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THE 1990 REFORMS:
Macroeconomic Measures and Microeconomic
Response

by

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**THE OWNERSHIP-CONTROL STRUCTURE AND THE BEHAVIOR OF POLISH
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Macroeconomic Measures and Microeconomic Response

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ABSTRACT

This paper analyzes the behavior of the Polish Socialized sector during the seven months of the reform program launched by the government in January, 1990. We show that the response of enterprises to macroeconomic measures can be traced to the ownership-control structure of the Polish economy. We attempt to explain product and labor market policies of enterprises. We also review some evidence on rationalization of production. We argue that loosening of bureaucratic controls may have not, thus far, had expected desirable effects on the behavior of many enterprises. Instead, absence of external accountability, characteristic of the post-command phase of the Eastern European economies, have led in Poland to widespread decapitalization and decline of investment activity. The only external instrument of control over enterprises has been the credit policy of the government. We conclude that, in order to improve both the macroeconomic and microeconomic responses of the Polish economy, widespread privatization appears to be necessary.

This paper analyzes the behavior of the Polish Socialized sector during the first seven months of the reform program launched by the government in January, 1990. The principal purpose of the January 1 reforms was to fight hyperinflation. Optimists also hoped that financial discipline and demand constraint would induce enterprises to rationalize pricing, production and employment. They also hoped that market pressures would drive the least efficient enterprises into bankruptcy. On the other hand pessimists feared that managers, following the "cost plus" principle would raise prices in response to the costs, and, if demand proved insufficient, they would simply slash production. There was also much skepticism about bankruptcy. Given the tightly knit network of exclusive suppliers and subcontractors and exclusive customers, the financially strong firms, it was argued, would prop up the financially weak ones, lest bankruptcies produce a chain reaction.

In retrospect it is clear that product market pressures induced by the reforms have forced firms to adopt pricing that has largely eliminated shortages. However, the reform related loosening of bureaucratic controls and political change have made managers more than ever beholden to labor. As a consequence cuts in production have thus far not been matched by corresponding cuts in the labor force. There has been some cost rationalization, but here, too, managerial incentives are weak.¹ We will also show that the internal structure of the Socialized sector enterprises can explain the effect of credit and indexation policies on wage dynamics.

Evidence seems to suggest that, given the rewards and the constraints, the managers strive

¹ For an analysis of the relationship between the disciplining effect of the product market pressures and the problem of control over enterprise management in the 1990 reforms, see Frydman, Roman and Andrzej Rapaczynski, "Markets and Institutions in Large Scale Privatization", C.V. Starr Center For Applied Economics at New York University, Research Report, October 1990;

to behave rationally. In turn, those rewards and constraints are deeply rooted in the ownership and control structure of the current, post-command phase, of the Polish economy².

1. THE ECONOMIC REFORMS.

Under the "classical" Soviet-type system which prevailed, with some modifications, from the late 1940s till the end of the 1970s, the economy was organized along hierarchic-bureaucratic lines. The enterprises were looked upon as administrative units, with no associated ownership rights. Their behavior was subject to dictates of the plan. Industry, for the sake of ease of control, was heavily concentrated. The reward system was based on fulfillment of plan targets, and management was accountable to the higher levels of the command structure. Market considerations played a subordinate role.

During the 1980s bureaucratic controls were progressively relaxed. The reforms embraced an ever-widening number of industries. By the end of the decade only some of the key sectors (mining, transport and communications, basic industries) remained under centralized control. In other sectors enterprises were permitted to choose the source of supply, to market the product, to change the assortment, to decide, within limits, on the volume and direction of investment out of own profits. Foreign currency allocation at official, artificially low rates, was

² For earlier related analyses, see Calvo, Guillermo and Fabrizio Coricelli, "Stagflationary Effects of Stabilization Policies in Reforming Socialist Countries: Supply-Side vs. Demand-Side Factors" (mimeo) May, 1990; Frydman, Roman, Stanislaw Wellisz and Grzegorz Kolodko, "Stabilization in Poland: A Progress Report" in Emil-Maria Claassen (ed.), Exchange Rate Policies of Less Developed Market and Socialist Economies (forthcoming); Lipton, David and Jeffrey Sachs, "Creating a Market Economy in Eastern Europe: The Case of Poland", Brookings Papers on Economic Activity, (forthcoming) and Edmund S. Phelps, "Sub-normal Unemployment in Socialist Economies", in Claassen, op cit.

gradually phased out. Enterprises were permitted to retain an increasing share of their foreign exchange earnings and to use them to import approved products, mainly producer goods, or to sell the retained foreign exchange at auction.³

Despite the move to loosen the controls, much of the bureaucratic-administrative structure held firm. For example, until the end of 1988 major enterprises continued to have only one marketing agent and a single source of principal inputs. For other firms the heavy concentration of industry and the trade barriers limited the range of choice. Most important of all, ownership and control rights remained unclear. Enterprise managers continued to face the possibility of arbitrary bureaucratic interference. An enterprise which set its prices deemed by the government bureaucrats to be excessive could be accused of gouging and ordered a roll-back. On the other hand, if an enterprise made losses, it could receive a subsidy. Subsidies were subject to administrative discretion, and they were easily granted to strategically important enterprises, i.e. for the coal mines or the steel producers.

The profit bonus payable to the management and employees provided insufficient incentive to pursue profit-maximizing policies. For bonus-calculation purposes, the subsidy counted as part of the profit! Moreover, the profit incentive was blunted by taxes designed to discourage "excessive" wage raises. In contrast, there were significant incentives to create shortages by setting prices below the market-clearing level. In a shortage situation the entire output could readily be sold regardless of quality. Letting preferred customers jump the queue, and reserving for them the high quality products, gave power to the individuals who could

³ The government manipulated the auction rates by "packaging", i.e. by selling varying size blocks of currency at different delivery dates. The system favored certain basic industries which purchased large "packages" with long delivery dates.

dispose of the product, and to exact favors in return, enhancing their real income.

The environment within which Socialized sector enterprises operated changed abruptly with the reforms introduced on January 1, 1990. Most of the subsidies were eliminated: before the change administered prices applied to an estimated 50 per cent of the nominal value of legal transactions; the reform reduced the proportion to 10 per cent. Subsidies on coal, energy and transport were drastically reduced. To compensate for the price reductions coal prices were increased on the average by 500 per cent, electricity prices by 200 per cent and transport prices by 200per cent⁴. The zloty was devalued by 58 per cent, and the currency was made convertible for transactions on current account.

Measures were also taken to tighten demand. Real interest rate which, prior to the reforms was negative was henceforth to be positive. The rationing of credit at preferential rates was discontinued. To stop the price-wage spiral tight limits were imposed on wage increases. From April 1989 till December wages were indexed at 80 per cent of the cost of living index, and workers could obtain even higher wages through bargaining. For January the permissible increases were tied not to the wage level but to the wage bill, and the degree of indexation was reduced to 30 per cent, and for February and March to 20 per cent; after that it was subject to monthly revision. Enterprises which exceeded the permissible increase were subject to heavy penalty taxes.

⁴ From July 1990 on, the coal prices ceased to be administered and were to be "negotiated" i.e. set by mutual agreement between the sellers and the principal buyers. The remaining subsidy on coal was discontinued

2. THE SOCIALIZED SECTOR.

The Socialized sector in Poland generated in 1989 an estimated 75 per cent of the Gross National Product. In December, 1989 it employed 8,600,000 workers, of whom 4,000,000 in industry, the sector with which we will be most closely concerned (Table 1).

The public sector consists of over 21,000 enterprises; of these 9,000 were funded by the central or by local authorities 12,000 are cooperatives. There are, in total, 5,486 industrial enterprises, including 2,463 cooperatives, most of them small units. Large and medium scale units are, with few exceptions, centrally funded.

Who is the owner of Polish public enterprises? Is there a residual claimant who has the right to dispose of his property? And how does he exercise control? To these questions, of key importance for the understanding of the behavioral pattern of the economy, there are no clear answers. The initial capital of enterprises has been provided by a budgetary allocation through a "funding body", i.e. a ministry or a local authority.⁵ Enterprises have no legal entity. A going concern cannot, therefore, be sold, though the assets of a bankrupt enterprise may be disposed of by the funding body. Management has the right to sell selected assets, subject to the Workers' Council approval. The Council's approval is also needed to change the enterprise into a genuine joint stock company, or to privatize it.

In large enterprises the "funding body" chooses the Managing Director, subject to the approval of the Workers' Council. In smaller enterprises the Workers' Council nominates, and

⁵ With the evolution of the government's structure there were changes in the number and in the designation of the funding bodies. At present industry is under the tutelage of a single Ministry of Industry. There are also other "funding bodies", among them the Ministry of Transport, and the Ministry of Telecommunications.

Table 1

EMPLOYMENT AND VALUE ADDED IN SOCIALIZED INDUSTRY

	Employment on 31 XII 89		Value added on 30 VI
	in '000	in %	in bln of zl
INDUSTRY	4016.3	100.0	109641
of which			
Coal,	482.5	12.0	1576
Fuel	53.5	1.3	8564
Energy	119.1	3.0	4480
Steel production	142.1	3.5	10388
Non-ferrous metals	60.2	1.5	6017
Metal working	241.4	6.0	5152
Machine-tools	407.4	10.1	9895
Precision-tools	68.3	1.7	1495
Transport equipment	311.3	7.8	7870
Electronics equipment	247.7	6.2	6029
Chemical	278.4	6.9	10160
Construction materials	131.2	3.3	2842
Glass	47.9	1.2	1015
Ceramics	24.9	0.6	451
Wood products	157.9	3.9	2508
Paper	45.5	1.1	1560
Textiles	320.2	8.0	5681
Clothing	175.6	4.4	1756
Leather	132.4	3.3	1789
Food	408.6	10.2	18391
Animal feed	6.1	0.2	181
Printing	44.4	1.1	745
Other	109.7	2.7	1096

Source: GUS data

the "funding body" approves. The Workers Council is empowered to remove the Managing Director, or to suspend him from his duties.

Financial control is exercised by banks which grant operating credit to enterprises. The "funding body" does not exercise control, except for enterprises which go into bankruptcy. Net income is divided between the State budget and the enterprise. The State budget collects the "dividend", which is a lump sum based on the value of the funding capital, and a tax on enterprise profit over and above the "dividend".⁶ The profit accruing to the enterprise is allocated to the "development fund", i.e. to investment and to the "personnel fund" i.e. to wage and salary premia and to social amenities. The allocation of the fund is at the discretion of the Workers' Council, with the credit-granting bank having influence over the choice. The Workers' Council also decides how to split the bonus between labor and management. Under the rules now in force bonuses in excess of the amount permitted by indexation are subject to heavy penalty taxes.

A few words need be said about the Workers' Councils. Their genesis lies in the effort of anti-Communist forces to loosen the Party's grip on the economy. The law creating the Councils was passed in September, 1981, at a time when Solidarity exercised considerable influence, but they were constituted for the most part under the ensuing martial law period, when Solidarity was suspended and later outlawed. The Councils are elected by secret ballot for a three year period; in some enterprises, notably in several steel mills they have been captured

⁶ The "dividend" is a 32 percent tax on the "funding capital", and it does not apply to capital generated through the reinvestment of profits. On the average, the tax amounts to 8 percent of the estimated total capital, but the percentage varies greatly from firm to firm.

by Solidarity; in others, the elections caused little excitement, and, in practice, the councils came close to being tools of the management. But Council membership gives power, and councils now constitute a lobby of some importance.

Labor organizations are also an important "player". The original, submissive, government-sponsored unions collapsed with the formation of Solidarity. When Solidarity was outlawed, the government created a new union organization, the OPZZ. To gain legitimacy among the workers, the OPZZ assumed a belligerent stance, and, though in 1989 Solidarity won once again the official right to exist, OPZZ survived. It is something of a paradox that under the new regime Solidarity is closely associated with the government, while OPZZ aggressively represents workers' particularistic interests.

As elsewhere in Europe, Polish legislation protects workers from sudden mass dismissal. Management must notify the Union advance prior to a planned group layoff, that is of a layoff of 10 or more percent of workers in enterprises with 1,000 or fewer workers, and 100 or more workers in enterprises above that size. The Union has the right to obtain financial information concerning the enterprise, and to present a counter-proposal. This is followed by negotiations, though in case of disagreement, the manager has the last word. It must be borne in mind, however, that the manager may be dismissed by the Workers' Council. Therefore, faced by the need to reduce the labor force, managers have, thus far, opted for gradual attrition.

3. EFFECTS OF THE REFORMS ON ENTERPRISE BEHAVIOR.

Our analysis of enterprise behavior will be based on aggregate data for the Socialized sector. We will also present conclusions drawn from a preliminary analysis of a survey of 315

enterprises conducted by the Advisory Group to the Economic Committee of the Council of Ministers.

3.1 Price and Output Behavior.

In January, 1990 the retail price index rose by almost 80 per cent. (Table 2). In the aggregate this increase reflects the effects of the supply shock cost-push. In December, 1989 there was a sharp rise in producer prices. Prices realized by the metal-working industry rose by 61 per cent, machine tool price by 56 per cent, prices of the chemical industry by 60 per cent and construction materials by 52 per cent⁷. The December price increases affected the January production costs. In addition, as mentioned earlier, the prices of coal, fuel, energy, and transport were drastically raised as of January 1, 1990.

An upper-bound measure of the supply shock effect can be obtained by substituting the exogenous price changes into an Input-Output table.⁸ Such a calculation, based on a 39x39 Input-Output table yields a 77 per cent price increase of the retail price index, thus matching closely the actual increase.(Table 3).⁹

As the Input-Output table indicates, the supply shock affected more strongly the capital

⁷ Realized prices are weighted average of prices obtained by enterprises on domestic sales and on exports to the rouble block and to the convertible exchange countries.

⁸ This statement applies sensu stricto to a perfectly competitive economy. In the Polish case the calculation assumed that profit margins remain constant

⁹ This table was produced by Andrew Berg, Dariusz Jaszczynski, and Jan Rajski.

Table 2
RETAIL PRICES 1989 - 1990

Year	Month	December 1988=100	Previous month =100
1989	Jan.	111.0	111.0
	Feb.	119.8	107.9
	March	129.5	108.1
	April	142.2	109.8
	May	152.4	107.2
	June	161.7	106.1
	July	177.1	109.5
	Aug.	247.1	139.5
	Sept.	331.9	134.4
	Oct.	513.6	154.8
	Nov.	628.5	122.4
	Dec.	739.8	117.7
1990	Jan.	1328.6	179.6
	Feb.	1644.8	123.8
	March	1715.6	104.3
	April	1844.2	107.5
	May	1929.1	104.6
	June	1994.7	103.4
	July	2066.5	103.6
	August	2103.7	101.8

Source: GUS data

Table 3

JANUARY '90 Results according to the input-output table */		Hypothetical increase of prices according to increases in costs	Actual increase in prices in January
Industry:	coal	285.0%	404.0%
	fuel	205.2%	294.0%
	energy	218.0%	300.3%
	steel production	218.9%	235.0%
	non-ferrous metals	174.7%	285.0%
	metal working	194.4%	197.0%
	machine-tools	184.6%	175.4%
	precision-tools	174.3%	167.2%
	transport equipment	188.9%	162.5%
	electric machinery	180.1%	186.3%
	chemical	186.9%	207.2%
	construction materials	202.9%	224.0%
	glass	179.3%	203.6%
	ceramics	181.3%	187.7%
	wood products	182.5%	170.4%
	paper	192.1%	182.4%
	textiles	173.3%	159.3%
	clothing	164.5%	135.0%
	leather	170.7%	152.8%
	meat	175.8%	190.0%
	other food products	178.1%	150.0%
	animal feed	182.0%	290.0%
	printing	175.6%	180.0%
	other	181.1%	183.0%
Construction:	general	186.1%	149.0%
	production & services	184.4%	148.0%
	specialized	186.4%	146.0%
	other	173.0%	145.0%
Agriculture:	vegetable products	199.5%	220.0%
	animal products	188.5%	162.2%
	agriculture services	182.8%	220.0%
Forestry		188.8%	170.0%
Transport		241.0%	280.0%
Telecommunication		182.0%	180.0%
Trade		183.8%	160.0%
Other branches of production		166.0%	185.0%
Public services		204.7%	240.0%
Average prices	Realized by producer	193.7%	196.8%
	Retail	177.0%	179.6%

*/ the profit rates in each industry are assumed to be equal to the average of historical rates.

goods sector than the more labor-intensive consumer goods sector (Col. 1 of Table 3).¹⁰ We also see that in the producer goods industries actual price increases (Col. 2 of Table 3) exceeded the price increases based on the Input-Output prediction. The machine tool, precision tool, and transport equipment industries are the three notable exceptions. In the case of the first two exports play an important role, hence a significant component of the aggregate realized price is determined in the world market. Much of the transport equipment was sold under long-term contracts. More importantly, as will be discussed below, domestic sales of the three sectors declined more drastically than for the rest of industry. In the construction, leather, textile and clothing sectors the price increases were substantially lower than indicated by the Input-Output table. All three sectors experienced a greater decline in output than industry as a whole.

In January, 1990 output sold by Socialized industry was 10 per cent lower than in December, 1989 (21 per cent lower than in January, 1989). Output sold by the mining sector declined by 1 per cent (7 per cent), while output sold by manufacturing was 11 per cent (22 per cent). Most of the branches of heavy industry experienced little decline in sales; in some, as in metallurgy January 1990 sales were higher than in December 1989. But sales of machine tools declined by 25 per cent (12 per cent), of precision tools by 34 per cent (13 per cent), and of transport equipment by 34 per cent (25 per cent). The decline in light industry, 11 per cent (18 per cent) was slightly more severe than in manufacturing as a whole, but the consumer durables branches were hard hit. Clothing sales went down by 11 per cent (77 per cent), and leather

¹⁰ Because of the high degree of aggregation the sectoral price changes differ, in some cases very markedly, from price changes of the sectors' major products. For instance, the sectoral price rise indicated for the coal mining sector is much lower than the exogenous price rise of coal because the sector embraces, in addition to coal production various ancillary activities and services such as canteens, miners' housing, rest homes, etc.

goods by 14 per cent (23 per cent).

When a recession occurs in Western market economies a decline in production of heavy industry often precedes and is more severe than the decline in the consumer goods' sector. In the Polish case exactly the opposite has happened. The decline started and was very deep in the consumer goods sectors. Enterprises in those sectors also significantly lowered the price mark-ups. Output sold by the producer goods sector declined initially by a lesser percentage, while the mark-ups increased.

We hypothesize that different explanations stemming from structure of the Polish economy are needed to understand the behavior between of the two sectors. In our view the fall in output and the reduction of mark-ups in the relatively competitive consumer goods sector were caused by the decline in consumer demand. The strongly monopolized producer goods industries, insulated to a larger extent from market shocks switched, under the impact of stabilization measures from a policy of below-market clearing to monopolistic pricing.

3.2. Household Behavior and the Consumer Goods Sector.

The stabilization measures caused an immediate, and profound decline in constant-price household incomes.¹¹ The index of money income of the Polish population declined from 100 in July 1989 to 68.5 in January, 1990 at constant prices. During the same period the constant

¹¹ A distinction is drawn here between the statistical concept of changes in real income, and the welfare concept. The latter concept assumes that the quality and assortment of goods remains constant, as does search time. The former, which for the sake of clarity we call changes in money income at constant prices makes no such assumptions. Stabilization and liberalization improved the availability of goods and their quality, hence the real income drop in the welfare sense was less severe than the statistical decline.

price index of household expenditures declined from 100 to 63.5. In February there was a further drop in incomes, but an even deeper drop in expenditures. These figures suggest that the propensity to consume decreased in a period of declining real incomes. This phenomenon can be explained by the "Pigou effect". The hyperinflation drastically reduced the value of zloty holdings. Following stabilization, the real value of the U.S. dollar on the Polish market dropped steadily. The rise in the propensity to save is the consequence of the effort by households to rebuild their asset position.

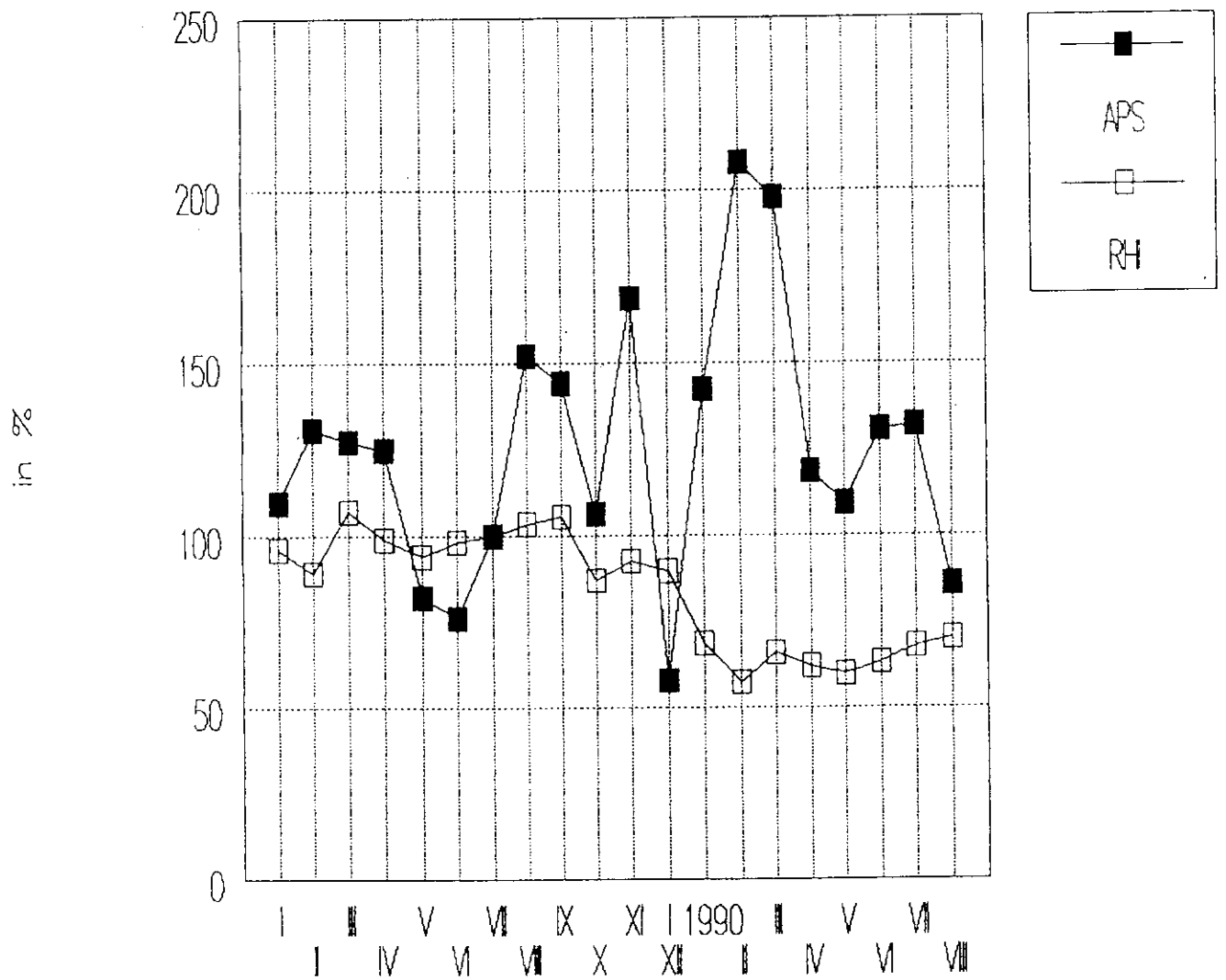
A comparison of the average propensity to consume during the first six months of 1990 with the corresponding figure for 1989 supports this conjecture (Fig. 1). Within that period real household incomes dropped by 36 per cent, and household expenditures by 41 per cent, and, as a consequence, the average propensity to consume declined from 0.84 to 0.78. Another confirmation comes from changes in the household asset position. Between January 1990 and June real household incomes dropped by 8 per cent, but dollar-denominated household holdings (the main store of non-agricultural wealth) rose from US\$4.9 billion to US\$ 5.2 billion (Table 4).

Other, less readily quantifiable, considerations also speak in favor of the demand constraint hypothesis. Hoarding of durables which occurred during the hyperinflation period subsided and households rebuilt their cash balances (Fig. 2). Foreign consumer goods became somewhat more readily available. Possibly, also, somewhat more goods were produced by the private sector¹² In the pre-reform period the public sector was able to sell all it produced, regardless of quality.

¹² During the first six month of 1990 employment in private non-agricultural activities increased by 2 per cent. There is no sectoral breakdown, and no output data.

Figure 1

Average propensity to save out of money incomes and real household income



in real terms , July 1989 = 100

Table 4

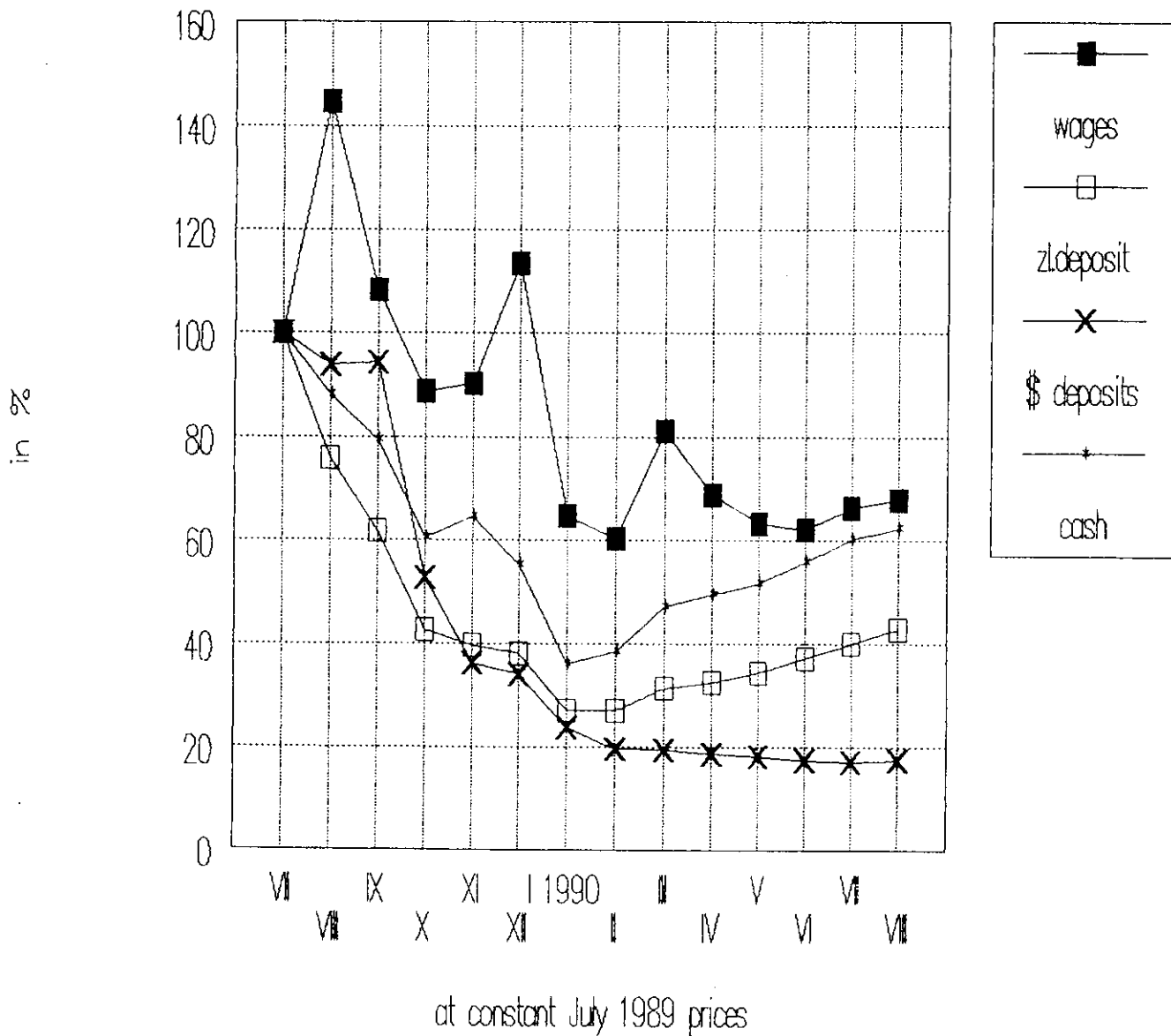
HOUSEHOLD DOLLAR DEPOSITS 1989 - 1990

	Household dollar deposits millions USD	Index over Jan 1989 = 100
Jan 1989	4139	100.0
Feb	4402	106.4
March	4464	107.9
April	4516	109.1
May	4561	110.2
June	4458	107.7
July	4550	109.9
August	4618	111.6
September	4762	115.1
October	4864	117.5
November	4863	117.5
December	4925	119.0
Jan 1990	4911	118.7
Feb	4969	120.1
March	5040	121.8
April	5123	123.8
May	5214	126.0
June	5252	126.9
July	5409	130.7
August	5599	135.3

Source: GUS data

Figure 2

Real wages and stock of money in households



Since the reforms, defective goods remain unsold.

3.3 The Producer Goods Sector.

The producer goods industry in the Polish economy consists of large enterprises, interlinked by a traditional administrative structure. Under the old regime these enterprises produced mostly for each other, and a complex system of subsidies and of protection from outside competition shielded them from market pressures and from the necessity of paying much attention to the future use of their products by the consumer goods industry.

As we discussed earlier, prior to the reforms below-equilibrium pricing was prevalent throughout the economy. The hard line taken on new subsidies, and the reduction of existing ones, induced enterprises to cover their costs. Under the new rules enterprises were free to raise prices. Clearly, the shortage-creating pricing strategy was no longer possible, and enterprises now sought to set prices at profit-maximizing levels.

Although both the consumer and the producer goods sectors attempted to raise prices to profit-maximizing levels¹³, as we have stressed, the resulting initial price-output outcomes were quite different in the two sectors. An explanation of this observed difference in outcomes lies not in the differences in motivation of enterprises, but in the difference in constraints. The consumer goods sector experienced a severe shift in its demand curve, while the producer goods industries traded with each other, and they were at first, less affected by the demand or by the credit constraints.

¹³ As we will be discussed later, we model the enterprises as striving to maximize the value added at the firm level subject to various constraints.

3.4 Price and Output Behavior in Later Months.

The initial price adjustments took place under highly uncertain cost and demand conditions. Profits plummeted (Table 5). There is evidence that as the economic environment became more stable, enterprises engaged in search behavior that led to an improvement in profits.¹⁴ The Survey (referred to above) shows that enterprises that initially raised their prices by a wide margin tended to lower their prices later on, whereas those that raised them relatively little, or in some cases, even not at all, later on made upward adjustments. In January, 92 per cent of the surveyed enterprises raised their prices; of these, 60 per cent lowered their prices in February, 54 per cent in March, and 49 per cent in April. Of the firms that raised their prices in January, 21 per cent increased their prices in February, 10 per cent in March, and 15 per cent in April. However, these price increases were much lower than in January. This picture is representative of the economy as a whole: hyperinflation subsided, but prices continued to rise (Table 2)

Aggregate output, after the initial fall, continued to decline albeit at a lower pace; by July it stabilized, and in August it increased, following a July real wage raise. As the time progressed, the demand constraint has apparently reached the heavy industry. By June, 1990, most branches of heavy industry experienced the decline in output relative to June, 1989 between 25 and 30 per cent. Interestingly, this is about the same percentage drop as experienced by the light industry in January.

¹⁴ By March, 1990 profits, at constant prices, rose to 97 per cent of the 1989 level, though output was 27 per cent lower.

Table 5

SALES AND NET PROFITS OF THE SOCIALIZED SECTOR
IN BILLIONS OF ZL. AT CONSTANT DECEMBER 1988 PRICES

Year	Month	Sales	Net profits	net profit/ sales ratio
1989	1	4,498	504	11.2%
	2	4,108	551	13.4%
	3	5,379	550	10.2%
	4	3,764	430	11.4%
	5	4,328	632	14.6%
	6	6,000	896	14.9%
	7	2,841	320	11.3%
	8	4,028	439	10.9%
	9	5,493	746	13.6%
	10	3,517	711	20.2%
	11	4,221	794	18.8%
	12	5,013	1,904	38.0%
1990	1	3,315	425	12.8%
	2	3,050	467	15.3%
	3	3,414	535	15.7%
	4	3,039	353	11.6%
	5	3,399	434	12.8%
	6	3,265	436	13.4%
	7	3,001	304	10.1%

Source: Calculated on the basis of GUS data

3.5 Foreign Trade.

Changes in the export and import pattern demonstrate that the Polish Socialized sector does have flexibility. The domestic recession and the devaluation of the zloty made increased the profitability of sales to hard currency countries. During the first six months of 1990 such exports, reckoned in constant dollars, were 20 per cent higher than during the same period a year earlier. Imports from the convertible currency and from rouble area declined. It is interesting to note however, that imports of machines from the convertible currency areas rose, while purchasers from domestic producers as well as from the rouble area countries went down - a clear indication that Polish industry was seeking to modernize.

3.6. Employment.

Employment in the Socialized sector has been declining throughout the 1980s. In 1989 it fell from 9,200,000 to 8,600,000 that is, by close to 7 per cent. There was, however, no overt unemployment, for the expansion of the private sector created a sufficient number of jobs to employ the workers shed by the Socialized sector as well as the new entrants into the labor force.

In 1990 the rate of reduction of the Socialized sector labor force quickened, but, unlike in production, there was no dramatic break. In January, in the face of an output drop of close to 30 per cent, employment fell by 1 per cent, In the months that follow the rate of labor-shedding accelerated somewhat, but it never surpassed 2 per cent per month. In total, during the first eight months of 1990 the Socialized sector employment declined by 87,000, i.e. by about 10 per cent (Table 6).

Table 6

EMPLOYMENT IN THE SOCIALIZED SECTOR

Year	Month	Employment in ths.pers.	Change over the previous month	
			in ths.pers.	in %
1989	1	9,189	--	--
	2	9,184	-5	-0.05%
	3	9,092	-92	-1.01%
	4	9,009	-83	-0.92%
	5	8,954	-55	-0.61%
	6	8,874	-80	-0.90%
	7	8,864	-10	-0.11%
	8	8,771	-93	-1.06%
	9	8,721	-50	-0.57%
	10	8,715	-6	-0.07%
	11	8,690	-25	-0.29%
	12	8,600	-90	-1.05%
1990	1	8,508	-92	-1.08%
	2	8,414	-94	-1.12%
	3	8,305	-109	-1.31%
	4	8,199	-106	-1.29%
	5	8,040	-159	-1.98%
	6	7,950	-90	-1.13%
	7	7,844	-106	-1.35%
	8	7,734	-110	-1.42%

Source: GUS data

During the first three months of the year output per employed worker was about 26 per cent lower than during the first three months of the previous year (Table 7) Group layoffs were insignificant (Table 8) the reason being that, under the existing rules such layoffs require a 60 to 90 day notice. Moreover the Unions as well as the Workers' Councils put pressure on management not to discharge workers. The hope that the anti-inflationary squeeze would lead to a rapid improvement in labor allocation proved to be unjustified. Nevertheless, over the next four months productivity improved and, by August it recovered to within 13 percent of that of the previous year. The index does not take, of course, into account the noticeable improvement in the quality of products.

3.7. Wages.

During the first half of 1990 money wages consistently rose less than permitted by indexation (Table 7). Month by month there was an accumulation of arrears - sums which could be paid to workers without incurring tax penalties. However, the rate of accumulation declined uniformly. In July and August the wage increases exceeded the amount permitted by indexation, and the cumulative arrears started to decline.

The question arises what explains this pattern of wage behavior, and in particular the extent to which the indexation rule actually constrained the wage increases¹⁵. To examine this question, we first have to explain the indexation system introduced in January. It is easiest to do so using actual data, displayed in Table 9. For every enterprise and for every month the

¹⁵ The following analysis, based on new data, substantially extends and revises our earlier discussion in Frydman, Wellisz Kolodko, op cit.

Table 7

PRODUCTION SOLD PER WORKER IN THE SOCIALIZED INDUSTRY 1989-199

Year	Month	in '000 zl	Corresponding month of previous year = 100	Jan 1989 = 100
1989	Jan	246.2	117.9%	100.0%
	Feb	217.2	100.3%	88.2%
	March	243.6	101.8%	98.9%
	April	224.8	107.5%	91.3%
	May	227.4	99.4%	92.4%
	June	241.8	103.3%	98.2%
	July	189.4	98.0%	76.9%
	Aug	205.1	94.9%	83.3%
	Sept	221.9	98.8%	90.1%
	Oct	227.8	102.9%	92.5%
	Nov	214.7	91.0%	87.2%
	Dec	227.2	102.1%	92.3%
1990	Jan	185.3	75.3%	75.3%
	Feb	160.6	73.9%	65.2%
	March	179.3	73.6%	72.8%
	April	165.7	73.7%	67.3%
	May	175.6	77.2%	71.3%
	June	176.5	73.0%	71.7%
	July	169.9	89.7%	69.0%
	Aug	183.3	89.4%	74.5%

Source: GUS data

Table 8

Unemployment in 1990
(in the last day of month)

	Jan	Feb	March	April	May	June	July	August
Rate of unemployment	- 0.4%	1.1%	2.0%	2.6%	3.3%	4.2%	5.2%	6.1%
Total in ths.persons	- 56	152	267	351	443	568	699	820
of which in percentage:								
Group lay offs	- 4.3	4.5	5.7	7.8	9.5	10.2	11.3	12.2
Other separations	-	64.3	48.4	45.7	47.8	49.5	50.8
Unemployed for more than 3 months before registration	-	30.0	43.8	44.8	42.0	39.2	37.0

Source: GUS data

indexation specifies the maximum total wage payments (the maximum wage fund). The maximum allowed increase in the wage fund (line 4) is computed by multiplying the indexation coefficient (line 1) by the actual inflation rate as measured by the retail price index (line 2). The maximum wage or wage norm (line 6) is obtained by dividing the maximum wage fund by the employment. A fall in employment automatically increases the wage norm per worker. In Table 9 we compute such wage norms for the aggregate economy.

The January of 1990 wage norm is obtained by multiplying the December, 1989 indexation base of 587,900 zł by the maximum allowable rate of growth of wages. Since the actual rate of inflation in January was 78.6 per cent and the indexation coefficient was .3, the maximum allowable rate of growth of the wage fund was 23.6 per cent. Adjusting for the change in aggregate employment (line 7) this gives the norm for January of 734,300 zł. An enterprise which exceeds the norm was subject to a 200 per cent tax on excess payments not surpassing 3 per cent of the norm, and to a 500 per cent tax on payments higher than 3 per cent¹⁶.

Wages in Poland are set monthly. Since the norm is set on the basis of the ex-post inflation rate, enterprises have to predict the inflation rate in order to predict the norm for the coming month. The only widely publicized forecast in Poland is the one published by the Ministry of Finance, hence our table supposes that this forecast is used for predicting the norm. Since the 45 per cent inflation was forecast for January we take the forecasted increase in the wage norm to amount to 13.5 per cent (line 4), and the corresponding forecasted norm to equal to 674,400

¹⁶ The tax rates were changed on July 28, and made retroactive to January 1. Under the new rules a 100 per cent tax is payable on the excess of wages over norm if the excess does not surpass 3 per cent of the norm, a 200 per cent tax on an 3 to 5 per cent excess, and a 500 per cent tax on excess surpassing 5 per cent.

zl. As it turned out enterprises actually paid on the average the wage of 618,300 zl (line 5). Thus, the ex post unused norm was 116,000 zl (line 11), and the unused norm based on the forecast was 56,100 zl. The ex-post January norm, in turn serves as the base for February calculations.

We now come back to our question whether the indexation system constrained wage increases actually paid by enterprises. We cannot exclude the possibility that the low wage increase granted in January reflects the management's caution in a situation fraught with uncertainty. But in February wages rose, on the average, by only 33,600 zl (line 5). Although this represents a 5.2 per cent increase over the actual January wage (line 3), the gap between wage norm (whether computed ex-post or ex-ante) and the wages actually more than doubled (lines 5 and 6). The unused reserve grew in February from 116,000 zl to 242,300 zl per worker. For the next four months the unused reserve grew, though at a diminishing rate. By June the unused reserve amounted to close to 500,000 zl, compared with a monthly wage of 850,000 zl.

It would, therefore, be difficult to claim that, during this period the indexation rule had a significant restraining effect on wages. One should not, however, conclude hastily that it had no effect at all. Though average wages were below the norm, some enterprises paid the maximum permitted under the norm, or even surpassed it. In January 1.75 billion zl accrued to the Treasury in penalty taxes. The tax payments increased month by month reaching 267.8 billion in June, For the first six months of the year penalty taxes amounted to 608 billion zl, that is to ca. 2 per cent of the wage fund.

Nor can the indexation rule explain the rapid wage increase that occurred in July and in August. In July full indexation was adopted in order to gain social acceptance of administered

price increases (notably of the price of coal)¹⁷, but the rate of inflation was expected not to surpass 4 per cent. The actual wage increases exceeded 14 per cent. The raises were not confined to enterprises with unused reserves, witness the fact that penalty tax payments amounted to 640 billion zl - that is more than the previous six months' total. The wage raises granted in August further reduced the aggregate unused reserve.

To conclude: though we do not deny that the indexation-cum-penalty tax system had, in the case of some enterprises, a restraining effect on wages, it is our view that this mechanism was not a major determinant of evolution of the average wage since January, 1990. We shall now look for additional explanation of wage dynamics to the credit and interest rate policy.

3.8 Interest rates and credit.

In December, 1989, the last month prior to the introduction of the stabilization program retail prices were rising at 17 per cent per month. The National Bank of Poland discount rate was set at 13 per cent. Since the stabilization program was widely publicized, the expectations were that a sharp price increase will occur in January, and that credit would be tightened. In anticipation of these developments, enterprises attempted to build up raw material inventories, and they got heavily into debt. The proportion of inventories financed by enterprises from the retained earnings fell from 48 per cent at the end of June 1989 to 38 per cent at the end of December, while accounts payable rose from 30 to 45 per cent. December also brought a profit windfall. The US \$ 2.4 billion in the enterprise accounts was revalued from 3,800 zl per dollar

¹⁷ Administrative price fixing of coal was abolished in July, but the administration retained the right to delay price increases by three months. In July, the mining industry was permitted to raise prices by 15 per cent; prices will again be raised in October.

to 6,500 zł per dollar to reflect the official zloty devaluation, yielding them close to 6.5 billion zlotys. The enterprises, at the beginning of the program, were in a relatively strong financial position.

On January 1, 1990 the National Bank of Poland raised the discount rate to 36 per cent per month. This rate was expected to exceed the average January-February inflation rate. But prices rose faster than was foreseen, and the ex-post January real interest rate was strongly negative (Table 10). The new rates applied, however, to old as well as to new debt. The rate increase imposed a burden on heavily indebted sectors of the economy, and especially on agriculture and on construction, and these were granted special interest payment relief.¹⁸

Inflation subsided in February, and though the nominal discount rate was reduced to 20 per cent, the ex-post real rate was positive. In the following months, in anticipation of further decline in the rate of inflation, the discount rate was gradually reduced. The monetary authorities were subject to strong, contrary, pressures. On one hand, high interest rates were considered of importance in the effort to hold the price line. On the other, the continuing recession, and deepening unemployment were used as arguments for the easing of credit. Under the policy that was adopted the ex-ante real discount rate declined month-by-month. Credit eased, For the first six months of the year the real ex-post discount rate was positive, In July, however, it became, once again, negative.

During the first month of the stabilization program credit to the Socialized sector did not

¹⁸ All debtors were permitted to capitalize 60 per cent of the interest payments on old debt. Interest was to be paid by the debtor on the remaining 40 per cent; however, agricultural was granted a 50 per cent subsidy on debt payments; in the case of construction credit the subsidy was to amount to 32 per cent of interest on the total debt, so that the debtors had to pay interest only on 8 per cent of the debt.

Table 10

MONTHLY INTEREST RATES IN 1990

	Jan.	Feb.	March	April	May	June	July
nominal							
NBP discount rate	36.0%	20.0%	10.0%	8.0%	5.5%	4.0%	2.5%
6-month time deposits	17.0%	13.0%	6.5%	5.0%	3.4%	3.5%	2.0%
1-year credit: min.rate	36.0%	20.0%	9.0%	7.5%	5.0%	4.0%	2.5%
max.rate	62.0%	23.0%	12.0%	9.5%	8.0%	5.5%	2.6%
real							
based on the actual point to point inflation rates							
NBP discount rate	-33.6%	14.0%	2.7%	1.6%	0.7%	0.4%	-1.2%
6-month time deposits	-45.1%	7.3%	1.4%	-1.2%	-1.3%	-0.0%	-1.7%
1-year credit: min.rate	-33.6%	14.0%	2.7%	1.1%	0.2%	0.4%	-1.2%
max.rate	-21.3%	16.8%	5.6%	3.0%	3.1%	1.9%	-1.1%
based on the forecasted inflation rates							
NBP discount rate	-6.2%	-2.4%	3.8%	1.9%	2.9%	1.0%	-2.9%
6-month time deposits	-19.3%	-8.1%	0.5%	-0.9%	0.9%	0.5%	-3.3%
1-year credit: min.rate	-6.2%	-2.4%	2.9%	1.4%	2.4%	1.0%	-2.9%
max.rate	11.7%	0.0%	5.7%	3.3%	5.4%	2.4%	-2.8%
Memo items:							
Retail price inflation rate (point to point)	106%	5.3%	2.1%	6.3%	4.6%	3.6%	3.8%
Retail price inflation rate (forecast) †/	45.0%	23.0%	6.0%	6.0%	2.5%	3.0%	3.5%

Source: Calculated on the basis of GUS and NBP data

†/Forecast of inflation rates are available only for average rates. Also note that since the point-to-point inflation rate in February was much lower than the average rate, the ex-ante real rate in February was actually higher (and probably positive) than the rate reported in the table.

change in nominal terms, and thus declined by about 50 per cent in real terms¹⁹ This suggests that enterprises perceived the increase in the nominal rate as constituting an increase in real costs. There may be other reasons as well why enterprises reduced their indebtedness. In view of the accumulation which took place toward the end of 1989 and the declining demand, it was appropriate to reduce inventories, thus decreasing the need for inventory finance. With high nominal rates on loans, and the uncertainty concerning real rates, enterprises also found it preferable to increase the degree of self-financing. On the whole, thanks to the amassed raw material inventories and their highly liquid position enterprises do not seem to have been severely constrained by the raw material inputs. In February and March the growth of nominal credit exceeded the inflation rate. At the end of the first quarter credit in real terms was 37 per cent lower than at the end of December, 1990. With the decline of nominal and real rates credit was gradually rebuilt.

It is striking that the time path of the enterprise wage policy parallels the credit policy. The tight credit February-April period was a time when wage payments lagged behind the norm. As the credit eased, the percentage gap between the wages paid by enterprises declined. When, in July, the ex-ante real interest rate turned negative, the nominal wages increased by 14.4 per cent, and for the first time in 1990 the actual wage exceeded the norm ²⁰ (Table 9). This also occurred in August, the last month for which we have data.

¹⁹ According to the IMF total credit to nonfinancial public enterprise amounted to 30.6 trillion zl at the end of December, 1989, and to 31.8 trillion zl. at the end of January, 1990. The index of prices realized by industry, as defined earlier, rose by 110 per cent.

²⁰ Above-the-norm wages could be paid without incurring penalties, because of the accumulated reserves resulting from shortfalls in wage payments during the previous months.

We hypothesize that this parallelism between the time path of interest rates and wages indicates the direction of causation from the government's credit policy to the wage policy of enterprises. The missing link in this chain of causation is provided by the demand constraint coupled with the incentive structure in Polish enterprises.

4. INCENTIVES AND RESPONSE.

4.1 Price and Output Response.

In a situation of declining demand for labor, such as the one that prevails since January in 1990, Unions, and the Workers' Councils, strongly oppose group layoffs. A manager is unlikely to gain approval for a group layoff unless the measure is required to save the enterprise from bankruptcy²¹. As a consequence, as shown by the unemployment statistics, the attrition of Socialized sector employment is due, almost entirely, to individual dismissals for cause and to quits (Table 8).

In enterprises that are not threatened by bankruptcy, the number of workers remains constant as long as output does not exceed "capacity", defined here as the normal of the labor contingent working during the usual weekly hours. When output is below "capacity", there is labor-sharing. The drop in the measured output per worker that occurred in 1990 strongly suggests that labor-sharing does, indeed, take place.²²

²¹ As discussed in Section 2, the Manager needs the Workers' Council approval to put into effect a group layoff. He may, however, dismiss individual workers for cause.

²² An alternate hypothesis is that the output per worker measure is faulty, since it does not take into account the quality improvements that took place since the introduction of the anti-inflationary program. There is, doubtless, some truth to that contention, but it fails to explain (1) the increased frequency with which paid and unpaid leaves are granted to workers, and (2)

The above observations suggest that as long as an enterprise is not threatened by bankruptcy, the manager takes the size of his labor contingent as being fixed. One can argue that, under these circumstances he will strive to maximize value added. As long as payments are below the "norm", there can be pressure from the workers for higher wages. Moreover, both management and labor derives benefits from enterprise profits in the form of bonuses and social amenities. Workers benefit as well from investments which lighten the work burden or that improve the working environment.

Insofar as a part or all of the non-labor current inputs are bought on credit, a rise in interest rates raises, *cet. par.* the production costs²³. Costs obviously also rise with material input prices. In January, 1990 costs increased sharply for both reasons. In the absence of knowledge of demand conditions, and given the widely publicized forecast of drop in demand, managerial prudence called for a low-wage policy. In the *ex-ante* sense, low wages were also in the interest of labor. The reasons for, and the probable effects of, the anti-inflationary policy received wide publicity, and workers were well aware that enterprises might go bankrupt. Under these circumstances job security was more important than wages.²⁴

Credit was very tight in February, but in the course of the ensuing months easier credit lowered the cost of inputs. With product prices and output unchanged, enterprises were able to

the acceleration of reduction of employment in the Socialized sector.

²³ This together with the segmentation of the credit markets has led Calvo and Coricelli, *op.cit.* to suggest that output restrictions on the supply side, rather than demand constraint, are the main cause of the current recession.

²⁴ From the partial equilibrium point of view of the average enterprise the low-wage decision was correct. By raising wages to the level permitted by the norm such an enterprise would have incurred losses.

raise wages. This highly simplified model is thus consistent with the observation of the parallel movement of wages and of interest rates.

The argument thus far runs that the lowering of interest rates lowers production costs, and, with a given demand, it raises value added, giving the possibility of raising wages as long as the norm is not binding. But for marginal enterprises i.e. for those which are threatened by bankruptcy, employment is a control variable. A Workers' Council is likely to prefer to agree to a group layoff, if the alternative is bankruptcy or the reduction of all wages below an acceptable minimum. Unemployment compensation is indexed to the overall wage level, hence *cet.par.* this minimum is an increasing function of the wage norm.

As a first approximation, therefore, we can assume that in the enterprises at the verge of bankruptcy there is no labor-sharing and that the workers' pay, determined by the minimum acceptable wage, is equal to their marginal product. Thus, in the case of the marginal enterprises wage increases constitute a cost push.

Wages also influence prices via agriculture. An average Polish family spends 50 per cent of its income on food. Limits imposed on exports maintain the Polish prices of most of the major foods at lower than world price levels, and, in the short run, supply is, in most cases, very inelastic. In the retail price index agricultural products have a 50 per cent weight. In the short run, a rise in wages induces a rise in agricultural prices and a rise in the retail price index.

This model, like all, simplifies reality. Nevertheless, it throws light not only on overall price and wage movements, but also on specific, seemingly anomalous instances. Thus in July and August credit was eased, and wages rose above the norm, yet inflation in August was the

lowest since stabilization began²⁵. But in August food prices in Poland are at their seasonal low, and the 1990 crop was particularly plentiful. The August prices of the products of light consumer industries rose - but, as discussed earlier, this is the sector which is the least profitable. Its wages also lag the most relative to the norm, hence we may infer that this is also the sector in which bankruptcy looms as a possibility.²⁶

4.2 The rationalization of production.

Consider now the problem of production rationalization. Rationalization measures which increase value added without causing labor redundancy are clearly beneficial to the workers. The efficiency incentive is, of course, blunted by the norm and by the limitations imposed on bonus payments. It is clear, nevertheless, that the imposition of the hard budget constraint, and the elimination of subsidies, spurred enterprises to seek more profitable markets, cheaper sources of supply, and to improve production methods. Two thirds of the enterprises covered by the Survey report that in 1990 they introduced changes in the organization of production. About the same proportion report changes in product assortment; fewer than 50 per cent report changes in production technology.

At one time there was a widespread belief that the withdrawal of subsidies would cause widespread bankruptcies; these would weed out production, and increase overall efficiency. In free market economies an enterprise goes bankrupt if it fails to meet its fixed obligations. In the

²⁵ As discussed earlier, the 15 per cent increase in the price of coal accounts, in part, for the July price increase

²⁶ For a stronger test of our model we would have to examine the relation between prices, wages and group layoffs. At present, the relevant data are not available.

absence of long-term debt, the payment of the "dividend" came to be adopted as the solvency test. The "dividend" is a misnomer: it is, in fact, a capital tax set, at present at 32 per cent of the "funding capital", that is at the (inflation adjusted) depreciated value of the capital provided by the funding authority. The impact of the "dividend" is unequal. New enterprises are subject to a higher "dividend" than old ones, which depreciated their original capital, and made new investments out of the retained profits. Overall, it is estimated that the "dividend" is equal to 8 per cent of the book value of fixed capital. Since the annual rate of inflation surpasses 8 per cent by a wide margin, the overall impact of the "dividend" is very small.

So far, except for a few enterprises in the food processing sector - the hardest hit by current recession - there have been no bankruptcies. For this, in addition of the insignificance of the "dividend" there are two main reasons. An enterprise may delay bankruptcy through decapitalization - it may either fail to keep up the stock of its fixed capital, or it may sell some of its operations (usually the profitable ones) to the private sector. By such means it might be able to meet its current obligations and to keep on paying its workers. There is no reason to believe, however, that decapitalization is, in all cases, the rational course from the capital management point of view. Secondly, given the tightly knit network of suppliers, subcontractors, and customers, the bankruptcy of a weak unit may deprive a strong one of an important source of supply or of an important outlet. Therefore, the financially-strong enterprises have an interest in supporting financially-weak ones through interfirm credit extension. This puts off the day of reckoning, but it increases the danger of a chain reaction in which the sound creditors would go bankrupt because of the insolvency of the debtors.

The existing structure of control also discourages modernization of the labor-saving type.

We have claimed that redundancy is not a proximate reason for group dismissals. Yet since the Luddite movement if not before workers have been well aware that workers can be replaced by machines, and, at a time of growing unemployment they are not likely to favor labor-saving improvements as long as they have a voice in management, and as long as there is unemployment. Thus, the incentives for achieving production efficiency in the long run are weak. Indeed, they may be even weaker now than under the planning system, for then, the workers had no fear of unemployment.

4.3 Is there a role for an expansionary aggregate demand policy?

The 1989 hyperinflation has been overcome, but the Polish economy is now in a state of stagflation. Orthodoxy calls for the continued application of anti-inflationary measures, until such time as price stability is firmly restored. Yet political pressures are mounting to relax controls, and to apply standard Keynesian measures in order to cure the recession.

On the demand management side we tend to agree with the opponents of the expansionary policy. As long as the control structure of enterprises is not modified, such a policy is likely to result in higher wages and lead to renewed inflationary pressures. The cost of short run output gains may therefore be too high.

In conclusion we think, that expansionary demand policy is unlikely to cure the inflation-recession dilemma. However, we do not think that, in the absence of deep changes in the structure of ownership and control of enterprises, restrictive aggregate demand policy is an effective way to achieve rationalization and growth. The crux of the matter lies in the definition of ownership and control: there is no well defined owner who seeks to maximize the present

value of the returns to capital, and who is able to determine resource use. Under the orthodox planning system, faulty and highly irrational as it was, the government exercised control. In the present, transitional state, there is none. The structural reform should, once again, clarify the division of functions, so that workers can freely decide on the allocation of their labor, and capital-owners can control the use of capital. The key task confronting the Polish economy is how to achieve this in a socially acceptable manner.²⁷

²⁷ For an analysis of these issues see Frydman and Rapaczynski, *op. cit.*