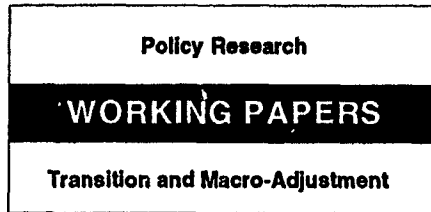


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Social Costs of the Transition to Capitalism

Poland, 1990-91

Branko Milanovic

Contrary to expectations, Poland's stabilization program entailed unexpectedly high social costs. Unemployment reached 12 percent by the end of 1991, and real incomes fell 40 percent. The poverty gap rose from an estimated 1.4 percent of GDP to 4.8 percent.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to analyze income distribution and poverty in transition economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rebecca Martin, room N11-043, extension 39026 (August 1993, 29 pages).

The Polish stabilization program implemented in 1990 as part of the transition to capitalism entailed unexpectedly high social costs.

The often unstated assumption had been that since central planning was intrinsically inefficient, stabilization in Poland might be less costly in terms of lost output than it would have been in a market economy. The idea was that recession stemming from an overall decline in demand could be moderated by removing the administrative barriers that in a planned economy hindered the best deployment of resources.

The results were the reverse of expectations. Unemployment reached 12 percent of the labor force by the end of 1991, and real incomes plummeted (by about 40 percent). An estimated 17 percent of the population lived in poverty in 1989. By 1991, that figure reached 34 percent. The poverty rate more than doubled for all social groups except pensioners, for which it remained

stable. Large households, and children in particular, were especially affected. The poverty gap rose from an estimated 1.4 percent of GDP to 4.8 percent.

Existing evidence on income distribution shows that it did not change. There was a slight compression of income among farmers, which has also occurred in the past when real incomes declined, and possibly some wage-stretching among workers.

What happened to the general welfare? Conclusive results are elusive. Personal consumption, overall, decreased. Queuing also decreased, but utility gains from shorter lines were offset as real wages, and thus the opportunity cost of waiting, declined. Real appreciation of the exchange rate raised dollar wages substantially and led to an upsurge in consumer imports, thus increasing the utility derived from the ownership of consumer durables.

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SOCIAL COSTS OF TRANSITION TO CAPITALISM: POLAND 1990-91

by
Branko Milanovic*

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* I would like to thank Alan Gelb, Emmanuel Jimenez and Bryan W. Roberts for very helpful comments.

Section I. Polish Stabilization Program of 1990: Effect on Incomes

The implementation of the Polish stabilization program began on January 1, 1990. It was the boldest stabilization program implemented in any socialist country (defined in the sense that majority of assets outside agriculture is state-owned). The program involved substantial price liberalization with the cut in subsidies, incomes policy (wage caps), convertibility of the zloty, introduction of positive real interest rates, and the reduction of the budget deficit. Some of these measures proved a success. Convertibility at the fixed exchange rate was maintained throughout the year. Real interest rates, from being sharply negative in 1989, became positive. The budget deficit equal to 7 percent of GDP in 1989 was turned into a small surplus in 1990 (0.3 percent of GDP). Real amount of subsidies was cut by more than half. The inflation rate sharply decelerated from an average monthly rate of 19 percent in 1989 to 5 to 6 percent at the end of 1990.

On the negative side, one can include a sharp decrease in real wages,¹ substantial increase in unemployment, and a collapse of industrial production. Real state-sector wages in 1990 were some 30 percent lower than the year before (the initial forecast was -10 percent). Unemployment rose from practically nil in the beginning of 1991 to 1.2 million by the end of the year (6.1 percent of the labor force). The increase was three times greater than originally forecast (400,000). Finally, industrial production of the state sector plummeted, decreasing by about 25 percent compared to 1989. This was also a greater decline than anticipated (5 percent). Even accounting for the increased output of the private sector, gross industrial value added in 1990 was 22 percent less than in 1989 while GDP was 11.5 percent smaller (GDP per capita 12 percent).

The decline in industrial production generated a lively discussion and produced a number of theories as to why it was so dramatic, viz. whether the slump was mostly due to external causes (breakdown of the CMEA market) or to internal ones (monopoly structure of the industry). Some questioned whether the decline was really of such a magnitude since output in the past was overstated and calculated at arbitrary (non-market) prices (Lipton and Sachs, 1990:

¹ Unless explicitly stated otherwise, "real" always refers to "nominal" deflated by the official consumer price index.

78-9).

Winięcki (1991) proposed the following argument. According to Winięcki, two out of the three components of the registered output decline do not matter. One part of the decrease is purely a statistical artifact due to the earlier practice of padding the output figures to show fulfillment of plan targets. The second part of the decline is due to behavioral changes of enterprises and, to some extent, individuals. For example, better availability of goods, increased interest rates, and somewhat harder budget constraint, led enterprises to reduce their stocks of inventories which in socialist economies are inordinately high. The drawing-down of inventories produced a short-run output decline, but in reality it represented an adjustment to market conditions. Thus, the first component is fictitious, and the second, while entailing a real decline in output, has no effect on population welfare. Only the third component of output decline, caused by stabilization, is both real and does have an impact on welfare. Winięcki's argument shows that recorded declines are indeed overestimates of the actual ones, even if the break-down of the three components is impossible to make. It should be noted however that the so-called fictitious decline was probably very small in Poland because the scope of central planning in Poland was fairly limited even before the 1989 change of regime.²

The standard of living suffered seriously as a result of the stabilization. Several "macro" indicators show this decline: real average wage in the state sector (where 87 percent of non-agricultural labor was employed) was reduced by 31 percent; unemployment emerged; real income of agricultural households was cut in half as terms of trade moved sharply against agriculture; and, finally, pensions decreased by 17 percent in real terms. The only real increase was registered by private sector incomes: they went up by 33 percent in total while the number of private sector non-agricultural employees increased 22 percent. Private sector share in total non-agricultural employment was still small to make much difference overall. As a result, in 1990, real per capita consumption dropped by 13.5 percent.

² Government contracts, the only form of central planning that existed, were introduced in 1982. By 1988, they covered only about 6 percent of GDP and in 1989 they became even further scaled down to include only some essential intermediate goods and energy (see *Rzeczpospolita*, Economic Reform Supplement, September 6, 1988). State investments accounted for only 2 percent of GDP.

In 1991, the situation stabilized in the sense that the decline in industrial production, GDP, population incomes, and state-sector wages became less or bottomed out. GDP decreased by a further 7.6 percent. Industrial production of the state sector decreased by 13 percent. Real wages in the state sector stabilized at their 1990 level. Private sector incomes (outside agriculture) still continued to increase, by about 1 percent per capita. Unemployment, however, continued to grow at almost the same pace as in 1990, reaching 2.3 million (11.8 percent of labor force) by the end of 1991. Several positive developments on the macro side were preserved: the inflation rate decelerated further to an average monthly rate in 1991 of 4.1 percent, real positive interest rate policy was continued, and the budget deficit, despite serious pressure, was maintained at less than 4 percent of GDP. However, recovery had not yet started in 1991. The first signs of the recovery in industrial production (the series that declined the most precipitously at the inception of the stabilization program) were recorded only in the mid-1992.

These macro indicators were known to the authorities and analysts as the stabilization program unfolded. What was not known was how these overall developments were reflected at the household level: who became unemployed; how much did poverty increase and among what social groups; did wage distribution among state-sector workers become more unequal as enterprises restructured and tried to keep more productive workers from moving to the private sector; did overall income distribution become more skewed? The objective of the present paper is to try to answer some of these questions on the basis of the 1990 and 1991 data provided by the regular Household budget surveys published by the Polish Central Statistical Office.³ The period of two years is sufficiently long as to allow all the essential effects of macro stabilization and system change to "trickle down" to the level of households.

³ The data for 1990 and 1991 are published in respectively *Budżety Gospodarstw Domowych w 1990 Roku* and *Budżety Gospodarstw Domowych w 1991 Roku*, Warsaw: Central Statistical Office, 1991 and 1992. The surveys cover about 28,000 households (0.25 percent of all households in Poland). The surveys are representative of about 88 percent of the population (see Gorecki, 1992, p. 4). They exclude non-agricultural private sector, Army and police personnel. Surveys include private sector workers only if the main earner is employed in the state sector. They do not include e.g. households whose both members are employed in the private sector, or whose one member is unemployed and the other works in the private sector. Non-inclusion of private sector outside agriculture was not a major omission in the past when this sector was small. It is a serious defect now when the sector is growing. This shortcoming is being corrected in 1992 survey.

Section II. Who Became Unemployed?

Polish stabilization program of January 1990 was followed by a swift increase in unemployment. As already mentioned, the percentage of the unemployed in non-agricultural labor force increased in two years between January 1990 and January 1992 from less than 1 percent to 12 percent. In absolute numbers, the increase was from less than 200,000 to 2.3 million. Net job loss in the state sector was 20 percent or about 1.6 million workers.⁴ The question we address in this Section is how the decline in employment was reflected in the micro (household-level) data, and what types of households were primarily affected by it.

The *Survey* provides information about the average number of state-sector non-agricultural employees by income group and by household size. The number of state-sector non-agricultural employees declined between 1989 and 1991, as shown in Table 1, by 5.3 percent. The decrease was more significant among mixed households (-8.2 percent) than among workers' households (-4.4 percent). This can be explained by two factors: (1) the tendency to fire first those with available outside work options (private agriculture in the case of mixed households) and/or (2) more prevalent voluntary quits among the mixed households who, due to their experience with private sector agriculture, may have greater confidence in starting own businesses. Some evidence of (2) is provided by the fact that state sector employment declined the most among the well-off households. Although this is true for both workers' and mixed households, it is more pronounced in the case of the latter: the participation in the state sector of the top income class among mixed households decreased by almost 10 percent. Interestingly, state-sector employment *increased* among the lowest income groups. Among pensioners participation rates were low (only about 6 percent of people living in pensioners' households were employed in state sector) and while they increased (to 6.7 percent), their absolute contribution is minimal.

Decrease in employment was the most severe among the "standard" household sizes (four- and five-person households). The state-sector participation rates for these households decreased by between 4.7 and 6.4 percent for workers, and 8.6 and 12.3 percent for mixed households.

⁴ Outside agriculture. See P. . . . *Statistical Yearbook 1992*, p. XIII.

**Table 1: Change in Non-Agricultural State-sector Employment (in percent):
1991 vs. 1989**

Income Classes	Workers	Mixed	All
First group	+4.7	+2.9	
Second	+7.0	-6.9	
Third	+4.4	-6.9	
Fourth	-3.0	-2.7	
Fifth	-2.9	-4.5	
Sixth	-7.9	-3.1	
Seventh	-6.4	-1.3	
Eighth	-1.9	-9.4	
Household Size			
2-person	-3.1	-0.9	
3-person	-4.9	-8.4	
4-person	-4.7	-8.6	
5-person	-6.4	-12.3	
6-person	-3.4	-9.8	
Total	-4.4	-8.2	-5.3

Note: The value gives the percent change in people employed in state sector.

Income classes for each year are not fixed in real terms. They, however, contain similar percentages of recipients (the shape of income distribution curve is lognormal; see Figure 3).

Section III. What Happened to Poverty?

Real state sector wages in 1990 dropped by 31 percent and in 1991 by a further 3 percent; real pensions declined by 17 percent in 1990 and rose by 15 percent in 1991, thus returning to their pre-stabilization level. Farmers suffered the most: their real income was cut by more than one-half in 1990, and by additional 36 percent in 1991. These are all "macro" data. How is the decline in real incomes reflected in the household data collected by *Surveys*?

Poverty rates went up in all social groups except pensioners (see Table 2 and Figure 1).⁵ Among workers' households the share of the poor increased, between 1989 and 1991, from 16 to 38 percent. The bulk of the increase occurred in 1990. The poverty headcount among workers' households remained broadly stable in 1991. The percentage of the poor among farmers increased from 17 to almost 40 percent. For mixed households which have throughout the 1980 exhibited the lowest poverty rates, the percentage of the poor also increased substantially: from 8 to 21 percent. The universal increase in poverty rates had, as Figure 1 makes clear, the effect of equalizing poverty rates among different social groups. Thus, while in the 1980's, the proportion of the poor among pensioners fluctuated between 30 and 40 percent, and was only around 10 percent for the mixed households,⁶ in 1991, the poverty rates of pensioners, workers, and farmers were very close. The poverty rate for the mixed households was also not far behind.

⁵ Poverty rates for different social groups are calculated as follows. The poverty line is assumed to be equal to the social minimum line calculated since 1980 by the Institute of Labor and Social Affairs in Warsaw. The line is calculated quarterly. It is based on a fixed basket of products. For the year as a whole, we take the simple average of the quarterly amounts. The social minima for one-person workers' and pensioners' households (calculated separately by the Institute) represent the poverty line for one male adult worker and pensioner. For mixed and farmers' households this amount is lowered by 20 percent, on account of lower prices in rural areas (the reduction suggested by the researchers in the Institute). The next step is to apply the poverty line to the income distribution statistics derived from the *Surveys*. The *Surveys* provide income distribution data (eight income classes arranged according to household per capita income) for six types of households (from 1-person to 6 and more person-households) for workers, farmers and mixed household; and three types of households for pensioners. This gives a total of 21 income distributions, or 21 x 8 income classes = 168 observations. For each observation, the *Surveys* also provide the data on average number of equivalent consumption units. All individuals belonging to a given income class are considered poor if the upper income limit of that class, adjusted for the number of equivalent consumption units, is less than the poverty line. To give an example. Let the poverty line for 1 adult be \$10. Let now ten 3-member households have, on average, 2.2 adult consumption units and belong to the income class that ranges from \$4 to \$7 per capita. This yields lower and upper income limit *per adult consumption unit* of \$5.45 and \$9.54. We then classify all ten households or 30 individuals as poor because the upper adjusted income limit (\$9.54) is less than the poverty line (\$10). Clearly, if the lower adjusted income limit is greater than the poverty line, none of the households is poor; if the poverty line is between the two limits, a proportion of individuals is considered poor. The poverty rates for social groups and the total poverty rate are then constructed from the individual 21 poverty rates. The poverty gap is calculated in a similar fashion.

⁶ For the exact data, see Milanovic (1992).

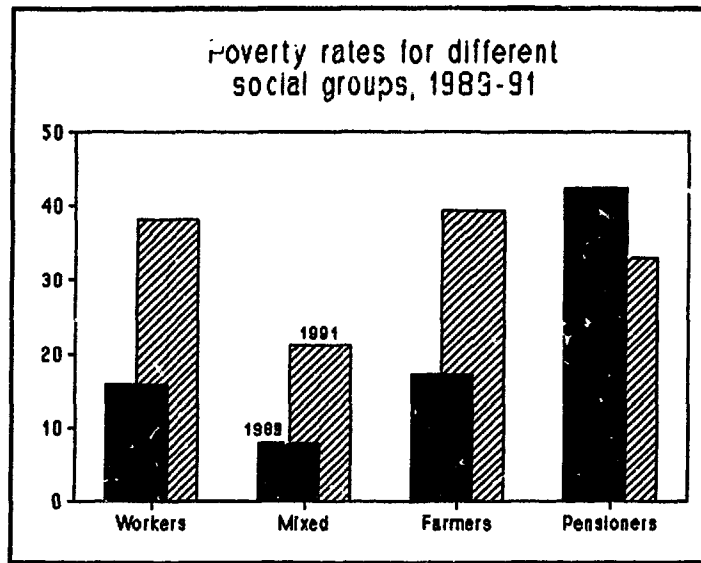


Figure 1

Table 2: Poverty and Real Income: Change Between 1989 and 1991

	Decrease in real per capita income	Poverty Rate in '91	Poverty Rate in '89
Workers	33.3	38.1	15.8
Mixed Households	41.0	21.2	7.9
Farmers	51.6	39.4	17.2
Pensioners	11.6	33.0	36.2
Total	41.5	34.4	17.3

Note: Poverty rate is the headcount index.

Another interesting development is that farmers now have the highest proportion of the poor. This occurred as farmers' terms of trade collapsed by almost two-thirds in the two years

of the stabilization.⁷ The causes of the collapse of terms of trade were both economic and political. Significant real appreciation of the zloty at the inception of the program combined with trade liberalization shifted some of domestic food demand to imports. But political factors were probably more important: farmers which in the previous regime had a very strong lobby were able to introduce the so-called "parity policy" whose objective was equalization of per capita incomes in rural and urban areas. The Communist regime, which already faced strong workers' opposition, thereby sought to placate farmers in its bid to retain some social legitimacy. With the new democratic government, farmers' political power waned. Their parties were divided, and farmers' unhappiness, manifested by strikes, failed to have much effect. Moreover, the leading parties in the shaping of the economic policy in the Suchocka government, namely Democratic Union and Liberal-Democratic Congress, are very much "anti-farmer". Holding that there is significant agricultural underemployment, they are in favor of forcing marginal farmers out of business.⁸

The sharp decline in incomes of farmers' and mixed households had the following effect on the rankings of various social groups by their income levels. While throughout the 1980's, pensioners' per capita incomes were between 15 and 25 percent less than the average incomes of the other three active groups, in 1992, for the first time since 1978 when the *Surveys* in their current shape started, the average income in pensioners households was higher than average income of mixed and farmers' households; it also came to within 5 percent of the average per capita income of workers' households.

⁷ As with other statistics, the collapse of terms of trade is somewhat exaggerated. Input shortages which existed prior to 1990, forced farmers to purchase part of inputs at much higher market prices. These higher prices were not fully captured by the statistics.

⁸ I am grateful for these points to Michal Rutkowski.

The change in poverty rates can be expressed as a function of two variables: real per capita income, and income inequality. The first variable is expected to be negatively, and the second, positively, related to poverty. The results for the period 1978-91 are displayed in Table 3. All coefficients are statistically significant and the R^2 is around 0.9. The regression shows that

Table 3: The Determinants of Poverty.
Dependent Variable: Percentage of the Poor

Period	Constant Term	Income Term	Distrib. Term	R ² (F)	DW (SE)
Urban Households					
1978-91	384.7**	-50.15**	0.891*	0.88	2.07
	(0.000)	(0.000)	(0.049)	(56.0)	(3.93)
Rural Households					
1978-91	252.2**	-35.25**	1.246**	0.90	1.86
	(0.000)	(0.000)	(0.000)	(74.1)	(2.43)

Notes: Equations are of the form: $POOR = B_0 + B_1 \cdot \log(\text{income}) + B_2 \cdot \text{distribution}$. Autoregression coefficient is statistically significant at less than 1 percent in the first equation. The number of observations is 28. Income is in 1978 constant zloty. Distribution term is the Gini coefficient for each social group. All data are calculated from the *Household Surveys* according to the methodology explained in footnote 7. Data in brackets below regression coefficients show levels of significance at which the null hypothesis is rejected. Two (one) asterisks show that the coefficient is significant at 1(5)percent level.

a ten percent uniform (across all income groups) reduction in real income of urban and rural households is associated with respectively 5 and 3.5 percentage point increase in the poverty rate.⁹ Thus, the 30 to 40 percent reduction in incomes recorded since the transition began led to 15 to 20 percentage point increase in the poverty rate. Each point increase in the Gini

⁹ In order to increase the number of observations, the data set for urban population is composed of 14 annual observations for workers and 14 annual observations for pensioners' households. The same applies to the rural population which is composed of farmers' and mixed households.

coefficient leads to approximately 1 point increase in the poverty rate. The implicit trade-off between growth and distribution is therefore the following. For the urban households 1.8 percent uniform real growth is, from the point of view of its impact on poverty, needed to offset 1 point increase in the Gini coefficient. For the rural households, 3.5 percent real growth is required for each point increase in the Gini coefficient. Higher growth-distribution trade-off (meaning that more growth is needed to offset a given increase in inequality) for the rural households is a reflection of greater dispersion of incomes among rural households. Thus, in order to "push" enough people over the poverty threshold, a greater increase in real incomes is needed.

Total estimated number of the poor in 1990 and 1991 reached respectively 12 and 13 million out of a population of about 38 million (Table 5).¹⁰ Approximately three-quarters of the poor (8.6 million) live in urban areas. The average number of the poor in the previous three years (1987-89) was somewhat less than 7 million. It divided between urban poor (about 5 million) and rural poor (2 million).¹¹ Between 1989 and 1991, the total number of the poor increased consequently by about 6 million. The number of the poor in urban areas went up by 3.5 million in 1990 alone. The next year, their number remained constant. The number of the rural poor increased by over a million in 1990, and then by another million in 1991. The results clearly show that while in the first year of the transition the brunt of the social cost was borne by urban households, and in particular state-sector workers, the bulk of the cost in the second year shifted to farmers and mixed households.

Poverty gap (income needed to bring all poor households to the poverty threshold level) almost tripled rising from an estimated 3.3 percent of total household income in 1989 to 7 percent in 1990 and to 9 percent in 1991. If *Survey* data are expanded to the whole population, the estimated poverty gap was approximately \$1.8 billion or 3.0 percent of GDP in 1991, and \$3.6 billion or 4.6 percent of GDP in 1991 (vs. \$1.1 billion or 1.4 percent of GDP in 1989).¹²

¹⁰ Total number of the poor is calculated by extrapolating the poverty rates calculated from the *Surveys* to the whole population.

¹¹ See Milanovic (1992, Table 4).

¹² For 1992, this yields a per capita poverty gap of almost \$100 per annum.

For comparison, in 1991 total expenditures for the unemployed amounted to \$700 million or 0.9 percent of GDP (see Table 4).

Table 4: Social Transfers in 1991

	In \$ Billion	As Percent of GDP
Pensions	9.6	12.3
Various family allowances	2.2	2.8
Other social transfers ^{a/}	0.6	0.8
Unemployment benefits	0.7	0.9
Transfers in cash	13.1	16.8
Education	3.3	4.2
Health	3.7	4.7
Transfers in kind	7.0	8.9
Estimated poverty gap	3.6	4.8

a/ Includes scholarships, social aid given by enterprises, and social assistance at local level.

Source: *Poland Statistical Yearbook 1991*, Table 15 (242), p.152, and Table 1 (328), p. 237.

In order to eliminate the effects of major exchange rate swings in the beginning of the transition, it is useful to express poverty gap in real zloty terms. Table 5 shows that absolute poverty gap increased by about 75 percent while the estimated number of the poor more than doubled. The average real income shortfall of the people classified as poor, therefore decreased. The year 1990 is particularly interesting in that respect because the relatively low shortfall clearly indicates that many people just "slid" into poverty, falling slightly below the poverty line. Such a decline can socially be sustainable, if it is followed, within a relatively limited time, by an increase in income. In that case, the descent into poverty would have been only a transitory phenomenon. If this will indeed be the case is impossible to tell now. The necessary condition is that economic growth resumes. As Table 5 shows, the reverse was the case in 1990 and 1991.

Real GDP shrunk by almost 20 percent. Poverty gap as share of GDP therefore expanded because both the numerator and the denominator moved in the "wrong" direction. Had the economy during these two years remained stagnant, the same absolute poverty gap would have been equal to only 3.8 percent of GDP instead of the actual 4.8 percent.

Table 5. Poverty Gap in Real Terms

	Estimated number of the poor (000)	Poverty gap (1990 prices; zl billion)	Poverty gap per capita of the poor	Real GDP (1990 prices)
1989	6,559	12,461	100	100
1990	11,947	17,462	76.9	88.2
1991	12,913	21,574	87.9	81.5

Note: Poverty gap deflated by the retail price index.

Source: Calculated from *Household Surveys*. Real GDP from *Poland Statistical Yearbook 1992*, Table 2 (196), p.118.

We have seen in Section II that participation rates in the state-sector declined the most among the "standard" (4- and 5-member) households. Among these households incidence of poverty increased most dramatically as well. For example, between 1989 and 1991, poverty rate for 4-member households went up from 11 to 31 percent; among 5-member households, poverty increased from 17 to 43 percent (Figure 2). The social implications of the increase in poverty for the typical household (husband, wife and two children) must not be overlooked because 37 percent of workers' population and 25 percent of the total population live in such households. In contrast, poverty rates among 1- and 2-person households remained almost unchanged. These rates are determined chiefly by pensioners households where the incidence of poverty after a slight increase in 1990 returned to its 1989 level.

Because the increase in poverty was greater among large-size families, the change in the percentage of children who are poor is even greater than the change in the percentage of the poor households or the population. In 1989, about 17.5 percent of children under 6 years of age

lived in poor households; this increased to more than 50 percent in 1991 (Table 6). Poverty incidence among children of workers and mixed households tripled. More than one workers' child in two lives in a poor household.

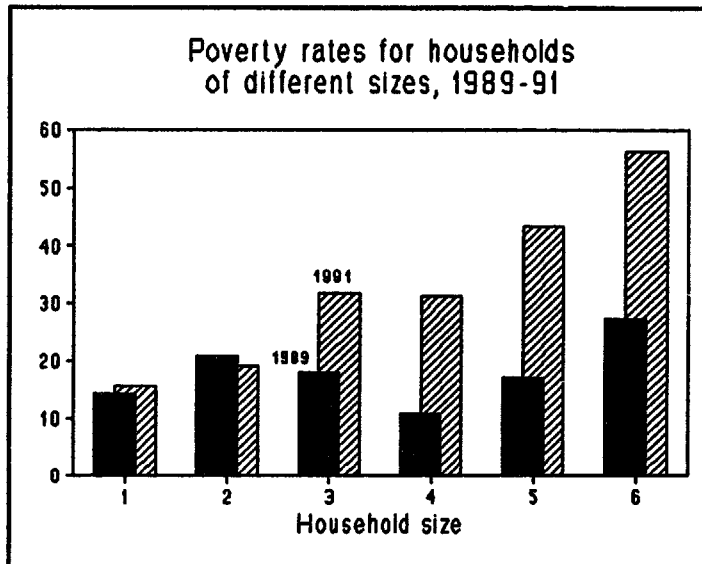


Figure 2

Table 6: Estimated Percentage of Children Living in Poverty

	1989	1990
Workers households	19.1	57.9
Mixed households	10.3	30.4
Farmers households	20.3	50.9
Total	17.5	51.2

Note: Negligible percentage of children live in pensioners' households.

Section IV. What Happened to Income Distribution?

The change in the headcount ratio of the poor is, in addition to the change in the overall income, influenced by the shape of the income distribution curve (how bunched are households near the poverty line?), and by the change in income distribution itself (did it become more unequal?). Between 1989 and 1991, income distribution, measured by the Gini coefficient, became slightly more equal in all social groups except workers (Table 7). Overall income distribution was practically unchanged. The increase in poverty was thus solely due to declining incomes. As Figure 3 makes it clear, the whole distribution practically shifted leftward between 1989 and 1991, pushing an additional 20 percent of the population below the poverty line.

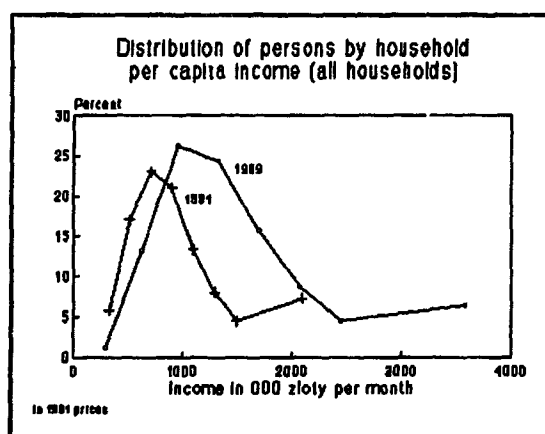


Figure 3

The slight increase in the Gini coefficient among workers may be due to greater wage differentiation following stabilization, preparations for the privatization, and the onset of industrial restructuring. The Gini coefficient of state-sector wages¹³ also increased, and there were some changes in returns to education and the structure of relative wages (see Table 8). These conclusions are necessarily very tentative since the increase in wage inequality is quite

¹³ This is the distribution of all state-sector wages, and represents a distinct (although closely related) variable from income inequality among workers' households. The latter includes all sources of income, not only wages, and is based on a sample.

moderate, and not out of line with what was recorded before (e.g. in 1986 and 1987 when wage inequality bounced back from extremely low levels reached during the "Solidarity" period and under the martial law).

Table 7: Income Distribution in 1989, 1990 and 1991: Gini Coefficients

	1989	1990	1991	Gini Point Change
Workers	23.7	25.0	25.0	+1.3
Mixed households	24.7	23.9	22.2	-2.5
Farmers	35.7	32.5	30.1	-5.6
Pensioners	22.6	20.8	22.3	-0.3
All households	26.0	25.5	24.7	-1.3
State sector wages	19.7	23.6	22.8	+3.1

Note: Distribution of individuals ranked by their household per capita gross income. The Gini coefficient expressed as percentage (e.g. 30 instead of 0.3). The Gini point change is the change between 1989 and 1991.

Sources: *Household Surveys, Poland Statistical Yearbooks* (for the distribution of state sector wages).

The ratio between wages of highly-skilled and medium-skilled workers also increased: in 1990, the ratio between these two categories was 1.35 to 1 while it was 1.16 to 1 in 1988.¹⁴ A similar process of increased returns to skills and education is noted by Gorecki and Peczkowski (1992, Figure 2). They point out that the average income of households headed by university graduates was in 1990 about 25 percent higher than the average income of households headed by people with primary or vocational school. In 1988, for example, the average incomes were equal. This has produced a higher share of skilled individuals in top income groups. While in 1989, households headed by university and secondary-school graduates accounted for 43 percent

¹⁴ *Poland Statistical Yearbook 1991*, Table 7 (324), p. 234. The datum for 1988 is quoted in (Freeman, 1992:14).

of households in the highest income decile, two years later their share increased to almost 66 percent.¹⁵

More evidence on the changing wage distribution is obtained by looking at relative wages of different occupations. Such comparison is fraught with problems because the occupational structure presented for 1990 does not fully coincide with the occupational structure available for 1986 and 1987.¹⁶ What can, nevertheless, be concluded from Table 8 is a decline of relative wages for miners, routine accountants and economists, and some categories of manual workers (textile workers). In the previous system, miners occupied a very special position, for both ideological reasons (miner was the prototype of a socialist worker) and more pragmatic foreign exchange needs (Poland relied heavily on coal exports). That position was bound to end in the transition. Decline in relative wages of routine accountants and economists may be an indication of the deterioration of relative wages of the bulk of middle-level clerical personnel whose numbers were overblown in the socialist system. As demand for clerical staff decreases, their relative wages go down. Better or luckier among them may eventually move to positions of management specialists (such an occupation did not exist in the 1986-87 classification). Generally, however, the relative position of manual workers, with the exception of miners, did not change much.

Resemblance between the 1986 and 1987 wage structures is much greater (correlation coefficient almost equal to unity) than among these two years and 1990 ($r=0.85$ and 0.8).

Private sector wage structure (not reported here) is probably closer to that existing in market economies. Very high wages received by some occupations (business school graduates, auditors, some economists) provide a lot of anecdotal evidence that wage distribution must be widening. For example, government administration is outbid by local and foreign firms that are often able to hire its best people.

¹⁵ Quoted from Gorecki (1992, Table 7).

¹⁶ Data for 1991 are not published.

**Table 8: Relative Wages by Occupation in State Sector
(average wage for all state sector workers = 1)**

	1986	1987	1990
Mining engineer	n.a.	n.a.	2.42
Management specialist	n.a.	n.a.	1.74
Miner	2.15	3.21	1.60
Geologist/engineer	0.98	1.02	1.35
Accountant/economist	1.15	1.28	1.06
Electrician	0.88	1.02	1.06
Welder	1.00	1.15	1.00
Locksmith	0.94	1.04	1.00
Bricklayer	0.79	0.89	0.91
Weaver (textiles)	0.84	0.95	0.78
Cashier/shop assistant	0.60	0.68	0.66
	1986-87	1986-90	1987-90
Correlation coefficients	0.99	0.85	0.80

Source: *Poland Statistical Yearbook 1991*, Table 10(327), p.235, and *Poland Statistical Yearbook 1988*, Tables 7(224) and 8(225):162-3.

Section V. Did Welfare Really Decrease?

An important question is whether the welfare, on average, has declined or not following the introduction of market-oriented reforms. Particularly relevant for such an analysis is the first year of the stabilization (1990) when, as indicated above, both the supporters and the opponents of the reform were surprised by the extent of the decline of incomes, industrial production and GDP. The extremely severe decline was taken by some as an argument that the "Big bang" market-oriented reforms cause a lot, and it is argued, some probably unnecessary, hardship. On

the other hand, partisans of the "Big bang" approach contend that there is a number of data biases which lead to an exaggerated view of the hardships.

Lipton and Sachs (1990) argument is emblematic of this second strand of thought. They argue that earlier statistics had an in-built bias toward presenting a rosier picture of the reality and that once this bias is eliminated, as it happens during the transition, the new situation by contrast appears worse. Measuring of output was geared to take account of physical quantities which made sense in a planned economy but not in a market economy where many of these goods are not wanted. Lipton and Sachs (1990:79) quote a Polish journalist who writes: "For the entire period of real socialism, investments were poured into a closed production cycle that offered no profit: coal was necessary to produce electricity; electricity was necessary to produce steel; and steel was necessary to mine coal. All that produced a statistical growth in national income, a growth which, as we now see, actually meant a decline in national wealth."

State production alone was recorded in statistics; production of small private-owned enterprises was often unrecorded. This was not a problem so long as these enterprises' share in value added was negligible. But during the transition their importance rises rapidly. Hence, it is argued, underestimation of some output gains. Finally, one of the most visible aspects of stabilization in Poland and elsewhere has been a dramatic increase in trading. Often, on extremely small scale, used as a complement to jobs in state enterprises, alegal if not illegal, private trading was almost entirely bypassed by official statisticians.

All of these are reasons why the reported declines in output may look worse than they are in reality. Lipton and Sachs (1990), however, make a more ambitious attempt to show that utility of an average consumer might have gone up (even if his income appears to be less)

because of the disappearance of excess demand and consequent waiting that imposes real cost in terms of resources (time) spent. I shall first present their argument and then point to some problems with their claim.

Lipton and Sachs (1990) define excess demand as a situation when aggregate demand (Y) exceeds aggregate supply (S) at the official price level (P) which for simplicity we can set at unity. Percentage excess demand (ex) is equal to $(Y-S)/Y$. Aggregate demand and supply are equilibrated through the mechanism of black market. At the black market price P_b ($P_b > 1$), aggregate demand and supply are equal: $S P_b = Y$.

If we replace the last relation into the previous equation for ex we obtain:

$$ex = \frac{S(P_b - 1)}{P_b S} = \frac{P_b - 1}{P_b} \quad (1)$$

Representative consumer's utility is equal to $U = U(S) + wL$, where S =real consumption equal to aggregate supply, w =exogenous marginal utility of leisure, and L =the amount of leisure. Also, leisure L is reduced by the amount of time the consumer must spend in waiting lines. Let us denote time spent queuing per unit of output as q . Then the utility equation becomes $U = S + w(N - qS)$ where N =maximum amount of leisure if $q=0$, and, for simplicity, we assume direct proportionality between consumption and utility so that $U(S)=S$.

Utility from spending a unit of time queuing must, in equilibrium, be equal to the marginal utility of leisure:¹⁷

¹⁷ Note that the implicit assumption is that the marginal and average utility from queuing are the same, i.e. that the marginal utility does not decrease.

$$w = U(\pi) = U\left(\frac{Pb - 1}{q}\right) = \frac{Pb - 1}{q} \quad (2)$$

where π = profit per unit of queuing ($Pb-1$ is the monetary gain, that is the difference between the market and official price of output), and, again, for simplicity we assume proportionality between utility and monetary return, π . In Lipton and Sachs (1990) equation (2) is divided throughout by Pb . This, however, is incorrect since the same deflation would either have to be done consistently (e.g. for w) or not done at all, thus implicitly assuming that the deflator is 1 as we are doing here. The mistake though does not affect the rest of the derivations.

From (2) it follows that $Pb-1=qw$. Replacing this into (1) yields:

$$ex = \frac{Pb-1}{Pb} = \frac{qw}{Pb} \quad (3)$$

From (3), $q=Pb(ex/w)$ which, when if w =constant, shows that queuing per unit of output is proportional to excess demand and to the excess of black market price over the official price.

Finally, we can substitute $q=Pb(ex/w)$ in the utility equation to obtain:

$$U = S + w(N-qS) = S + w\left(N - \frac{Pb \cdot ex}{w} S\right) = S(1 - Pb \cdot ex) + wN \quad (4)$$

which is the final expression obtained by Lipton and Sachs (except for Pb which is canceled out in their derivation). They write: "when the system is characterized by excess demand, increases in real income lead to decreases in utility" (1990:92). That statement as well as their Figure 1 (1990:93), implicitly assume that S is constant. If it were the case, obviously, the greater the excess demand (ex) the less the utility because more time is spent in "directly

unproductive" waiting.¹⁸

However, what characterized Polish stabilization was a *decline* in S and utility in equation (4) must then decrease on account of lower S ($\delta Y/\delta S > 0$). According to official statistics the decline in S per capita was 13.5 percent. Even according to Berg and Sachs (1992:141), who strongly dispute the official statistics, real consumption decreased by 4.8 percent. Indeed, household surveys show that per capita consumption of most food items decreased (see Table 9).¹⁹

The decline in S was moderated, however, by a marked increase in ownership of, and thus utility derived from, some products that are almost entirely imported (e.g. video recorders, color TVs; see Table 9). If consumption is divided into two parts Sd = domestic consumer output and M = consumer imports, there was an increase in consumption of M both in terms of physical quantities of goods (mostly consumer durables) and non-factor services (foreign tourism). Increase in M was due to real appreciation of the exchange rate and increase in dollar wages. The fact that Polish dollar wages went up does not matter for that part of consumption that is used to buy domestic output²⁰ because the purchasing power of the dollar in terms of domestic commodities has gone down by even more. It is relevant, however, for import demand because an average Polish worker, whose wage increased from \$39 in 1989 (estimated at the

¹⁸ P_b is also a function of ex and need not be discussed separately.

¹⁹ The same results are obtained if one uses the macro consumption data divided by the population. We prefer to use survey data to avoid the charge made at the macro data, namely that they miss some of the retail trade.

²⁰ Sachs (1990:8) seems to imply this but is rightly criticized by Secretariat of the Economic Commission for Europe (1992: 54).

Table 9: Food Consumption and Ownership of Durables Among Workers' Households

Per Capita Per Month	1989	1990	% Change
Meats (kg)	2.81	2.71	-3.6
Butter (kg)	0.73	0.73	0
Milk (l)	7.26	6.78	-6.6
Cheese (kg)	0.92	0.76	-17.4
Eggs (pieces)	15.82	14.45	-8.7
Sugar (kg)	2.06	1.92	-6.8
Total Calories Per Day	2542	2408	-5.3
Percentage of Households with:			
Color TVs	50.7	67.1	+16.4
Video-recorders	4.7	20.1	+15.4
Washing machines	59.1	63.5	+4.4
Cars	30.7	33.2	+2.5

Note: For consumer durables the data show percentage point increases in ownership.

Sources: *Statistical Yearbook 1991* Tables 25(313), 27(315) and 28(316); *Statistical Yearbook 1990* Tables 26(322) and 30(326).

1989 parallel rate) to \$108 in 1990 did feel richer and indeed increased his or her consumption of importables. This is a feature common to many stabilization problems: instant prosperity can be created through real appreciation of the exchange rate. The obvious examples are Chile in the mid eighties, Peru under the Garcia government in 1985-87, and former Yugoslavia during the Markovic program in 1990. The problem is whether such a rate can be sustained. Most often, barring continuation of substantial inflows on the capital account, it cannot. The Polish situation, from the point of policy-makers, was better. Persistent excess demand and lack of alternative financial instruments created a lasting high demand for foreign exchange. Foreign exchange market was the *n*-th market that equilibrated aggregate demand and supply. Zloty was

thus chronically undervalued. Unification of the exchange rate in January 1990 permitted to policy-makers to provide "instant prosperity" at an exchange rate that was basically correct.

How the decline in real incomes and consumption of the essentials can be reconciled with an increase in consumption of imported consumer durables is shown in Figures 4a and 4b. As before, suppose that total personal consumption is composed of Sd domestically produced goods and M imported consumer durables. Since the system is demand-driven, demand automatically determines the supply. For simplicity we also assume that all of Sd are the essentials (e.g. food) and all of M are consumer durables.

Figure 4a shows the downward shift of domestic demand from DD_0 to DD_1 due to the decline in real income ($Y_1 < Y_0$). In addition, the demand shifts downward because of the negative wealth effect ($W_1 < W_0$). The population, in effect, experienced capital loss on their foreign exchange savings as the unification of the official and parallel market rate in January 1990 produced an important real *appreciation* of the parallel rate at which exchange rate holdings were previously valued. The upper bound of the population capital loss, calculated on the assumption that all of foreign exchange was to be used to buy domestic products,²¹ is estimated at some 4 percent of GDP.²² Alternatively, if the population intended to use all of its foreign exchange savings to buy imports, its wealth was not affected. An intermediate situation is the most likely: thus capital loss probably amounted to between 1 and 3 percentage points of GDP and must have, through the reverse Pigou effect that dampened personal consumption. As Table 10 shows, total real money, including zloty and foreign exchange savings, held by the population declined by 22.6 percent in 1990. The decline was entirely due to the capital loss (measured in zloty terms) on foreign exchange holdings: foreign exchange

²¹ For example, many people were saving foreign exchange to buy apartments in Poland. They lost substantial amounts as purchasing power of the dollar plummeted and dollar price of the apartments increased (independently of the increase in price of apartments due to higher demand from foreign companies).

²² Foreign exchange deposits in Polish banks were \$6.3 billion in December 1989. Two-thirds of that amount was owned by the population. It was estimated that, in addition, between one and two billion were kept at home (Krzyżkiewicz, 1989: 29)). Between January 1990 and December 1990, price level increased 95 percent while the parallel exchange rate (now equal to the official) devalued by about 4 percent. Real loss to foreign exchange holders (measured in domestic currency) was thus between \$3.3 billion and \$3.8 billion (about 6 percent of GDP). Two-thirds of the loss was borne by the population.

holdings went down by 50 percent. The relative price of *Sd* (food) in Figure 4a stayed practically unchanged,²³ and the population ended up buying quantity Q_1 of food in 1990. The difference $Q_1 - Q_0$ reflects the decline in *Sd* that is revealed in the *Surveys*.

Table 10: Money Holdings of the Population
(end of year; billion zloty unless otherwise specified)

	1989	1990	Change (%)
Cash zloty	8899.6	36954.9	
Zloty saving deposits	8629.0	40536.8	
Total nominal zloty holdings	17328.6	77491.7	
(1) Real zloty holdings	17328.6	22203.9	+28.1
Foreign exchange savings (FEX)	32025.7	55749.4	
(2) FEX in real terms	32025.7	15974.0	-50.1
(1) + (2) Total real money	49354.3	38177.9	-22.6
FEX in dollar terms (billion)	4.2	5.7	+35.7

Source: *Poland Statistical Yearbook 1991*, Table 23(250), p.157.

Note: Foreign exchange dollar amounts converted in zloty at the parallel exchange rate. Real amounts in 1989 prices.

Figure 4b shows the situation on the import side. Population foreign exchange holdings (*wealth*) remained the same in dollar terms immediately after the unification of the parallel and official exchange rate. (Considered over the whole year, dollar deposits increased from \$4.2 billion to \$5.7 billion; see Table 10.) However, zloty appreciation raised domestic dollar wages substantially (they almost tripled) and thus population *income* expressed in dollars ($y_1 > y_0$) went up shifting in the process the demand curve for imports from DM_0 to DM_1 . Dollar prices of

²³ Retail prices of food increased by 575 percent in 1990 vs. overall retail price increase of 585 percent.

Price
(in zloty)

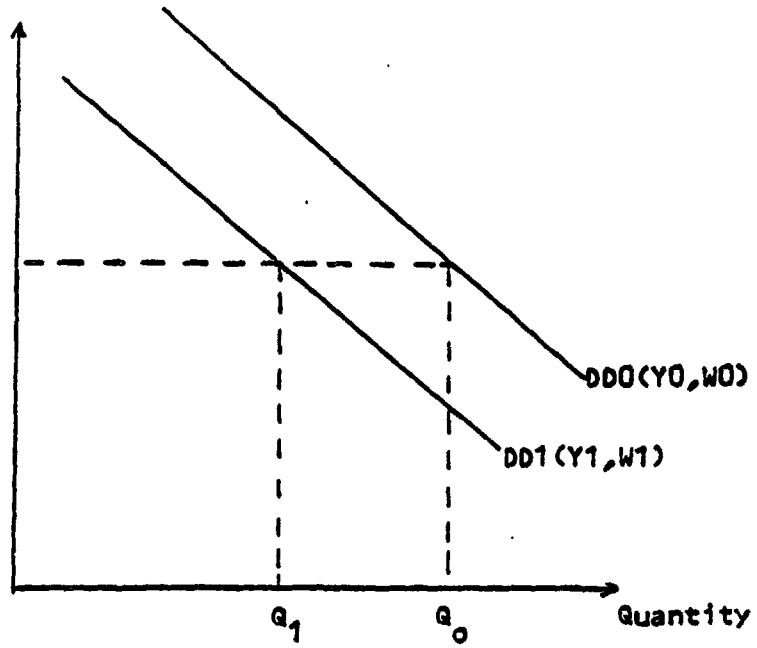


Figure 4a - Demand for domestic good

Price
(in dollars)

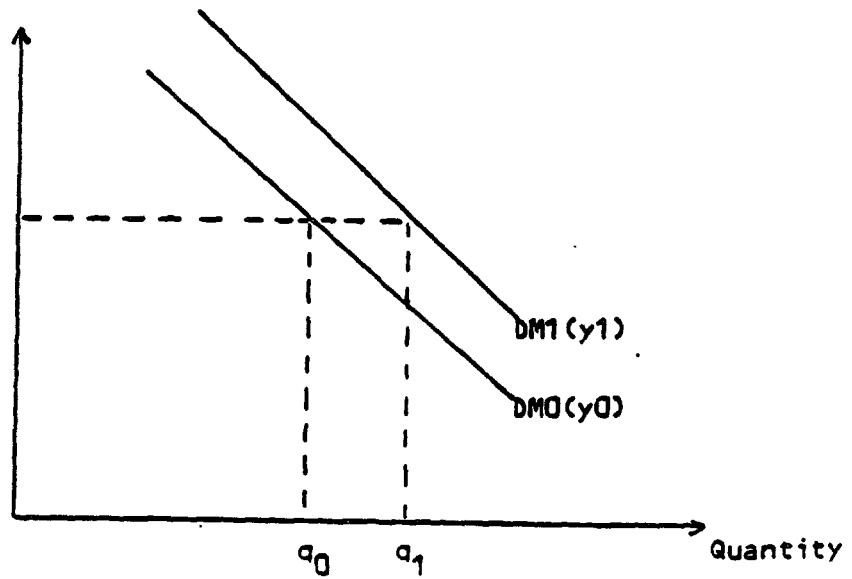


Figure 4b - Demand for imported good

imports remained unchanged and the consumption of importables went up from q_0 to q_1 . This is why we observe much greater ownership of consumer durables in the *Surveys*.

This explains why the two components of S have moved in different directions. Since we ignore the shape of the utility function we cannot determine relative importance of partial derivatives of U with respect to Sd , M and ex . However, in addition to these variables, other variables in (4) also changed. w represents the real wage rate (=opportunity cost of leisure). Real wage declined in 1990 (even if one may dispute the exact amount of the decline).²⁴ This further reduces utility as the gain from the elimination of excess demand is lowered: if opportunity cost of leisure is less, people do not mind as much waiting in line. Finally, N probably increased (on the account of increased unemployment). This, of course, raises utility (people work less). However, if, for simplicity, we allow that the effects of w and N are too small and uncertain, we can take a reduced utility function of the form $U=U(S,q)$ where the effect of reduction of S probably dominates the effect of lower q .

The above analysis deals with the representative consumer. It thus fails to take into account the issues of distribution. If elimination of subsidies and excess demand (1) affects lower income households more than higher income households (note that their opportunity cost of queuing is less and that, according to all empirical studies, subsidies are pro-poor)²⁵; and (2)

²⁴ Real wage should be measured as nominal wage divided by P_b .

²⁵ For Poland, it is calculated that inclusion of consumer subsidies reduces income inequality, measured by the Gini coefficient, from 21.8 to 20.0. Kupa and Fajth (1990: 37) similarly find for Hungary that the Gini coefficient is reduced from 23.1 (for disposable income) to 22.0 (for disposable income plus subsidies). Finally, for CSFR evidence points to the same conclusion: negative turnover tax (a type of consumer subsidy) represents 7.1 percent of households' expenditures in the lowest and 4.4 percent in the highest income decile (World Bank, 1991: 59). On the basis of household expenditure surveys, Večernik (1991: 17) calculates that lowest quartile of households received per capita 7.5 percent more food subsidies than the average while the top quartile received 6.1 percent less than the average. Similar results were obtained for Algeria (Stanová et al. 1991: 41). Subsidies are thus pro-poor in relative terms, meaning that they account for a greater proportion of poor households income or expenditures, but are not normally pro-poor in absolute terms, meaning that the poor receive more from subsidies in *absolute value*. (The implicit assumption is that households with different incomes pay the same average price for the subsidized good. In other words, the percentages of consumption at subsidized and free-market price are independent of the level of income).

marginal utility of income decreases with the level of income, then the overall utility must have been depressed even further.

In conclusion, we can write the representative consumer utility function as follows:

$$U = U (Sd, M, q, w, N) \quad (5)$$

where all the symbols are as explained before. (Note that the change in wealth is left out because it affects utility only indirectly through its effect on real consumption: people consume less because they feel poorer.)

Consumer utility in 1990 decreased on account of reduction in Sd . The decline, was moderated by the elimination of queuing and increased consumption of importables (M). What the balance of these effects is, is impossible to determine. What is sure, however, is that observing only S , implicitly assumes that the utility function is $U=U(S)$ which is incorrect. Lipton and Sachs' (1990) contribution therefore consists in bringing in another important element, namely q . However, they fail to acknowledge the fact that S decreased (an important omission) and that at least two other elements changed as well: wage rate declined and thus the opportunity cost of waiting was reduced, and total leisure increased.

Conclusions

The effects of the Polish stabilization program implemented in 1990 generated a widespread discussion. The discussion was motivated by the unexpectedly high social costs associated with transition to capitalism. The often unstated assumption at the inception of the stabilization program was that since central planning was intrinsically inefficient, stabilization in Poland may even be less costly in terms of lost output than in market economies. According to these views, recession stemming from the overall decline in demand could be moderated thanks to the removal of administrative barriers that hindered a better deployment of resources in a planned economy. In the event, the results were rather the reverse. Population welfare declined as unemployment reached 12 percent of labor force by the end of 1991 while real incomes plummeted (by about 40 percent per capita). Poverty increased from an estimated 17 percent of the population in 1989 to 34 percent in 1991. Poverty rate more than doubled in all social groups except among pensioners where it remained stable. Larger households and children in particular were affected. The estimated poverty gap rose from 1.4 to 4.8 percent of GDP. The existing evidence on income distribution shows that it did not change; there was some slight compression among farmers which occurred also in the past whenever real incomes declined, and some possible wage-stretching among workers. What happened to the overall welfare? Conclusive results are difficult to obtain. While overall personal consumption decreased, utility derived from increased ownership of consumer durables (imperfectly covered by the statistics) increased; while queuing decreased, utility gains from shorter lines were lessened as real wages and thus the opportunity cost of waiting declined; real appreciation of the exchange rate that raised dollar wages substantially and led to an upsurge of consumer imports inflicted a capital loss on domestic holders of foreign exchange; total leisure increased on the account of higher unemployment but anxiety and uncertainty went up as well.

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