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"Inflation Stabilization and Economic Transformation in  
Poland: The First Year"

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Abstract

This paper reviews the experience of 1990, the first year of Poland's program of stabilization and reform. The background is described, including previous reform efforts and the crisis of the late 1980s. Then the various elements of the program are discussed, including fiscal adjustment, wage controls, the possibility of an initial liquidity overhang, the exchange rate anchor, and structural reforms. The initial results of the program are assessed, and alternative explanations of the decline in output are considered.

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### Summary

This paper reviews developments in Poland in 1990, the first year of the stabilization and reform program. It sketches the background to the 1990 program, including the reforms of the 1980s that gave rise to a situation of "neither plan nor market," which in turn set the scene for the crisis of 1989: a widening fiscal deficit, more acute shortages, and accelerating inflation. The new government chose a "Big Bang" over a sequential approach, introducing a broad package of measures that were designed to be mutually reinforcing.

The paper describes the program, which involved monetary and fiscal stringency, the use of the exchange rate as a nominal anchor, a tax-based incomes policy, administered price increases, and various liberalization and reform measures. It also outlines the early results of the program: sharply falling inflation, a steep drop in measured output, and a remarkable strengthening of the budget and the balance of payments.

The paper examines the links between inflation, wage policy and the budget; it addresses the issue of a liquidity overhang; and it discusses the appropriate choice of exchange rate. It also describes the progress of structural reforms, including steps toward demonopolization, financial sector reform, and privatization. The paper then adduces alternative explanations of the sharp decline in measured output that occurred early in 1990. These include some potentially serious measurement problems, the possibility of a demand-side contraction; the "credit crunch" hypothesis, which turns on the effects of credit contraction on aggregate supply, the possibility that price liberalization acted to unfetter monopoly power, and other considerations related to credibility and restructuring.

## I. Introduction

In 1990, Poland embarked on a program of economic policies designed at once to stabilize an economy whose situation was rapidly deteriorating and to undertake a far-reaching reform in the direction of a market economy. The stabilization objectives of the program were highly ambitious in themselves, aiming to reduce inflation abruptly from near-hyperinflationary rates. The attempt to build a market economy has few historical parallels in its scope and rapidity. 1/ Combining such large steps in both dimensions required considerable boldness.

In undertaking this program, the Polish government enjoyed an unusually high degree of support, both from its own population and internationally. This support permitted the use of radical measures that would necessarily entail temporary domestic sacrifices, while helping the government finance the program through international borrowing and debt relief.

The program combined monetary and fiscal stringency with other measures: the exchange rate was fixed as a nominal anchor; wage increases were limited to partial indexation to inflation; prices of many producer and consumer goods were freed, and there were increases in some prices, notably the prices of energy products, that remained under administrative control; convertibility of the zloty was established for trade in goods and nonfactor services; most trade restrictions were dismantled; and steps toward demonopolization, privatization, financial system modernization, and other types of structural reform were taken.

Early results of the program were generally characterized as "mixed". Inflation was brought down from the verge of hyperinflation, but then lingered around 5 percent monthly for most of the year. Output fell dramatically, although opinions differed on how this fall should be interpreted. The program's financial performance was surprisingly good, with unexpectedly large surpluses in both the balance of payments and the budget. Progress was made with structural reforms, but not as rapidly as had been hoped.

After the first year of the program, the situation was quite fluid, making it foolhardy to provide an overall assessment of the program's success. Drawing lessons to be applied in other countries is also difficult, as the success of some aspects of the program depended on conditions prevailing in Poland in 1989, which may not be matched elsewhere. This paper has a more limited purpose: to provide an account of the program, to characterize the ways in which the program's different elements fit together, and to seek, to the extent that this is possible, an explanation of the course of events so far.

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1/ Some historical examples of attempts at radical changes in the direction of a market economy are discussed in CSFB-Oxford Analytica, 1990.

In Section II of the paper, the background will be drawn, including a brief sketch of previous reform efforts in Poland and the resulting state of the Polish economy on the eve of the program, in late 1989. The features of the Polish economy that distinguish it from other middle-income countries suffering from high inflation will also be emphasized. Section III characterizes the program and its early results. Sections IV through VII characterize various aspects of the program, including the fiscal balance, the system of wage controls, the existence and magnitude of a prior liquidity overhang, the choice of exchange rate, and structural reforms. Section VIII considers possible interpretations of the output decline that occurred. Section IX concludes the paper.

## II. The Background

### 1. Previous reform efforts

January 1990 was by no means the beginning of economic reform in Poland, and, as a result, the Poland of 1989 was by no means a textbook case of a centrally planned economy. Most of the industrial and service sector did remain in state hands through the 1980s. In one important respect, though, Poland had never had as tight a system of planning as most other Eastern European economies: agriculture, which recently employed close to 30 percent of the workforce and produced about 12 percent of GDP, remained mainly private. <sup>1/</sup> Collectivization of farming was successfully resisted by Polish farmers, although the state was involved in all ancillary activities including the provision of inputs and the purchase of output.

The 1970s in Poland were a period of modernization and capital accumulation financed by considerable foreign borrowing. This period culminated in the social unrest of the Solidarity years 1980-81, ended by the imposition of Martial Law on December 13, 1981. These political and social troubles were associated with economic disruption; over the period 1978-82, Real Net Material Product fell 24 percent, while retail prices rose 185 percent. On the external side, difficulties emerged in servicing foreign debt, which had to be rescheduled for the first time in April 1981; through rescheduling and interest capitalization, this debt accumulated over the 1980s, and convertible-currency debt reached \$40.8 billion (4.9 times convertible-currency exports) by the end of 1989.

In the face of these problems, the Polish government announced a reform program, beginning in 1982, which was intended to modify the structure of central planning. Enterprises were to be given more autonomy: in contrast to the system of central planning, where they were "ostensible enterprises" (Beksiak 1989) which merely implemented detailed instructions from the center, the reform program intended that enterprises should begin to base

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<sup>1/</sup> See World Bank/European Communities/Polish Government 1990.

their decisions on profit considerations. 1/ Managers were to be chosen by enterprise councils on which workers had a majority. The intention was that enterprises should function within a market environment; production targets were eliminated, although the central authority maintained control over enterprises through central control of materials and foreign exchange and through other devices such as "government orders" and special programs. 2/ The principle was established that an enterprise could go bankrupt. The role of banks was also to change: under central planning their task had been simply to provide credit for any activity specified in the central plan, whereas after the reform they were supposed to base their lending on the prospective borrower's credit-worthiness. Wages were to be determined by the enterprises themselves, rather than by the government, but wage increases were to be limited by a tax on excess wage increases. These measures were intended to effect serious modifications in Poland's system of central planning, in the direction of a market economy (see Balcerowicz 1989, Mujzel 1989).

A "Second Stage of Reform" was announced in 1986. The main reason for the second stage was that the first stage had not worked out as planned: there had not been the hoped-for increases in productivity, shortages were worsening, there was no improvement in the external payments situation, and annual price and wage inflation crept up out of the teens, reaching 25 percent in 1987 and 60 percent in 1988. The second reform stage had many of the same objectives as the first, with an emphasis on increasing efficiency by putting the decision-making process of state enterprises onto a market basis. The program also sought to rectify the situation of shortages through a cut in real wages, to be achieved through a "wage-price manoeuvre"--a price increase combined with a smaller change in wages--in February 1988. This manoeuvre proved unsuccessful, and triggered a rapid increase in nominal wages which continued through 1989, weakening the budget and exacerbating inflation (Nutti 1990).

The reforms of the 1980s are widely viewed as having led to a situation of "neither plan nor market"--an economy in which enterprises are subject neither to the control of the central planner nor to the discipline of the market. In this situation, although enterprises have some autonomy in their decisions, they still face what Kornai (1980) called "the soft budget constraint": their costs are underwritten by the central government as any surpluses are heavily taxed while any losses are subsidized. Another conspicuous feature of this system was the widespread shortages, not only of consumer goods but of raw materials, foreign exchange, and subsidized credit; there was "repressed inflation" as well as open inflation

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1/ A similar reform in the direction of enterprise autonomy had been attempted in the early 1970s, but with little result.

2/ Government orders were placed for a given quantity of goods, which were often not for the government's own use. Special programs were established for industries whose development was considered of particular importance. See Balcerowicz 1989.

(Nutti 1986, Kolodko 1989). In this environment, bargaining is pervasive, as those having access to scarce inputs and foreign exchange use them to obtain other benefits. As one observer wrote, "Money is not only the official zloty, but also the dollar or other foreign hard currencies and numerous scarce goods." In such a situation, where there is some enterprise autonomy but no market discipline, and where shortages are pervasive, "There are a lot of market phenomena, but no market mechanism" (Beksiak 1989).

## 2. The crisis of 1989

By the middle of 1989, both the political and economic situation in Poland had reached a state of crisis. The failure of previous reform efforts to alleviate shortages, let alone to engender economic efficiency, had become apparent. By mid-year, monthly inflation was creeping close to double digits, labor unrest was growing, the state budget incurring a succession of overruns, and the current account sharply deteriorating. As part of a social pact, a wage indexation law was passed, permitting wage increases of 80 percent of the increase in the cost of living; the wage increases permitted under this law were a floor, rather than a ceiling, and by August real wages were 45 percent above their level a year earlier. In the face of worsening food shortages, the government decided to free prices of most food products on August 1, while freezing subsidies on both food products and agricultural inputs in nominal terms; once freed, food prices more than doubled in a single month.

The economic situation, together with electoral setbacks for the Communists in March and then in June 1989, led the government to embark on the Round Table negotiations in April, and then in September to turn over power to a coalition government in which Solidarity was accorded a prominent role. The new government--the first in decades to enjoy broad popular support--then had to decide on a new set of economic policies. As the situation developed, more concrete--although still unquantified--plans were prepared for a radical economic program; the basic outlines were developed in a document prepared by the Civic Parliamentary Club OKP (Beksiak et al. 1990). In late September 1989, a similar set of proposals developed by Finance Minister Leszek Balcerowicz was presented to the worldwide gathering of finance ministers at meeting of the Interim Committee of the International Monetary Fund (IMF). Based on this series of proposals, the decision was taken to embark on a highly ambitious program of stabilization and reform, designed at once to effect a drastic reduction of inflation and to initiate a far-reaching program of structural reform. During the fall of 1989, the details of this program were elaborated in a series of discussions within the Polish government, with the IMF, and with foreign governments whose financial support was to be enlisted for the program. While these discussions continued, various action was taken to prevent a further deterioration of the situation: in October, a set of substantial increases in administered prices was undertaken, and almost all food subsidies were eliminated in order to remove distortions and reduce the drain of subsidies on the budget. A new, tougher wage law was passed in mid-October, imposing a steeply progressive tax on any wage increase that



exceeded an allowed degree of indexation to the rate of inflation; 1/ this law, unlike similar laws previously introduced, was relatively strictly enforced. 2/ Credit was tightened through a strictly enforced set of bank-specific credit ceilings. Finally, a rapid series of ten devaluations of the zloty was carried out, bringing the official exchange rate from Zl 1050 per US dollar at the beginning of September to Zl 6500 per dollar on December 27. All these measures were designed to prepare the ground and to buy time, while the program was being prepared.

### 3. Sequencing

One important issue that arose in designing a program for Poland was the sequencing of reforms (Wolf 1990, Genberg 1990, Portes 1990). The difficulty of sequencing results from the interdependence of different measures, and in particular of inflation stabilization, liberalization, and structural reforms. It is difficult to carry out market-oriented structural reforms either in an economy in which there is hyperinflation or in one in which prices are subject to extensive administrative controls; the impact of stabilization measures is much less predictable in an economy in which the institutions of a market economy have not yet been established; and, if prices are liberalized in an economy in which state enterprises face "soft budget constraints", the resulting allocation is unlikely to be efficient. This sequencing problem might, if taken seriously, be a recipe for paralysis. The interdependence of different aspects of policy, the extreme urgency of several aspects of the economic situation, and the importance of making use of the exceptionally high degree of support for the government all argued against a sequential approach. The alternative taken in the Polish program was the "Big Bang" approach, which attempted to do as much as possible, and what was seen as most urgent, at once--spinning a "seamless web" of policy measures (Lipton and Sachs 1990(a)). As in practice one cannot do everything at once, the Big Bang approach still necessarily implies a choice of sequencing: the approach could be caricatured as "doing first what can be done fastest".

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1/ Eighty percent of third-quarter inflation was added to the June wage in October; in November, allowed indexation was 80 percent of October inflation; and in December, wages were indexed by 80 percent of November inflation plus forecast December inflation.

2/ The law was monitored and enforced through the Ministry of Finance; each enterprise had to submit a form providing the relevant information on its wage bill and the base on which the allowed wage bill was calculated. The large volume of other information at the Ministry's disposal (submitted in connection with profit taxes, for example) probably made it more difficult to falsify reports, especially for large state enterprises. Enforcement was presumably less effective for small or private enterprises, but these accounted for a small fraction of total employment.

#### 4. Stabilization in a socialist economy

In evaluating the program that was introduced in Poland, one must not over-emphasize what is unique about Polish experience: many countries in other regions of the world, such as Latin America, have faced many of the same problems Poland faced--hyperinflation, stagnation, external deficits, structural distortions, and debt overhang; many of the measures recommended for the Polish situation were likewise similar to those adopted, with varying degrees of success, in other countries (see e.g., Bruno et al. 1988). What was distinctive about Poland? First, market imbalances in Poland were so severe that it was felt that they had to be addressed from the start, rather than tolerated until stabilization was achieved. This is a difference of degree, but still a large one: in many other countries experiencing similar monetary problems, there is at least a functioning market economy, whereas in Poland it was felt that the distortions in the structure of relative prices were so large that reforming this structure was an immediate priority (see Blanchard et al. (eds.) 1990). This ruled out, among other things, the use of a price freeze as a heterodox measure to break the momentum of inflation (cf. Bruno et al. (eds.) 1988): a freeze would have been viewed as a retrograde step by a government seeking to establish a market economy.

Associated with these wide distortions was tremendous uncertainty about what would be a correct price structure: the changes being contemplated were so large that no administrator could hope to legislate appropriate prices. <sup>1/</sup> Compounding this problem was the existence of shortages, which implied the possibility of an overhang of cash unspent because of these shortages; wide differences of opinion on the existence and magnitude of this overhang made it difficult to estimate the size of price adjustment that would be needed to achieve equilibrium. Accordingly, the solution adopted was to free prices, while opening up the economy to foreign trade; it was hoped that this would permit Poland to adopt the structure of world prices (Portes 1991), and move rapidly away from a shortage economy.

Another important condition prior to introducing stabilization policies in Poland concerns the behavior of state enterprises. Most analysis of how stabilization policies work is predicated on the assumption of profit-maximizing firms and utility-maximizing budget-constrained households. In a partly-reformed socialist economy, it is not clear what enterprises maximize: one could depict Polish enterprises as labor-managed firms, which maximize the utility of their representative worker; an alternative view would be that enterprise managers maximize their own utility, which depends in a more complex way on wages, profits and other outcomes. Whether one of these, or some other interpretation of enterprise behavior was appropriate might alter the likely consequences of conventional

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<sup>1/</sup> This was precisely one of the main problems underlying the failure of reforms in the 1980s.

stabilization measures; this, in turn, would alter the measures that would appropriately be chosen.

Another important feature of a socialist economy is the tax structure. In socialist economies, originally for largely ideological reasons, revenues are derived mainly from taxation of the socialized enterprises, as well as from trade taxes and seignorage (see Tanzi 1991(a)). In a centrally planned economy, taxes are largely a way of collecting any enterprise surpluses. For each tax, there are large numbers of different rates, or there may even be no explicit rate structure: turnover taxes are the difference between producer and retail prices, profits taxes essentially absorb all the retained earnings of the enterprise, and payroll taxes collect a specified amount per worker (where employment is also specified in the plan). In a modified planned economy, such as Poland in the 1980s, enterprises have some autonomy, and profits not paid in taxes may, subject to some restrictions, be paid out to the workers in bonuses or "premia;" however, exceptions to the tax laws may be negotiated. In this case, taxes assume the character of a negotiated share of profits (Lane and Dinopoulos 1991). To this extent, enterprise profitability is a crucial element in the fiscal balance, which in turn is an important constraint on either stabilization or reform. This is an important characteristic of socialist economies, whose implications for the government budget constraint will be developed in Section IV. 1/

These, then, are some important features of Poland's economy on the eve of the stabilization and reform program. In the next section, the program introduced in January 1990 and its immediate results will be characterized.

### III. The Program

#### 1. Policies

The program introduced on January 1, 1990 combined a somewhat heterodox approach to stabilization with a package of structural reforms. As in any stabilization program (see e.g., Sargent 1982), establishing control of the budget played a central role, with strict central control of expenditure on goods and services, a sharp reduction in subsidies, and an improvement in revenue collection; the intention was to move the budget from a deficit of over 7 percent of GDP to approximate balance. Relatively tight monetary policy was prescribed for the early part of the program; recognizing the role of remonetization (see e.g., Dornbusch and Simonsen 1987, Nuti 1989), some real expansion of money and credit was planned for later in the year,

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1/ In developing countries enterprises are also often the most convenient locus of taxation. However, to the extent that fixed rates of tax are applied to particular variables, this may induce firms to alter their behavior, shifting some of the tax onto other groups. In socialist economies, where enterprises' decisions on their inputs and outputs is limited to a greater extent by the central authorities, the scope for such shifting is usually more limited.

by which time it was expected inflation would have been reduced to quite low levels. The exchange rate was fixed, as a nominal anchor, at a level estimated to be consistent with external balance over a horizon of a few months; it was believed, however, that the rate could be adjusted if necessary to prevent an undue loss of reserves and its attendant monetary consequences. A strict tax-based incomes policy was introduced, in order to prevent a wage-price spiral and to effect a reduction in real wages on the order of 30 percent. At the same time, prices of many commodities--both consumer and producer goods--were freed; this was contrary to the direction of other heterodox programs, which have used a price freeze as an anchor (see e.g., Bruno et al. (ed.) 1988). There were also large corrective price increases for energy and other products remaining under administrative control. Another aim of the program was to establish positive real interest rates; the National Bank of Poland (NBP) set the refinance rate at 36 percent monthly for January 1991, giving a margin over the inflation projected for January and February, and banks were free to set deposit and lending rates.

These policies were accompanied by several liberalization and reform measures. International transactions were liberalized, as currency convertibility was introduced for transactions in goods and nonfactor services, 1/ and most formal import restrictions and export subsidies were eliminated. Plans were made to reform the legal system to make bankruptcy a reality, and otherwise to clarify property rights and improve the enforceability of contracts. Reforms of the financial system were planned, to increase the efficiency of the allocation of credit, and to permit the increased use of market-based instruments for monetary control. Plans were initiated for breaking up monopolies; an Anti-Monopoly Office was established with a mandate to promote competition in this and other ways. The authorities also announced their intention to develop plans for extensive privatization of the socialized sector.

The program was financed through a \$700 million IMF Standby, a bridge loan arranged through the BIS, and a \$1 billion Stabilization Fund provided by several countries. In addition, there was a substantial degree of debt relief, initially in the form of rescheduling but with the hope--justified, as it turned out--that this would be followed by some debt forgiveness.

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1/ The public continued to have access to a legal parallel market in foreign exchange, but the parallel exchange rate remained at the same level as the official rate for most of the year.

## 2. Early results

The program's results on the inflation front were the most dramatic. After a large corrective increase in prices, inflation had been reduced to single-digit levels by the second month of the program; 1/ however, inflation showed a disturbing persistence, remaining around 5 percent for most of the rest of the year (see Figure 1). 2/ There was great consternation at the decline in output, which was large both in relation to official forecasts and to the experience from stabilization programs in other countries. For socialized industry, sold production was down 25 percent on its level in the previous year; because other sectors of the economy (such as agriculture, construction, services and nonsocialized industry) either expanded or did not decline as severely, GDP was "only" an estimated 12 percent lower than in 1989. There are some serious reasons not to take these numbers at face value (see Section VIII below), but the production statistics were nonetheless inevitably a focus of deep concern. Unemployment emerged and swelled steadily over the year, reaching over 8 percent of the labor force excluding private agriculture by year-end; this caused some disquietude, since unemployment had previously been virtually unknown, but it may be viewed as a necessary concomitant of the restructuring of the economy.

Two unexpectedly favorable developments made it easier for the authorities to continue with the program: the surprising improvements of the budget and of the balance of payments. The budget swung from a deficit of 7 percent of GDP in 1989 to a surplus of 4 percent (as compared with plans for approximate budget balance). The balance of payments also swung into a large surplus, with a gain of \$4.4 billion of Net International Reserves, following 1989's tiny \$0.4 billion gain. These fiscal and external developments meant that Poland did not immediately need to make use of the short-term international financing with which it had been provided.

At the same time, the money stock grew to accommodate partially but not fully the higher-than-expected inflation: broad money 3/ grew by 118 percent in nominal terms as against 87 percent originally anticipated, while in real terms it shrank by 38 percent as against an anticipated 4 percent.

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1/ Month-over-month inflation in February 1990 was 24 percent, but within-month inflation was an estimated 5 percent; see Lipton and Sachs 1990(a).

2/ August inflation was less than 2 percent, but this appears to have had much to do with the seasonality of food prices--especially as the 1990 grain harvest was a historical record.

3/ Defined as zloty-denominated currency, demand deposits, and time deposits, and foreign currency deposits.

On the microeconomic side, the first achievement was the disappearance of shortages: shop windows, for once, were full of merchandise, and queues, for the most part, vanished. There were also notable successes in the areas of trade liberalization, demonopolization and small-scale privatization in retail and transport sectors, and the preparatory stages of financial sector reform.

Another development that drew the attention of many observers was the amazing surge of informal economic activity. Black markets are a standard feature of socialist economies, as goods in short supply in the official shops are available at higher prices in the "shadow economy" (Welfens and Welfens, 1991). However, after prices of many goods were freed on January 1, 1990, large street markets sprang up, offering a wide and growing variety of goods: these included imports, often brought in by automobile from neighboring countries, encouraged by the liberalization of trade restrictions, and in particular by the convertibility of the zloty for all imports; food products, such as vegetables, dairy products, baked goods and often meat and sausages, 1/ which farmers and other producers, impatient with the normal distribution channels, 2/ drove into town to sell; goods produced by socialized industries, including clothing, footwear, furniture, and books; 3/ and other merchandise, apparently produced by the private sector. Unlike the pre-Big Bang black markets, prices in the street market were not generally higher than in the official stores, and anecdotal evidence suggests a widespread tendency for prices in the street market actually to be lower. 4/

The reforms that took place, together with the visible emergence of market activity, were encouraging. In many other aspects of transformation to a market economy, however, progress was more qualified; these included establishing enterprise financial discipline, demonopolization, and developing a competitive labor market. Plans for privatization were begun,

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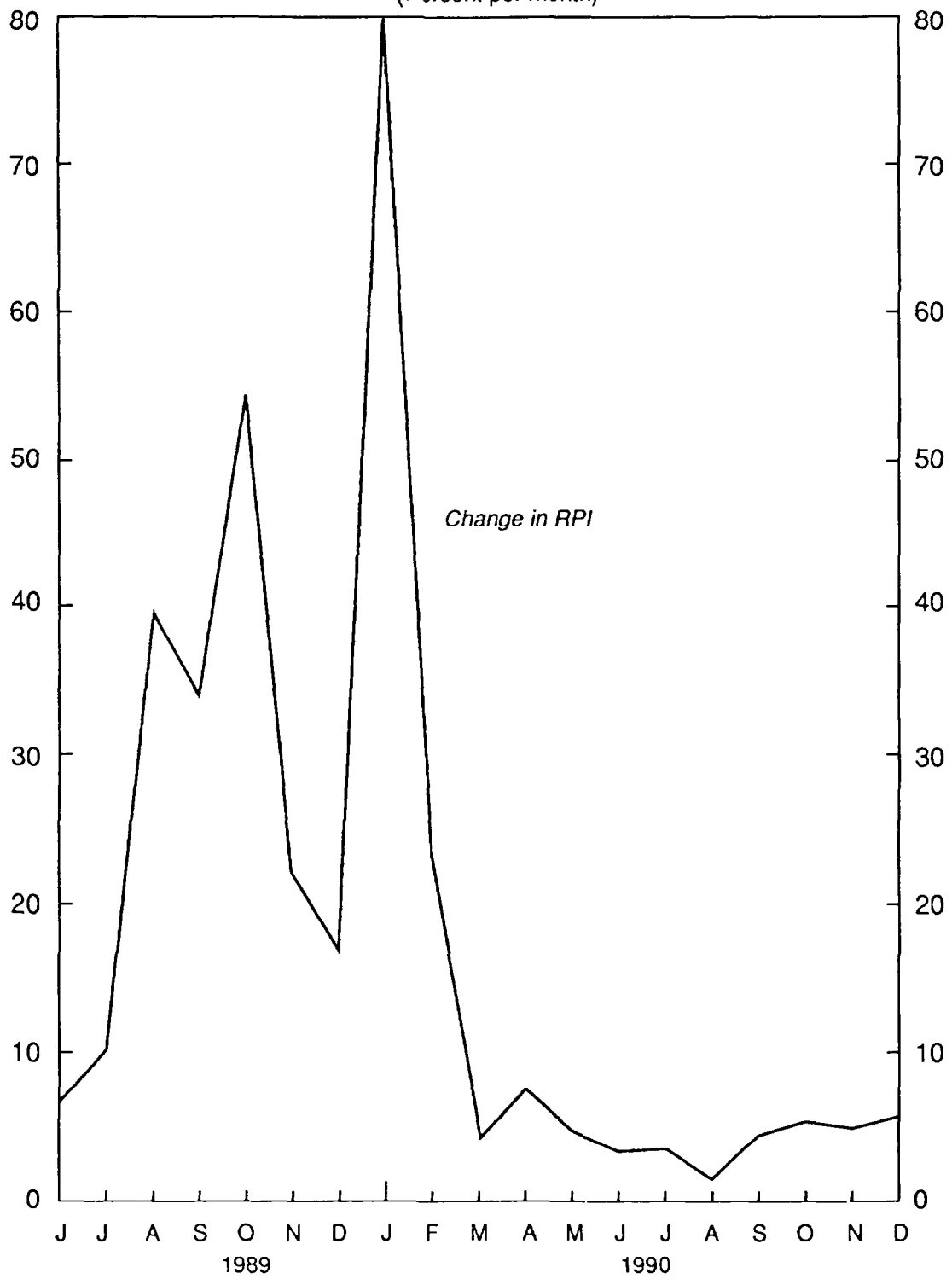
1/ Street sales of meat were prevalent in early 1990, but dwindled in the summer due to a lack of refrigeration facilities. At one point, there was an attempt to prohibit street sales of meat, but it was found that this led not to the elimination of these sales but to a reduction in the quality of meat sold.

2/ There appears to have been some breakdown in the official distribution network, particularly for food. This was associated, among other things, with the liquidation in January 1990 of the Unions of Cooperatives, which had been responsible for procurement and distribution of food.

3/ It is not clear how many of these goods are recorded in the official statistics for "sold production". Some goods produced by state enterprises and unofficially sold in the street may have been essentially stolen, and may be included in inventory statistics; these are sometimes referred to as "losses".

4/ For example, early in the year, sugar prices in the street market were below those in the official shops, leading to a shift in purchases away from the official shops; before long, the latter cut their prices.

Figure 1: Retail Price Inflation  
(Percent per month)







but the practical and political difficulties in implementing it became more apparent; and, as for the immense tasks of establishing a market for housing and of modernizing Polish agriculture, the surface had barely been scratched.

### 3. Mid-year shift

Around the middle of 1990, there was some shift in the direction of the economy, for two sets of reasons. For one thing, there was some deliberate easing of policy, as a result of the authorities' concern over the loss in output, together with labor unrest over the decline in real wages. In response to these concerns, interest rates were cut at the beginning of July; expenditures that had been held back in the early part of the year were authorized; the wage law was revised to permit larger wage increases for specific groups of workers (mainly miners and transport workers) and to lower the rate of tax levied as a penalty on wage increases in excess of the allowed amount; and an essentially unlimited amount of credit was provided at preferential interest rates for the procurement of the harvest.

In addition to these explicit changes in policy, there were some automatic changes which represented the unwinding of temporary developments in the earlier part of the year: notably, the wage control law permitted real wages to recover some of the ground they had lost in the earlier part of the year (see Section V below); the exchange rate gradually decreased in real terms, as the nominal rate remained fixed and inflation continued; and the budget, which in the early part of the year had been boosted by temporarily high enterprise profits associated with the real wage decline as well as with nominal capital gains on inventories and foreign currency deposits, and by high bank profits associated with exceptionally wide interest rate spreads, began to weaken (see Section IV).

The result of these developments was apparently a relatively small recovery of output, which (as measured by Sold Production of Socialized Industry) increased by 4 percent in the second half of the year over the first half. There was also some resurgence of inflation, from its trough of 1.8 percent monthly in August 1990 to average 5.5 percent monthly in the fourth quarter. Some of this increased inflation was likely the result of the easing of monetary and fiscal policy, and the increase in wages, although some was attributable to other circumstances. <sup>1/</sup> In any event, inflation stabilization in Poland was still incomplete at the end of 1990.

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<sup>1/</sup> These included seasonal factors (food prices in August were particularly low because of a record harvest), the effects of moving domestic petroleum prices (along with prices of Poland's oil imports from the Soviet Union) to world levels in October 1990--at which time world prices were exceptionally high due to the Gulf crisis--and to corrective increases in some administered prices.

#### IV. Monetarist Arithmetic

As in any stabilization program, a crucial element of the Polish program was a reduction of the nominal rate of monetary expansion, which necessitated the re-establishment of fiscal balance (Sargent 1982). In a country like Poland, where capital markets were little developed and external borrowing was limited by the debt overhang, the arithmetic linking fiscal imbalance with money creation was particularly hard to escape.

##### 1. Monetary institutions

Poland's banking system at the outset of the program was significantly modified from the "monobank" model of socialist banking, according to which a single state-owned bank combines the functions of both central and commercial bank. In addition to the National Bank of Poland (NBP), which conducted both central and commercial banking activities, five specialized banks had an important position in banking during the 1980s. 1/ Then, in early 1989, the NBP transferred its commercial banking activities to 9 newly-formed commercial banks, each of which essentially took over the commercial banking activities of a branch office of the NBP. These banks were all state-owned, and were required to return a minimum of 50 percent of their profits to the government, but they acted as substantially autonomous units. During 1989, banks' lending decisions were circumscribed by bank-specific sectoral credit ceilings, and interest rates were administered. In 1990, each bank was, on the whole, free to allocate credit as it chose, and to set interest rates on deposits and loans. 2/ All bank-specific credit limits were also abolished, although at some periods during the year "gentlemen's agreements" or "advice from the President of the NBP" were used to influence credit and interest rates.

##### 2. The government budget constraint

The government budget in Poland can be characterized in its broad outlines as follows. In Poland in 1989, taxes on socialist enterprises constituted 74 percent of total revenues, dividends (which also fall on state enterprises' profits) 6 percent, taxes on non-socialized enterprises 5 percent, and transfers from financial institutions (which may be interpreted as net seignorage) 10 percent. Taxes on the population amounted

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1/ Bank Handlowy carried out international payments. PKO-BP acted as a savings banks, taking savings deposits and providing housing finance. PKO-SA took foreign currency deposits of the public. The Bank for Food Economy carried out extensive agricultural lending. The Export Development Bank facilitated trade finance.

2/ In practice there were wide divergences among the rates charged or offered by different banks. For example, in October 1990, with an NBP rediscount rate of 43 percent per annum, rates on 3-month time deposits ranged between 24 and 39 percent per annum, while prime rates on three-month loans ranged between 34 and 45 percent.

to only 3 percent of total revenues. Taxes and subsidies on foreign trade were negligible, since the revenues from foreign trade were collected by the Export Development Fund, which used the proceeds for export subsidies.

Accordingly, we can consider the following stylized representation of the government budget constraint in Poland. 1/ We treat the banks, as well as other state enterprises, as distinct from the state budget, but recognize their role as the major source of government revenues.

a. Revenues

Domestic tax revenues  $T$  are raised from enterprise profits and from turnover taxes:

$$(1) \quad T = \tau \sum_{j|\Pi_j > 0} \Pi_j + \sum_{i|t_i > 0} t_i Q_i$$

$$= \tau \sum_{j|\Pi_j > 0} (P_j^S Q_j - w_j L_j - P_k^Z Z_k) + \sum_{i|t_i > 0} t_i Q_i$$

Here, the first term reflects the tax rate  $\tau$  on enterprise profits  $\Pi_j$ , which are, for each enterprise  $j$  earning positive profits, the difference between revenues and the costs of labor  $WL$  and material inputs  $P^Z Z$  (we treat interest costs separately below). The second term represents turnover tax at a rate  $t_i$  on a quantity  $Q_i$  of some goods  $i$ .

In addition, there are revenues from seignorage  $ST$ :

$$(2) \quad ST = \tau_b (\pi M - i^d M^d)$$

Total seignorage reflects the effect of inflation  $\pi$  on the overall stock of money  $M$ , minus the average deposit interest rate  $i^d$  paid on the interest-bearing portion of money,  $M^d$ . This seignorage affects budgetary revenues to the extent that a portion of bank profits  $\tau_b$  must be returned to the government.

---

1/ Gomulka (1990) provides a more detailed review of the fiscal side of the program.

b. Expenditures

On the expenditure side, an important element is domestic subsidies (S), of either enterprises or commodities. In 1989, subsidies to the population constituted 23 percent of total government expenditures, while subsidies to enterprises made up another 12 percent.

$$(3) \quad S = -\phi \sum_{j|\pi_j < 0} (P_j^S Q_j - w_j L_j - P_k^Z Z_k) - \sum_{i|t_i < 0} t_i Q_i$$

That is, loss-making enterprises are subsidized by a fraction  $\phi$  of their losses, and some commodities are subsidized.

There is also an implicit interest subsidy IS, associated with the negativity of real interest rates on loans to enterprises  $i^c - \pi$ : 1/

$$(4) \quad IS = r_b(\pi - i^c)C$$

where C is the amount of credit outstanding. This implicit subsidy reduces the banking system profits to be transferred to the state budget by a fraction  $r_b$  of the implicit subsidy.

Interest payments to service the external debt DS are

$$(5) \quad DS = r_e e E$$

where  $r_e$  is the interest rate on external debt,  $\alpha$  the proportion of principal that must be repaid,  $e$  the nominal exchange rate, and E the outstanding stock of external debt expressed in foreign currency.

There are also government expenditure on goods and services G.

The government budget constraint is

$$(6) \quad G + FD + DS + IS = DT + ST$$

---

1/ Equations (4.3) and (4.6) implicitly assume, as an approximation, that the equilibrium real interest rate is zero.

Using (1) to (6)

$$\begin{aligned}
 (7) \quad & G + r_e eE + \phi \sum_{\Pi_j < 0} (P_j^S Q_j - w_j L_j - P_k^Z Z_k) \\
 & - \tau \sum_{\Pi_j > 0} (P_j^S Q_j - w_j L_j - P_k^Z Z_k) + \sum_i t_i Q_i + \Delta(eE) \\
 & + \tau_b [\pi(M - C) - i^d M^d + i^c C]
 \end{aligned}$$

Equation (7) can be used as a framework to discuss the monetary and fiscal adjustment underlying the program.

### 3. Monetary and fiscal adjustment

#### a. Seignorage

One way of viewing the required adjustment is a switch from seignorage to other forms of taxation. At the beginning of the program, an element of the latter switch was to establish a central bank refinance rate that was expected to be positive in real terms (36 percent monthly in nominal terms at the onset of the program), thus raising interest rates on zloty deposits  $i^d$  (ranging from 10 to 46 percent monthly on zloty time and savings deposits). At the end of 1989, however, only 11 percent of money held by the non-socialized sector (households and private enterprises) consisted of interest-bearing zloty deposits, while 73 percent consisted of foreign currency deposits, and another 16 percent of zloty currency and demand deposits. More significantly, lowering the rate of inflation would entail a loss of seignorage on the outstanding stock of broad money,  $\pi M$ .

#### b. Wages and tax revenues

In order to collect the revenues needed to compensate for the loss of seignorage, tax revenues had to be higher, and/or expenditures lower. The additional tax revenues collected were partly derived from a reduction in the real wage which would boost enterprise profits  $\Pi$  sufficiently to provide the needed revenues. This was accomplished through the system of wage controls: the wage law worked to lower real wages, since it allowed only partial indexation of wages to inflation. This effect was at first magnified by the unexpectedly high inflation that occurred, which led to an unexpectedly large drop in real wages; however, real wages regained some of the lost ground later in the year (for reasons that are elaborated in Section V below), and on average for the year as a whole, real wages were 31 percent below the 1989 level, as had originally been anticipated. The

drop in real wages, of course, increased enterprise profits, and in turn increased tax revenues, strengthening the fiscal position. In addition, unexpectedly large revenues were gained through the taxation of nominal capital gains on inventory and foreign currency holdings, associated with the initial price jump and currency devaluation respectively.

Tax revenues were also affected by the introduction of new tax measures, including the abolition of many ad hoc tax breaks and the reduction of lags in tax payments; the latter lags had had the usual effect of reducing the real value of tax payments (Tanzi 1977). The elimination of these exemptions and lags raised the effective tax rate on enterprises ( $\tau$ ).

(c) Expenditures and subsidies

On the other side of the ledger, there were reduced expenditures on goods and services G, enforced by strict monthly expenditure controls. Another essential aspect of achieving fiscal balance was the large planned reductions in subsidies. Some subsidy reductions were explicit: for example, there was a reduction in subsidies on energy products associated with the administered price increases, including a quintupling of industrial coal prices and a quadrupling of industrial electricity prices, that took place on January 1, 1990. Subsidies were also removed from most consumer goods, especially food. Subsidization of loss-making enterprises was also curtailed--both because more enterprises were profitable, and also as the government showed itself less willing to underwrite losses. On the whole, subsidies to the population were reduced from 8.4 percent of Gross Domestic Product (GDP) in 1989 to 3.9 percent in 1990; over the same period, subsidies to enterprises were reduced from 4.5 to 3.4 percent of GDP.

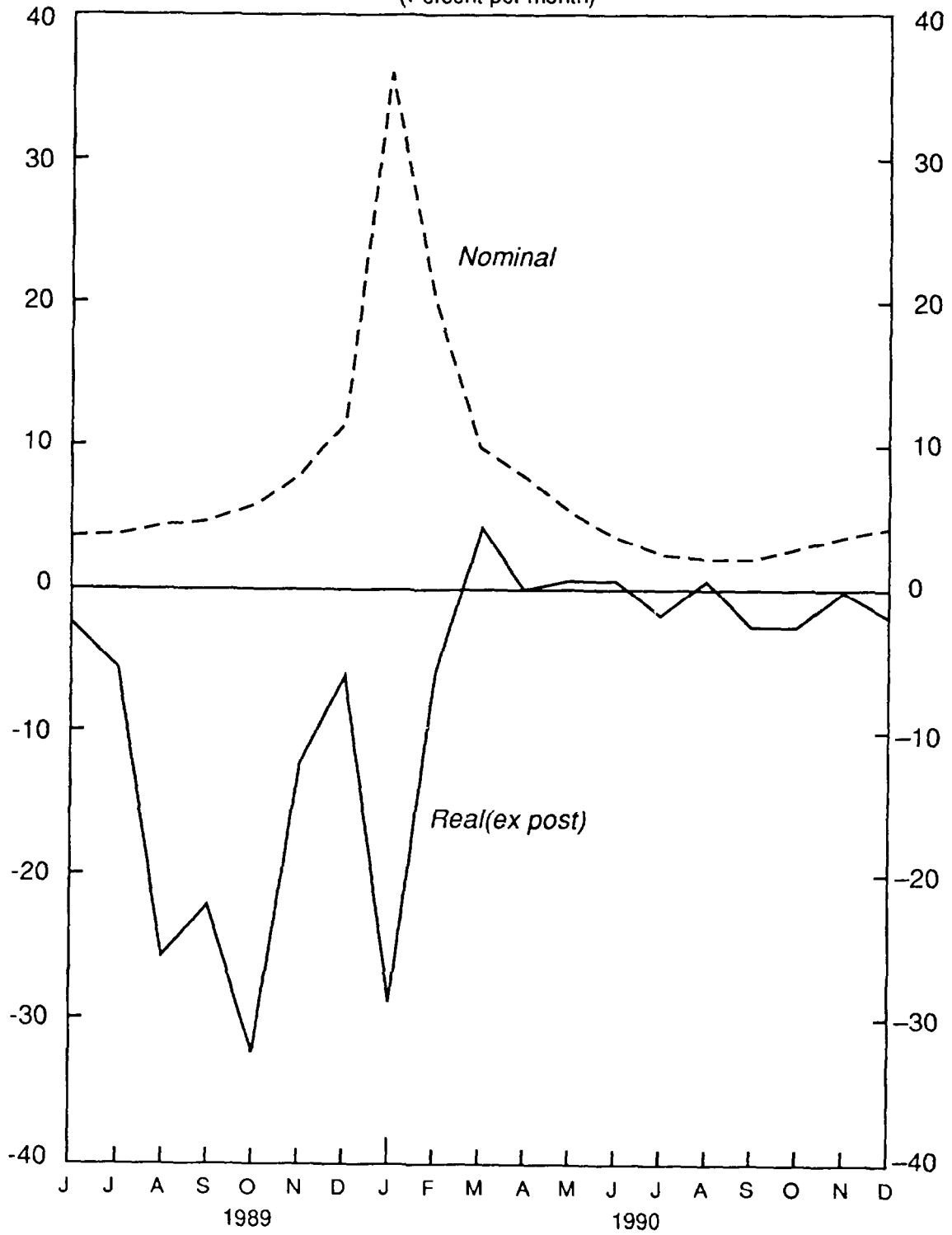
d. The implicit interest subsidy

There was also a large reduction in the implicit subsidy  $(\pi - i^c)C$  that had resulted from the negativity of ex post real interest rates throughout 1989 (see Figure 2). Nominal interest rates on bank loans were less than 7 percent monthly in October 1989, when inflation (measured as the increase in retail prices) was 54 percent, implying a real rate of -31 percent. Nominal loan rates were 9 percent per month in December, when monthly inflation was 18 percent, implying a real rate of -7 percent monthly. In January 1990, the NBP refinance rate was raised to 36 percent per month, banks' loan rates, free of administrative control, ranged from 38 to 55 percent monthly. This implied an enormous spread of loan rates over deposit rates. <sup>1/</sup> These wide spreads effected a capital levy to the banks' benefit: banks strengthened their capital from 3 percent of total domestic credit at end-1989 to 11 percent at the end of 1990. Although this may overstate the soundness of Polish banks--as the solvency of many of the

---

<sup>1/</sup> Rates on time and savings deposits in January 1990 were 10 to 46 percent monthly, sight deposits bore 7 to 10 percent monthly and foreign currency deposits 9 percent per annum.

Figure 2: Refinance Rate  
(Percent per month)







banks' debtors was never put to the test--one cannot but conclude that the events of early 1990 helped reduce the scope of deliberate restructuring needed to establish the banks' viability as autonomous entities. 1/

The enterprises also gained despite the high interest rates in January 1990, since, because these were accompanied by 80 percent monthly inflation, they faced sharply negative real interest rates on an ex post basis, 14 percent monthly in January 1990, following the negative real interest rates in the latter part of 1990 already mentioned. This must have done much to bolster the solvency of state enterprises. 2/ The government also gained from these developments, receiving higher tax revenues from both the banks and the enterprises. This was an important reason for the dramatic improvement of the budget depicted in Figure 3.

The picture, then, is of a large capital levy on the public's money balances in early 1990, which both improved the budget and helped recapitalize the banks and enterprises. These transfers were transitory: the implicit interest subsidy ended as, from February or March onward, ex post real loan rates turned positive. Bank spreads were also narrowed through an administrative order ("Advice from the President of the National Bank of Poland" on January 29, 1990). The fall of inflation to the 5 percent monthly range also reduced the inflation tax.

e. External debt

Another aspect of fiscal adjustment was related to international debt, which amounted to about \$40 billion in 1989. The obligation to service this debt was first rearranged over time: the Paris Club granted Poland a 13-month deferral of all payments of interest and principal on official debt (which amounted to three-quarters of the total), and most bank debt incurred before 1982 was not serviced, pending an agreement on debt reduction. This deferral of interest and principal payments permitted a massive accumulation of international reserves (see Figure 4), and also permitted the budget to run a large surplus on a cash basis. This effect does not explain much of the improvement in the budget and the balance of payments in relation to 1989, since relatively little debt service was paid in 1989 either; 3/ the comparison is really with a hypothetical case in which all debt was fully

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1/ The possibility of establishing an agency for restructuring bankrupt companies in Poland, perhaps similar to the German Treuhandanstalt, has been discussed, but no serious action has been taken so far.

2/ This may be one reason that there have been virtually no bankruptcies in Poland so far, although anecdotal evidence suggests that a certain lack of alacrity of the legal system in enforcing loan contracts has also played a role.

3/ The reduction in debt service between 1989 and 1990 amounted to a fifth of the accumulation of Net International Reserves during 1990, or about 1.5 percent of 1990 GDP.

serviced. The relevance of this comparison is that it points up another transitory element in the strength of the budget.

However, this initial, rearrangement effect was not all that was expected: there were widespread expectations that there would be some form of permanent debt and debt service reduction. (In the event, the Paris Club agreed in April 1991 to write off about half of Poland's official debt.)

#### 4. Summing up

In summary, the arithmetic of the program worked as follows: over the year as a whole, there was a reduction in seignorage which was offset by a reduction in spending on goods and services and especially on subsidies, and a reduction in debt servicing. There was also an increase in tax revenues brought about by an increase in enterprise profits associated with the decline in real wages, as well as due to the reduction of collection lags and the elimination of many tax exemptions. It was initially anticipated that the budget balance would follow a U-shaped profile, with a shortfall in revenues early in the year due to seasonal factors as well as to the Tanzi (1977) effect, resulting in approximate balance over the year as a whole.

The arithmetic worked out more favorably than expected because of the effects of the January 1990 price jump, which effected a further capital levy on money balances. Some of this capital levy was effectively transferred to the banks and other enterprises, improving their financial position. Another unexpected effect of the price surprise was that the initial decline in real wages was unexpectedly deep, and this had an unexpected effect on enterprise profits and thus on tax revenues; the unexpected component of this cut in real wages was reversed later in the year, leaving approximately the 30 percent real wage cut that had initially been planned for the year as a whole.

The result of these various considerations was the profile of net credit to general government, shown in Figure 3: a strong surplus early in 1990, which tapered off later in the year. This pattern is partly the result of sustained changes, namely the reduction in subsidies to both enterprises and the population, and the reduction in real wages. However, there was also a one-shot boost in tax revenues associated with high enterprise profits early in 1990 resulting from capital gains on inventories and foreign currency deposits. There was also a temporary surge in enterprise profits associated with the sharp initial decrease in real wages which (see Section V) was partially reversed later in the year. The health of the fiscal position in early 1990 was also exaggerated by the postponement of some expenditures from early 1990 until later in the year. Finally, the Paris Club's decision to reschedule for 14 months all principal and interest on Poland's official external debt was in itself not a reduction in expenditure but only a redistribution of expenditure over time, although it was followed in March 1991 by an agreement to write off half of this debt. This combination of sustained and temporary changes accounts for

Figure 3: Government Budget Balance  
(June 1989 ZI trillion)

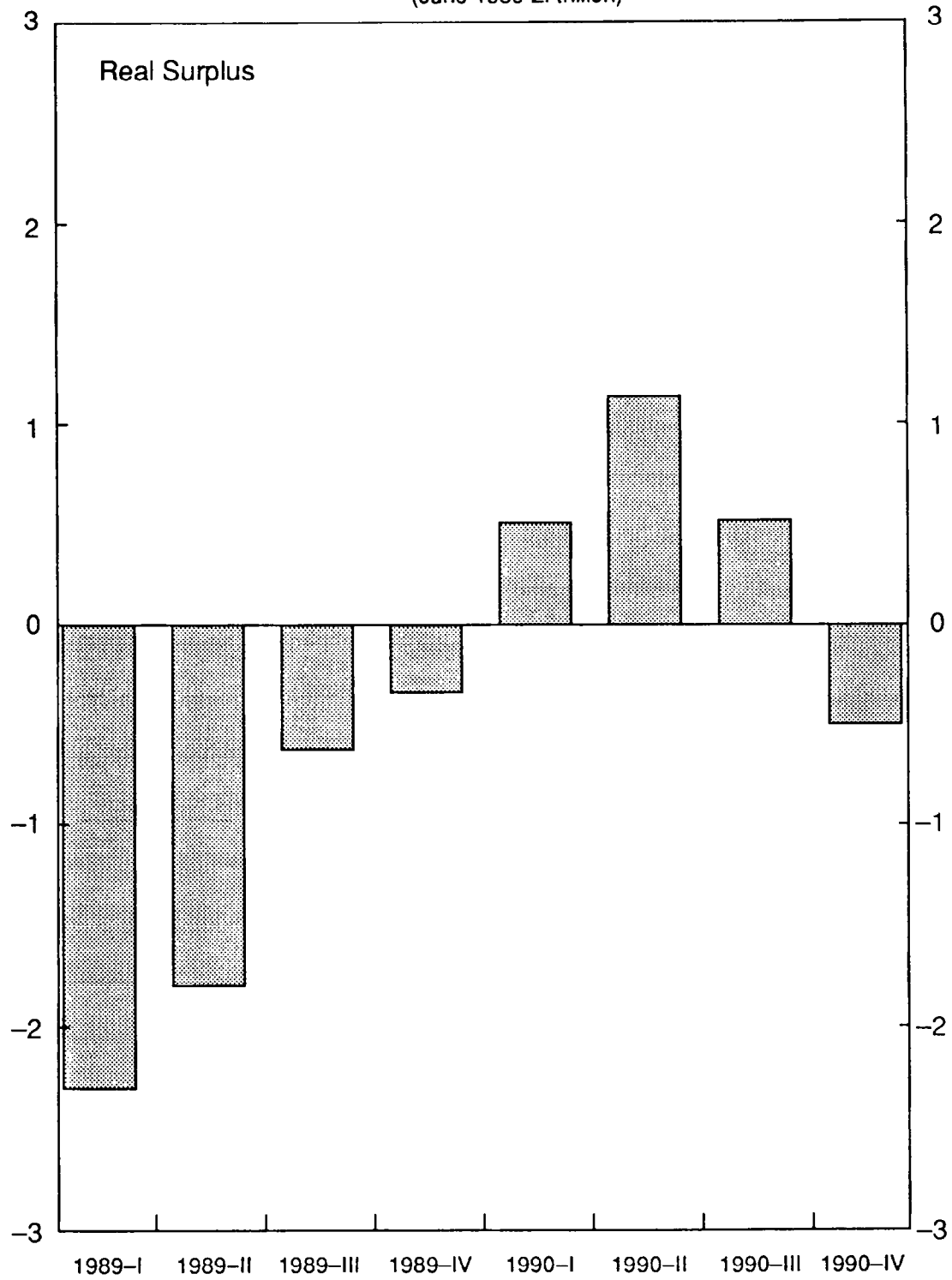
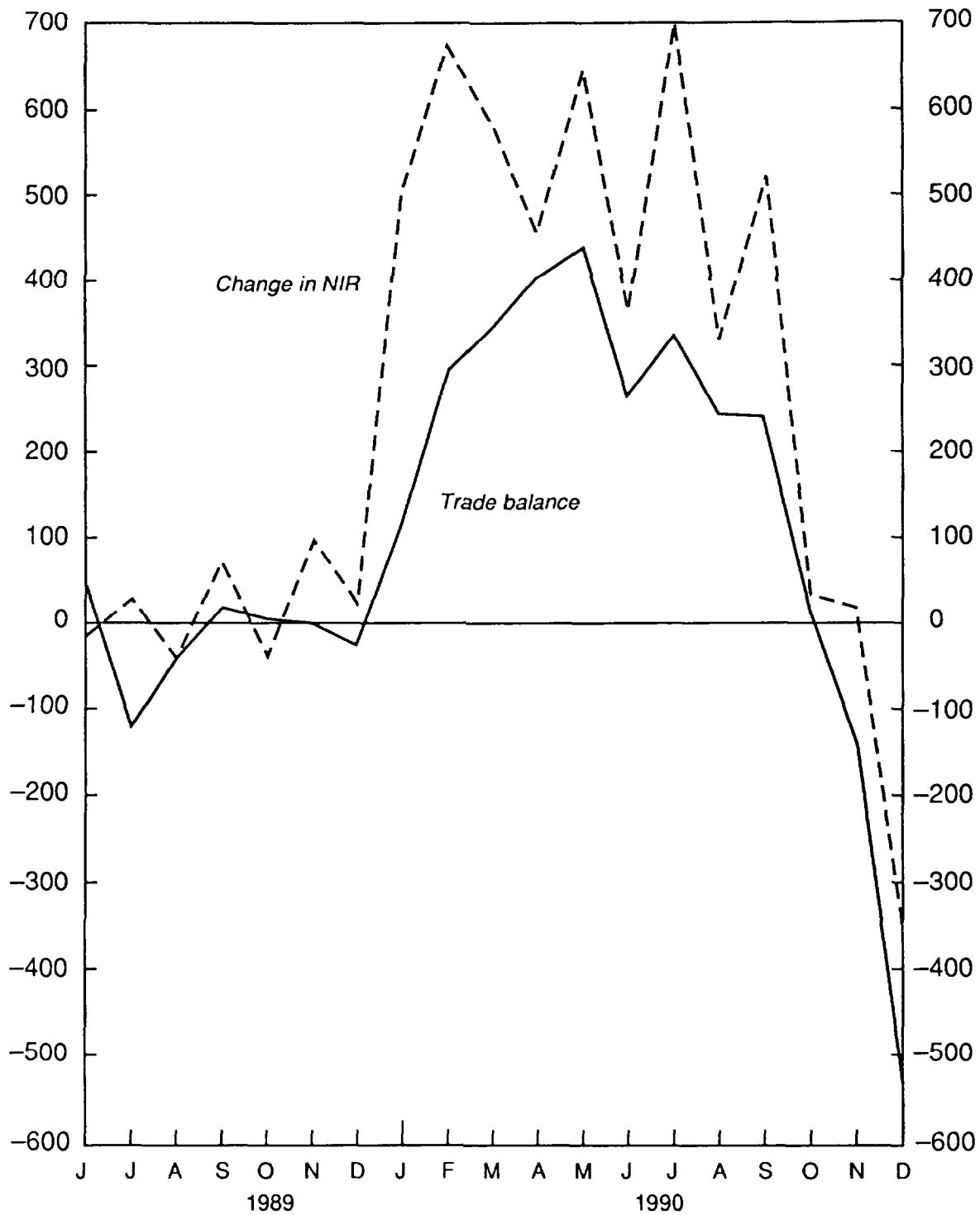




Figure 4: Balance of Payments  
(In convertible currencies, \$ millions)





the pattern shown in Figure 3, with a dramatic improvement of the budget early in 1990 and a deterioration later in the year. The overall result was a swing from a deficit of over 7 percent of GDP to a surplus of 3 percent--but, as this improvement includes many transitory components, it could not be expected to continue into subsequent years.

## V. Wages and Employment

### 1. The rationale for wage controls

Wage controls have been part of heterodox stabilization programs in several countries; in such programs, their role is seen as that of breaking the momentum of inflation and dampening inflationary expectations in order to mitigate the output consequences often associated with fiscal and monetary stringency (Dornbusch and Simonsen 1987, Bruno et al. (ed.) 1988). In Poland, their role was viewed somewhat differently: it was recognized that, pending privatization, 1/ enterprises were to some extent labor-managed or -dominated. Moreover, it might take some time to establish credible financial discipline for the state enterprises--that is, to convince them that losses would no longer be underwritten by easy credit and subsidies, and that bankruptcy is a real possibility. Accordingly, it was held that some form of administrative wage controls for the socialized enterprises would continue to be necessary pending some progress with structural reforms, including privatization and financial sector reform. 2/ This was seen as necessary to prevent wage increases from leading to inflation by weakening the fiscal balance through lower tax revenues, an expansion of soft credit to loss-making enterprises, and an increase in public sector wage costs. 3/ In the 1990 stabilization program, the wage law was also designed to rectify the existing fiscal imbalance, by bringing about a reduction in real wages on the order of 30 percent.

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1/ A step in the direction of privatization is "commercialization", under which an enterprise is reconstituted as a joint-stock company governed by a board of directors which represents the state as the sole shareholder. The 1991 wage law specifies a more flexible regime of wage controls for enterprises that have been commercialized, subjecting them to a lower rate of excess wage tax provided that certain conditions are met.

2/ On the other hand, private and cooperative enterprises were freed from wage controls beginning in 1991.

3/ In Poland, wages in the budgetary sphere are set in a fixed relation to wages in five main areas of the material sphere of the socialized sector; the "material sphere" refers to that part of the economy producing goods rather than services.

## 2. Wage indexation and the accumulation of margin

The 1990 wage control law worked in the following way: it began with a December 1989 norm for the enterprise's total wage bill,  $W_0^n$ , which was derived by partially indexing an enterprise's total September 1989 wage bill. Then the provisional January norm  $W_1^{np}$  was determined by indexing the December norm by a fraction  $\theta$  of the official prediction of January inflation  $\pi_1^e$  made by the Ministry of Finance:

$$(8) \quad W_1^{np} = W_0^n(1 + \theta\pi_1^e)$$

The indexation coefficient  $\theta$  for January was set at 30 percent, while the official January inflation forecast was 45 percent, allowing workers a 13.5 percent nominal wage increase. This would in itself lead to an immediate 22 percent decline in real wages. 1/ In the event, inflation was not 45 percent but 80; this, together with some other factors, resulted in a 44 percent decline in real wages in January 1990. This pattern was repeated on a smaller scale in February, when the indexation coefficient was set even lower, at 20 percent, projected inflation was 15 percent, and actual inflation turned out to be 24 percent, leading to a real wage decline of 15 percent. 2/ The decline in real wages in January and February, both planned and unplanned, led to an increase in enterprise profits, and thus in tax revenues.

The law was built with a correction mechanisms, however, in the form of "accumulation of margin under the norm," the difference between the wage justified by realized inflation,  $W_1^n$ , and the wage actually paid  $W_1$ :

$$\begin{aligned} (9) \quad \text{MAR}_1 &= W_1^n - W_1 \\ &= W_0(1 + \theta\pi_1) - W_1 \\ &= (W_1 - W_1^{ne}) + W_0\theta(\pi_1 - \pi_1^e) \end{aligned}$$

---

1/ Even this sounds extreme, but a peak in real wages in December and sharp decline in January had been a fairly typical seasonal pattern: real wages fell 23 percent month-on-month in January 1988 and 43 percent in January 1989.

2/ Subsequent indexation coefficients were set at 20 percent for February through April, 60 percent for May through July, 100 percent in July, and 60 percent for August through December.



The margin ( $MAR_t$ ) is thus the sum of any difference between the wage granted and the provisional norm and the additional indexation associated with deviations of actual from expected inflation. If enterprises had paid the full 13.5 percent wage increases permitted in January, while inflation turned out to be 80 percent, the resulting margin would be 10.5 percent. This margin, a nominal amount in zloties, could be accumulated, and paid in subsequent months. The cumulative nature of the policy implied that the actual wage paid in any month,  $W_t$ , would have to obey

$$(10) \quad W_t \leq W_t^n + \sum_{i=1}^{t-1} MAR_i$$

In practice, margin was accumulated over the first half of the year as in each month inflation exceeded the official forecast, while enterprises paid out the accumulated margin gradually over succeeding months. Later in the year, the accumulation of margin came home to roost: enterprises raised wages rapidly to use up the accumulated margin before the end of the year. 1/ Wages rose by 76 percent in the second half of 1990, which given 29 percent inflation implied a 36 percent real increase. 2/ These developments are reflected in Figure 5. Over 1990 as a whole, average monthly wages were down about 31 percent on 1989--about the same year-on-year decrease anticipated in the program.

### 3. Employment incentives

Another important feature of the wage law was that it imposed a limit on an enterprise's total wage bill, rather than on each worker's wage or on the average wage. This is consistent with a view of wages, not as the price of a factor of production, but as a share of the enterprise's net revenues to be divided between the workers and the government. A ceiling on the wage bill of course implies that if employment declines (as it did for the average Polish firm in 1990) the permitted increase in average wages is higher than would be implied by indexing the average wage to inflation.

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1/ Enterprises may have been considering the possibility that any accumulated margin remaining at the end of the year would be allowed to lapse, and/or that the norm for 1991 would be based on actual wages at some point in 1990 rather than on the December 1990 norm.

2/ There were also a couple of other circumstances: as a result of strikes by the miners and transport workers in mid-1990, these groups were given a special wage increase, through a 2 percent upward revision of their December 1990 norm. Also, in the second half of 1990 the rates of tax on wage increases exceeding the norm were cut in half, making it more attractive for enterprises to pay excess wages; as a result, enterprises exceeded the wage norm by an average of 2 percent over the year as a whole.

This also creates an incentive for layoffs: laying off some workers allows the enterprise to raise the wages of those remaining, while those workers laid off would receive unemployment benefits.

In actuality, although there was a steady increase in unemployment during 1990, there were relatively very few layoffs. Most of the additional unemployment was associated with new entrants to the labor force; the decline in employment in the socialized sector--about 8 percent (year-on-year)--was much smaller than the 25 percent decline in the socialized sector's sold production. Why were there so few layoffs? To the extent that enterprises are labor managed, and make wage and employment decisions with a view to maximizing the utility (rather than the expected income) of the representative incumbent worker, and assuming that layoffs mean that the representative worker faces a given probability of being laid off, risk aversion may lead an enterprise to refrain from laying off workers, despite the incentive for layoffs that a ceiling on the firm's total wage bill provides. Whether or not layoffs occur depends on the generosity of the unemployment benefit plan, on the tax rate the enterprise faces on profits, and on its workers' attitude to risk (Lane 1990(a)). <sup>1/</sup>

#### 4. Unemployment in Poland

The emergence of unemployment in Poland was a development that aroused mixed feelings. Before the 1990 program, full employment had been guaranteed, <sup>2/</sup> and anecdotal evidence suggests that there was a labor shortage making it hard for new firms to attract employees. Labor shortages led to "labor hoarding", as firms would hire more than enough labor for their normal requirements in order to be able to fulfill peak-load requirements. The 1990 reform program was introduced with the explicit expectation that some unemployment would emerge in the course of stabilization and restructuring; accordingly, a Labor Fund was established to provide unemployment benefits. At the inception of the program, in January 1991, 56,000 workers were registered as unemployed, and unemployment increased steadily by 100,000 each month, reaching 1.1 million--8.3 percent of the workforce excluding private agriculture--by the end of December. During the initial months, a substantial proportion of the unemployed had not previously been employed; some of this unemployment may have resulted from an additional worker effect associated with the decline in real wages, while some may have resulted from individuals' registering as unemployed only to receive the newly-available benefits. At first, there were few if any mass layoffs: apparently many firms sought to avoid layoffs through extended vacations and other manoeuvres. <sup>3/</sup> Later in the year, the proportion of unemployment associated with mass layoffs increased. There

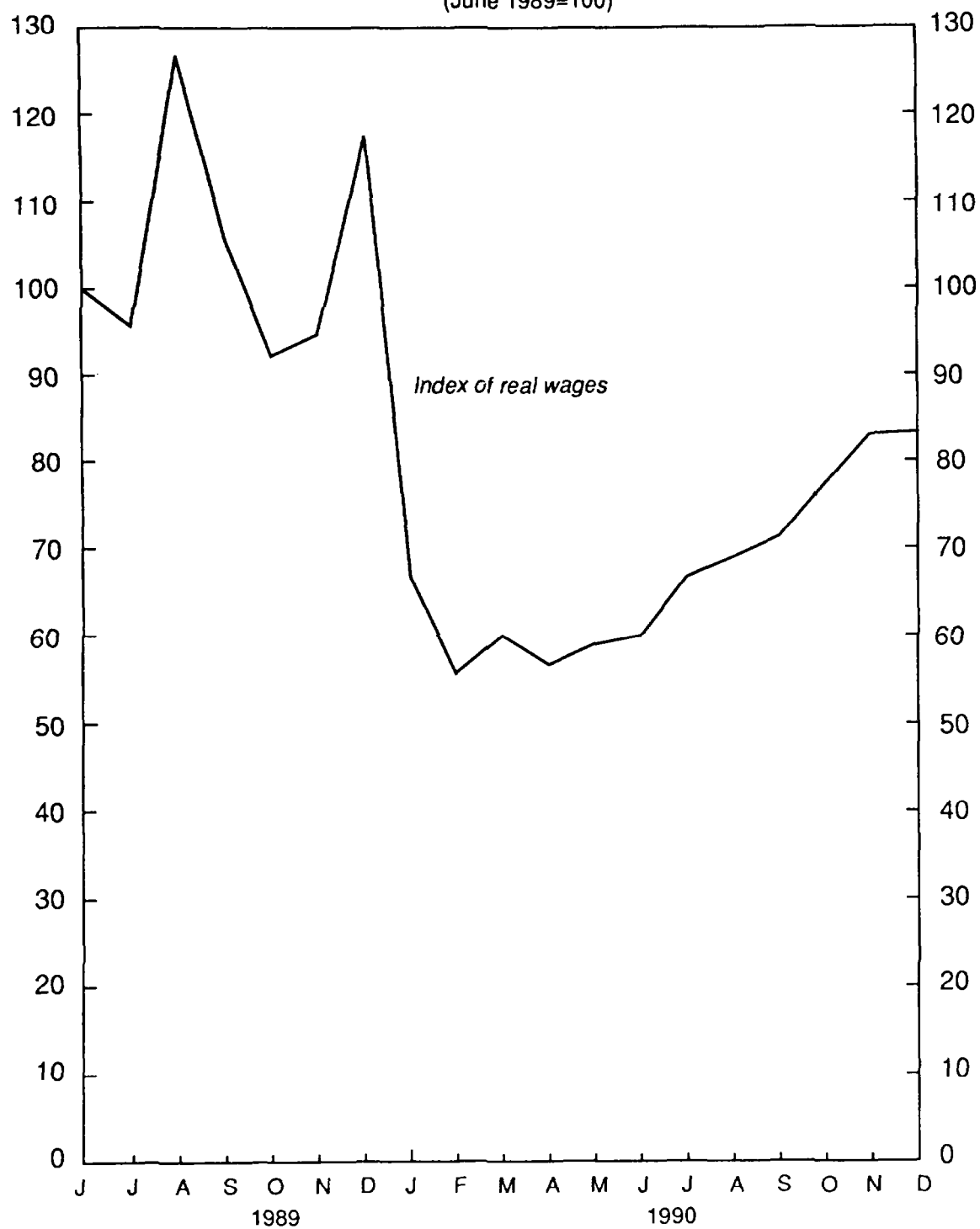
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<sup>1/</sup> Layoffs might, of course, be a desirable result, if there were labor hoarding initially.

<sup>2/</sup> In December 1989, 0.06 percent of the labor force was unemployed.

<sup>3/</sup> The fact that the decline in output greatly exceeded the decline in employment is emphasized by Blanchard et al. 1990.

Figure 5: Real Wages  
(June 1989=100)





were substantial regional disparities in unemployment, with rates ranging from less than one percent in Warsaw to well into double digits in the Eastern part of the country and in Lodz (a leading textile center); these disparities were perpetuated by the rigidity of the housing market. <sup>1/</sup>

## VI. Money and Exchange Rates

Two monetary issues were of particular importance in designing the program. One was the possible existence of an initial liquidity overhang. A second was the appropriate choice of exchange rate.

### 1. A liquidity overhang?

One issue that might affect the implementation of stabilization policy in a socialist economy is the possibility that there might initially have been a liquidity overhang; it has been argued that, when there are shortages, these shortages may be reflected in excess money holdings by the population--in effect, forced savings. To the extent that such a liquidity overhang existed, this would necessitate a larger increase in the price level in order to achieve equilibrium in goods markets.

Although it is widely believed that a liquidity overhang exists in many socialist economies, evidence is mixed (see Portes 1989, Portes et al. 1987). In particular, there is the possibility that shortages in some markets are primarily reflected in increased demand for other goods, rather than in excess liquidity (Podkaminer 1988). If prices of some goods are free while others are controlled, or if there are extensive black markets, shortages in markets where prices are controlled would be reflected in higher prices of goods whose prices are free, including higher prices in the black market; in this case, price decontrol would raise prices that had been controlled, but would also lower other prices, including black market prices. Moreover, it is sometimes difficult to distinguish between microeconomic imbalances, requiring a realignment of relative prices, and macroeconomic imbalances which could only be remedied by an increase in the general price level or by a currency reform.

In the Poland of the late 1980s, the concept of a liquidity overhang must also be modified because of the extensive dollarization of the economy. Black market foreign exchange activity had been prevalent for some time. In March 1989, the black market in foreign exchange was replaced by a free market in which a large number of small foreign exchange dealers (Kantor) participated. Polish residents were entitled to hold deposits denominated in foreign currency; initially, they were required to demonstrate a legitimate source of foreign funds, but in 1989 this requirement was dropped even as a formality and by the end of 1989, foreign currency deposits

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<sup>1/</sup> Specifically, rents are kept at a level where in 1990 they were an average of 3 percent of household income, and queues are literally decades long.

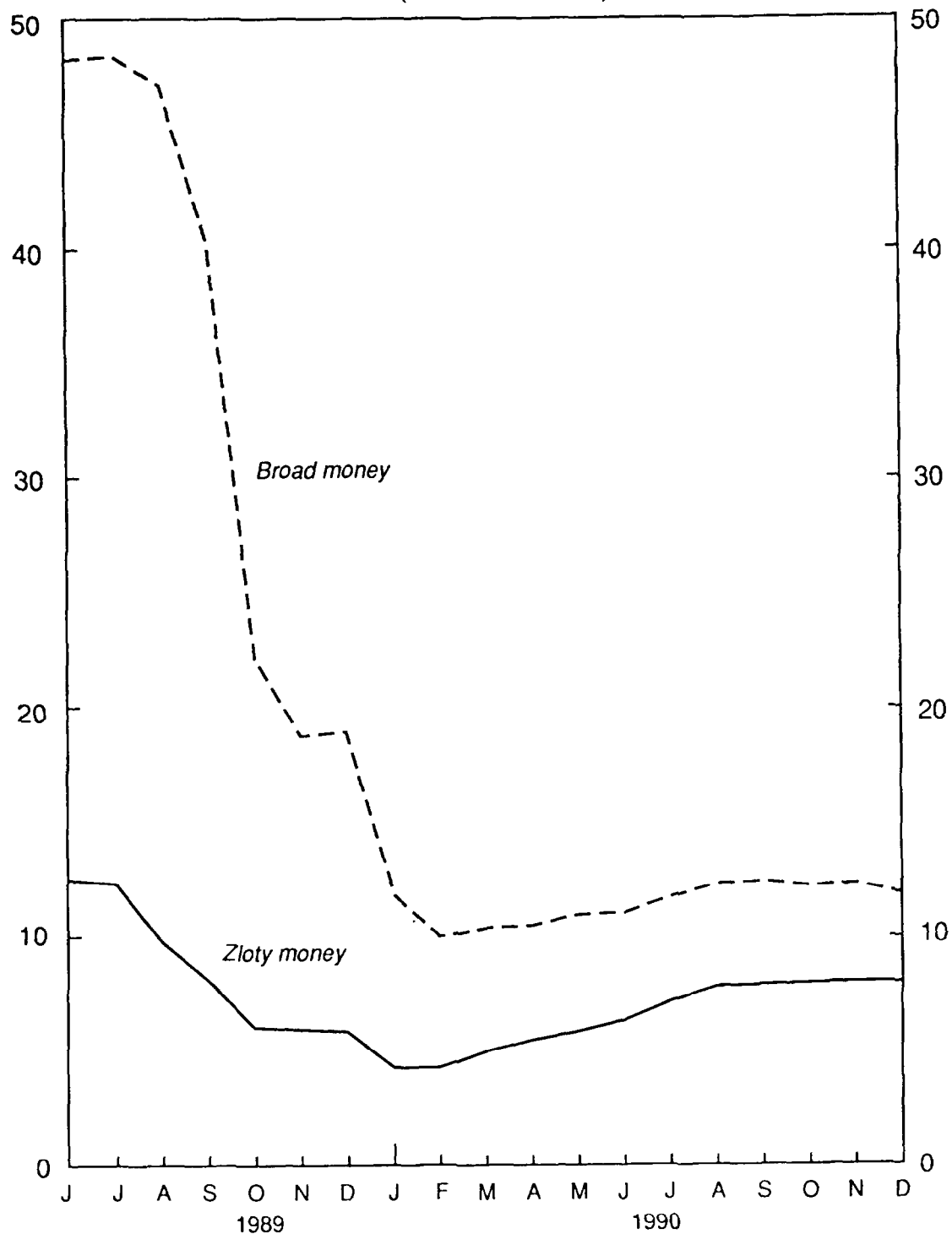
(evaluated at the free exchange rate) accounted for 73 percent of total money held by the socialized sector (see Figure 6). In addition, there was an unknown but presumed large amount of foreign "mattress money." Therefore, shortages in goods markets could spill over, not into excessive holdings of zloty money, but into increased demand for foreign currency, which could drive up the black or free market exchange rate. The resulting overhang would then consist partly of holdings of foreign currency. However, excess holdings of foreign currency have different implications than excess domestic currency holdings for the price increase required to clear markets. If prices are freed, shortages ease and households attempt to convert excess dollar balances into goods; the result would be not only to drive up the zloty price level but also partly to lower the dollar exchange rate in the parallel market. (The parallel exchange rate did, in fact, begin to fall as prices were freed and adjusted during the latter part of 1989.)

Thus, a liquidity overhang may be associated not only with an accumulation of zloty money, but also with an increase in prices of goods that are free--including prices of goods sold in the informal sector and the black or free market exchange rate--and with an accumulation of foreign currency.

Identifying the effects of a liquidity overhang is made more difficult by inflation. In Poland, it may be argued that the increase in households' savings rate, from 8 percent in 1987 to 17 percent in 1988, and then to 21 percent in 1989, constitutes evidence of worsening market imbalance. The behavior of the black or free market exchange rate may be regarded in a similar light, as the consequence of households with excess holding of zloty money, which due to shortages they are unable to exchange for goods, attempting to exchange these zloties for dollars: the premium on the dollar in the parallel market over the official market rose from 320 percent at the end of 1987 to 575 percent at the end of 1988, reaching 754 percent in August 1989. This is also reflected in the amount of foreign currency deposits outstanding, due to increases in both the dollar value of deposits and the parallel exchange rate: the share of foreign currency deposits in non-socialized sector (household and private enterprise) holdings of money and quasi-money increased from 53 percent at the end of 1987 to 70 percent at the end of 1988, reaching 80 percent in September 1989. All these developments might be viewed as evidence of a growing liquidity overhang, spilling over into holdings of foreign currency and foreign currency-denominated deposits.

The evidence just cited could also be put in a different light, however: it is normal for households to respond to rising inflation by adding to their holdings of money in nominal terms in order partially to offset their erosion in real terms. It would also be unsurprising, on currency substitution grounds, that with rising inflation households should attempt to reduce their real holdings of zloty money and increase their holdings of foreign money. Accordingly, we find that real holdings of zloty money by the non-socialized sector decreased by 5 percent during 1988, and

Figure 6: Real Money Stock  
(June 1989 Zl trillion)







by 61 percent in 1989. It is difficult to distinguish between the implications of a liquidity overhang and those of households' adjustment to inflation.

The move out of zloty money was initially associated with a shift from zloty money into foreign-currency deposits, and total broad money remained approximately unchanged from December 1987 through June 1989. However, as food prices were freed in August 1989, and many administered prices were raised significantly during the succeeding months, the real value of broad money held by the nonsocialized sector fell sharply, decreasing by 13 percent in real terms during the third quarter of 1989 and by a further 44 percent during the month of October alone. (Here, foreign currency deposits are valued at the free market exchange rate.) This decrease reflected unusually and perhaps unexpectedly high inflation during these months, which greatly reduced the real value of both zloty and dollar balances (for a given exchange rate). It also reflected the nominal appreciation of the zloty on the free market, which reduced the premium of the free over the official rate to 225 percent by the end of October. At the same time, real household incomes stagnated in September 1989, and fell 17 percent in October alone. At a minimum, these developments suggest that if excess liquidity had previously existed, it was greatly reduced in the latter part of 1989.

Could this conclusion be reconciled with the size of the price jump that took place in January of 1990? During that month, prices rose by 80 percent, while money and quasi-money rose by only 34 percent, a decrease in real money of 25 percent. This could be partly explained in terms of three factors related to the demand for money: the decline in output, incomes, and consumption, an apparent seasonal weakness of demand for money in the early part of the year (Lane 1990), and possibly an increase in expected inflation. Moreover, the price shock might have resulted in an unintended reduction in money balances below their desired levels; households might readjust gradually to this shock, if these price increases were administered rather than needed to achieve equilibrium in the money market; however, the 80 percent inflation of January 1990 was larger than can readily be explained in terms of the administered price increases that occurred. <sup>1/</sup>

A further consideration is that the switch from a shortage economy to an economy in which goods are readily available at market prices might result in a change in the demand for money: in a shortage economy, goods are available in limited quantities on random occasions, and money must thus be held in order to be able to purchase the scarce goods when they turn out to be available (Lane 1990(b)). As prices are freed, this precautionary

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<sup>1/</sup> To the extent that price increases were those needed to achieve equilibrium in the goods market, they would equate actual and desired real balances, and would therefore not occasion any gradual adjustment of household money holdings; see Lane 1990(c).

demand for money would diminish. Therefore, it is possible that the freeing of prices would not unleash pent-up money holdings, but imply that money that was previously held voluntarily in the transactions environment of a shortage economy might become undesired in a market economy.

## 2. The exchange rate anchor

A salient aspect of Poland's program was the use of the exchange rate as an anchor against inflation. This was designed to brake inflation by tying the prices of tradeable goods to world levels, as well as by influencing expectations. At the beginning of 1990, the zloty was made convertible for trade in goods and non-factor services, and devalued to Zl 9500 per dollar, a rate expected to hold for several months.

It is possible to overdraw the extent of the policy change: initially, the peg was certainly regarded as provisional, and no announcement was actually made as to how long it would be maintained. In fact, one initial reason for fixing the rate rather than allowing it to float was the absence of an organized foreign exchange market. However, there was a definite change in the authorities' behavior with respect to the exchange rate in comparison to the latter part of 1989: there had been ten devaluations during the last quarter of 1989, before the final 32 percent devaluation of January 1, 1991, so even if the peg had held for only three months this would have signalled a marked change in policy. The peg turned out to be much more sustainable than had been expected, and withstood even the 249 percent inflation that occurred during the year. The balance of payments continued strong through most of 1990 (see Figure 4) and its strength in mid-year led some to suggest a revaluation. In the last quarter of the year, the balance of payments weakened sharply; this appeared to be a result not only of the real appreciation of the zloty, but also of an increase in domestic aggregate demand, an increase in the world price of oil, and changes in the CMEA trading system. 1/

The unexpected strength of the balance of payments appears to have been due not only to the exchange rate but also, at least in part, to the same circumstances accounting for the unexpected strength of the budget. In particular, the decline in real wages appears to have reduced households' expenditures, reducing domestic demand and shifting goods from domestic sales into exports. 2/ There was a dramatic increase in exports, not only a 42 percent increase (in dollar terms) in exports to the convertible currency area, but also a 15 percent increase in Poland's exports to her partner countries in the CMEA--and this at a time when other Eastern

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1/ In particular, the U.S.S.R. began requiring cash in advance for oil imports which had previously been purchased on credit.

2/ Lipton and Sachs (1990(a)) have also argued that shortages in goods markets tends to shift goods away from export markets, and accordingly that the alleviation of shortages should lead to an increase in both exports and imports.

European countries were experiencing declines in their exports to the CMEA area and other disruptions associated with the impending changes in the trading system (Kenen 1990). There was a surplus in the current account as well as an accumulation of international reserves (see Figure 4). The external surpluses, and resulting accumulation of foreign exchange reserves, played an important role in permitting Poland to maintain its exchange rate at the same level, Zl 9500 per dollar, for the whole of 1990 (and into 1991).

If a smaller initial devaluation had been chosen, the new rate could probably not have been maintained as long. This would thus have implied a smaller initial jump in the price level through the initial effects of the exchange rate on the prices of tradeables, but it would also have meant more inflation later in the year, as further exchange rate adjustments would have been needed sooner. 1/

How could an appropriate level for pegging the exchange rate be determined? An obvious approach would be to use information provided by existing markets. In Poland, a legal three-tier foreign exchange market had been established in the March 1989 foreign exchange law: an official market, in which foreign exchange was centrally allocated at the official exchange rate; an auction market open to enterprises, in which exporters, who were permitted to retain a portion (in the neighborhood of 30 percent) of their export earnings, could sell this foreign exchange to importers; and a "free" market (the legal successor to the black market) consisting of a large number of booths or wickets (located in shopfronts, hairdressers' shops, museum lobbies, etc.) called "kantors," in which the general public could freely buy and sell foreign currency. The Polish authorities planned to unify the foreign exchange market at the beginning of 1990, abolishing the auction market. 2/ It would not be appropriate to interpret either of the existing market exchange rates as an equilibrium level for a unified exchange rate, since the official market provided an implicit tax or subsidy on international transactions which would affect this equilibrium; for example, the requirement that a portion of export proceeds be surrendered at the official rate implied that the price of foreign exchange facing exporters was not the market exchange rate, but a weighted average of market (auction) and official rates.

Some further issues would have to be considered. First, at the beginning of 1990, export subsidies were abolished; this step would tend to raise the equilibrium exchange rate. Second, if the intention were to choose an exchange rate that would be sustainable for a few months, and thus would not become seriously overvalued immediately once the corrective price adjustments of early 1990 had taken place, the initial exchange rate would have to be higher to offset forecast inflation.

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1/ Wolf (1988) traces the effect of a devaluation in a socialist economy.

2/ In practice, the kantor rate stayed very close to the official rate--generally within the official buy-sell spread--for most of 1990.

A unified exchange rate could be found that would maintain the status quo; one approach would be to maintain the existing subsidy-adjusted real exchange rate facing exporters. A simple formula incorporating the considerations discussed would be

$$(11) \quad e_1 = [\rho e_0^m + (1-\rho)e_0^o](1+\pi^e)(1+s_0)$$

That is, the new exchange rate could be based on a weighted average of the official exchange rate  $e^o$  and the market rate  $e^m$  before the reform, where the weights were given by the retention ratio  $\rho$ , the fraction of foreign exchange earnings that could be retained by an exporter. This rate is adjusted for  $\pi^e$ , the inflation target from the base date over the time horizon over which the exchange rate peg would be maintained. It is also adjusted for the rate  $s_0$  at which exports were subsidized in 1989, as export subsidies were to be eliminated at the start of 1990.

It is problematic whether at any point the weighted average exchange rate  $\rho e^m + (1-\rho)e^o$  would correspond to the flow equilibrium exchange rate that would have been the appropriate benchmark. The difficulty is compounded by the fact that the auction exchange rate must surely have been affected by exchange-rate expectations, which in turn were conditioned by market participants' awareness that the authorities planned to unify the official and auction rates.

As an example, consider the case of perfect foresight expectations, in which the auction rate cannot jump so  $e_0^m \rightarrow e_1$  as  $t \rightarrow t'$ , the date of exchange-market unification. In this case, using equation (11), and assuming that  $e_0$  is based on the weighted average rate just before unification, the exchange rate at unification must be

$$(12) \quad e_1 = e_0^o(1+\pi)(1+s_0)(1-\rho)/[1 - (1+\pi)(1+s_0)\rho]$$

Thus, in a rational expectations equilibrium, the unification exchange rate would depend only on the initial official rate as well as on the retention ratio and the inflation and export subsidies for which adjustments are made. If the latter adjustments were zero ( $\pi = s_0 = 0$ ), then the unified exchange rate would simply equal the previous official rate. In short, particularly when participants in the auction market have information about the basis on which the new rate will be established, formula (11) only yields the correct rate to the extent that the official rate already corresponds to an equilibrium rate. This may have been the case sometime during the fall of 1989; since, however, the zloty was officially devalued by over 84 percent in nominal terms from September through late December 1989, implying a real depreciation of over 50 percent (on the basis of retail prices) over that period, using formula (11) would only give an appropriate result though a fortunate choice of benchmark date.

What is the alternative, though? The obvious alternative, basing the unification exchange rate calculation on a complete model incorporating these expectations effects, is obviously impracticable, because of time constraints, inadequate data, and the particular relevance of the Lucas critique when contemplating a serious change in both policy regime and economic structure. A second alternative would be to float the exchange rate; this would then have meant relying on the appropriateness of monetary and credit aggregates and the budget to stabilize inflation. Given uncertainties about the demand for money, the changes in money demand that seemed likely to result from the switch from a shortage economy to a market economy and from the planned changes in the financial system, and doubts about the authorities' ability to control the supply of money at all closely, it seemed doubtful that monetary targets would do enough to pin down the price level. One could therefore argue that an exchange rate anchor the choice of which is inevitably quite imprecise is still better than no exchange-rate anchor at all.

## VII. Structural Reforms

The initiation of structural reforms was an integral part of the Polish program. Some salient aspects of this program included the enforcement of financial discipline on the state enterprises, the breakup of monopolies, and the privatization of state enterprises. Financial sector reform is also of considerable importance in promoting the efficient allocation of the credit needed for economic restructuring (Portes 1989(b)). Some strides have been made in these reforms, but they are inevitably time-consuming. Some reforms have been implemented quickly: in particular, 70 percent of retail outlets were sold off to private individuals, as were most of the trucks used for road transport. Demonopolization proceeded slowly: an Anti-Monopoly Office was established, but it was only given sufficient resources to support a staff of 60, and it was expected to maintain six regional offices. Despite determined efforts on the part of this office, limited resources and the heavy demands placed on it made progress difficult.

A privatization law was passed, creating a legal framework for the privatization of state enterprises; this established, after long debate, that privatization had to be voluntary on the part of the enterprise itself (that is, on the part of the Workers' Council), that 20 percent of shares would be sold at half price to the workers, and that foreign participation amounting to up to 10 percent of the shares would be permitted without any explicit administrative approval being required. Six state enterprises were privatized in 1990, five through public share offerings and one through a management buyout.

The issue of privatization gave rise to a prolonged debate, only the broad outlines of which can be given here (for a survey, see Borensztein and Kumar (1991)). In particular, the Polish government's original plan, which was generally supported by international financial institutions, involved a very circumspect approach to privatizing each firm: selling each firm in a public offering, after carefully arriving at a judgement of what firms or parts of firms to sell in what order, and selecting an appropriate offering price. This approach would have the advantage of generating substantial revenues from privatization to compensate for the loss of revenues from state enterprises. A case for privatization through sales has also been argued on the basis of monetary considerations, as selling off state assets may be a way to mop up any liquidity overhang; however, this was not a major consideration in Poland after the large price increases of late 1989 and early 1990. A circumspect approach was also motivated by the desire to avoid the perceived unfairness of "fire sales" of large quantities of assets at low prices. The main problem with this circumspect approach was that it was simply too slow. As a result, proposals were made for more rapid privatization, which would involve some element of giving away shares through a system of vouchers; the argument for give-aways would be that arriving at an appropriate valuation of state enterprises is inherently impossible, and that the potential efficiency gains from rapidly privatizing a critical mass of enterprises would outweigh the revenues lost through a give-away. The problem is how to arrange a give-away so as to generate sufficient concentrations of ownership that owners or their representatives take an interest in enterprise management, while enabling each individual some autonomy in portfolio selection; various proposals have been developed to solve this problem through the establishment of mutual funds (Lipton and Sachs 1990(b), Blanchard and Layard 1990, Frydman and Rapaczynski 1990). As of early 1991, concrete privatization plans were still limited to privatization by public share offering, but a voucher scheme was under development.

Another important aspect of reform is tax reform, which is directed toward replacing the current tax system, which relies heavily on the taxation of the state enterprises, with a broader-based system in which individuals are also taxed; in particular, a priority is the introduction of a personal income tax and a value added tax. These reforms are important partly because of the usual presumption of greater allocative efficiency of broader-based taxes are more efficient (a presumption which is, however, admittedly based on theory that may or may not be applicable to a reforming socialist economy). They are also important in allowing other forms of market-oriented reform, including trade liberalization and demonopolization, to proceed, as the latter reforms tend to reduce the profitability of the state sector (Lane and Dinopoulos 1991). Increasing the resilience of the tax system, by reducing its sensitivity to shocks or policy changes that may affect the profitability of a particular sector of the economy, is also useful in stabilization, as the latter necessitates a move from seignorage to other sources of revenue (Section IV above). However, tax reform is also a time-consuming administrative task. Mainly as a result of these

administrative complexities, the introduction of personal income tax and value added tax has been pushed back to January 1992.

The "Big Bang" approach implied, as mentioned earlier, doing first what could be done fastest. This tended to mean that stabilization and liberalization measures were carried out first, while structural reforms lagged behind. An important challenge for the coming years is to accelerate the structural reforms, and in particular those necessary to consolidate the gains that have been made with stabilization and liberalization. In particular, measures to broaden the tax system, to privatize state enterprises, and to break up monopolies are needed to make control of government expenditure credible, in order to prevent a recurrence of wage- and subsidy-driven money creation resulting from inadequate discipline of the enterprises either from their owners or from the market.

#### VIII. Accounting for the Output Collapse

Perhaps the development that generated the most heated discussion was the combination of a sharper than expected decline in industrial output, an unexpectedly large rise in prices, and a dramatic fall in real wages in the early part of 1990. The most widely quoted measure of output, "sold production of socialized industry", fell more than 30 percent in the first half of 1990 in relation to the first half of 1989, recovering 4 percent in the second half of the year, so that for the year as a whole it was 25 percent down on the previous year. Retail price inflation was 80 percent in January alone, and nearly 250 percent over the year as a whole. Real wages fell by over 50 percent during the first quarter of the year. These numbers suggested to some observers a transition from "shortageflation" to a devastating case of "slumpflation" (Kolodko 1990). How do we account for these developments?

##### 1. Measurement problems

The first consideration is that the numbers are clearly somewhat distorted. The figures on sold production leave out the surge of activity in the private sector, much of which is probably unreported; even the official statistics report an 8 percent real increase in industrial output of the private sector, but the true figure is surely higher, while there was also surely a much larger increase in private trading activity. Furthermore, there may have been informal (often illegal) street sales of output of socialized industries, which may not be included in the production figures. Moreover, output certainly does not correspond to economic welfare: a reduction in the production of poor quality goods, or goods that did not correspond to consumers' specifications, might take place with the move away from the shortage economy, as consumers had more choice and so could be more discriminating, but this would not necessarily entail a loss in welfare.

The figures on inflation are also suspect, as they do not include street sales. One would expect that, before price liberalization, the official price index would under-state the general price level, as goods in short supply in the official shops were sold at a premium in black market; this is the concept of hidden inflation (Nutti 1986). After price liberalization, as this premium vanished or was reversed, so prices in informal market would increase less than in the official shops; the official price index would then over-state inflation.

As for the decline in real wages, this has to be considered in the context of shortages: when goods are in short supply, the wage divided by the general price index overstates the real wage, and the change in this ratio when shortages are eliminated overstates the decline in real wages (Lipton and Sachs 1990(a)). When there are shortages, an increase in real wages can actually reduce wage-earners' welfare, by exacerbating shortages (Osband 1991, Lipton and Sachs 1990(a)). Therefore, it can be argued that the "real-real wage" did not decline by anything like the amount that the "statistical real wage" would suggest.

These explanations of the data, however, seem to be somewhat unsatisfactory; one is left with the impression that the decline in output and income cannot entirely be explained away.

## 2. Demand-side contraction

Analyses of the output decline have focused on a variety of factors. To begin with, any disinflation--in a developed market economy or in a developing country--entails some decline in output; there is no obvious reason why a socialist economy should be any different. The output decline is typically attributed to the effects of price stickiness, and/or of sluggish expectations, particularly associated with a lack of policy credibility. Both of these factors may plausibly have played a role in the Polish stabilization: prices may have been particularly sticky due to the price setting behavior of non-profit-maximizing managers of state enterprises, which some observers have viewed as particularly inclined to follow mechanical mark-up pricing rules (Commander and Coricelli, 1990); such rules may have been seen as maximizing managers' probability of survival (Kolodko 1989). Sluggish expectations, due to the public's understandable lack of incomplete credence in the success of the stabilization, would also seem likely to be associated with an ambitious attempt to change policy abruptly in a very fluid economic and political environment. These factors would imply that--as has been true in virtually all stabilizations--a reduction in the rate of monetary expansion would not immediately result in a proportionately lower rate of inflation, but in some persistence of inflation and some temporary decline in real output. This line of explanation could be labelled a demand-side contraction (Blanchard et al. 1990). The hypothesized decline in aggregate demand associated with disinflation would be consistent with the observed improvement of the trade balance; it might also be associated with a temporary decline in real money



and thus in real credit, as the slower nominal growth of money and credit would not immediately be translated into proportionally slower inflation.

### 3. A credit crunch

An alternative way of viewing Poland's output contraction has been based on the hypothesis that credit affects aggregate supply. Calvo and Coricelli (1991) have argued that the real contraction of credit in early 1990 resulting from tight control of nominal credit expansion together with large administered price increases was so severe that it amounted to a "credit crunch", impairing enterprises' ability to finance their productive activities and thus reducing aggregate supply. Such a reduction in aggregate supply, if it occurred, would account for both the steeper-than-expected January 1990 inflation and the heavier-than-expected slump in output. Real banking-sector credit to non-government did in fact fall sharply in early 1990, dropping by 51 percent in January (in relation to the producer price index) and by 34 percent over the first quarter as a whole; as Figure 7 illustrates, this did not reflect an abrupt change in policy, but the continuation of a trend that continued through the second half of 1989.

Another aspect of this decline in credit, however, is that enterprises' nominal debts were being erased in real terms by inflation; since interest rates were sharply negative throughout the period of this decline in credit, this depreciation of nominal debt was at least partly offset by an increase in enterprise's ability to finance their activities through their own resources, due to capital gains. 1/ The latter argument must be qualified to the extent that enterprises' nominal profits were subject to taxation. Weighing the real reduction in credit against the after-tax capital gains associated with the negativity of real interest rates, the net financing available to enterprises decreased by about 13 percent in the second half of 1989 and by a further 26 percent in the first quarter of 1990. 2/

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1/ As a first approximation, if there were a fixed nominal amount of credit outstanding, and the nominal interest rate were zero, then (abstracting from taxation) these capital gains would exactly offset the reduction in the real quantity of credit available, enabling the enterprises to finance an unchanged stock of inventories.

2/ These calculations are based on (a) producer price inflation of 390 percent in the second half of 1989 and 129 percent in the first quarter of 1990; (b) average interest rates of about 6.5 percent monthly in the second half of 1989 and 25.5 percent in the first quarter of 1990; (c) credit to the socialized sector of Zl 14 trillion at the end of June 1989, Zl 31 trillion in December 1989, and Zl 46 trillion in March 1990; and (d) a tax rate of 40 percent on enterprise profits. These calculations also involve a discrete-time approximation.

Another thing that must be considered in the credit crunch story is inter-enterprise credit. Inter-enterprise claims (often essentially arrears) typically play a major role in socialist economies, and in Poland amounted to 155 percent of banking-system credit to the socialized sector at the end of 1990. Inter-enterprise credit develops partly as a mechanism for redistributing credit given the inefficiency of the financial system, partly as a form of disintermediation associated with severely negative banking-system real interest rates, partly as a result of the perception that the state would stand behind inter-enterprise claims, and partly as a result of the socialist enterprises' management reward structure, which often rewarded sold production rather than profits and thus encouraged managers to extend trade credit even if prospects of repayment were poor. In Poland in early 1990, inter-enterprise credit declined in real terms, although it increased as a share of total credit; it therefore did not compensate for the reduction in banking-system financing of the enterprises. This may to some extent have reflected a disruption of inter-enterprise credit relations a result of disruptions of supplier relationships in general, and uncertainty about policy--and in particular about the authorities' continued willingness indiscriminately to underwrite all inter-enterprise claims--may have exacerbated this situation.

A decline in real credit may have both demand- and supply-side implications; what distinguishes the "credit crunch" story from the standard analysis of disinflation is emphasis on the supply side effects--essentially, real credit in the production function, or some equivalent construction. <sup>1/</sup> Is there reason to believe that credit should have a particularly strong effect on aggregate supply--that is, that it should be particularly productive--in a socialist economy? One consideration that suggests the contrary is the widespread hoarding of inventories of inputs which many observers of socialist economies have noted; large inventories are held in the context of a shortage economy not so much to smooth production, but because of uncertainty about future supplies, as well as the usefulness of inventories in bargaining and the negativity of real interest rates.

#### 4. Monopoly power unbound

Other explanations of the severity of the output contraction would tend to focus on the effects of price liberalization and restructuring. One argument is that the freeing of prices, which proceeded progressively through the fall of 1989 the beginning of 1990, acted to unfetter the enterprises' monopoly power; if the controlled prices were initially below profit-maximizing levels, the enterprises, like good monopolists, would have responded by raising prices and lowering output. This would have lowered

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<sup>1/</sup> Calvo and Coricelli (1991) assume that enterprises face a binding "liquidity in advance" constraint; this is equivalent to including some combination of money and credit in a Leontief production function.

Figure 7: Real Credit to Non-Government  
(June 1989 ZI trillion)





real money balances, real credit, and real wages, resulting in a contraction of aggregate demand (Blanchard et al. 1990).

This argument would have to be modified for domestic monopolies producing exportable goods, as illustrated in Figure 8: if the controlled price was previously  $P^C$ , the world price  $P^W$ , and the exchange rate  $e$ , freeing prices leads the monopolist to charge a profit-maximizing price  $P^M$  while selling a quantity  $Q^M$  in the domestic market (lower than the quantity  $Q^C$  sold under controlled prices); the amount produced remains  $Q$ , while the amount exported increases from  $Q - Q^C$  to  $Q - Q^M$ . This result would be consistent with the increase in exports that occurred in early 1990. Thus, the "unfettered monopoly" story would account for a decline in output of non-traded goods, and an increase in exports. This explanation should not be over-sold in the Polish context, however, since there was not a dramatic freeing of prices, but rather a stepwise series of changes, the most important of which was the freeing of food prices in August 1989.

#### 5. Credibility and structural change

There must surely have been some other factors at work. In particular, policy uncertainty and credibility must have played an important role: enterprise managers had seen a series of reforms with some of the same ostensible goals as the 1990 program (Section II above), and there may have been a lack of credence that this program would last. <sup>1/</sup> In particular, many enterprises may have attached some probability to the re-imposition of price controls, and thus wanted to raise their prices as much as could be justified with reference to an accounting concept of costs, without regard to current market conditions; they may then have channelled some goods that remained unsold at these high posted prices into the street markets.

Another reason for a contraction would be a shift in relative demand, as a result of the move from a shortage to a market economy. Under shortages, there may have been spillovers of demand away from goods in short supply toward other goods that were available; the alleviation of shortages would therefore necessarily imply a reduction in demand for the latter goods. To the extent that it takes time for firms to alter their product mix, there would be a temporary output contraction.

The other set of factors has to do with the organization of economic activity. In a market economy, there is a complex network of customary trading relationships, implicit and explicit contracts, and acknowledged rights and obligations. It is possible to create the conditions for a market economy in its broad legal outlines, but establishing a functioning system of markets requires adjustments of millions of economic relationships. These adjustments will unavoidably take time.

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<sup>1/</sup> Lack of credibility of reforms may also vitiate their welfare benefits; see Calvo 1989.

### IX. Conclusion

The achievements of the program in its first year have been considerable. They include a substantial reduction in inflation, the end of shortages, the correction of budgetary imbalances, the convertibility for the zloty for trade purposes, substantial liberalization of trade, rapid expansion of private sector activity, strides in demonopolization and small-scale privatization (notably in retailing, road transport, and food processing), and early steps toward privatization of larger state enterprises. If these achievements seem small it is only in relation to the extremely ambitious goals of the program, and to the immense tasks that lie ahead. However, there are continuing sources of anxiety, including the persistence of inflation, the precipitous output decline in the socialized sector, and emerging signs of popular impatience with the reform program.

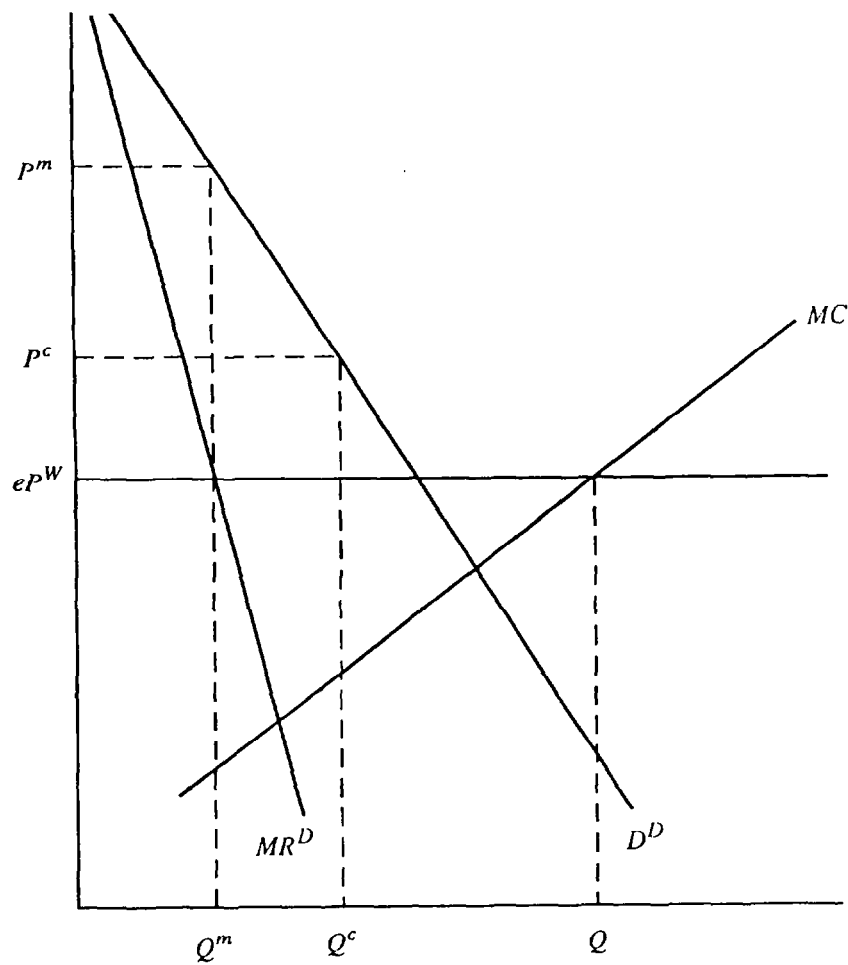
The results of the first year of the program still allows wide difference of opinion on the prognosis: will Poland repeat the hyperinflationary cycles of some Latin American countries? Can it emulate the meteoric growth of Japan and the newly industrializing economies of Asia? Or is an intermediate path more likely?

In evaluating the prospects for continued successful stabilization, political conditions are of fundamental importance. These conditions have already been put to the test, as a radical readjustment of the fiscal balance has been accomplished. It may be aided considerably by the forgiveness of at least half of Poland's official external debt, and similar debt reduction anticipated from the banks. <sup>1/</sup> However, as discussed above, this fiscal readjustment still depends on the continued success of wage controls in restraining wages and thereby sustaining enterprise profits and therefore tax revenues. It also depends on the continuation of fiscal measures already undertaken--the reduction in subsidies, the spending restraint. Furthermore, there is vulnerability associated with the transitory nature of many of the factors that improved the budget balance in 1990--in particular, the additional tax revenues deriving from enlarged bank interest rate spreads, from capital gains on inventories and foreign currency deposits, and from transitory wage decreases. Finally, if the fiscal balance is to become less precarious, the authorities must implement plans for a broader-based tax system, including a personal income tax and a value-added tax; these tax reforms are planned for January 1992.

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<sup>1/</sup> This is assuming, of course, that debt reduction actually reduces the expected present value of payments to creditors, rather than just formalizing a situation in which it was generally known that not all debt servicing commitments would be met.

Figure 8  
Domestic Monopoly







Another prerequisite for success is the implementation of structural reform measures. In this area, the privatization program is the most conspicuous priority. However, since even according to the authorities' most optimistic plans half of the state enterprises will remain under state control for at least the next three years, and since these objectives themselves will be exceedingly difficult to meet, some improvement in control over the state enterprises--including improving oversight, hardening budget constraints, breaking up monopolies, and maintaining import competition through a liberal trade and payments system--is also essential.

If the appropriate policies are pursued, Poland should be able to avoid recurrent hyperinflation, and develop in the direction of a market economy. Given the magnitude of the adjustments contemplated, however, maintaining this course will require political coherence and considerable patience.

Note on Data Sources:

All data quoted in the text can be found in publicly available sources. Monetary data are published in the Monthly Information Bulletin of the National Bank of Poland (Narodowy Bank Polski). Other data are contained in various issues of Rocznik Statystyczny and Informacja Statystyczna, published by the Central Statistical Office (GUS).

Figure 1: Monthly change in Retail Price Index.

Figure 2: Monthly nominal refinance rate of National Bank of Poland. Real refinance rate, ex post (deflated by Retail Price Index). Calculations of real rate reflect the fact that the announced rate is compounded quarterly.

Figure 3: Minus the quarterly change in banking system net credit to general government, in June 1989 zloties (deflated by Retail Price Index).

Figure 4: Monthly trade balance in convertible currencies, in millions of US dollars. Monthly change in Net International Reserves of banking system, in millions of US dollars.

Figure 5: Average nominal monthly wages in the five main areas of the material sphere of the socialized sector, deflated by Retail Price Index; expressed as index, June 1989=100.

Figure 6: Money and quasi-money held by enterprises and households, in June 1989 zloties (deflated by Retail Price Index). Zloty money includes zloty-denominated currency, sight, time and saving deposits. Broad money includes zloty money as well as foreign-currency deposits; for 1989, foreign-currency deposits of households are valued at free market exchange rate, while those of enterprises are valued at most recent Export Development Bank auction rate.

Figure 7: Banking-system credit to nongovernment (including both socialized and non-socialized sectors) in June 1989 zloties (deflated by Retail Price Index).

### References

- Balcerowicz, L., "Polish Economic Reform, 1981-88: An Overview," in Economic Reforms in the European Centrally Planned Economies, United Nations Economic Commission for Europe Economic Studies No. 1 (New York: United Nations, 1989), pp. 42-50.
- Beksiak, J., "Role and Functioning of the Enterprise in Poland," in Economic Reforms in the European Centrally Planned Economies, United Nations Economic Commission for Europe Economic Studies No. 1, (New York: United Nations, 1989), pp. 117-22.
- \_\_\_\_\_, Gruszecki T., A. Jedraszczyk, and J. Winiecki, "Outline of a Program for Stabilization and Systemic Change," in The Polish Transformation: Programme and Progress (London: Centre for Research into Communist Economies, 1990), pp. 9-59.
- Blanchard, O., and R. Layard, "Economic Change in Poland," in The Polish Transformation: Programme and Progress (London: Centre for Research into Communist Economies, 1990), pp. 63-83.
- \_\_\_\_\_, Dornbusch R., P. Krugman, R. Layard, and L. Summers, "Reform in Eastern Europe and the Soviet Union," (mimeographed, New York: United Nations-WIDER, November 1990).
- Borensztein, E., and M.S. Kumar, "Proposals for Privatization in Eastern Europe," Staff Papers (Washington: International Monetary Fund, June 1991), Vol. 38, No. 2, pp. 300-326.
- Bruno, M., G. Di Tella, R. Dornbusch, and S. Fischer, "Inflation Stabilization" (Cambridge, Massachusetts: MIT Press, 1988).
- Calvo, G., "Incredible Reforms", in Debt, Stabilization and Development: Essays in Memory of Carlos Diaz-Alejandro, ed. by Guillermo Calvo, Ronald Findlay, Pentti Kouri, and Jorge Braga de Macedo (Oxford: Basil Blackwell, 1989), pp. 217-234.
- \_\_\_\_\_, and Coricelli F., "Stagflationary Effects of Stabilization Programs in Reforming Socialist Countries: Enterprise-side versus Household-Side Effects," World Bank Economic Review (forthcoming, 1991).
- Calvo, G., and J. Frenkel, "From Centrally-Planned to Market Economies: The Road from CPE to PCPE," Staff Papers (Washington: International Monetary Fund, June 1991), Vol. 38, No. 2, pp. 268-299.
- Credit Suisse-First Boston and Oxford Analytica, "Historical Precedents for Economic Change in Central Europe and the USSR", 1990.

- Commander, S., and F. Coricelli, "Levels, Rates and Sources of Inflation in Socialist Economies: A Dynamic Framework" (mimeographed: World Bank, 1990).
- Dornbusch, R., and M. H. Simonsen, Inflation Stabilization with Incomes Policy Support (New York: Group of Thirty, 1987).
- Frydman, R., and A. Rapaczynski, "Markets and Institutions in Large-Scale Privatizations: An Approach to Economic Transformations in Eastern Europe" (mimeographed, New York: New York University, October 1990).
- Genberg, H., "On the Sequencing of Reforms in Eastern Europe," Working Paper No. WP/91/13 (Washington: International Monetary Fund, February 1991).
- Gomulka, S., "Reform and Budgetary Policies in Poland, 1989-90," European Economy, No. 43 (March 1990), pp. 127-37.
- Kenen, P.B., "Transitional Arrangements for Trade and Payments Among the CMEA Countries," Working Paper No. WP/90/79 (Washington: International Monetary Fund, September 1990).
- Kolodko, G., "Economic Reform in Socialism and Inflation: Determinants and Interrelations," Eastern European Economies, Vol. 27, No. 3 (Spring 1989), pp. 36-49.
- \_\_\_\_\_, "Crisis, Adjustment and Growth in a Socialist Economy: Political Challenges and the Dilemmas of Economic Science," Warsaw, Institute of Finance, Working Paper No. 7, 1990.
- \_\_\_\_\_, "Inflation Stabilization in Poland: A Year Later." Paper presented at "Building the New Europe: Single Market and Process of Integration of Eastern Countries" (Universita di Roma, La Sapienza, January 1991).
- Kornai, J., The Economics of Shortage, (Amsterdam: North-Holland, 1980).
- Lane, T.D., "Wage-Bill Ceilings, Employment and Privatization," (mimeographed, Washington: International Monetary Fund, March 1990(a)).
- \_\_\_\_\_, "The Demand for Money in Poland: Theory and Evidence" (mimeographed, Washington: International Monetary Fund, April 1990(b)).
- \_\_\_\_\_, "Costly Portfolio Adjustment and the Short-Run Demand for Money," Economic Inquiry, Vol. 28, No. 3 (July 1990(c)), pp. 466-487.
- \_\_\_\_\_, and E. Dinopoulos, "Fiscal Constraints on Market-Oriented Reforms in a Socialist Economy" (mimeographed, Washington: International Monetary Fund, February 1991).

- Lipton, D., and J. Sachs, "Creating a Market Economy in Eastern Europe: The Case of Poland," Brookings Papers on Economic Activity, 1990, No. 1, pp. 75-147.
- \_\_\_\_\_, and \_\_\_\_\_, "Privatization in Eastern Europe: The Case of Poland", Brookings Papers on Economic Activity, 1990, No. 2, pp. 293-341.
- McKinnon, R., "Liberalizing Foreign Trade in a Socialist Economy: The Problem of Negative Value Added," (mimeographed, Stanford, California: Stanford University, October 1990).
- Mujzel, J., "Aims of Economic Policy and their Implementation in Poland," in Economic Reforms in the European Centrally Planned Economies, United Nations Economic Commission for Europe Economic Studies No. 1 (New York: United Nations, 1989), pp. 191-200.
- Nuti, M., "Hidden and Repressed Inflation in Soviet-Type Economies: Definitions, Measurements and Stabilization," Contributions to Political Economy Vol. 5 (March 1986), pp. 37-82.
- \_\_\_\_\_, "Remonetization and Capital Markets in the Reform of Centrally Planned Economies," European Economic Review, Vol. 33, No. 2-3 (March 1989), pp. 427-38.
- \_\_\_\_\_, "Internal and External Aspects of Monetary Disequilibrium in Poland," in Economic Transformation in Hungary and Poland, European Economy, No. 43 (March 1990), pp. 181-196.
- Osband, K., "Economic Crisis in a Shortage Economy," Working Paper No. WP/91/38 (Washington: International Monetary Fund, April 1991).
- Podkaminer, L. "Disequilibrium on Poland's Consumer Markets: Further Evidence on Intermarket Spillovers," Journal of Comparative Economics, Vol. 12, No. 1 (March 1988), pp. 43-60.
- \_\_\_\_\_, "Macroeconomic Disequilibrium in Centrally Planned Economies: Identifiability of Econometric Models Based on the Theory of Household Behavior Under Quantity Constraints," Journal of Comparative Economics Vol. 13, No. 1 (March 1989), pp. 47-60.
- Polish Government, Commission of the European Communities, and World Bank, An Agricultural Strategy for Poland: Report of the Joint Polish/EC/World Bank Task Force, July 1990.
- Portes, R. "On the Theory and Measurement of Macroeconomic Disequilibrium in Centrally Planned Economies", in Models of Disequilibrium and Shortage in Centrally Planned Economies, ed. by C. Davis and W. Charemza, (London: Chapman and Hall Ltd., 1989(a)), pp. 27-47..

- \_\_\_\_\_, "The Development of the Domestic Capital Market in Centrally Planned Economies," European Economic Review, Vol. 33 (1989(b)), pp. 466-471.
- \_\_\_\_\_, "Introduction," in Economic Transformation in Hungary and Poland, European Economy, No. 43 (March 1990), pp. 11-18.
- \_\_\_\_\_, "The Transition to Convertibility for Eastern Europe and the USSR," Centre for Economic Policy Research Discussion Paper, 1991.
- \_\_\_\_\_, R.E. Quandt, D. Winter, and Stephen Yeo. "Macroeconomic Planning and Disequilibrium: Estimates for Poland, 1955-1980," Econometrica, Vol. 55, No. 1 (January 1987), pp. 19-41.
- Sargent, T.J., "The End of Four Big Inflations," in Inflation, ed. by Robert E. Hall (Chicago: University of Chicago Press and NBER, 1982).
- \_\_\_\_\_, and Neil Wallace, "Some Unpleasant Monetarist Arithmetic," in Rational Expectations and Inflation by Thomas J. Sargent, (New York: Harper and Row, 1986), pp. 158-190.
- Tanzi, V., "Inflation, Lags in Collection, and the Real Value of Tax Revenues," Staff Papers (Washington: International Monetary Fund, March 1977), Vol. 24,.
- \_\_\_\_\_, "Mobilization of Savings in Eastern European Countries: The Role of the State," Working Paper No. WP/91/4 (Washington: International Monetary Fund, January 1991(a)).
- \_\_\_\_\_, "Tax Reform in Economies in Transition: A Brief Introduction to the Main Issues," Working Paper No. WP/91/23 (Washington: International Monetary Fund, March 1991(b)).
- Welfens, Paul J.J., and Maria J. Welfens, "The Socialist Shadow Economy: Causes, Characteristics and Role for Systemic Reforms," (mimeographed, American Institute for Contemporary German Studies/Johns Hopkins University and University of Duisberg, January 1991).
- Wolf, T., "Devaluation in Modified Planned Economies: A Preliminary Model for Hungary," in Economic Adjustment and Reform in Eastern Europe and the Soviet Union: Essays in Honor of Franklyn D. Holzman, ed. by Josef C. Brada, Ed A. Hewett, and Thomas A. Wolf, (Durham, North Carolina: Duke University Press, 1988), pp. 39-71.
- \_\_\_\_\_, "Macroeconomic Adjustment and Reform in Planned Economies," Working Paper No. WP/90/27 (Washington: International Monetary Fund, April 1990).