maryanne Mrakovic, P.R. Narvekar, Hubert Neiss, Ichiro Otani, Jim Prust, Markus Rodlauer, Li Ruogu, Douglas Scott, Erich Spitäller, Peter Wickham, and Chorng-Huey Wong.