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Chapter Author: Andrew Berg, Olivier Jean Blanchard

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2   Stabilization and Transition: Poland, 1990–91

Andrew Berg and Olivier Jean Blanchard

Poland has had two tumultuous years. Since stabilization and price liberalization in January 1990, it has been hit by two large shocks. The first, in early 1990, was associated with stabilization. The second, in early 1991, was associated with the collapse of Soviet trade. Those shocks have shaped the process of transition. State firms, which had a lot of adjustment to do, have not done well. In contrast, the private sector has grown fast, but from a narrow and uneven base. The issues for the future are clear: how and how much of the state sector will adjust and survive and whether the private sector can grow fast and wide enough to take up the slack.

Our paper takes stock of these two years. We do not offer a detailed historical narrative as many descriptions of decisions and events have already been given elsewhere.[1] Rather, after providing a brief summary of policies and events since 1990 in section 2.1, we take up five specific issues. In sections 2.2 and 2.3, we examine the causes of the two sharp output drops of early 1990 and early 1991. In sections 2.4 and 2.5, we examine the evolution and behavior of state firms and the growth of the private sector. In section 2.6, we analyze the evolution of inflation. We end, in section 2.7, by drawing the implications of our analysis for the near and medium terms.

1. A partial bibliography includes Lipton and Sachs (1990), Gomulka (1991), Coricelli and de Rezende Rocha (1991), and Lane (1991), which focus on the initial effects of the stabilization program. More recent accounts include Gomulka (1992b), Berg and Sachs (1992), and Schaffer (1992a). Schaffer also gives a useful description of the historical background and of the effects of the reforms of the 1980s. As of the time of this writing, the most up-to-date assessment is in Gomulka (1992a). Finally, the OECD economic survey on Poland is due out soon.

2.1   Policies and Events

2.1.1   The Initial Reform Package

The year 1989 had been characterized by budget deficits, high growth of domestic credit, and, in the end, hyperinflation. The macroeconomic part of the reform package, designed during the last quarter of 1989 and implemented on 1 January 1990, had four main components:

1. *Fiscal consolidation.* The budget was to move from a deficit of about 3 percent of GDP in the last quarter of 1989 to rough balance in 1990, mainly through a decrease in subsidies.

2. *Control of inflation through the control of growth of domestic credit.* This was to be achieved through high refinance rates for banks, 36 percent at a monthly rate for the month of January.

3. *A tight incomes policy aimed at limiting wage growth.* A firm-specific wage-bill norm was established and only partially indexed to inflation, with heavy penalties for payments of wages in excess of the norm. No such restrictions were put on prices, allowing firms to make the required adjustments in relative prices.

4. *Convertibility of the zloty.* In the absence of large international reserves, and without much knowledge as to how the shift to convertibility and changes in relative prices would shift exports and imports, the exchange rate was set and pegged low. At the initial exchange rate, the average Polish wage in industry was $0.40 an hour. Tariff rates were decreased to an average of 10 percent and made more uniform. And the pervasive quantitative restrictions and licensing requirements on trade were largely eliminated.[2]

The main element of reform on the microeconomic side was price liberalization. Food prices had been freed in August 1989. The proportion of controlled prices was further decreased from 50 percent to 10 percent. Most remaining regulated prices, especially energy prices, were sharply increased, although not to world levels and with further increases planned for later. The legal status of state firms remained unchanged, but with the government signaling a clear change in the rules governing relations between these firms and the state. Firms could no longer expect ad hoc transfers from the budget to make up for losses, as had been the case in the previous regime. Attempts had been made to tighten these policies during 1989, but January 1990 was a clear break from the past. Bankruptcy rules for state enterprises were clarified and strengthened, and firms widely feared that laws on the books for many years would now be enforced. The assets serving as the base for the "dividend tax" levied by the government on firms were revalued for inflation, and failure to pay the tax was made a trigger for starting bankruptcy proceedings. Definition and implemen-

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2. For further discussion of how the exchange rate was chosen, see Gomulka (1992b). For a discussion of the role of convertibility, see Berg and Sachs (1992).

tation of the more complex and politically delicate structural reforms, such as privatization, had to be left to later.

2.1.2   1990

Together with the virtually instantaneous elimination of rationing, the effects of the January program were a sharp increase in prices and a sharp decrease in activity. (Table 2.1 gives basic macroeconomic statistics from the last quarter of 1989 to the last quarter of 1991.) The consumer price index (CPI) rise by 80 percent in January.[3] With nominal wages unchanged, measured real wages fell by 40 percent. Sales from industry were down by 20 percent in January. One happy surprise was a trade surplus, or at least a measured trade surplus, as some imports surely went unrecorded. Both exports and imports in convertible currency were up in the first quarter (over the first quarter of 1989), and for the year as a whole the trade surplus was an impressive 4 percent of GDP.

With the jump in prices, real zloty money balances fell by 33 percent in January, although they recovered to 96 percent of the December level by March. And the budget surplus was much larger than anticipated, some 2 percent of GDP in the first quarter. The source of the windfall was large reported profits by state firms and thus large revenues from the profit tax; these profits were, however, in part paper profits coming from high inflation and the use of historical costs for inputs of firms.

Political pressures from the recession, the large decrease in measured real wages, and the initial budget surplus combined to encourage a less restrictive macroeconomic policy during the second half of 1990 (see, e.g., Dabrowski 1991). The lid on government expenditures was loosened. Nominal interest rates were lowered, leading to negative ex ante real rates. The initial parity of the zloty proved, however, easy to defend, and the nominal exchange rate was maintained throughout the year.

Progress on the microeconomic front was slow. Progress on privatization in particular was uneven, both in 1990 and in 1991. Once new local governments were in place in the spring of 1990, privatization of retail shops proceeded steadily, mostly through leasing. By the end of 1991, it was largely achieved. A comprehensive privatization law was passed in July 1990, after intense political debate. And, as a result, some progress was also made in the privatization of small- and medium-sized firms, usually through lease-to-buy arrangements. But, in sharp contrast, there was in effect no progress in the privatization of large firms. The law envisaged privatization of these large firms mainly through case-by-case sales. The result was a grand total of twenty-six firms sold by the end of 1991. As a result, the Treasury has remained to this day the de jure owner of state firms.

3. The CPI in Poland is here and usually measured as the change of the average price level from month to month. The PPI, in contrast, is measured as the change from the beginning to the end of the month.

Table 2.1   **Poland, 1990/1991: Basic Macroeconomic Statistics**

	1989:4	1990:1	1990:2	1990:3	1990:4	1991:1	1991:2	1991:3	1991:4
Index of real sales	1.00	.77	.72	.74	.75	.65	.57	.57	.57
Employment	17.6				16.5				15.9
State	11.7				10.0				8.8
Private	1.8				2.3				3.0
Unemployment rate (%)	.0	1.5	3.1	5.0	6.1	7.1	8.4	10.4	11.4
CPI inflation (%)	31	32	5	3	5	8	3	2	3
Exports:									
Rubles (millions)	3,910	2,688	3,110	2,205	3,011	561	560	84	175
Dollars (millions)	2,412	2,182	2,705	3,133	4,000	2,751	3,459	3,196	4,812
Imports:									
Rubles (millions)	2,725	1,706	1,505	1,443	1,985	558	163	68	47
Dollars (millions)	2,182	1,573	1,465	1,825	3,391	3,050	3,457	3,047	4,692
Markups (%)	40	31	29	28	24	16	14	19	13
Government surplus									
(%)	−3.6	1.6	3.4	1.7	−3.9	−2.4	−3.6	−3.8	−3.1
Refinance rate	11.7	22.0	5.8	2.8	4.3	5.5	5.3	3.8	3.3

Note: The index of real sales is measured in the last month of each quarter. Employment is measured in thousands at the end of the year. Private employment does not include agriculture. Unemployment is in the last month of each quarter, expressed as the share of the labor force. CPI inflation is average monthly inflation for the quarter. Exports and imports are for the quarter, in millions of rubles and dollars. The markup is defined as (sales − costs)/costs for the quarter, for the socialized sector. Government surplus is for the quarter, as a percentage of GDP. It is computed as the surplus as a share of expenditures, multiplied by the ratio of expenditures to GDP for the year. The refinance rate of the NBP is the average monthly rate for the quarter.

Despite the less restrictive macroeconomic policy in the second half of the year, overall economic activity remained relatively flat. The main aggregate developments were a steady fall in employment in state firms and a steady increase in employment in the private sector. By the end of the year, employment in the state sector stood at 10 million, down by 1.7 million workers; employment in state firms in industry was 3.6 million, down by about 0.9 million. The proportional decrease was, however, less than the decrease in output so that, at the end of the year, labor productivity in industry was still equal to only 90 percent of its prestabilization value. Profit rates were also steadily lower throughout the year. Markups, defined as profits over accounting costs, were down from 40 percent in the last quarter of 1989 to 24 percent in the last quarter of 1990. This had direct fiscal implications through the fall in profit taxes. By the last quarter, the budget surplus had turned into deficit.

Employment decline in the state sector was partly offset by growth of private employment. Measured private nonagricultural employment grew by 31 percent to 2.3 million at the end of 1990. This was, however, insufficient to prevent a steady rise in unemployment, and the unemployment rate at the end of the year stood at 1.1 million, or about 6.5 percent of the labor force. Finally, as is often the case in stabilization episodes, inflation was down but not out. Excluding the January price adjustment, inflation remained at a relatively high average rate of about 5 percent for the rest of the year.

Thus, the first year of reform was characterized by a sharp contraction at the beginning and divergent evolutions of the state and private sectors thereafter. Because of the many statistical and conceptual problems involved, the magnitude of the fall in GDP is controversial. Official numbers put the decline at 12 percent. Estimates from Berg and Sachs (1992) suggest a number closer to 5 percent.

2.1.3   1991

At the beginning of 1991, the Polish economy was hit by a severe external shock, the collapse of the CMEA (Council for Mutual Economic Assistance) trade regime. The end of the CMEA was associated with both a large terms-of-trade shock and, more important, a large decrease in the volume of trade. The increase in import prices from former CMEA countries for the first two quarters of 1991 over the first two quarters of 1990 was 161 percent, the increase in export prices only 23 percent. Decreases in import and export volumes with former CMEA countries over the same periods were 39 percent and 40 percent, respectively.

The collapse of trade coincided with a tightening of macro policy, in response to what was perceived as too lax a stance during the second part of 1990. Refinance rates were increased to 6 percent monthly from February on. The results of the CMEA shock and tighter policy were a further sharp drop in output and another sharp increase in prices. Sales from industry were down another 25 percent over the first two quarters; inflation was equal to 12 percent

in January. In May 1991, to slow down the real appreciation of the zloty, the exchange rate was moved to a slow crawling peg, implying a depreciation vis-à-vis the dollar of about 1.8 percent a month, smaller than inflation.

The rest of the year was a broad replay of 1990, with a decline in the socialized sector and rapid expansion in the private sector. There was limited action on microeconomic reforms. In particular, as we already mentioned briefly, large state enterprises remained in limbo as almost none were privatized and the state did not exert ownership rights. Employment in state firms declined by another 1.2 million, to 8.8 million. Again, the decline in employment was not enough to reestablish labor productivity, which at the end of 1991 stood at only 78 percent of its prestabilization level. In contrast, nonagricultural private employment was up another 31 percent, to about 3 million workers. Thus, by the end of the year, some 45 percent of employment (and 26 percent of nonagricultural employment) was in the private sector. By the end of the year, the unemployment rate was equal to 11.4 percent.

Profit rates declined further throughout the year. Markups in the last quarter were down to 13 percent, and net profits were −6.5 percent of sales for the economy as a whole.[4] The direct implication was a growing fiscal deficit, of 4.5 percent for the year, both because of lower accrued taxes and because of increasing tax arrears. Tax arrears at the end of the year were equal to 12 percent of total tax revenues for the year.

Official estimates are that the decrease in GDP for 1991 was roughly 8–10 percent. In contrast to 1990, real consumption was up, by 6 percent. Fixed investment was down by about 10 percent. And the trade position, which had shown a surplus of 4 percent of GDP in 1990, was roughly in balance in 1991. Total real imports (including trade with former CMEA countries) were up 39 percent; total real exports were constant. Inflation for the year was still a high 60 percent.

As a result of parliamentary elections in November 1991, Lezcek Balcerowitz, who had been the architect of the economic reform under both the Mazowiecki and the Bielecki governments, was replaced as minister of finance. One of the most urgent tasks confronting the new Olszewski government was to control the fiscal crisis triggered by the near disappearance of profits in state firms.[5]

2.1.4   Five Issues

Having sketched the landscape, we now ask five more specific sets of questions. (1) What were the causes of the output decline of early 1990? Was it primarily due to the dislocations implied by the move to a market economy or

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4. The numbers for markups for 1990 and 1991 are not strictly comparable. In particular, "costs of financial operations" were taken out of "costs of own sales" in 1991. Thus, the numbers in table 2.1 for 1991 may overestimate markups by 2–3 percent. We thank Mark Schaffer for pointing this out to us.

5. For further details, see de Crombrugghe and Lipton (in vol. 2).

instead to a demand contraction? (2) What were the causes of the other sharp decline in output at the beginning of 1991? What was the role of the CMEA collapse? Was the effect through dislocations or through a fall in external demand? (3) How should one think of the evolution of state firms over the last two years? Have we seen the orderly decline and transformation of a sector that was too large in the first place? Or have we seen increasing paralysis, without much restructuring? (4) Where and how has the private sector grown? Is it filling some holes and not others; is it replacing or complementing the state sector? (5) Why did prices increase so much at the beginning, and why has inflation been so persistent since? To what failures of policy—incomes, micro-, or macroeconomic, if any—can it be ascribed? The answers to these questions are critical, not only in helping design reform plans for other countries, but also in assessing the issues facing Poland in the near and medium term. We take these five questions in turn.

2.2   The Initial Decline in Output

With the implementation of the reform program in January 1990, there were many reasons to expect a drop in output, surely more so than in the typical stabilization.

It was plausible to expect a large drop in aggregate demand. In addition to conventional reasons, in particular the fiscal consolidation and the decrease in money growth, there are others specific to stabilization in this unusual type of economy. Dishoarding, not only of traditionally high inventories in Soviet-type economies, but also of inventories accumulated by firms and people in anticipation of price liberalization, might lead to a fall in sales and a further fall in production given sales. Unusually high uncertainty as to what the future holds might lead workers to increase saving and firms to suspend investment plans. Despite the low exchange rate, the sudden availability of foreign goods might lead to a sharp increase in imports and a fall in domestic demand. And, in contrast with the situation in other East European countries at the time of stabilization, partial price liberalization and the high inflation of 1989 had left little if any "overhang": the ratio of financial assets to income for households was only 3.7 months in December 1989.

But there were also reasons to expect that the large reallocation of demand implied by the change in relative prices and the elimination of rationing might also lead to a decline in aggregate output: sectors facing a decrease in demand would decline; sectors facing an increase might be unable to respond. There were even good reasons to fear widespread supply constraints, as the reform program might lead, for example, to large dislocations in the distribution system, preventing inputs from going to firms or goods from getting to consumers.

In the event, there was indeed a sharp drop in output. At least in the state sector—for which reliable monthly data are available—the decrease in sales was nearly instantaneous. Sales from industry were down by 20 percent in

January, by 24 percent over the first quarter. The decrease was across the board: 93 percent of all three-digit branches had declines over the first quarter.[6] Within industry, the decrease was largest in consumer goods and smallest in heavy manufacturing and mining.

That there was also a large reallocation of demand is not in doubt. The standard deviation of sales changes across three-digit branches in industry in the first quarter of 1990 was 14 percent, a large number by normal Western standards.[7] And the standard deviation of relative price changes was 23 percent. But the evidence, to which we now turn, suggests that the output drop was mostly due to a shift in aggregate demand.

First, the perception of the firms themselves was that the proximate cause of the drop in output was a sharp drop in their demand. Surveys of several hundred state enterprises reported in Gorski, Jaszczynski, and Geryszewska (1990) show that, whereas, in November 1988, 87 percent of firms had perceived their market as being either balanced or in "excess demand," in February 1990, 97 percent perceived it as either balanced or in "excess supply," with 48 percent in the category "state of relative surplus: relative lack of demand in relation to real possibilities of production; inventories being amassed; price discounts, etc." Only 9 percent indicated any inability to meet demand.[8] Firms in a survey of about 700 industrial enterprises carried out every few weeks from 1989 to 1991 (CRETM 1990) stated that, of the "factors limiting the growth of output in the enterprise," supply and employment shortages were the limiting factors in 62 percent of firms in October 1989, 37 percent in January 1990, and 10 percent by April. Finally, in their study of nine Polish firms, Jorgensen, Gelb, and Singh (1991) summarize the managers' perceptions of the initial output drop as coming nearly entirely from demand, with dislocations, credit, and other factors as "irritants."

Had supply bottlenecks and other disruptions been prevalent, many firms would have operated along the vertical portion of their supply curve; thus, prices would have risen to clear markets, and, given incomes policy and the resulting sharp constraints on wage increases, markups of prices over costs should also have gone up. It turns out that, while prices were indeed sharply higher in January, something at which we shall look in detail in section 2.6, the increase is more than accounted for by the increase in costs, and markups of prices over costs were sharply down. The average markup of prices over accounting costs for state firms was down from 40 percent in the last quarter of 1989 to 31 percent in the first quarter of 1990. And the markup was down in sixty-six out of eighty-five branches at the three-digit level.

A cleaner test along the same lines is provided by the behavior of finished

6. This is seventy-nine out of eighty-five branches in industry. The sample of branches excludes branches with growth either below −60 percent or above 50 percent, in which case we suspect that the change reflects reclassification rather than actual change, and excludes branches with sales of less than Zl 100 billion in the last quarter of 1989.

7. The sample of branches is the same as is outlined in no. 6 above.

8. This survey was conducted once in November 1988 and once in March 1990.

goods inventories. If production bottlenecks were behind the decrease in output, one would have expected firms constrained in production to satisfy sales as much as possible out of inventories and thus inventory to be decumulated. But if demand contraction was the proximate cause of the output decline, one would have expected instead firms at the beginning both to cut production and to accumulate inventories.

Thus, in appendix A, we look at both the aggregate and the cross-sectional evidence on inventories. The examination is fraught with measurement problems, the main one being the issue of proper deflation of existing stocks. Doing our best, we reach two main conclusions.

First, while the evidence is ambiguous on the movement of inventories in trade at the beginning of the year, there was clearly a large increase in finished goods inventories in industry at the beginning of 1990, followed by decumulation later in the year. This conclusion is consistent with the evidence from data on quantities produced. Schaffer (1992a) constructs a production index for industry directly from quantity data and concludes that the decline in sales was much larger than that in production in January 1990.

Second, turning to the cross-sectional evidence, we find that 90 percent of three-digit branches in industry had an increase in finished goods inventories in the first quarter. And, in a cross-sectional regression of changes in inventories on initial inventories and changes in sales, we find a clear relation between sales declines and inventory accumulation. This suggests that decline in demand and not difficulties with production was the proximate cause of the fall in sales. The sector where the relation appears not to hold is the food-processing sector, where indeed anecdotal evidence suggests that there were serious distribution problems in early 1990.[9]

Using our cross-sectional data on three-digit branches, we explore further a hypothesis advanced by Calvo and Coricelli (1991). Examining the Polish macroeconomic evidence, they suggest that part of the output decline was indeed due to supply constraints, themselves due to the sharp fall in working credit preventing firms from buying inputs needed in production. Thus, we first add the change in working credit to our inventory regressions and estimate the relation between changes in inventories, sales, and working credit either by OLS or by using initial working credit as an instrument for changes in credit. We find a strong effect of working credit. Given sales, firms that were more credit constrained in the first quarter of 1990 satisfied those sales more from inventories than from production. We then look at the relation of sales themselves to working credit. We find only a weak relation; the evidence does not appear to support a strong effect of working credit on sales through the supply side.[10]

9. This sector is also the only one where the private sector was sufficiently developed initially to seriously encroach on the state firms within the first quarter.

10. These regressions are not the last word on this issue. Since the writing of our first draft, Calvo and Coricelli have used our data to estimate alternative specifications and have found that, if the specification is one of the rate of change of sales on the rate of change of working credit,

Turning to the causes of the decrease in demand, the evidence is clear that it was not a sudden shift toward imports or a loss of export markets, as was to be so dramatically the case in East Germany later in 1990. At the new exchange rate, exports in convertible currency were sharply up, imports in convertible currency slightly up, with a—measured—net trade surplus as a result.[11] The proximate sources of the demand contraction were decreases in both consumption and investment demand. Despite a large decrease in real wages, and thus a larger decline in disposable income than in output, personal saving was up substantially for the first half of the year. Just as for wage restraint, which we shall document in section 2.6, this was probably because of uncertainty about the future. It may have also been from the desire to rebuild real balances. Over the year, there was some recovery of consumption, in line with real wages. But this was offset by inventory decumulation and declining investment, keeping demand and output low.

The conclusion that a drop in aggregate demand rather than dislocations was in large part responsible for the initial output decline implies that one cannot avoid the question asked by Bruno (in this volume): Could this sharp contraction have been partly avoided? With the benefit of hindsight, the answer must be a qualified yes. Profit taxes, coming largely from paper profits due to the valuation by firms of inputs at historical cost and from the revaluation of foreign deposits, were larger than expected. As we shall argue later when examining inflation, and as is suggested by Schaffer in his Comment on our paper, the effect of the large profit taxes was to lead to low nominal wage increases and thus to lower disposable income of workers and lower consumption demand. In retrospect, the budget surplus was probably both too contractionary and the source of pressures for increased spending later in the year, a dangerous course as high revenues, largely due to inflation, were temporary. But we emphasize the importance of hindsight here. Guessing what would happen to aggregate demand, the trade balance, and capital flows in January 1990 was at best a difficult exercise, and credibility required erring, if anything, on the side of excess.[12]

2.3   The Collapse of the CMEA and the Second Output Decline

In January 1991, the Polish economy was shaken by another major shock, the breakdown of trade within the CMEA.[13]

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the relation between sales and working credit is stronger than the relation that we report in app. A. We see, however, our findings of a strong positive relation between sales declines and inventory accumulation as powerful evidence against their pure hypothesis, which clearly predicts a negative relation.

11. Berg and Sachs (1992) find no positive relation between import penetration and declines in output across industries.

12. For a related discussion, see Dornbusch (1991).

13. For a detailed examination of Poland, Hungary, and Czechoslovakia, see Rodrik (in vol. 2).

Until the end of 1990, trade between most socialist countries had taken place under CMEA arrangements. Prices were set in a common unit of account, the transferable ruble, and the general principle was one of balanced trade.[14] While relative prices in rubles were supposed to reflect relative world prices, the relative price of finished goods in terms of materials was substantially higher than the relative world price. Thus, a country like Poland, for which the share of industrial goods in exports to the Soviet Union was more than 80 percent and the share of raw materials in imports from the Soviet Union was more than 55 percent, had particularly favorable terms of trade under CMEA arrangements.

Was Poland buying cheap oil from the Soviet Union—compared to world prices—and selling normally priced industrial goods, or was it instead buying oil at world prices and selling industrial goods above world prices? From an economic point of view, this is irrelevant: with balanced trade between the two countries, all that mattered was the terms of trade.[15] But the answer matters in understanding what happened to measured CMEA exports and imports when there was a shift to world—dollar—prices. What is needed is the exchange rate between the transferable ruble and the dollar. There were two such rates. The first was the official CMEA (IBEC) rate, which in 1990 was about $1.50 per ruble. At that rate, oil was priced in line with world prices, and finished goods were priced much above world prices. The second was the rate used by the National Bank of Poland (NBP), which was $0.22 per ruble in 1990. At that rate, both oil and finished goods were underpriced, oil more so than finished goods. To consolidate ruble and dollar transactions, Polish statistics used the second rate. At that rate, the share of trade with the Soviet Union in 1989 was 21 percent for exports and 18 percent for imports. At the official CMEA rate, the numbers were 46 percent and 37 percent, respectively.

It was widely understood in 1990 that the end of the year would mark the end of CMEA trade arrangements and would be associated both with a terms-of-trade shock and a decrease of trade between CMEA countries. Indeed, throughout 1990, there was already a steady shift in ruble-to-dollar trade within the CMEA, varying in degree across CMEA partners. While, in the first quarter of 1990, 20 percent of exports and 23 percent of imports with the Soviet Union were settled in dollars, the numbers were 44 percent and 76 percent at the end of the year.

At the end of 1990, a careful survey was conducted, asking Polish and Soviet importers and exporters what quantities and at what prices they thought they would import and export after the shift (Rosati 1990). The first conclusion was that, compared to preshift dollar prices using the NBP rate to convert rubles to dollars, import prices would increase by a factor of four, export prices by a factor of three, thus leading to an adverse terms-of-trade shift. The second

14. A detailed description of CMEA trade is given in World Bank (1989).
15. Here we differ from Rodrik's (in vol. 2) position that the "right" rate is, in any useful sense, the International Bank for Economic Cooperation (IBEC) rate.

conclusion was that the volume of Polish exports to the Soviet Union would decrease by 20 percent and that the volume of Polish imports from the Soviet Union would also decrease by 20 percent.

The shock to the economy turned out to be larger than this survey anticipated.[16]

The increase in import prices from former CMEA countries for the first two quarters of 1991 compared to the first two quarters of 1990 was 161 percent, the increase in export prices only 23 percent.[17] These smaller than expected increases in export prices probably reflect the fact that part of the adjustment had already taken place in 1990 and that firms had been overly optimistic as to the quality of their goods. The decreases in import and export volumes were 39 percent and 40 percent, respectively, thus larger than expected. The decrease in the value of exports to the Soviet Union was particularly large; in contrast, the value of trade with Hungary and Czechoslovakia was only marginally down. It appears in retrospect that much of the decrease in volume was due not so much to a shift in CMEA country demand toward non-CMEA products as to the collapse of the Soviet Union and to the payments mechanism. As a result, the overall trade balance, which had shown a surplus of about $1 billion in the first two quarters of 1990, was balanced in the first two quarters of 1991.

The result of the shock was another large drop in output. Industrial output in February was 20 percent below that of December and roughly remained there for the rest of the year. The output drop was accompanied by another large increase in the price level. Inflation for January was 12.7 percent. The increase in prices was due both to a large increase in the price of CMEA imports and to further elimination of a number of subsidies.

An important question is whether and by how much the CMEA shock was compounded by tight credit policies at the beginning of 1991. It was widely felt at the end of 1990 that the incomes policy was in danger of failing[18] and that monetary policy had been too lax in the second half of 1990. Nominal interest rates were increased from November on, reaching annual rates of 72 percent from February to April, and then decreasing again to reach 40 percent in October. In appendix B, we take a first pass at this question by examining the cross-sectional evidence on changes in sales, CMEA exports, and CMEA imports.

We look at changes in those variables for the first five months of 1991 over

16. The degree to which enterprise managers underestimated the effects of the CMEA shock is surprising in retrospect. Government efforts to provide restructuring assistance in 1990 to firms dependent on CMEA trade met with virtually no interest. Survey data from CRETM (1990) confirm that, at least through late 1990, few firms predicted major consequences from the end of the CMEA.

17. Our source here is the August 1991 issue of *Plan Econ*. We are not sure about the treatment of East Germany in those numbers. It is likely that trade with East Germany is counted in 1990. It is not counted in 1991.

18. We return to this issue when studying inflation below.

all of 1990. Building on the work in Berg and Sachs (1992), the variable for CMEA exports measures the value of direct and indirect exports of a given branch to CMEA countries transacted in rubles, where indirect effects are constructed using an input-output matrix. The export measure covers only ruble trade with CMEA countries; thus, to the extent that some trade was conducted in dollars, the measured decrease in exports overestimates the true decrease. (Aggregate exports to the former CMEA countries fell some 40 percent in value while ruble exports fell about 80 percent in the first half of 1991.) Regressions using data from both two-digit and three-digit sectors in industry yield three main findings.

First, using two-digit-level data, we find a strong effect of direct and indirect changes in CMEA exports on branch sales. The coefficient is significantly different from both zero and one. The fact that it is less than one is probably due to the fact that some of the trade was continued in dollars, rather than to the redirection of exports to the West. For the three-digit regressions, where no trade data were available for 1991, the CMEA variable measures the initial share of ruble exports in total sales. Given the overall value decline of about 40 percent, the coefficient of -0.4 is consistent with little reorientation of sales. Second, we find a negative but weak effect of CMEA imports, suggesting effects through the supply side, through the loss of crucial imports. Third, the constant term in each regression, which captures the decline in output not explained by the export and import variables, accounts for 50–75 percent of the decline. These regressions cannot, however, tell us whether it captures further multiplier effects from the loss of exports or other factors, such as a tighter macroeconomic policy.

2.4   The Evolution of State Firms

At the beginning of the reform program, there were in Poland about 8,500 state firms. Of those, 1,000 had more than 1,000 employees and accounted for 66 percent of industrial production. One of the crucial issues in the reform process was whether and how they would adapt and restructure. Two years later, at the end of 1991, the evidence was not encouraging.

1. The enormous problems that these largely dysfunctional state firms would face in restructuring were well documented before the fact by Kornai (1990) and, in the case of Poland, by Lipton and Sachs (1990). But those inherited problems were compounded by two additional factors.

The first was the lack of progress in the privatization of large state firms.[19] After a bitter debate in Parliament, a privatization law was passed in July 1990. The results, at least for large firms, have been very limited. Not before November 1990 were the first five firms sold through public offerings. At the end of

19. For details, see Berg (in vol. 2).

1991, five more firms had been sold in the same manner, and another sixteen had been sold through public tenders or auctions.[20]

The lack of privatization did not, however, imply that firms were under the effective control of the state. A latent structure of control, the "workers' councils," had been put in place in the reform of 1981. As long, however, as managers had the backing of the center, those councils did not play a dominant role. But, with the fall of the Communist government in the summer of 1989, the councils took on progressively more power, including the ability to hire and fire managers. This tendency was reinforced over the following two years. Elections for new councils in 1990 were often followed by referenda on the management. By the end of 1990, half of all managing directors had been confirmed by elections, 40 percent of these new. (For an excellent discussion of ownership and control of Polish state firms in the 1980s and in 1990, see Dabrowski, Federowicz, and Levitas 1991.)

Thus, the stalling of privatization did not preserve the strong role of the state in running firms. Instead, it led to an increase in the power of insiders, especially workers, in firms while at the same time making their stake in the ultimately privatized firm very uncertain.

2. Under those conditions, how would we have expected managers to behave?

Had managers acted only on behalf of the absentee owner (the state or the owner-to-be after privatization), they would have adjusted prices so as to maximize profits. They would then have decreased employment at least in line with sales. To the extent that the firms had market power, they would have passed on wage increases partly or fully through prices. And they would have started restructuring firms.

Had managers instead acted only on behalf of workers, they would have chosen prices so as to maximize revenues net of nonlabor costs. Absent any constraint on wages, they would then have chosen the wage so as to redistribute revenues to the workers. How much they would have kept in profits would have depended on the horizon of workers, thus on the stake that workers expected to have in the newly privatized firms, as well as on such factors as their degree of liquidity constraints and their attachment to the firms.

Given constraints on wages, such as were actually imposed by the incomes policy, they would have kept employment high, as high employment was the only way of increasing the wage bill and thus the share of revenues going to workers. And increases in the wage norm would not have affected the revenue-maximizing price and thus would not have been reflected in increases in prices.[21]

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20. In addition, some eighty-two firms with over five hundred employees were leased to management and workers in a procedure designed for small- and medium-sized enterprises.

21. In 1990, firms generally could not vary the limit on the total wage bill by changing employment. Thus, a reduction in employment allowed an increase in the wage. In 1991, the norm on the

We read the evidence as saying that, during 1990–91, managers quickly shifted to act primarily in the interests of their workers. And, more important, we read the evidence as suggesting that the horizon of the workers, and thus of the managers' decisions, became increasingly short. At the end of 1991, the results of such behavior were excess employment, the nearly full appropriation of quasi rents in wages, and little in the way of restructuring. We now review the evidence, starting with the reaction of firms to the initial stabilization program.[22]

3. Surprisingly, wages were initially set below what was allowed by the— not very generous—increase in the norm under the incomes policy. In retrospect, the main reason was probably uncertainty as to what stabilization might bring, including the possibility of bankruptcy and thus of loss of control of the firm by workers and managers (see Dabrowski, Federowicz, and Levitas 1991). In addition, the design of the incomes policy allowed for shortfalls from the norm to be made up later in the year and thus gave another reason to err on the side of prudence at the beginning. Yet another factor, to which we return below, was that, despite high accounting profits, cash flows were low, owing to high taxes on those paper profits.

Markups, defined as revenues minus (accounting) costs over costs, had steadily increased throughout 1989. Average markups stood at 32 percent for the year as a whole and at 40 percent for the last quarter.[23] They were sharply down, at 31 percent, in the first quarter of 1990. The size of the decline is consistent with the joint hypothesis that, for lack of a more sophisticated strategy, firms initially set prices using their traditional markup over anticipated unit cost and that they underpredicted the fall in output, as the survey evidence indeed suggests (see CRETM 1990). As the decline of output was not accompanied by a proportional decrease in employment, the result was a decline in labor productivity and thus lower profits and markups.

In looking at markups or at other profit and cost measures in both 1989 and early 1990, a caveat is, however, in order. During that period, very high rates of inflation together with accounting of inputs at historical cost were the source

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wage bill moved proportionally with employment. A formal model of a labor-managed firm in a transition environment is given by Jackman and Scott (1992).

22. An early paper on the response of state firms to the 1990 reforms in Frydman and Wellisz (1991). Other papers looking at the behavior of state firms during 1990 are Schaffer (1992b), Dabrowski, Federowicz, and Levitas (1991), and Commander, Coricelli, and Staehr (1991).

23. Depending on availability, we give in this section numbers for one of two sets of firms. The first, to which this number refers, includes all nonagricultural enterprises with fifty or more employees in industry and construction and twenty or more in other sectors. This is the sector covered as a rule in the monthly *Statistical Bulletin* published by the Polish Statistical Office (GUS). There is a break in the series in 1991, when sufficiently large private firms are added. This change is not significant for the markup as the share of the private sector in these larger firms is small (4 percent in the third quarter of 1991). The other set includes all state firms (or, more precisely, all firms subject to the dividend tax), thus excluding private-sector firms and cooperatives. This is the set that we use when we refer to three-digit branches.

of large paper profits. True profits were smaller. We have constructed a simple inflation-adjusted markup series by regressing markups monthly for 1989–91 on the average inflation rate over the current and past two months and removing the estimated effect of inflation. This crude "inflation-adjusted" series gives markups of 24 percent for the fourth quarter of 1989 and of 15 percent for the first quarter of 1990. For later quarters, as inflation is lower, the difference between markups and adjusted markups is under 3 percent. In his Comment on our paper, Schaffer shows that, despite high reported profits, after-tax cash flows were actually negative in the first quarter of 1990. This is not only because inputs had to be purchased at their current price but also because taxes, levied on accounting profits, were unusually high.

4. Soon after stabilization, it became clear to workers and managers that their worst fears had been excessive and that, while profits and sales had declined, firms were still making profits and the risk of bankruptcy was low. Thus, the rest of 1990–91 was characterized by a steady transfer of rents from profits to wages, together with a steady but insufficient decline in employment.

Employment in state firms in industry, which stood at 4.1 million at the end of 1989, stood at 3.6 million at the end of 1990 and at about 3.2 million at the end of 1991. The available evidence suggests that the decline was accomplished mostly by attrition. The proportion unemployed from group layoffs stood at only 16 percent of total unemployment at the end of 1990 and at 23 percent at the end of 1991.[24] But this decline in employment was insufficient to restore labor productivity even to its prereform levels. At the end of 1990, labor productivity in industry stood at 90 percent of its December 1989 value; at the end of 1991, it was down to 77 percent.

With positive profits and, after a few months, improving cash flows as well, the initial wage restraint quickly disappeared. By June 1990, nominal wages were back to the norm. By the end of the year, they were 22 percent above the norm, the result in part of a flaw in the design of the policy, in which firms that had paid wages below the norm at the beginning of the year could use this accumulated credit to pay wages above the norm later in 1990. With the beginning of a new calendar year, firms had either to cut nominal wages to be below the new norm or to pay considerable excess wage taxes. The outcome was a partial accommodation of the pressure by an upward revision of the norm and low wage settlements, in no doubt made easier by the coincident CMEA-induced decrease in output. But, throughout 1991, firms were increasingly willing to pay the excess wage tax in order to pay wages above the norm. At the end of the first half of 1991, 38 percent of state industrial enterprises were paying some excess wage tax. In the fourth quarter of 1991, more than 36 percent of total tax revenues (excluding the turnover tax) were coming from the excess wage tax.

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24. Since 1990, Polish law assigns special rights to those fired in "group layoffs." Since these rights impose burdens on the enterprise and may generate an incentive to disguise these layoffs, these data must be treated with caution.

Profit rates steadily declined. Measured markups, which were equal to 31 percent in the first quarter of 1990, were down to 24 percent in the last quarter of 1990 and to 13 percent in the last quarter of 1991. In the last quarter of 1991, 29 percent of two-digit branches were reporting negative gross profits (and 75 percent reported negative net profits), something no branch had done in 1990. The evidence supports the hypothesis that this came largely from incomplete passthrough of wage increases. The evidence from the last three quarters of 1990, which we give in the section on inflation below, is particularly clear. During those three quarters, relative nonlabor costs in state firms remained roughly constant, while wage costs per unit of output were up by 58 percent. The increase in the producer price index was only 26 percent, thus implying a passthrough coefficient of about half.

There is, however, an alternative interpretation of the evidence of declining profits, namely, that, because of foreign competition, firms were only partially able to pass wage increases into prices and that the low profit margins at the end of 1991 reflected instead an overappreciation of the zloty.[25] Between January and December 1990, the real appreciation of the zloty was indeed a large 250 percent and, despite the shift to a crawling peg in May, was another 15 percent in 1991. How much of the decrease in profit margins was due to the appropriation of rents in wages and how much was the result of a loss of competitiveness is crucial to assessing both the past and the options for the future, such as the desirability of a sharp devaluation. To some extent, one can test the two hypotheses by looking at the difference in the evolution of profit rates across sectors with differential exposure to foreign competition. The evidence on the distribution of profit rates across three-digit branches does not show a clear pattern. More formal but preliminary regressions of the change in profit rates as a function of import penetration in 1990 do not show a significant effect of the import variable. But the issue deserves further work.[26]

5. At the end of 1991, there were ominous signs that, with not enough profits to cover tax liabilities, many firms were now testing the credibility both of the banking system and of the government. Banking reform is another area where little progress has been made. The traditional monobank of centrally planned economies had been broken up into a central bank, six specialized banks, and nine commercial banks in February 1989.[27] But, over 1990–91, those banks had neither the incentives nor the know-how to change their lending practices,

25. A nice example of the role of foreign competition in limiting prices is given by the price of black-and-white televisions in 1990. The price was Zl 430,000 in December 1989, Zl 773,000 in January 1990, and Zl 1.3 million in February. But, from then on, it steadily went down, reaching Zl 1.1 million in July and Zl 1.0 million in December. The question is how general this constraint was.

26. Specifically, we have regressed the markup in the first five months of 1991 on the markup, energy as a share of sales, exports to the CMEA as a share of sales, and imports from the West as a share of domestic industry sales, all in 1990. The only insignificant variable ($t = 0.4$) was the import share.

27. The commercial banks were further transformed into joint-stock companies in October 1991.

so they continued to lend mostly to state firms, regardless of their financial conditions. At the end of 1991, loans to state firms still accounted for 90 percent of the portfolio of commercial banks; of those, it was estimated that about 30 percent were nonperforming. Thus, while the inflation of 1989 had largely wiped out the debt position of firms, after two years of new lending banks were again hostages to their borrowers and obviously reluctant to start bankruptcy proceedings. A similar game was played vis-à-vis the government. An increasing number of firms were in arrears in their payments of taxes, testing the credibility of the government's stated policy to trigger bankruptcy for nonpayment of taxes.

6. The evolution of profit rates over 1990–91 points to the limits of incomes policy, a point of significance beyond Poland. One of the goals of the incomes policy was to avoid a redistribution of revenues from profits toward wages. Nevertheless, by the end of 1991, after-tax profit rates were very nearly equal to zero. How did this happen? As we document in section 2.6, the incomes policy, with its limited indexation, probably slowed the straightforward transfer of revenues to workers through increases in wages given prices in 1990. But, in addition to the fact that firms seemed by the end of 1991 ready to pay or at least accrue large excess wage tax liabilities, the policy left two channels open. The first is that, in response to decreases in output, firms could increase the share of revenues going to workers by reducing employment less than output.[28] The second is that, in response to increases in the price level not due to an increase in the producer price index, such as rents and electricity, firms could increase wages according to the partial indexation of the norm without further increasing their prices. Both these channels explain why profit margins steadily decreased over those two years. There is probably a general lesson here, that incomes policy can slow down but cannot stop the transfer of revenues to workers if they are so inclined.

7. The picture of state firms that we have just painted has been gloomy. One question is whether it is uniformly gloomy or whether at least some sectors are restructuring. There are few encouraging signs. There is much qualitative evidence that, in 1990, many firms were trying to develop contacts with foreign firms and to develop new markets (Jorgensen, Gelb, and Singh 1991; Bruno, in this volume; Dabrowski, Federowicz, and Levitas 1991). But little came out of it, and most firms have given up those efforts. Quantitative data do not show signs of a shake out either. The dispersion of profit rates across three-digit branches in industry, as measured by the standard deviation of the distribution, has fallen steadily since the end of 1989. Food processing is the only two-digit industry that grew during 1991. The one positive note is given by non-CMEA

28. As indicated earlier, this applies to the post-1990 period, when the wage norm applied to wages rather than the wage bill.

exports, but even this is dimming. Exports to the EC were up by 65 percent in dollars in 1990 over 1989. They were up by a smaller 13 percent in 1991.[29]

2.5   The Growth of the Private Sector

1. We now turn to the brighter side of the story. Both 1990 and 1991 saw a spectacular increase in the size of the private sector. Despite obvious shortcomings in the data, the basic trends are clear.[30]

In December 1988, recorded private employment outside agriculture was 1.2 million. At the start of stabilization, it had already increased to 1.8 million jobs. By the end of 1991, it stood at 3.0 million, a cumulative increase of 67 percent over two years. Put another way, in two years, its share of total nonagricultural employment doubled, from 13 to 26 percent.[31] Including agriculture, which was already mostly private, the share of private-sector employment at the end of 1991 stood at 45 percent of total employment. Thus, as a matter of arithmetic, the increase in private-sector employment over those two years was equal to nearly half the decrease in state firm employment.

2. Not surprisingly, the growth of the private sector was stronger in those sectors that had traditionally been repressed in the Soviet-type economies.[32] In trade, the private sector accounted for 75 percent of sales at the end of 1991, compared to 10 percent at the end of 1989, the result of both privatization of shops and of high rates of firm creation: total employment growth was 16 percent in 1991. The private sector has also become dominant in construction. At the end of 1991, private-sector sales accounted for 50 percent of total sales, up from 22 percent in 1989. By contrast, in industry, the private sector accounted for only 18 percent of sales, up from 7 percent in 1989.

Also not surprisingly, given the concentration of private-sector activity in trade and services and the excessively concentrated industrial structure characteristic of centrally planned economies, most of the jobs have been created in very small businesses. Firms with fewer than 100 employees represented 1.4

29. The official increase in exports to the EC including East Germany was 21 percent. One statistical problem, however, is the inclusion of Eastern Germany in the EC from October 1990 on. The number in the text gives our estimate of the increase in exports to the EC, excluding East Germany in both 1990 and 1991.

30. The numbers below come from forms filled out by the private-sector firms and from newly instituted surveys by the Polish Central Statistical Office. Those forms are similar to those filled out by state firms. Obvious caveats as to coverage and accuracy apply. The broad trends below are consistent with the evidence from a number of surveys of private-sector firms. Johnson (in vol. 2) reports preliminary results.

31. These numbers, and the numbers below, do not include cooperatives. Cooperatives were initially counted in official data as in the state sector. They are now counted as part of the private sector. The share of private and cooperative employment in total nonagricultural employment went from 31 percent in 1989 to 38 percent in 1991; some of the increase in the private sector reflects, therefore, the privatization of cooperatives.

32. Bolton and Roland (1992) point out that the share of services in total 1989 employment was 36 percent in Poland, compared to 53 percent in a sample of eight poorer OECD countries.

percent of total 1989 industrial employment in Poland, compared to 14 percent in West Germany and 32 percent in Italy (Bolton and Roland 1992). Official statistics distinguish between three types of private businesses: joint ventures (firms with some foreign capital), domestic firms, and individual businesses. The difference between the last two is technically one of legal status (the existence of trade books) but is mostly one of size. The rate of growth of all three over 1990–91 was roughly the same. But, because individual businesses represented more than 80 percent of employment at the start, more than 80 percent of the growth of employment over 1990–91 was in individual businesses. Average employment in those businesses, at the end of 1990, was 1.7 workers.

3. That the Polish economy needed more trade, services, and construction is not at issue. But, given how little restructuring has happened in state firms, the question arises of whether this can be accomplished instead by growth of the private sector. This raises the issue of how and what private medium-sized firms, especially those in industry, have been doing.

The converse side of the statistics we just saw for individual businesses is that, while the number of private-sector jobs in larger domestic firms, with or without foreign capital, is increasing at high rates, those jobs accounted for only 500,000 workers in mid-1991, up from 250,000 prestabilization. Similarly, output of private-sector industry grew by 48 percent in 1991, but from a small base. This evidence is consistent with the small recorded flows of foreign direct investment (FDI). Again, while FDI increased from $11 million in 1990 to $100 million for the first three quarters of 1991, this still accounts for less than 0.2 percent of GNP.[33]

The picture that we can assemble of the performance of these larger private firms is fragmentary, but the pieces seem to fit. First, the larger private-sector firms that existed before stabilization (about 1,500 industrial companies, employing about 29,000 people in 1989) clearly did better than the state firms during stabilization; their real sales in particular were down only by 2 percent in 1990. Second, while the profit rates of firms with some foreign capital were affected by the output decline of 1990, their investment was stronger than that of state firms. Third, in 1990, for firms with some foreign capital, the ratios of exports and imports to sales were 39 percent and 11 percent, respectively, compared to 8 percent and 15 percent for the average state firm. Exports by the private sector have been growing more rapidly than total production, and their share of total exports was 20 percent at the end of 1991, compared to 4.9 percent at the end of 1990. Major categories include processed food (mainly milk), furniture, and industrial metal goods. Finally, real sales in private industry grew by 48 percent in 1991 after growing by 9 percent in 1990. Thus, the evidence is that, while they account for a small proportion of employment, larger private firms are doing well.

33. Gomulka (1992a) gives a higher number "from a government source"—$680 million from January 1989 to October 1991.

If the state sector does not adjust, the issue for the future is whether such firms can be created in time to take up the slack or whether, in the meantime, the declining state firms will be able to extract ruinous amounts of subsidies from the banking system and the government in lieu of adjustment, thereby endangering the entire reform.[34]

2.6   Wage and Price Setting and Inflation

Stabilization was associated with a sharp increase in prices: the increase in the CPI from the beginning to the end of January was 106 percent. After that, inflation declined sharply but has remained at an average rate of about 3–5 percent per month. This raises two sets of issues. What caused the initial jump in prices? Was it due to an increase in costs, to supply bottlenecks, to the exercise of monopoly power, to an overdevaluation of the zloty? And how could inflation remain high for so long in the presence of an incomes policy with low indexation of wages? In this section, we develop a simple accounting framework that allows for identification of proximate causes.[35] Having done so, we describe the inflation process over 1990–91. In the process, we return to a number of themes touched on already in previous sections.

Let w, p_c, and p_i denote the logarithms of the nominal wage, the consumer price, and the producer price at t, and let Δ denote a first-difference. Thus, as a matter of accounting, we can write:

(1) $$\Delta w = \alpha \Delta p_c + \varepsilon_w,$$

(2) $$\Delta p_c = \Delta p_i + \varepsilon_{pc},$$

(3) $$\Delta p_i = \Delta w + \varepsilon_{pi}.$$

The first equation decomposes the change in the wage into the component due to inflation through indexation and a residual. The second equation decomposes the change in the consumer price index into the change due to the producer price index and a residual. The third decomposes the change in the producer price index into the change in wages and a residual. Combining the three equations gives inflation as a function of the three ε's and the degree of indexation:

(4) $$\Delta p_c = (\varepsilon_w + \varepsilon_{pi} + \varepsilon_{pc}) / (1 - \alpha).$$

We now construct and further decompose the various ε's.

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34. Bolton and Roland (1992) try to estimate the amount of labor reallocation that could take place without privatization. They assume that the growth in small firms and in services required to match poor OECD countries comes not through privatization but through new private firms and similarly that the required reduction in employment in large firms and in industry takes place through job loss. This leaves only 28 percent of the total 1989 labor force and 44 percent of industrial labor potentially involved in privatization.

35. This approach is developed in more detail in Blanchard and Layard (1992).

2.1.1   The Movement of Wages

The incomes policy that was put in place in December 1989 has been kept to this day. It initially covered all firms, but private firms were excluded from 1991 on. Each firm is subject to a wage norm, which was initially roughly equal to the prestabilization wage. The norm for each firm has increased through time for three reasons. First, it has been partially indexed to inflation, the effect captured in the wage equation above. The coefficient of indexation was equal to 0.3 in January 1990 and to 0.2 from February through April, and it has stayed at 0.6 thereafter, with a brief jump in June 1990 to 1.0. Second, because the wage norm applied in 1990 to the wage bill rather than the wage, it allowed for a further increase in the wage itself in proportion to the decline in employment. Since 1991, the wage norm applies to the wage so that this effect is no longer present. Third, the wage norm has increased as a result of other, ad hoc, adjustments; as we shall see, these were important at the end of 1990.

The wage norm is not an absolute constraint on firms. Rather, excesses of wages above the norm are taxed at very high rates, from 100 percent up to 500 percent. The tax applies to the excess of the total wage bill since the beginning of each year over the total wage norm since the beginning of the year. Thus, firms that paid a wage lower than the wage norm early in the year can pay a wage above the norm at the end of the year without incurring excess taxes; this aspect also turned out to be important at the end of 1990.

On the basis of this brief description, in table 2.2 we decompose quarterly changes in the logarithm of the nominal wage in industry from the last quarter

Table 2.2   Decomposition of Wage Inflation

Quarter	Δw	$a\Delta p_c$	ε_w			
			Total	Employment Effect	Other Norm	Other Nonnorm
1990:1	14	20	−5	3	2	−11
1990:2	14	7	7	4	0	3
1990:3	25	7	18	4	1	13
1990:4	29	10	19	5	3	11
1991:1	2	14	−12	0	8	−20
1991:2	6	6	0	0	0	0
1991:3	9	3	6	0	0	6
1991:4	22	7	15	0	0	15

Note: All data are for the wage in industry only. $\Delta w = \ln (W_t) - \ln (W_{t-1})$, where W is the nominal wage at the end of quarter t. $a\Delta p_c = a_t [\ln(P_{ct}) - \ln (P_{ct-1})]$, where a_t is the average degree of indexation during the quarter, and P_c is the CPI at the end of the quarter. The "employment" term is $- [\ln(N_t) - \ln(N_{t-1})]$ for 1990, 0 for 1991, and captures the fact that the wage bill rather than the wage was subject to the wage norm in 1990. "Other Norm" denotes adjustments of the logarithm of the norm, and "Other Nonnorm" is equal to the difference between the logarithm of the wage and the logarithm of the norm.

of 1989 on, into four components. The first is that due to inflation and index-ation. The other three correspond to ε_w. The first reflects the "employment ef-fect," the fact that in 1990 the wage norm could go up in proportion to the employment decline. The second reflects other adjustments of the norm. The third reflects deviations of the wage from the wage norm.[36]

Table 2.2 shows that the beginning of stabilization was associated with con-siderable wage restraint. Despite a large increase in prices and low indexation of the norm, wages were still 11 percent below what was allowed by the norm in March 1991.

As the last column of the table shows, this initial restraint was followed for the rest of 1990 by an increase in wages first to and then above the wage norm. This was due to two factors. The first was the progressive realization by work-ers that profits were still high and that wages could be increased to the norm without triggering immediate bankruptcy. Indeed, the realization was that wages could actually be increased *beyond* the norm without dire effects: by the end of the year, roughly two-thirds of firms in industry were willing to pay the excess wage tax in order to transfer some of the profits to their workers. The second was the result of the design of the incomes policy. As most firms had paid wages below the norm in the first three months, they could afford to pay wages above the norm for the rest of the year without paying the excess tax. As a result, by July, wages were above norm wages. And, by December, the excess of the wage over the wage norm, the cumulative value of the numbers in first four rows of the last column, was 16 percent.

At the beginning of the new year 1991, firms were thus faced with the choice of either reducing wages by more than 16 percent to get them under the norm or having to pay considerable excess wage taxes. The political outcome was of partial accommodation of wage realities by adjustments of the norm. As table 2.2 shows, the increase in the norm unrelated to inflation was 8.0 percent. The CMEA shock and the drastic decline in profit margins did the rest, and wage growth was slow enough so as to get wages back within the norm within a month. But, by midyear, the increase in wages was again in excess of the norm, with, as a result, steadily increasing excess wage tax payments, which we docu-mented earlier.

2.6.2 The Movement of Prices

Table 2.3 decomposes in turn the movement in the CPI. The first two col-umns give the change in (the logarithm of) the CPI and the change in the CPI in excess of the change in the producer price index, ε_{pc}. The next set of columns decomposes the change in the producer price. The decomposition is motivated as follows. Consider the following identity:

$$(5) \qquad\qquad P_i Y = (1 + \mu)\,(WN + C),$$

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where WN is the wage bill, C is nonwage costs, Y is gross output, and μ is the markup. Let α be the share of wages in total costs. Then, taking logarithms, differentiating with respect to time, and rearranging, we can write

(6) $\Delta p_i = \Delta w + \varepsilon_{pi}$,

where

(7) $\varepsilon_{pi} = (\Delta n - \Delta y) + [(1 - \alpha) / \alpha] (\Delta c - \Delta p) + (1/\alpha) \Delta \, ln(1 + \mu)$.

ε_{pi} is the sum of three terms. An increase in any of these three terms increases the producer price given the wage. The first is the negative of the rate of change in labor productivity. The second is proportional to the rate of change in the relative price of nonlabor inputs; c is defined as the logarithm of C/Y.[37] The third is proportional to the rate of change of one plus the markup. The last five columns of table 2.3 give the decomposition of changes in the producer price index. Table 2.3 suggests the following conclusions.

The initial increase in prices was due neither to an increase in consumer prices over producer prices nor to an increase in markups. We think that these facts largely put to rest three common prestabilization fears: that either because of an excessive devaluation, because some firms were now in a position to exert monopoly power, or because of sharp supply bottlenecks, prices would increase far in excess of costs.[38]

The increase was due instead to an increase in the relative price of nonlabor inputs and the large decrease in labor productivity. In Blanchard and Layard (1992), we further decompose the increase in costs and find, in addition to the removal of subsidies, two surprising culprits. The first is imputed depreciation. The book value of capital was multiplied by eleven in January 1990. The other is high nominal rates at the beginning of stabilization. It is clear that neither of the economic costs associated with either capital depreciation or interest payments went up much in January 1990 (ex post rates ere large and negative in January). But one can easily believe that these were treated mostly as increases in costs by firms.

Thereafter, the evolution of prices was the result of two divergent evolutions. One was the increase of the CPI over the PPI, which was due to increases in electricity prices, rents, and gas prices as well as in retail price margins. But, while ε_{pc} increased, ε_{pi} decreased. And the main source of the decrease was the decrease in the markup. As we discussed in the section on state firms, there are two potential reasons for the decline in the markup. The first is that increasing foreign competition prevented firms from passing on costs into prices. The

37. As we indicated earlier, reported C is measured at historical cost, with the result that it underestimates true cost when inflation is high. We did not attempt to adjust for inflation, with the result that the increase in costs is probably overestimated when inflation slows down. This is probably most important for the second quarter of 1990.

38. Bruno (in this volume) argues that the large devaluation of the zloty was a cause for the initial price jump. We see no evidence in favor of this argument.

Table 2.3   **Decomposition of Price Inflation**

					Δp_i			
Quarter	Δp_c	ϵp_c	Total	Δw	Total	Relative Cost	Inverse Productivity	Markup
1990:1	84	1	82	14	68	92	29	−53
1990:2	15	11	5	14	−9	3	8	−19
1990:3	10	1	9	25	−16	−0	−7	−8
1990:4	16	4	12	29	−17	−2	−11	−5
1991:1	23	7	17	2	15	34	12	−31
1991:2	10	4	6	6	0	−4	8	−4
1991:3	5	0	5	9	−4	−26	−6	28
1991:4	12	7	5	23	−18	7	−11	−14

Note: $\Delta p_c = \ln (P_{ct}) - \ln (P_{ct-1})$, where P_{ct} is the consumption price index at the end of the quarter. $\epsilon_{pc} = \ln (P_{ct}) - \ln(P_{ct-1}) - \ln (P_{it}) + \ln (P_{it-1})$, where P_{it} is the industrial price index at the end of the quarter. $\Delta w = \ln (W_t) - \ln (W_{t-1})$, where W_t is the wage at the end of the quarter in industry. ϵ_{pi} is decomposed into three components, which are constructed from industry data. The first is $[(1 - \alpha)/\alpha][\ln(C_t) - \ln (P_{it}) - \ln (C_{t-1}) + \ln (P_{it-1})]$, the weighted change in the real cost of nonlabor inputs in industry. C_t is the cost of nonlabor inputs in industry during the quarter. α is the weighted average of the share of wage costs in total costs for the current and the past quarters. The second is $\ln (N_t) - \ln (Y_t) - \ln (N_{t-1}) + \ln(Y_{t-1})$, the change in the inverse of labor productivity, where Y and N are average gross output and employment in industry at the end of the quarter. The third is equal to $(1/\alpha) [\ln(1 + \mu_t) - \ln (1 + \mu_{t-1})]$, where μ_t is the ratio of sales minus costs to costs in industry at the end of the quarter.

second is that managers have increasingly passed on revenues to workers. We argued earlier that the second was the dominant part of the story.

We can now briefly put our results together. The initial increase in prices was due primarily to an increase in nonwage costs. The persistence of inflation later in 1990 was due primarily to the catching up of wages, coming itself from the undoing of initial restraint and design flaws of the incomes policy. In 1991, new nonwage relative cost increases, increases in the consumer over the producer price index, and increases in wages beyond the norm all contributed to the persistence of inflation. Thus, there is no single cause of the persistence of inflation in Poland. There was no "stickiness" of inflation, just many shocks along the way. This conclusion is again more likely to be of general relevance than it is relevant to Poland for these two years.

2.7   Issues for the Near and Medium Term

Two years after stabilization, the two fundamental issues are the behavior of state firms and the nature and speed of private-sector growth.

1. Lack of progress on privatization has left state firms adrift. The nominal owner, the state, exerts no control, while workers have gained power over management. The magnitude of the restructuring task, together with uncertainty about their stake in the restructured firm, has led managers and workers to

act with increasingly short horizons. The incomes policy has slowed but not prevented a steady transfer of revenues to workers; profit rates have steadily decreased to the level just sufficient to avoid triggering bankruptcy.

Absent changes in incentives, most state firms are likely to stagnate or decline slowly, behaving passively until threatened with extinction, acting to avoid closure but not taking the more difficult measures needed to survive and grow. Thus, on the positive side, in response to increased foreign competition, wages are likely to adjust so as to maintain minimal profit margins. On the negative side, cheaper credit or subsidies are likely to translate into higher wages rather than into higher investment or restructuring.

Creditors, including the banking system, the government, and other enterprises, have been unwilling to take responsibility for closing or restructuring an enterprise, instead making credit available when necessary to avoid collapse. The problem is compounded by the fact that the banking system has also not been either privatized or restructured. There are ominous signs that many firms are attempting to take advantage of this unwillingness. The proportions of bad loans in banks' portfolios and of firms in tax arrears are steadily increasing.

2. Private-sector growth has been impressive, and it is leading to the development of a much needed trade and service sector. More generally, the overall pattern of adaptation in the economy is rapid and in the right direction. Heavy industries are in relative decline, trade with the West is expanding, and the small- and medium-sized firms that were missing in the Polish economy are being created. Absent privatization, however, large state firms will continue to dominate industry for the next few years, and they are increasingly extracting resources from the government and the banking system. It is clear, then, that private-sector growth cannot, in the short or medium term, substitute for the restructuring and privatization of state firms.

3. Current macroeconomic problems are mainly the manifestation of these two underlying structural developments.

The most pressing crisis is fiscal. Preliminary estimates put the budget deficit for 1991 at 4.5–6 percent of GDP.[39] The proximate source of the deficit is the decline in profit tax revenues, which is in turn due to the sharp decline in profits of state firms in 1991. Original estimates were that the tax would yield 11.7 percent of GDP in 1991; actual income taxes were only 5.1 percent for the year. It is, however, easy to see other crises in the making. If nonrepayment of loans does not trigger bankruptcy, for example, an increasing number of firms will finance higher wages through borrowing. Or, as the nontradable sector grows and the tradable sector stagnates or shrinks, the trade balance may

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39. These numbers, as well as the numbers just below, are from Gomulka (1992a), who gives a detailed description of the budget for 1991 and of budget proposals, as of February, for 1992. See also de Crombrugghe and Lipton (in vol. 2).

turn to deficit, requiring either steady real depreciation or a further contraction of output.

Our assessment raises two types of policy issues. The first is that of the role of conventional macro tools—fiscal, monetary, exchange rate policies—in the current environment. The second is that of which measures should be put in place to enhance structural adjustment.

4. The role of macro policy in increasing activity in the current environment is sharply limited. Some instruments are simply unavailable, most obviously fiscal policy. But, more generally, the response to traditional macro policy tools may, in the current environment, be too weak to justify their use. It is true that much of the decrease in output over the last two years has come from adverse shifts in demand, from stabilization first and from the collapse of the CMEA later. But, because of the evolution of the state firms over these two years and their likely response to different policies, it does not follow that there is much room now for demand to increase output.

Consider, for example, the likely effects of a devaluation, an a priori appealing policy prescription given the sharp deterioration of the trade position from a surplus of close to 4 percent in 1990 to trade balance in 1991 and the emergence of a deficit in 1992. In those state firms that have been able to maintain employment or at least limit the decline to the rate of attrition despite the sales decline, the devaluation is more likely to translate into an increase in prices and wages than an increase in output. Our conclusions on the inefficacy of the incomes policy to limit wage increases suggest that this may take some time but will eventually take place. Only those state firms that are being forced to cut employment sharply and that would be able to sell more on Western markets at lower prices are likely to fire fewer workers and expand output; they may not be many. And, of the various constraints on the growth of the private sector in tradables, access to credit, skilled labor, or foreign capital and expertise probably play a more important role than competitiveness.

A loosening of credit policy is likely to be even more harmful, especially without quantitative limits on credit to state enterprises. Given the behavior and incentives of the enterprises, it would be likely to raise wages and perhaps increase the insolvency of the state sector. And it could easily have a perverse effect on enterprise restructuring by drawing resources into those firms that adjust least. In contrast, reestablishing some of the CMEA trade, being aimed by its nature at many of the firms that are making the largest losses and contracting employment, would be more likely to slow down the employment decline in the state sector without drawing valuable resources away from the expanding private sector.

5. More important is that measures are needed to accelerate the restructuring process. These include, not surprisingly, privatization, reform of the banking system, and a credible commitment of the government to start bankruptcy proceedings when appropriate. Similar statements could have been made—and

were made—two years ago. But the last two years have made much clearer how state firms behave in the absence of such conditions.

While this is not the place to discuss privatization strategies, there are both additional constraints and lessons from the last two years (see Berg, in vol. 2). And we see both as implying that workers must play a large role in the privatization process. First, in order to obtain the required employment and wage adjustments that are now needed to reestablish profit margins, any realistic privatization plan must give workers a large stake in the outcome. Second, whatever adjustment there has been has been undertaken by workers and managers, not by the state. Privatization plans that weaken their power without immediately providing adequate substitutes risk decreasing horizons further and slowing adjustment.[40]

At this point, delinquent tax payments by state firms amount to 12 percent of total tax revenues. Moreover, the proportion is accelerating sharply. The government thus has to reestablish the credibility of its hard budget constraint by starting bankruptcy proceedings for some of those firms that are late in their tax payments.[41]

Along with a hardening of the government budget constraint, a reform of the banking system is urgently needed. Thanks to the high inflation of 1989, enterprise debt levels were low at the beginning of the stabilization program. But many firms have increasingly followed a policy of borrowing in lieu of adjustment. While commercial banks were transformed into joint-stock companies in October 1991, privatization is still some time off. A cleanup of balance sheets is needed now. Current proposals by the Ministry of Finance and the central bank to close some of the debtor firms, replace some of the firms' debts by government debt, and transform some into equity positions by banks go in the right direction (see Gomulka 1992a). If such cleaning up is implemented some time before privatization of banks, however, quantitative restrictions on loans to state firms will be required to prevent a new runup of debt.

7. If some of these structural measures are taken, Poland will then enter the next phase of the transition. And one can already identify the next set of problems that it is likely to confront. All state firms will have to shed a large amount of labor, and many will have to close. We saw that just getting labor productivity back to its prestabilization level implied a significant further decrease in

40. Similarly, we fear that commercialization not quickly followed by privatization may be counterproductive as it risks removing whatever incentives are left for workers and management to start restructuring.

41. The complexity of bankruptcy proceedings in the current legal, accounting, and political environment is clearly shown in the study by Banaszuk (1992) of bankruptcy proceedings against Ursus, a giant Polish tractor enterprise. Over the course of six months in 1991, three creditors filed bankruptcy petitions (one a second time after a partial repayment by Ursus), and two groups associated with Ursus management filed for protection from creditors. The legal status of the last two petitions is unclear because, among other reasons, both groups have ceased to exist legally. The case is apparently stuck in appeal, in part because the court needs to get a statement from the Ministry of Industry about its intentions toward this sector of the economy.

employment. We suspect that, if progress is made with privatization, the central set of issues two years from now will be high unemployment, the search for a social insurance system, the effects of unemployment and state firm wages on private-sector wages, and the nature of the constraints on private-sector growth.

Appendix A
Inventories and the Output Decline of Early 1990

A number of researchers have looked at the behavior of finished goods inventories in early 1990. But they have reached surprisingly different conclusions. We first show that these differences come in part from issues of both measurement and timing. When properly interpreted, the evidence is one of finished goods inventory accumulation in industry in January 1990. We then turn to the cross-sectional evidence on the behavior of firms by branch in industry during the first quarter of 1990 and document a clear relation between sales decreases and inventory increases.

The Aggregate Evidence

There are two reasons why inventory data in 1990 are hard to interpret. The first is a standard measurement issue. Inventories are not valued at current but at historical cost. Thus, the level of inflation affects the reported value of inventories, and changes in inflation affect the reported value of inventory investment. And there were indeed large changes in inflation during 1989 and 1990. The second is a measurement issue specific to the transition. There has been a steady privatization of the trade sector. As inventory numbers cover only the state sector, part of the measured decrease in trade inventories is in fact a transfer to the private sector.

With these two points in mind, table 2A.1 reports finished goods inventories in trade and industry for December 1989 and January, March, and December 1990. It gives two numbers for each case. The first gives inventories deflated by the current producer price index. The second gives inventories deflated by the average producer price index over the current and previous months. Inventories in trade, industry, and total are normalized by sales in trade, industry, and total, respectively, for December 1989 (not by current sales, which were sharply lower in 1990). The last column gives unnormalized inventories for December 1990. Two basic conclusions emerge from the table.

The first is one of a decline in trade inventories throughout the year, with or without inflation adjustment. Available data on quantities validate the finding of a decline over the year but contradict the finding of a decline in January. In a monthly survey of nine state trade enterprises used to monitor developments

Table 2A.1   **Finished Goods Inventories**

	$I/(S_{\text{Dec. 1989}})$				
	Dec. 1989	Jan. 1990	Mar. 1990	Dec. 1990	$I_{\text{Dec. 1990}}$ Dec. 1990
Industry:					
$n = 1$	.16	.28	.26	.22	18.6
$n = 2$	.17	.36	.24	.22	18.9
Trade:					
$n = 1$	1.15	.72	.79	.78	31.8
$n = 2$	1.34	.97	.79	.79	34.6
Total:					
$n = 1$	.60	.53	.54	.50	50.4
$n = 2$	.70	.71	.54	.51	53.5

Note: The first four columns give inventories in a given month normalized by sales in December 1989. n refers to the method of deflation of inventories. $n = x$ indicates deflation by the average producer price index over the last current and last $n - 1$ months. The last column gives inventories in Zl trillions in December 1990.

in early 1990, stocks of televisions were up by 30 percent in January over December, refrigerators by 23 percent, and washing machines by 11 percent. The same survey also shows a large decumulation later in the year. By May, stocks were 27 percent, 27 percent, and 40 percent, respectively, below their December levels.[42]

The second is one of an increase in finished goods inventories in industry, with accumulation in January and partial decumulation later. We take the evidence of an initial accumulation of finished goods in an industry to be an indication that that industry was hit primarily by an adverse demand shock. We turn now to the cross-sectional evidence.

The Cross-Sectional Evidence: Sales and Inventories

We look at whether branches in industry that had larger declines in sales had, ceteris paribus, larger accumulation of finished goods inventories. We use data on sales and inventories of state firms for branches at the three-digit level, for the last quarter of 1989 and the first quarter of 1990. We specify the regression as

$$(A1) \quad (I_{it} - I_{it-1}) / S_{it-1} = aI_{it-1} / S_{it-1} + b(S_{it} - S_{it-1}) / S_{it-1} - \varepsilon_{it}.$$

I_{it} stands for inventories in branch i at the end of 1990:1 and S_{it} for sales during 1990:1, both deflated by the price of the output of branch i at the end of 1990:1. I_{it-1} and S_{it-1} stand for the same variables in 1989:4. The specification allows for two effects. The first is the desire by firms to decrease inventories from their previous level. We expect a to be negative. The second reflects the effects of sales on inventory accumulation. If firms were primarily affected by an adverse shift in demand, we expect a larger decrease in sales to lead to larger

42. Our source here is the Ministry of Domestic Markets.

accumulation and thus b to be negative. If firms were primarily affected by supply constraints, we expect tighter constraints to result in low sales and more decumulation and thus b to be positive. The results of estimation are given in table 2A.2.

The first regression in table 2A.2 establishes the basic cross-sectional fact about inventory and sales and offers support for the hypothesis that branches were primarily affected by an adverse shock in demand. It shows that larger sales declines were associated with inventory accumulation. The result holds across subsamples. A set of industries where supply disruptions appear to have played a role is food processing, where both sales and inventories decrease. The second regression, which excludes food processing, shows a more significant relation. Thus, the interpretation of the data is that, while firms wanted to decrease inventories (a is negative), the decline in sales was such as to lead, on net, to an increase. For the branches in our sample, the increase in real inventories from 1989:4 was equal on average to 12 percent of monthly sales, and more than 90 percent had an increase in inventories.

The Cross-Sectional Evidence: Sales, Inventories, and Credit

Within this framework, one can examine the effects of other variables on both sales and inventory behavior. In the remaining regressions, we take up the potential role of credit factors, along lines suggested by Calvo and Coricelli

Table 2A.2   **Sales, Inventories, and Credit**

	Dependent Variable: $(I_{it} - I_{it-1})/S_{it-1}$				
	Constant	I_{it-1}/S_{it-1}	$(S_{it} - S_{it-1})/S_{it-1}$	$(C_{it}-C_{it-1})/S_{it-1}$	R^2
OLS	.07	−.36	−.07		.14
	(5.0)	(−3.8)	(−1.6)		
OLS *	.05	−.03	−.10		.05
	(3.8)	(−.2)	(−2.4)		
OLS	.05	−.09	−.08	.31	.39
	(4.9)	(−1.0)	(−2.1)	(5.9)	
IV	.06	−.14	−.07	.26	.38
	(5.0)	(−1.4)	(−2.1)	(4.1)	
	Dependent Variable: $(S_{it} - S_{it-1})/S_{it-1}$				
IV	−.25			.21	.00
	(−15.4)			(1.3)	

Note: Sample for all regressions except regression *: branches in industry, excluding coal, fuel, and electric power, with rates of change in sales between −60 percent and +50 percent from 1989:4 to 1990:1, and sales in excess of Zl 100 billion. There are 85 observations. Regression * further excludes food processing and has 70 observations. The indices t and $t - 1$ refer to the quarters 1990:1 and 1989:4, respectively. S_{it} are sales for branch i for quarter t, deflated by the average price of output of branch i during the quarter. I_{it} and C_{it} are inventories of finished goods and the stock of "working credit" (bank credit not associated with an investment project) for branch i at the end of quarter t, deflated by the price of output of branch i at the end of quarter t. The IV regressions instrument the credit variable by the ratio of credit to sales at the end of 1989:4.

(1991), who have argued that part of the decline in output was due to firms being unable to borrow to pay for inputs, thus decreasing production and decumulating inventories to satisfy sales. From 1989:4 to 1990:1, 80 percent of branches in our sample in industry had a decrease in real working credit so defined, and the average decrease as a proportion of initial sales was 3 percent.

We thus construct a variable equal to the change in real working credit from 1989:4 to 1990:1, divided by sales in 1989:4. The next two regressions focus on the effects of working credit on inventories given sales. The first regresses changes in inventories on changes in sales and changes in working credit. The change in working credit may be partly endogenous, however; inventories may in part be used as collateral. Thus, the second regression instruments the change in credit by the initial credit-to-sales ratio in 1989:4. In both cases, the evidence is that inventory changes are still negatively correlated with sales but also positively correlated with the change in working credit. Our last, admittedly crude, regression looks for direct effects of working credit on sales and regresses the change in sales on the change in working credit, without other controls. It shows a positive, marginally significant relation between credit and sales. The effect is quantitatively small. The estimated coefficient implies that the 10 percent decline in working credit as a proportion of sales—the average for the sample of branches is 3 percent—leads to a 2 percent decrease in sales.

Appendix B
The Collapse of the CMEA and the Output Decline in 1991

How much of the decline in output in early 1991 can be attributed to the CMEA shock, and through which channels? Was it through the direct and indirect effects of the decrease in the value of exports to the CMEA, which was between 2 and 3 percent of GDP, or was it through disruptions due to the loss of crucial imports? Or were there other factors at work?

We look at the behavior of sales across branches in industry, first at the two-digit level because some of the variables that we want to use can be constructed only at that level, and then at the three-digit level. The results are reported in table 2B.1. Our basic specification is

(B1) $(S_{it} - S_{it-1}) / S_{it-1} = a(X_{it} - X_{it-1}) / S_{it-1} - \varepsilon_{it}.$

S_{it} stands for the average monthly value of sales in branch i during the first five months of 1991 and X_{it} for the average monthly value of ruble sales during 1991:1 (converted to zlotys at the official rate), both deflated by the average price index for output of branch i during the first two quarters of 1991. At the two-digit level, X_{it} includes both direct and indirect ruble sales, with indirect

Table 2B.1   **Sales and the CMEA Shock**

		Dependent Variable: $(S_{it} - S_{it-1})/S_{it-1}$		
	Constant	$(X_{it} - X_{it-1})/S_{it-1}$	(Q_{it-2}/S_{it-2})	R^2
2 digit:				
OLS	−.10	.46		.22
	(−5.0)	(2.5)		
OLS	−.09	.38	−.46	.20
	(−3.4)	(1.9)	(−.8)	
		(X_{it-1}/S_{it-1})	(Q_{it-2}/S_{it-2})	
OLS	−.07	−.71	−.24	.38
	(−2.9)	(−3.0)	(−.5)	
3-digit:				
OLS	−.06	−.42	−.97	.12
	(−2.7)	(−2.8)	(−1.7)	

Note: The sample for the first three regressions is two-digit branches in industry, excluding coal, fuel, and electric power. There are 20 observations. The sample for the last regression is three-digit branches in industry, excluding energy, coal, fuel, and power, with rates of change in sales between −60 percent and +50 percent from 1990 to the first half of 1991 and sales in excess of Zl 100 billion. There are 101 observations. t and $t - 1$ refer to the average for 1990 and the average for the first 5 months of 1991, respectively. S_{it} and X_{it} are average total sales and average ruble sales—direct and indirect—respectively, for branch i, deflated by the average price of output of branch i during t. Q_{it-2}/S_{it-2} is the ratio of ruble imports to sales in branch i for 1989.

sales being computed using the 1987 input-output matrix.[43] S_{it-1} and X_{it-1} stand for the average monthly value of the same variables during all 1990.

The first line reports the results of this regression over the twenty two-digit branches. The coefficient on ruble sales is significantly different from zero and one. The adjusted R^2 is, however, a low 0.22. The second regression adds the ratio of CMEA intermediate imports to sales in 1989 (the latest year for which we have the required data). The coefficient on this import variable is negative, but not significant. Other things equal, an increase in the share of imports of 1 percent leads to an additional decline in sales of 0.4 percent. The third regression uses the share of ruble exports to sales in 1990. The results are of a strong negative effect of the export share and a weak negative effect of the import share.

The last regression reports results from estimation at the three-digit level. As ruble exports are not available at that level of disaggregation for 1991, we use instead the three-digit share of ruble exports in sales in 1990. Also, only direct exports are measured. For data availability reasons also, we use the two-digit- rather than the three-digit-level share of CMEA imports in sales for 1989. The results are consistent with those obtained at the two-digit level and

43. This extends work in Berg and Sachs (1992), which gives further details of construction.

show a strong effect of the export share, with a coefficient of −0.42, and a marginally significant effect of the import share, with a coefficient of −0.97.

In all four regressions, the constant term, which captures the decline of output for which we do not account with CMEA variables, is negative. It is equal to 75 percent of the total decline at the two-digit level and 50 percent at the three-digit level.

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Comment   Mark E. Schaffer

The Berg and Blanchard paper concentrates mainly on two tasks: explaining
the output drops of 1990 and 1991 and explaining the persistence of inflation
following the stabilization program implemented in January 1990. The authors
emphasize throughout the behavior of state-owned enterprises, seeing them as
the key economic actors in the transition economy so far. I share with the
authors their view of what the key issues are, I find their analysis both convinc-
ing and illuminating, and I am in wholehearted agreement with their basic con-
clusions.

If I were to limit myself simply to listing points of disagreement, my com-
ments would be rather short. So what I will do first is present some additional
evidence in support of one of Berg and Blanchard's main arguments, namely,
that the output drops seen in Poland in early 1990 and in early 1991 are the
result of demand shocks: the first associated with stabilization and the second
with the Council for Mutual Economic Assistance (CMEA) trade collapse fol-
lowing dollarization at the beginning of 1991. The latter point is not controver-
sial, but the first—that the contraction in early 1990 resulted from a demand
shock—is not universally accepted.

The evidence comes from reconstructing enterprise financial data on a cash-
flow basis. As the authors point out, inflation makes both standard enterprise

profitability figures and nominal inventory data difficult to use. In particular, when inflation is rapid, historical cost profit is significantly biased upward by a large paper capital gain on inventories of materials. The bias results from the increase in the price level between the time at which inputs are purchased and the time at which the final products containing the inputs are sold. This is the main reason that reported profitability in Poland was so high in 1989 and 1990. Much more useful are enterprise finance data in terms of current revenues and expenditures, that is, in cash-flow terms.[1] The key figures are presented in table 2C.1; all quantities are expressed as a percentage of sales.

Column 1 gives expenditures on materials as a percentage of sales for the enterprise sector. This figure increases in the first quarter of 1990, following the stabilization. This suggests a demand shock: demand dropped all at once, but it took a few months for this to be fully reflected in lower purchases of materials, and in the meantime total inventories in real terms increased. The same thing happened with the second demand shock in early 1991.

This evidence also supports the authors' findings regarding the role of credit in the stabilization of early 1990. The Calvo-Coricelli "credit-crunch" hypothesis is that a decline in real credit meant that firms were unable to finance adequate purchases of inputs and so decreased their production. Berg and Blanchard look for but find no strong evidence that tight credit contributed much to the fall in sales in early 1990. The data presented above show that, in aggregate, expenditure on materials fell more slowly than sales. This too suggests that a lack of turnover credit was not the key factor in the output collapse.

For the remainder of my comments, I will return to the traditional discussant's role of stating points of disagreement, raising doubts, etc., although, as I said earlier, there is little in this paper with which I disagree or about which I am dubious.

The authors mention at various points the negative consequences of leaving state-owned enterprises under the control of workers but imply (and said so explicitly in their conference presentation) that this is not quite a disaster either. A further reason that this may not be a disaster is because industrial relations may be smoother in a worker-controlled state-owned firm than in a firm where the state takes an active role in, say, wage setting. In a sense, there is no one to strike against in a worker-controlled firm. This is especially important in Poland, the Polish labor force being so good at strikes that it brought down two Communist governments in a decade. Strikes have occurred in Polish state-owned firms over the past two years, but, except for the few attempts at nationwide general strikes, they have tended to be scattered and frequently petered out with no substantial concessions or actions by the government.

I like very much the detailed analysis of wage and price inflation. I think, however, that the effect of wage increases has been overstated by the authors

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1. These are not available directly but are derived from historical cost data and accounting identities (for details, see Schaffer [1992a, 1992b]).

Table 2C.1   **Material Expenditures, Profits, and Wage Costs**

	ME/S in % (1)	π/S in % (2)	WC/S in % (3)
Year			
1989	43	34	21
1990	41	23	18
1991	40	7	22
Quarter			
1989:4	42	44	21
1990:1	46	28	15
1990:2	40	24	17
1990:3	40	22	19
1990:4	41	20	20
1991:1	43[a]	11	20
1991:2		7	22
1991:3	39[a]	7	22
1991:4		3	23

Note: Data cover the entire enterprise sector. S = sales of own production. ME = expenditure on materials. π = historical cost profit (*wynik finansowy*). WC = total wage costs (basic wage bill, wage tax, social security taxes).

[a]Half-year results.

in one respect, namely, in the effect on firm profits. It is true that, in 1991, historical cost profits collapsed and that product wages (but not consumption wages) and unit labor costs increased substantially. But profit as a percentage of sales plummeted from 23 percent in 1990 to 7 percent in 1991, while wage costs as a percentage of sales increased only from 18 to 22 percent (table 2C.1, cols. 2, 3). Had unit labor costs stayed at their 1990 level, then (ceteris paribus) profitability would still have dropped by 12 percent. The picture is about the same according to the profitability measure used by the authors, the markup.[2] Other causes of the fall in the markup were the increase in amortization allowances at the start of 1991 and a decrease in the inflation bias. This is of course still a big change in the division of revenue in favor of workers, but not as large as the profit drop might suggest.

A few trade-related points. I think that the authors underplay somewhat the effects of the appreciation of the zloty. They focus on the role of foreign competition in restraining firms from passing on cost increases to domestic customers, but it also seems likely that the appreciation hurt exporters directly. Since the start of 1990, the export price index has gone up much more slowly than the domestic price level and not a lot faster than the zloty/dollar rate; the hard

2. Measured on a consistent basis, the markup fell from 27 percent in 1990 to perhaps 12 percent in 1991. About one-third of the fall is the direct result of the increase in unit labor costs. Markups calculated directly from official figures (e.g., Berg and Blanchard's table 2.1) understate the fall because of changes in accounting definitions (notably those for interest charges).

currency export price index was virtually flat in 1990.[3] This is consistent with the view that firms exporting to the West have little or no market power and basically price in dollars. As the zloty appreciated, the real zloty price that these firms received for their goods fell. This is also part of the reason that the CPI increased more rapidly than the producer price index; the latter includes prices of exports.

At the end of the paper, the authors discuss the options for macro policy and conclude that, while there is in principle room for some reflation, there is a lack of tools with which to pursue it. I think, however, that they are too dismissive of the devaluation option. If other "nominal anchors" are available and are biting (incomes policy, monetary policy), we do not have to let the exchange rate do all the work in fighting inflation. Berg and Blanchard are doubtful that state firms would respond to a devaluation by increasing exports much, but I think that the remarkable increase in hard currency exports (40 percent in 1990!) following the devaluation at the start of the program suggests that they may be too pessimistic.

My last point is a general question for which I have no ready answer. Berg and Blanchard stress the aggregate demand side when analyzing why Polish output has fallen. Implicit in their analysis are the assumptions that output has indeed declined, that aggregate supply has either not fallen or fallen (much) less than aggregate demand, and that there is therefore some scope for reflation. There is by now a considerable amount of evidence, ranging from recalculations of Polish GDP (Berg and Sachs 1992) to product-level survey data, that the decline in economic activity has been substantial and widespread. And, in the Polish case, we do not have to look hard for sources of aggregate demand shocks. But the aggregate supply question needs more attention. If, for whatever reasons, aggregate supply (potential output) has also contracted substantially, reflation is not an option.

However, precisely why and how aggregate supply might have contracted is not at all clear. The authors discuss briefly, and dismiss, a couple of possibilities (e.g., supply constraints). I want to discuss, and dismiss, another possibility that has sometimes been mentioned, namely, the cessation of value-subtracting activity. A number of authors have argued that there may have been a substantial amount of such activity in prereform socialist economies. This suggests that, in the Polish case, aggregate supply may have fallen following price liberalization because, at the new free market prices, production of value-subtracting goods would cease. This is probably best classed as a supply shock, although one could put it in terms of demand: following the January 1990 price liberalization, producers asked prices for these goods that would have been high enough to make the goods value adding, and nobody bought them.

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3. If we set January 1990 = 100, in December 1991 the export price index is 130, the zloty/dollar rate is 117, and the CPI is over 300. Separate monthly indexes for ruble and hard-currency trade were not published in 1991.

This argument does not appear to apply to the Polish case, however, for two reasons. First, as Berg and Blanchard point out, the decline in output was spread widely across the economy. Just to add to the evidence that they cite, industry-wide surveys indicate that both sales and production of 80–90 percent of all products fell in 1990. Second, the "value-subtracting" argument has implications for the behavior of quantity indexes. A Paasche (end-period weighted) value-added index would measure the change in Polish economic activity at the new liberalized prices. A decrease in activity that is value subtracting at the new prices would, ceteris paribus, cause a Paasche value-added index to increase, not decrease, following price liberalization (the less value is subtracted, the greater is value added). In fact, the official Polish quantity indexes (sales, gross output, and value added) are all Paasche—they all measure activity at liberalized prices—and all, such as they are, show large declines of similar magnitudes in 1990–91.[4]

Yet one is still left wondering whether there is a supply-side story to be told. Put another way, transition in all the countries of Eastern and Central Europe appears to be very costly. It seems unlikely (although I suppose possible) that output is falling everywhere by so much mostly because of a combination of the cost of stabilization and the cost of the CMEA trade collapse. If other factors were at work that resulted in large declines in aggregate supply elsewhere in the region, then maybe these factors were at work in Poland too. But, as to what these factors might be, I will not venture to speculate further.

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Discussion Summary

Jeffrey Sachs emphasized that the fall in Polish output did not follow the standard pattern for a market economy going through a demand-induced recession. Before liberalization, a large part of industrial output had not been connected to consumers' final demand for goods. This explains how Poland could experience a 25 percent decline in industrial production while real consumption standards were largely unchanged. Sachs said that a 25 percent decline in industrial

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4. For more on this point, see Schaffer (1992b).

output in a Latin American country would wipe out the economy's service sector. In Poland, the service sector has boomed. Sachs also emphasized the important role of the private sector. He was optimistic that private enterprises would be able to generate growth even in the nonservice sectors. He noted that industrial firms account for 11,000 of the 46,000 large-scale private enterprises.

Saul Estrin had two suggestions for the authors. First, he noted that the analysis in the paper suggested that workers in the state-owned sector were capturing short-term rents at the expense of the long-term viability of the state-owned firms. Estrin said that it would be useful to verify that sectors with big wage hikes had low rates of investment. Second, Estrin pointed out that workers could capture rents only in industries that are not competitive. Hence, he proposed that the authors check to see if there has been a relation between market structure and wage gains.

Jan Winiecki agreed with the authors that the 1990 contraction was primarily due to an aggregate demand shock arising from the program of economic liberalization. He emphasized that the CMEA shock was only partially responsible for the contraction in 1991. Winiecki suggested that the authors pay more attention to monetary policy and particularly to the effect of the pegged exchange rate. He noted that, over a period of seventeen months, the exchange rate had remained fixed while prices shot up 330 percent.

Like Sachs, *Jacek Rostowski* felt that the authors had underestimated the role of the private sector in the transformation of industry. He noted that industrial production in the private sector increased by 50 percent in 1991, adding that the private sector now accounts for 20 percent of total industrial output. Rostowski also wondered whether Polish wages were too high since they were equal (after tax) to wages in Czechoslovakia.

Fabrizio Coricelli joined in the criticism of the aggregate demand analysis in the paper. Coricelli noted that Poland experienced excess aggregate demand before liberalization. He wondered whether liberalization and trade shocks could have generated a sharp enough drop in aggregate demand to explain the enormous fall in output. He noted that the authors' analysis assumes that Polish firms were quick to adjust to a purported decline in expected demand. This assumption conflicts with anecdotal evidence that these firms are more like "sluggish monsters."

Andrew Berg responded first. He presented several pieces of evidence that supported the aggregate demand analysis in the paper. He noted that there was relatively little heterogeneity in sales declines across state-run industrial firms at the two-digit level. In addition, he said that he did not see much evidence that import competition was playing an important role in the decline in output. Finally, he noted that quantity-based data on television and refrigerator inventories provide clear support for the claim that inventories rose sharply in January 1990. Berg concluded by addressing Coricelli's query about the speed of adjustment in Polish firms. At the start of 1990, firms suddenly began to gener-

ate huge inventories. This unprecedented phenomenon quickly alerted the firms to the existence of the demand shock.

Olivier Blanchard suggested that some of the disagreements that had been voiced by participants were largely differences in emphasis. He felt that most of the participants agreed with the general conclusion that the sharp declines in output had as their approximate causes demand rather than supply shocks.

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