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Growth and Inequality: Issues and Policy Implications

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A Political Economy Perspective on Redistribution and Growth in Transition

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1. Introduction

The economic transition in the formerly centrally planned economies of the U.S.S.R. and Eastern Europe has been among the most dramatic economic events of recent decades. These economies have chosen very different approaches to the transition process and the outcomes, in terms of macroeconomic and social indicators, have been very diverse as well. These differences have generated a lively debate on the appropriateness of alternative market-oriented reform strategies, both in terms of sequencing and magnitude of reforms (see, e.g., Aghion and Blanchard, 1994). The choice of a gradualist reform strategy versus a more drastic and rapid set of reforms is clearly influenced by political economy considerations (see, e.g., Dewatripont and Roland, 1996). One of the success stories in the process of transition has been Poland, which underwent “shock therapy” and subsequently outstripped most other transition economies in terms of growth performance. Hence, a detailed analysis of the Polish experience from a political economy perspective is of considerable interest.

Poland undertook a rapid and decisive set of political and economic reforms starting in 1989-90, a period that has become known as the “big bang.” Price controls on most products were lifted by early 1990 and numerous other macroeconomic and microeconomic reforms, including restraints on credit for state-owned enterprises and the hardening of their budget constraints, were instituted during this period. However, one area in which the Polish reforms lagged behind those of many other transition economies was the privatization of state owned enterprises (SOEs). Nevertheless, as argued by Pinto, Belka and Krajewski (1993), even the SOEs that lagged behind in terms of changes in ownership and governance did undertake significant adjustment in response to hard budget constraints and import competition. Thus, the transformation of Poland from a command economy to a market-oriented economy was quite rapid by any measure. Confirming this, Poland has consistently ranked among the top reformers in terms of the various indicators used by the European Bank for Reconstruction and Development in its annual Transition Reports.¹

¹ These indicators measure the progress made by transition countries in many areas of market-oriented reforms including enterprise privatization and reform; price and trade liberalization; and establishment of the rule of law, property rights, and well-functioning financial markets.

In addition to heightened import competition, the Polish economy was buffeted by various external shocks in the early 1990s, including the sharp contractions in other communist-bloc countries that had constituted much of the export base for Polish firms. These shocks and the initial effects of the market-oriented reforms led to substantial declines in output and employment in the early phase of transition. Between 1989 and 1992, the cumulative decline in output was about 20 percent and the official unemployment rate rose from near zero to about 14 percent (Table 1). Since then, however, the performance of the Polish economy has been among the best of the transition economies. Real GDP in 1999 was 28 percent higher than in 1989. In contrast, only a few other transition economies (including Albania, the Czech Republic, Hungary, the Slovak Republic, and Slovenia) managed to keep output to within a few percent, above or below, their pre-transition levels. Most other transition economies have still to recover anywhere close to their pre-transition levels.

How did Poland succeed in rapidly instituting durable market-oriented reforms despite falling income and rising unemployment? Moreover, a widely held view is that, in all of the transition economies, the economic upheaval associated with the process of transition has led to substantial increases in inequality, thereby complicating the process of reform (see, e.g., Aghion and Commander, 1999). How, then, was it possible to maintain broad-based support for market-oriented reforms in Poland?

In this paper, we use micro data from the Polish Household Budget Surveys (HBS) to show that the increase in overall income inequality in Poland during the transition was actually quite modest. In fact, our preferred estimate of the Gini coefficient for the overall individual income distribution actually declined from 0.256 in 1988 to 0.230 in 1992. It then began a gradual increase, reaching levels comparable to the pre-transition period in 1994-96 and then rising to 0.276 by 1997. However, we find that inequality in labor earnings increased steadily and substantially during the transition period of 1989-1997. For instance, we estimate that the Gini measure of inequality for individuals in worker-headed households, based only on the labor earnings of those households, increased steadily from 0.252 in 1988, the last full year prior to the transition, to 0.298 in 1997. This increase in the Gini coefficient for labor earnings (0.046) was more than twice that of the Gini for overall income (0.020).

Our analysis indicates that social transfers played an important role in attenuating the rise in overall income inequality and, by extension, in maintaining the social and political cohesion that was essential for the reform process. Although we find no evidence of increases in overall inequality, an analysis of the relative positions of different socioeconomic groups indicates that there were indeed winners and losers in the process of transition. We find that, in addition to mitigating the increase in income inequality in the early phases of transition, social transfers played a key role in between-group income dynamics as well. A marked increase in the generosity of public sector pensions in 1991 led to a substantial exit of older workers from the labor force onto the pension rolls in 1991-92 and improved the relative income position of pensioner-headed households. At the same time, other social transfers were increased from 3% in 1989 to about 5% of GDP by 1992. Together, these changes were sufficient to counteract the increase in earnings inequality. As Dewatripont and Roland (1996) point out, such large pensions and social transfers can be rationalized as necessary to achieve initial political support for the “big-bang” reform strategy. From 1993 onward, growth in transfers was halted and overall inequality began to rise gradually.

We also provide a detailed analysis of the targeting of transfers in Poland. We find that a substantial proportion of transfers was in fact directed not towards households at the bottom of the income distribution but towards the middle class and, as noted above, to older workers who were potentially big losers in terms of employment and earnings prospects during the transition. Absolute levels of poverty did in fact increase during the transition and, while social transfers mitigated this increase, they did not entirely prevent it. These results indicate that the targeting of transfers could have been better designed from a static welfare perspective. But, from a broader political economy perspective, our results suggest that transfers may have been a critical component for ensuring social stability and setting the stage for rapid reforms, including enterprise restructuring, during the early years of the transition. We discuss the policy implications of our results in the concluding section of the paper.

2. Existing Evidence on Inequality, Transfers and Growth

A traditional view of the inequality-growth relationship was articulated in a classic paper by Kuznets (1955). Kuznets presented evidence of a hump-shaped relationship between

inequality and per capita GNP, which he interpreted as evidence that inequality increases in the early stages of development and falls thereafter. A standard argument in support of this interpretation is that inequality fosters growth in environments characterized by liquidity constraints, because only wealthy individuals can bear the sunk costs of starting industrial activities. Consistent with this view, Evans and Jovanovic (1989) provide some evidence that capital market constraints affect the decision to become an entrepreneur even in the U.S., a country with highly developed capital markets.

The relationship between growth and inequality has been re-examined by various authors in recent years (see the survey by Aghion, Caroli and Garcia-Penalosa, 1999). Some of this work has challenged the view that higher inequality is associated with higher rates of growth. Persson and Tabellini (1994), among others, present evidence indicating a negative correlation between inequality and growth. Recent work in growth theory has rationalized this finding by showing that redistributive transfers can enhance growth in an environment characterized by significant liquidity constraints. For instance, Galor and Zeira (1993) turn on its head the argument that wealth concentration encourages growth when there are liquidity constraints. They present a model with borrowing constraints in which individual productivity is a concave function of human capital and show that redistribution of wealth from the rich to the poor enhances growth because the poor have a higher marginal productivity of investment. Related results have been obtained by Banerjee and Newman (1993), Aghion and Bolton (1996) and Benabou (1996). Also, in a political economy model, Alesina and Rodrik (1994) show that income redistribution can enhance growth by reducing political support for taxation of capital. And Perotti (1996) finds empirical support for the view that redistribution can enhance growth by fostering socio-political stability.

In our view, the evidence we provide on transfers and inequality in Poland is relevant to this literature on inequality, redistribution and growth. As noted above, we find that a high level of social (cash) transfers mitigated the increase in inequality in Poland during the transition. In fact, social transfers as a percent of GDP averaged 17.7% during 1990-1997, the highest level in any transition country (the mean level of transfers across the 18 transition economies for which we have data was 10.8%). The high level of transfers in Poland at least partially explains the fact that Poland had the smallest increase in inequality during the

transition. A number of observers have expressed concerns that the level of transfers in Poland could hinder future growth (Gomułka, 1998; OECD, 1997). But such predictions have yet to be borne out. In 1998-99, Poland continued to experience more rapid growth than the other transition countries in our sample.

Given recent developments in growth theory, it is intriguing to speculate that a high level of transfers may actually have helped rather than hindered economic growth in Poland, especially in the early stages of transition. In the penultimate section of this paper, we present some cross-country evidence that suggests that the relationship between redistributive social transfers and growth in transition economies has in fact been positive, which is similar to Perotti's (1996) finding for a different and larger sample of countries.

3. The Household Budget Surveys

The Polish Central Statistical Office (CSO) has been collecting detailed micro data on household income and consumption for more than two decades. In the Household Budget Surveys (HBS), the primary sampling unit is the household. A two-stage geographically stratified sampling scheme is used, where the first-stage sampling units are the area survey units and the second-stage units are individual households.² Households were surveyed for a full quarter (until 1992) or for a full month (from 1993 onward) in order to monitor their income and spending patterns. Supplementary information, including household demographics, is collected from the same households once every year. The typical sample size is about 25,000 households per year.

The HBS contains detailed information on sources and amounts of income for both households and individuals within each household. Total income is broken down into four main categories: labor income (including wages, salaries and nonwage compensation); pensions; social benefits and other transfers; and other income. Social benefits include income from unemployment benefits that were introduced in late 1989. A key point is that the data

² Although the survey sample is designed to be representative of the underlying population, non-response rates tend to differ across demographic groups. This necessitates the use of sampling weights, although these weights had little effect on any of our main results.

include measures of the value of in-kind payments from employers to workers, which have been an important part of workers' compensation in Poland and other transition economies. For farm households, farm income and expenditures, as well as consumption of the farm's produce, are also reported. There were no taxes on personal income until 1992. After that year, we use net incomes in the analysis. The HBS also contains detailed information on demographic characteristics of all household members.

We use the aggregate CPI as the price deflator. Since there were large price changes in the early years of transition, we match the price data to the survey period for each observation by using quarterly CPI data for 1985-92 and monthly data for 1993-97.

The change from quarterly reporting to monthly reporting has serious consequences for cross-sectional inequality measurement. Since income and consumption tend to be more volatile at the monthly compared to the quarterly frequency, this change could result in an exaggeration of any increase in inequality. In Keane and Prasad (2000), we develop a technique for adjusting the 1993-1997 income and consumption data for the increased variability that may be attributable solely to the shift from quarterly to monthly reporting. The basic idea of our approach is to assume that income consists of a permanent or predictable component (determined by education, age and other observable characteristics of household members) plus a mean zero idiosyncratic component. We then assume that the variance of the idiosyncratic component would not have jumped abruptly between the fourth quarter of 1992 and the first month of 1993. Rather, we assume that the variance of the idiosyncratic component varies smoothly over time (measured in months) according to a polynomial time trend. We estimate this polynomial trend, along with a dummy for post-1992 that captures the discrete jump in variance that occurred with the change to monthly income reporting. Then, at the individual level, we scale down the idiosyncratic component of the post-1992 income statistics to eliminate this jump in variance.

Another potential problem, that has affected previous studies on inequality in Poland, is that the aggregate income statistics reported by the CSO, as well as those reported by other former communist countries, differ in a number of important ways from economically meaningful measures of income. The official statistics appear to reflect total revenues or "inflows" since they include loans, dissaving, and cash holdings at the beginning of the survey

period. For farmers, income includes gross farm revenues, rather than net revenues. This is an important issue as approximately one-fifth of Polish households are either farm households or mixed worker-farmer households. Access to the detailed micro data enables us to make important adjustments in order to obtain a more meaningful measure of income (by excluding non-income revenue items and by calculating net farm income).^{3,4}

Failure to account for the change in survey frequency may have caused prior studies to greatly overstate the increase in inequality in Poland. This and other improvements that we make over previous studies (use of micro data for pre-1993 period, correction of the income and consumption definitions) are central to our finding that Poland has had the least increase in inequality of any transition country.

In fact, these issues could also explain why previous studies of income inequality in Poland have reported such contradictory results. For instance, based on statistics computed by the CSO, OECD (1997, p. 86) reports that the Gini for Poland was 0.25 in 1989, dropped to 0.23 in 1990 and then rose substantially to 0.26 in 1991 and to 0.29 by 1993. It then remained fairly stable in the 0.29 to 0.30 range through 1996. In contrast, Gorecki (1994) also finds a drop in inequality from 1989 to 1990, but finds no evidence of a subsequent increase in 1991. Similarly, Milanovic (1999), using published data on income deciles for years prior to 1993 and the HBS micro data for 1993-5, reports that the Gini fell from 0.260 in 1989 to 0.247 in 1991. Like the OECD, he reports a very large jump in the Gini in 1993 to 0.298. But, in contrast to the OECD, his figures suggest that the Gini continued to rise very substantially

³ It is possible to make some (but not all) of the necessary adjustments to income using information in the aggregate data on categories of income. Inconsistencies in the set of adjustments actually made may account for some of the discrepancies in Gini values reported in previous studies.

⁴ The aggregate consumption figures published by the Polish CSO, as well as by other former communist countries, often correspond to a measure of total outflows, including saving and repayment of loans. For farm households, consumption includes farm investment and purchases of supplies. An indication of the strange nature of the aggregate consumption data is provided by Milanovic (1998, p. 41), who reports that in 1993 the Gini for consumption is 0.31, which substantially exceeds the Gini of 0.28 for income. He also reports (p. 33) that in 1993 the ratio of consumption to income is 1.30, an unreasonably high figure. Our access to the detailed micro data enables us to make necessary adjustments to the categories that are included in consumption. We then find the more plausible results that consumption Ginis are smaller than income Ginis and that the aggregate consumption to income ratio falls in the 0.89 to 0.96 range during the 1985–97 period.

after 1993, reaching 0.356 in 1995. Torrey, Smeeding and Bailey (1999), using a sample that constitutes about 45% of the full HBS sample recently made available through the Luxembourg Income Survey (LIS) for selected years, report income Gini coefficients of 0.217 for 1987, 0.248 for 1990 and 0.243 for 1992.

The first three studies suggest that income inequality declined from 1989 to 1990. The CSO-OECD figures then imply a very large increase in income inequality in 1991, while the figures in Milanovic, Gorecki and Torrey *et al.* do not show this. The CSO-OECD (1997) and Milanovic (1999) figures are consistent, however, in implying that large increases in inequality occurred between 1992 and 1993. But the CSO-OECD figures indicate that inequality then stabilized, while the Milanovic figures imply that it grew substantially again in 1994-95. As shown in Keane and Prasad (2000), the switch to monthly income reporting accounts for most of the increase in inequality between 1992 and 1993 reported in both OECD (1997) and Milanovic (1999). Another potential problem with the studies cited above is that they do not all use the actual HBS micro data for the period prior to 1993. Rather, for the period prior to 1993, the Gini values in the first three studies cited above were approximated using aggregate data on quantiles of the income distribution published by the CSO in the annual publication *Budżety Gospodarstw Domowych*, which we henceforth refer to as the *Surveys*. The accuracy of these approximations is certainly an issue.

Both our procedure for adjusting for the spurious increase in inequality stemming for the switch to the monthly reporting interval, and our corrections for the definitions of income and consumption, rely on access to the HBS micro data. In particular, the variance correction requires access to the data for an extended period of time. Our study is unique in that it is based on the HBS micro data for a long sample period, extending from 5 years prior to the “big bang” to 8 years after. To our knowledge, no prior study of inequality in Poland has adjusted for the change in survey design in 1993, and most have not adjusted for the definitional problems noted above.⁵

⁵ At the time we began our study, the Polish CSO had never before released the HBS micro data. A long negotiation process by the first author during 1992–93 led to its release. Subsequently, the micro data for the first half of 1993 was released to the World Bank and this data is used in World Bank (1995) and Milanovic (1998). More recently, the data for 1993-96 have been obtained by researchers at
(continued...)

One other important change that was made in the 1993 survey was an attempt to obtain a more representative sample of the self-employed. This group's size is believed to have increased markedly since the transition began, resulting in its under-representation in the HBS data during the period 1990-92. However, as indicated in Keane and Prasad (2000), under-representation of the self-employed is likely to have led to only a marginal understatement of the extent of inequality in the early years of the transition.

Table 2 reports sample means for some of the variables used extensively in our analysis of inequality.⁶ Two interesting features are that the average share of income from transfers and the share of pensioner-headed households increase markedly after the transition. We discuss this in greater detail below. The demographic characteristics of households and household heads remain quite stable during and after the transition. The means of the education dummies indicate a small increase in average levels of educational attainment of household heads in the 1990s (a similar increase occurs in the general population as well).

4. Inequality

In this section, we examine various aspects of inequality in Poland over the period 1985-1997. For the years 1993-1997, we use the income and consumption measures that are adjusted (using the procedure described in the previous section) for the increase in idiosyncratic variance that occurred with the shift to a monthly reporting period.

The measures of inequality we examine are based on the distribution of individual income, unless explicitly noted otherwise. A key problem in inequality measurement is how to account for household composition and household economies of scale when measuring household well being, or when assigning individual income or consumption levels to household members. We constructed food share (FS) based equivalence scales for Poland using the Engel (1895) method, which assumes that two households with different

the World Bank. As noted above, a subsample of the HBS is also now available in the through the Luxembourg Income Survey (LIS) for 1987, 1990 and 1992. Thus, no prior researchers have had access to the micro data for the entirety of the extended period that we examine.

⁶ The sample size falls in 1992 since half of the total sample in that year was used to test the new monthly survey; these data were considered unreliable and not made available to us.

demographic composition are equally well off at income levels that enable them to have equal food shares (ratio of expenditure on food to total expenditure on nondurables).⁷ These equivalence scales exhibited somewhat greater household economies of scale than the scales typically used for western countries. In Keane and Prasad (2000), we document that our results on the evolution of inequality are not sensitive to the choice of equivalence scale.⁸ Hence, in what follows, we present results using only the food share based equivalence scale.⁹

4.1 Measures of Overall Inequality

We first examine the evolution of summary measures of overall inequality.¹⁰ Table 2 reports Gini coefficients based on total incomes adjusted by the FS equivalence scale. The Gini coefficient indicates that inequality increased from 0.256 in 1988 to 0.263 in 1989 and then returned to pre-transition levels in 1990 and continued to decline in 1991-92. In fact, income inequality declines from 1988 to 1992, with the Gini falling from 0.256 to 0.230.

In short, inequality spiked up in the immediate aftermath of the big bang but, by 1992, was no higher than the levels seen before the transition. Starting in 1993, however, inequality begins to rise and, by 1997, is at a level significantly higher than the peak attained in 1989. It is important to note, however, that the increase in inequality even by 1997 is hardly dramatic. The increase of 0.020 in the Gini coefficient rises from 1988 (the year before the transition) to 1997 is smaller than the increase of 0.03 reported for the U.S. in the 1980s by Atkinson,

⁷ We are aware of the potential problems associated with the use of food share based equivalence scales. However, we were concerned about estimating a complete demand system under conditions when rationing of certain commodities was probably an issue in some years of our sample, but where we do not observe the rationing regimes.

⁸ Besides our own FS scale, we also used the OECD scale, the McClements scale (which is commonly used in Britain), and the simple per capita scale. Appendix Table B1 in that paper shows values of different equivalence scales for a representative set of household types.

⁹ We recomputed many of the results in this paper using different equivalence scales. Although the levels of inequality were slightly affected by the choice of equivalence scale, patterns of the evolution of inequality over time were robust to this choice.

¹⁰ In all cases, we examine the distribution of individual income (or consumption), assigning to each individual the per equivalent income for the household in which the person resides.

Rainwater and Smeeding (1995), or the increase from 0.326 to 0.361 reported for the United Kingdom from 1986 to 1991 in World Bank (1999, 2000).

We also examined inequality based on income net of transfers (Table 2, second row).¹¹ Interestingly, this reveals a very different picture. The Gini coefficient for income excluding transfers increased by 0.066 from 1988 to 1997, more than three times the increase in the Gini for overall income. Thus, it appears that transfers played a crucial role in inequality dynamics after the transition. We investigate this in greater detail below.

Gini coefficients for consumption inequality, based on either total or nondurables consumption, show a similar pattern of changes in inequality. To conserve space, we focus only on income inequality in most of the analysis that follows. The patterns of changes in income inequality that we discuss below were almost identical in qualitative terms when we looked at consumption rather than income.

Next, we examine whether our main results are sensitive to the choice of inequality measure, especially since the Gini coefficient is known to be particularly sensitive to changes around the median of the distribution. The coefficient of variation (and its monotonic transforms, one of which we use here) is more sensitive to changes at the high end of a distribution, while the mean logarithmic deviation is more sensitive to changes near the low end. We report these inequality measures in the bottom rows of Table 2, in order to determine if they tell a consistent story. In fact, they do. When we use income, both these measures of inequality also show an upward spike in 1989, followed by a decline in 1990-92 to below the pre-transition level, and a subsequent steady increase during 1993-97 to a level modestly above that in the pre-transition period.

When we look at income net of transfers, both the coefficient of variation and mean logarithmic deviation show far greater increases in inequality over the transition period than for total income. This pattern is particularly interesting in the case of the CV measure, which is most sensitive to changes at the high end of the distribution. This result stems from the fact

¹¹ Since transfers tend to be stable over time, the adjustment factors (used to adjust for the change in survey frequency in 1993-96) for income net of transfers were nearly identical to those we computed for income including transfers.

that transfers in Poland are focused not only at the low end of the income distribution but extend well into the high end. We give more details on the targeting of transfers below.

To summarize, we find no evidence to support the view, based on official statistics, of a sharp increase in total income inequality following the transition in Poland. Rather, we find that the increase in income inequality was modest compared, for instance, to increases observed in the U.S. and the U.K. in the 1980s and 1990s. Our results also differ markedly in terms of the timing of changes in inequality. The OECD-CSO figures imply that inequality grew tremendously from 1989 to 1993, and that it then stayed rather flat through 1996. Our results indicate that inequality actually fell from 1989-1992. But we find that inequality rose noticeably after 1993 and, especially, in 1996 and 1997. Thus, we find that most of the increase in inequality occurred several years after the “big bang,” and long after the OECD-CSO figures imply the increase had already ceased. From the perspective of the inequality-growth relationship, it is interesting to note that inequality in Poland fell during a period of negative growth and then began to rise as growth picked up and turned positive. But this is, of course, too short a time span to draw strong inferences about this relationship.

This difference in timing also has important implications for the interpretation of what occurred during the transition. The OECD-CSO figures for Poland, as well as the comparable figures for other transition economies (e.g., Milanovic, 1999), are often interpreted as evidence that substantial increases in inequality are an inevitable concomitant of the process of transition to a market economy. Our results, however, indicate that the change in inequality during the first six years of the transition in Poland was quite modest. Thus, these results suggest that changes in inequality during transition are not inevitable but, rather, may result from particular policy choices. In later sections of the paper, we discuss in greater detail the role of social transfer policies in inequality dynamics.

To this point, we have focused on the Gini coefficient in order to compare our results with those of other authors and the CSO. Next, we exploit our access to the micro data to provide a richer characterization of the evolution of inequality in Poland.

4.2 Percentile Differentials and Quantile Shares

We now examine income inequality by looking at percentile differentials and quantile

shares. Unlike the scalar inequality measures considered above, examination of percentiles and quantiles allows one to consider changes in inequality at various points in the distribution. Figure 1 plots the 90-10 and 75-25 percentile differentials for (log) income for each year over the sample period. These differentials reveal some interesting patterns. After a brief spike in 1989, the 90-10 differential for income falls to its pre-transition level by 1992, before gradually increasing in the mid-1990s. The cumulative increase in this differential from the period 1985-88 through 1997 is quite small (only about 0.1, representing a 10 percent increase in inequality). The 75-25 differential is essentially unchanged over the sample period, indicating even greater stability in the middle part of these distributions.

The lower panel of Figure 1, which shows percentile ratios for income net of transfers reveals a very different picture. Both the 90-10 and 75-25 differentials are much higher than their counterparts for total income, even before the transition. More striking is the fact that the 90-10 differential rises very sharply during the early years of transition, before leveling off after 1993. In other words, pre-transfer income inequality, especially between the top and bottom segments of the income distribution, increased greatly during the transition. Interestingly, the 75-25 differential doesn't rise significantly, confirming the particular importance of transfers as an equalizing mechanism mostly for households with little income from other sources including labor earnings.

In Appendix Table A1, we show the percentile differentials for selected years and also examine finer breakdowns of these differentials. Note that total income inequality is fairly evenly distributed above and below the median. But inequality in income net of transfers is substantially greater below the median, especially when the lower extremes of the distribution are considered (e.g., the 50-10 differentials). And this is where the increase in inequality is the greatest in the absence of transfers.

One must, of course, be cautious about making too much of this accounting exercise. The behavior of Polish households in terms of their labor supply and other economic decisions, and the role of private transfers and other income insurance mechanisms, might have been quite different in the absence of these social transfers. Nevertheless, the quantitative importance of social transfers suggests that they did play a crucial role in maintaining stable income dispersion during the early transition.

Table 4, which reports the shares of income and consumption going to each quantile of the respective distributions, provides an alternative perspective. The shares of income, total consumption, and nondurables consumption going to individuals in different quantile ranges have remained quite stable over time, except for a slight and transitory improvement in the relative position of the bottom quintiles right after the big bang. The evolution of income net of transfers is, however, dramatically different. The total share of income net of transfers going to the bottom two quintiles fell from over 15 percent in 1985-7 to 13.3 percent by 1992 and further to 10.7 percent by 1997. This was mirrored by an increase in the share of the top quintile, from about 41 percent in 1985-87 to over 46 percent by 1997. These results confirm that transfers played an important role in the dampening of potential increases in inequality during the transition, especially at the lower end of the distribution.

4.3 Between-Group Changes in Inequality

We have found no evidence of an increase in overall inequality in Poland in the immediate aftermath of the big bang, regardless of which of several inequality measures we consider. However, this does not mean that there were not winners and losers in the transition. We now turn to an analysis of how different groups fared in terms of relative income.

Figure 2 shows how median total income and income net of transfers evolved for four types of households differentiated by main income source of the household head: workers, farmers, mixed worker-farmers and pensioners. The top panel of this figure shows that pensioner-headed households had much lower median total income than other groups during the 1985-89 period, and that their relative position improved dramatically after the big bang so as to bring their income up to almost the same level as the next lowest group (farmers). As a result, we find that pensions contributed importantly to a reduction in inequality.¹² The main impetus behind the improved relative position of pensioners was a substantial increase in pension levels that took place in 1991. In fact, by 1997, the relative position of pensioner-headed households is inferior only to that of worker-headed households.

¹² A similar result is reported by Garner and Terrell (1998), who find that pensions substantially reduced inequality during the early transition years in the Czech and Slovak republics.

The importance of transfers for between-group inequality dynamics is revealed by looking at median income net of transfers for different socioeconomic groups (Figure 2, lower panel). In terms of pre-transfer income, households that rely primarily on these transfers of course do far worse in both absolute and relative terms during the transition. But note that, although social transfers do have a non-trivial impact on the absolute median income levels of the other three socioeconomic groups, transfers do not have much of an impact on their between-group relative income dynamics.

We also examined the fractions of households that fall in each quintile of the income distribution, conditional on education or age of the household head (results not shown here). One main finding was the substantial improvement in the relative positions of households whose heads have higher educational qualifications. For example, in 1989, 45.8% of households in which the head had a college degree were in the top quintile. This fraction rose to 58% by 1992 and further to 60.2% by 1997. By contrast, in 1989, among households in which the head had only a primary school education, 14.9% were in the top quintile, but this had fallen to 9.5% by 1992 and to 8% by 1997. Another notable result was the improvement of conditions for the old, which resulted from more generous pensions. Among households in which the head was over 60 years old, 39.2% were in the bottom quintile in 1989, but this dropped to only 24.3% by 1992. In contrast, the probabilities that a household with a young (18-30) or middle-aged (31-60) head would fall in the bottom quintile of the income distribution increased over the same period.

4.4 Within-Group Changes in Inequality

The single parameter generalized entropy measures of inequality can be decomposed into within- and between-group components. This group includes the mean log deviation and half the square of the coefficient of variation, but not the Gini coefficient. In Table 5, we report decompositions of the former two inequality measures, grouping individuals by the main income source of the household head. Based on this coarse grouping, most of the overall level of inequality is attributable to within-group inequality. The total increase in inequality from 1988 to 1997, based on either of these two measures, is attributable in large part to the increase in within-group inequality.

An interesting finding, which is apparent in the third panel of Table 5, is that the changes in within-group inequality were very different across different groups. For instance, Gini coefficients estimated separately for each group indicate a steady rise in inequality for individuals in worker-headed households, from 0.189 in 1988 to 0.248 in 1997. This increase of 0.059 in the Gini for individuals in worker-headed households is almost three times as great as the 0.020 increase in the Gini for the overall income distribution. The Gini coefficients in Table 5 indicate that within-group inequality actually fell among farmer and mixed worker-farmer households during the transition. There was also a modest increase in inequality within pensioner-headed households.

The most striking result here is the significant and steady increase in inequality among worker-headed households after 1988. The bottom two rows of Table 5 reveal that much of the increase in income inequality among worker-headed households can be attributed to increased inequality in labor income. When we look at labor income alone, the Gini increased from 0.252 in 1988 to 0.298 in 1997, an increase of 0.046. Thus, we see that inequality in labor earnings grew substantially more than inequality in the overall income distribution. Furthermore, even for worker-headed households, which receive a substantial fraction of their income from labor earnings, the within-group Gini coefficient based on income net of transfers is much greater than the Gini based on total income. Thus, even for this group, transfers play an important role in narrowing the level of within-group income dispersion.

It is interesting to examine how overall income levels of worker-headed households were influenced by the human capital attributes of the household head. We ran quantile regressions of log real household income on characteristics of the household head (and an urban dummy). We do not report the results in detail here but only briefly summarize the main findings. Log incomes for households with heads in all education groups drop substantially at all quantile points from 1989 to 1990 and these declines are greater at the upper quantile points, implying a slight reduction in within-education group inequality. However, by 1992, there is a clear divergence across groups. Households with a college-educated head experience a recovery in income; those with a high school-educated head have stable real incomes at most quantile points; and households headed by persons with lower educational qualifications experience a continuing decline in income. This divergence across groups is accentuated

during 1994-96, confirming the earlier results that indicated rising inequality among worker-headed households after the transition.

It is possible that the general perception that inequality increased in Poland after the big bang stems at least in part from the increase in inequality among worker-headed households. In order to gain more insight into the sources of changes in labor earnings inequality, we also examined the evolution of earnings for individual workers (individual earnings data were not available in the HBS for all years in our sample). To conserve space, we do not present those results here but only briefly summarize the main findings that are relevant to this paper.

Analysis of individual earnings data indicated that earnings differentials across education levels increased rapidly during the transition, reflecting sharp increases in education premia. For instance, the earnings premium for a college degree relative to a primary school degree increased from 47% in 1987 to 102% in 1996. These figures are also reflected in our earlier comments about the greater representation of households with better-educated heads in the upper quantiles of the income distribution as the transition progressed. But the premium for labor market experience fell sharply after the transition and the position of older workers deteriorated relative to younger workers, consistent with the notion of rapid obsolescence of skills of older workers in a period of massive industrial restructuring

Our results indicate that the returns to general human capital, i.e., education premia, rose markedly after the transition while the returns to experience, especially for older workers, declined sharply in the early years of the transition. This is consistent with the notion of rapid obsolescence of firm- or industry-specific skills during a period of rapid technological change and industrial restructuring (see Svejnar, 1996). This, combined with the increased generosity of pensions, explains the surge in the number of pensioner-headed households in 1991-1992 that we noted in Table 2. Indeed, self-selection into retirement probably accounts for the recovery in experience premia for older workers that occurred after 1992, since a large number of older workers, particularly in the 55-65 age bracket, retired in 1991-92. The patterns of changes in earnings inequality that we have discussed here have important implications for understanding key aspects of the political economy of the transition process. This is the subject of the next section.

5. The Targeting of Transfers

Having documented the role of transfers in mitigating the rise in income inequality that would have resulted from the rising dispersion of labor earnings (among other factors), we now turn to a more detailed analysis of the targeting of transfers. From a welfare perspective, transfer mechanisms would primarily be expected to buffer those in the bottom part of the income distribution. Hence, we first examine the role of social transfers in poverty dynamics. We then provide a broader perspective on the efficacy of social transfer mechanisms in Poland during the transition process.

5.1 Poverty Rates

In this sub-section, we examine the evolution of poverty rates. The poverty line is, of course, a rather arbitrary concept. But there is widespread agreement that the poverty lines developed by the Institute of Labor and Social Affairs in Warsaw are “overly generous” (see OECD, 1997, p.91; Milanovic, 1998, p. 66). Using these poverty lines, Szulc (1994, 1995) calculates that the percentage of households in poverty rose from 16.7% in 1989 to 34.2% in 1990, and further to 40.3% in 1992. But the poverty line appears to lose its meaning in the local context when such a large fraction of the population is counted as poor.

We calculate poverty lines by first constructing the median of per equivalent household income using pooled data for the entire 1985-97 period. Then, we alternately define a household as being in poverty if it has per equivalent income below either one-half or two-thirds of that median. The first panel of Table 6 shows the fraction of the population living in households with per equivalent income below each of those thresholds in each year. For instance, the fraction of the population below the one-half median threshold jumps from about 2-3% in 1988-89 to 6% in 1990-92. This fraction rises further in 1993, peaks at 10% in 1994, and then declines moderately by 1997. A key finding is that, while poverty jumped in the immediate aftermath of the big bang, it did not increase much in the subsequent two years. Poverty rates based on the two-thirds median income threshold are higher but have the same time profile.

It is interesting to examine the extent to which transfer payments alleviate poverty. We conducted the simple experiment of removing transfers from household income and

redistributing the transfers equally to all households based on their number of equivalent units. Such an experiment of course assumes away any behavioral response of households to the change in transfer rule, but it does reveal the extent to which transfers alleviate poverty in a purely accounting sense. It is interesting that, in 1992, the fraction of people below the two-thirds median threshold drops from 27% to 20% (columns 4 and 2) as a result of transfers, while the fraction below the one-half median threshold drops from 16% to 6% (columns 3 and 1). Perfect targeting of transfers would imply that the percentage below the one-half median threshold should be reduced to zero before the percentage below two-thirds of the median is reduced at all. Thus, the fact that transfers appear to do less to reduce the fraction of people below the one-half median threshold suggests that targeting to the least well-off households could have been substantially improved.

Most previous studies on poverty in Poland have not reported poverty rates based on consumption data. As has been noted by a number of authors (e.g., Triest, 1998), poverty rates for the U.S. and other Western countries are generally found to be lower when consumption data are examined rather than income data, presumably because much of the variance in income is transitory and households attempt to smooth consumption over time. In the last two columns of Table 6, we report poverty rates based on household (per equivalent) nondurable consumption, again using one-half and two-thirds of the median as thresholds. These poverty rates are indeed lower than those based on income, but not substantially so. Furthermore, the evolution of consumption-based poverty is much the same as for the income-based measures.¹³

¹³ However, for some types of households, the income- and consumption-based poverty rates do differ markedly. For instance, in 1992, the income-based poverty rates (based on two-thirds of the median) were 20%, 39%, 32% and 36% for households headed by workers, farmers, farmer/workers and pensioners respectively. The corresponding consumption-based rates were 17%, 30%, 32% and 28%. Thus, for households headed by farmers and pensioners, the consumption-based poverty rates are indeed much lower than the income-based rates. Szulc (1995) also reports changes in poverty rates broken down by type of family, income source etc., but only for the pre-transition period. Okrasa (1999) provides a more detailed analysis of poverty within specific groups during 1993-96.

5.2 More on the Targeting of Transfers

An interesting picture emerges from the results described thus far. Transfers appear to have played a crucial role in preventing the potential rise in aggregate inequality during the transition. However, as evidenced by the increase in poverty during the early years of the transition, transfers appear not to have been well targeted from a pure welfare perspective, in the sense of preventing a deterioration in the well-being of individuals at the bottom end of the distribution.¹⁴ A notable aspect of transfers, however, is that they appear to have played a critical role in ensuring social stability during the transition. This was done primarily by ensuring that the bulk of the increases in transfers went to households at the lower and middle portions of the income distribution.

One simple way of analyzing the equalizing role of transfers is to regress transfers on income net of transfers. Results from nonparametric regressions (for households) for selected years are shown in Figure 3. The key observation from this figure is that there are substantial transfers even to households around and above the median of the distribution (the horizontal line shows median real household income based on the full sample). Clearly, from a welfare perspective, transfers could have been better targeted. However, since individuals in the middle class tend to have a significantly higher propensity to vote than individuals at lower income levels, transfers targeted in the manner that they were appear to have been more efficient at “buying” the social stability that characterized the transition period, notwithstanding the disruptive effects of the economic transformation.

Another noteworthy aspect is the importance of pensions as a transfer mechanism. Pension expenditures and the size of the pension rolls increased enormously in the early years of the transition. As shown in Table 7, public expenditure figures indicate that total public pension expenditure as a percent of GDP rose from 8 percent in 1989-90 to almost 15 percent by 1992. The HBS data indicate a similar pattern, with the share of total income accounted for by pensions rising from 16 percent in 1989 to 25 percent in 1992. This is particularly interesting given the results from our wage regressions that showed a substantial decline in

¹⁴ Based on an analysis of the Polish transition experience, Paull (1991) outlines the features of a general income support scheme that would be more efficient from the perspective of poverty reduction.

experience premia for older workers. Our view is that older workers who were adversely affected by the transition were cushioned by increasing the generosity of the pensions. Indeed, the replacement rate (average pension as a ratio of average wage) rose from about 52 percent in 1988-89 to 65 percent in 1991 and remained above 60 percent through 1997 (OECD, 1998).

Furthermore, since older workers had the most to lose from the privatization or closure of existing state-owned firms, giving them the option of moving on to the pension rolls may have been a key factor in removing a potential political obstacle to enterprise restructuring and privatization. This option, reflected in a relaxation of the pension eligibility requirements in 1990-91, was in fact exercised by a large number of workers, resulting in an increase in the number of newly granted pensions from about 0.6 million per year in 1988-89 to almost 1.4 million in 1991 (OECD, 1998, p. 65). Consistent with this result, the HBS data indicate that, among households headed by a male in the 55-65 age range, the share of pension income in total income rose from 26 percent in 1989 to 50 percent in 1992, remaining at around that level through 1997. For households headed by women in the 52-62 age range, this share rose from 34 percent in 1989 to 49 percent in 1992, before declining slightly to 45 percent by 1997.¹⁵

6. Discussion and Policy Implications

The results in the previous section reveal that transfer mechanisms provided an important stabilizing mechanism during the wrenching and difficult process of transition. First, the middle class was buffered, at least in a relative sense, from the ravages of falling income and rising unemployment.¹⁶ Second, older workers and pensioners were protected from a decline in their relative economic position—a considerable difference from the experience of pensioners and other social benefit recipients in numerous other transition economies, where

¹⁵ The typical retirement age in Poland is 65 for men and 62 for women. Among households with heads in the 45-55 age range and in lower age ranges, there was a small drop from 1989 to 1992 in the share of income from labor income, but this was mostly offset by an increase in other social benefits rather than pensions. Among households with heads aged 65 and older, pensions constitute 85-90 percent of total income, with labor income accounting for barely 2 percent.

¹⁶ The paper by Easterly (2002) in this volume traces the importance of the “middle class consensus” for longer-term growth.

the real value of pensions and other transfers fell precipitously during transition (both in absolute terms and relative to average wages).

Thus, transfers may have contributed not only to social stability but also to ensuring the conditions necessary for market-oriented reforms and enterprise restructuring that paved the way for high growth after the transition.¹⁷ As shown in the bottom panel of Table 7, this was accompanied by a substantial increase in the general government budget deficit in the early years of the transition. Although there was an attempt to hold the line on transfers in 1990, starting in 1991 the increased generosity of pensions and other social benefits led to a mushrooming of the deficit. This proved unsustainable and, by 1993, growth in transfer expenditures (as a percent of GDP) had been halted, although pensions and other social benefits were at a higher level than in the pre-transition years. The increase in aggregate inequality after 1993 is yet another indicator of how important the growth in transfers was in dampening the rise in overall inequality in the early years of the transition.

As noted above, we find that a high level of social (cash) transfers mitigated the increase in inequality in Poland during the transition. In fact, social transfers as a percent of GDP averaged 17.7% during 1990-1997, the highest level in any transition country. The mean level of transfers across the 18 transition economies for which we could find data was substantially lower at 10.8%. The high level of transfers in Poland at least partially explains the fact that Poland had the smallest increase in inequality during the transition. In fact, Gomulka (1998) refers to a “Polish model” of transition “distinguished by an exceptionally large volume of social transfers, especially...pensions” that “...helped to reduce the social cost of reform, but is inhibiting Poland’s ability to sustain rapid growth.” This theme--that the level of transfers in Poland will hinder future growth--has been sounded by many authors, including

¹⁷ Fidrmuc (2000) presents an interesting empirical analysis of voting patterns in transition countries. He notes that various politically powerful groups—including unions and retirees—were more likely to vote for left-wing parties. Notwithstanding their political leanings, these were in fact the regimes that had enough political capital to institute significant reforms. The Polish experience can be seen as one where successive (relatively short-lived) governments during early transition used generous transfers to acquire such political capital and appease groups that had the most to lose, in the short run, from market-oriented reforms.

OECD (1997). But such predictions have yet to be borne out. Even in 1998-99, Poland continued to experience more rapid growth than the other transition countries in our sample.

6.1 A Cross-Country Perspective

In our view, the evidence we provide on transfers and inequality in Poland is also relevant to the broader literature on inequality, redistribution and growth. We now provide a cross-country perspective in order to examine if the evidence from other transition economies is consistent with our interpretation of the Polish experience. In the top panel of Figure 4, we show how the level of transfers is related to inequality changes, as measured by changes in Gini coefficients, during transition.¹⁸ As expected, countries with higher levels of transfers typically had smaller increases in inequality. The countries with the highest levels of transfers—Poland, Hungary and Slovenia—also had among the smallest inequality changes during transition. However, this figure also indicates that the relationship between the level of transfers and inequality changes is not a tight one. For instance, Romania had a relatively small increase in inequality despite a low level of transfers. As one would expect, other factors such as the design of the transfer schemes could also affect inequality dynamics. An extreme example is provided by Commander and Lee (1998), who note that transfers in Russia have actually become regressive in the transition. Thus, higher transfers do not necessarily imply more redistribution. Nevertheless, given the negative relationship between transfers and inequality changes, it is also of interest to then examine the relationship between transfers and growth.

The bottom panel of the figure plots the relationship between GDP growth and government transfers as a percent of GDP, for all 18 countries for which we were able to obtain data on transfers and GDP. The X-axis shows cumulative GDP growth in the first eight years of transition for each country. The relationship is strongly positive, with a simple correlation of 0.67 (0.61 in the subsample of 14 countries for which we have Gini

¹⁸ The level of transfers is expressed as a percent of GDP and is the average, for each country, from the first year of its transition through 1997. The Gini coefficients are for per capita income and the change is the difference between the value of the coefficient 4-5 years into the transition and the value of this coefficient before transition. For data and sources, see Keane and Prasad (2000).

coefficients). Note that finding a positive correlation between transfers and growth is particularly surprising given the blatant denominator bias driving the correlation in the opposite direction (higher output growth increases the denominator of the transfer to GDP ratio). It is interesting that both of these results that we find here for transition economies have also been reported by authors such as Perotti (1996) for a different but much larger sample of industrial and developing countries.

While these results are far from conclusive and indicate only a correlation rather than a causal relationship, they are at least not inconsistent with recent developments in growth theory which imply that redistribution to enhance equality may actually enhance rather than dampen growth.¹⁹ The analysis in this paper highlights the role of policy choices, as embodied in transfer and other fiscal policies, on the dynamics of inequality during the transition to a market economy. In particular, we have argued that the increase in transfer expenditures (and, consequently, the budget deficit) during the critical early years of the transition may have played an important role in setting the stage for the successful economic transition in Poland. In other words, from a political economy perspective, the use of transfer mechanisms to mitigate the potential rise in inequality during the transition to a market economy may have important implications for the success of the transition process.

Of course, rising transfer payments do not come without significant costs. These could take the form of distortions induced by disincentives for employment (the result of a generous social safety net), distortions caused by taxation required to finance these transfers and, more generally, the effects of rising government budget deficits on overall macroeconomic performance. De Crombrughe (1997), for instance, traces the “destabilization” of the Polish budget in 1991-92 directly to the rise in transfer expenditures. Our view is that, at least in the early stages of transition, these transfers may in fact have been crucial in setting the stage for rapid reforms and that they may have outweighed the direct short-term costs of a rising budget

¹⁹ In Keane and Prasad (2000), we provide a more detailed regression analysis of the relationship between inequality changes and growth in the transition economies. We find a negative relationship even after controlling for initial conditions (including the pre-transition level of inequality) and measures of the extent of market-oriented reforms. Grun and Klasen (2001) report similar findings. For a panel data analysis of the relationship between inequality and growth, see the paper by Ivaschenko (2002) in this volume.

deficit. The Polish experience suggests that the prerequisites for this approach to work are a well-functioning set of transfer mechanisms and the commitment to implementing institutional and macroeconomic reforms at a rapid pace.

7. Conclusions

Poland is one of the success stories of transition—having instituted drastic market-oriented reforms early in the transition process and experiencing rapid growth thereafter. We showed that the move to a market economy did not entail significant increases in income inequality in Poland, despite rising inequality of labor earnings. The high level of social transfers mitigated the potentially sharp rise in income inequality during transition. Finally, we argued that the Polish experience points to an interesting example of targeting of transfers that, while not necessarily well-designed from a static welfare perspective, may have been crucial for garnering political support for the drastic market-oriented reforms that facilitated Poland's strong growth performance in the 1990s.

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Table 1. Selected Macroeconomic Indicators for Poland
(annual percentage changes, unless indicated otherwise)

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|------|------|------|-------|-------|------|------|------|------|------|------|------|
| Real GDP | 4.2 | 2.1 | 4.0 | 0.3 | -11.4 | -7.0 | 2.6 | 3.8 | 5.2 | 7.0 | 6.1 | 6.9 |
| Consumer price index (annual average) | 16.5 | 26.4 | 60.2 | 251.1 | 585.8 | 70.3 | 43.0 | 35.3 | 32.2 | 27.8 | 19.9 | 14.9 |
| Employment (end-year) | 0.3 | 0.0 | -1.0 | -0.8 | -6.2 | -3.9 | -3.1 | -1.7 | 1.1 | 0.3 | 3.5 | 1.3 |
| Unemployment rate (%) (end-year) | -- | -- | -- | 0.1 | 6.1 | 11.8 | 14.3 | 16.4 | 16.0 | 14.9 | 13.2 | 8.6 |

Sources: IMF (1994) and EBRD Transition Reports.

Table 2. Household Budget Surveys: Sample Means for Selected Years

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1995 | 1997 |
|--|--------|-------|--------|-------|--------|-------|--------|-------|
| Real household income (shares) | | | | | | | | |
| Labor income | 0.52 | 0.53 | 0.51 | 0.49 | 0.49 | 0.50 | 0.52 | 0.56 |
| Transfers | 0.23 | 0.22 | 0.26 | 0.32 | 0.34 | 0.33 | 0.33 | 0.32 |
| Farm income | 0.18 | 0.19 | 0.16 | 0.12 | 0.12 | 0.11 | 0.11 | 0.08 |
| Other income | 0.06 | 0.05 | 0.06 | 0.06 | 0.05 | 0.07 | 0.05 | 0.05 |
| Real household consumption (shares) | | | | | | | | |
| Durables | 0.13 | 0.14 | 0.11 | 0.10 | 0.08 | 0.08 | 0.08 | 0.10 |
| Nondurables | 0.87 | 0.86 | 0.89 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 |
| Food | 0.45 | 0.46 | 0.53 | 0.47 | 0.44 | 0.43 | 0.41 | 0.38 |
| Household characteristics | | | | | | | | |
| Urban | 0.51 | 0.51 | 0.51 | 0.52 | 0.64 | 0.66 | 0.65 | 0.67 |
| Number of persons in household | 3.27 | 3.27 | 3.24 | 3.16 | 3.14 | 3.15 | 3.18 | 3.12 |
| Primary income source of household | | | | | | | | |
| Workers | 0.55 | 0.55 | 0.53 | 0.50 | 0.49 | 0.44 | 0.42 | 0.42 |
| Farmers | 0.10 | 0.10 | 0.10 | 0.09 | 0.09 | 0.08 | 0.08 | 0.06 |
| Mixed, worker-farmers | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 |
| Pensioners, others | 0.28 | 0.28 | 0.30 | 0.34 | 0.36 | 0.38 | 0.39 | 0.40 |
| Self-employed | ... | ... | ... | ... | ... | 0.05 | 0.06 | 0.06 |
| Household head characteristics | | | | | | | | |
| Male, 18-30 | 0.11 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.11 |
| Male, 31-60 | 0.58 | 0.59 | 0.57 | 0.57 | 0.57 | 0.59 | 0.59 | 0.58 |
| Male, >60 | 0.13 | 0.14 | 0.14 | 0.14 | 0.14 | 0.13 | 0.13 | 0.13 |
| Female, 18-30 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Female, 31-60 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| Female, >60 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 |
| Age | 47.54 | 47.78 | 47.90 | 48.30 | 48.45 | 47.96 | 48.03 | 48.09 |
| College degree | 0.07 | 0.06 | 0.06 | 0.07 | 0.08 | 0.09 | 0.09 | 0.09 |
| Some college | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 |
| High school | 0.20 | 0.19 | 0.20 | 0.21 | 0.23 | 0.24 | 0.24 | 0.26 |
| Some high school | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | ... | ... | ... |
| Basic vocational training | 0.31 | 0.33 | 0.33 | 0.33 | 0.33 | 0.34 | 0.36 | 0.35 |
| Primary school | 0.34 | 0.34 | 0.32 | 0.32 | 0.30 | 0.28 | 0.26 | 0.25 |
| Primary school not completed | 0.07 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.03 | 0.02 |
| Number of observations (households) | | | | | | | | |
| 1985 | 21,560 | 1989 | 29,366 | 1992 | 10,642 | 1995 | 31,874 | |
| 1986 | 25,475 | 1990 | 29,148 | 1993 | 31,966 | 1996 | 31,782 | |
| 1987 | 29,510 | 1991 | 28,632 | 1994 | 31,942 | 1997 | 31,659 | |
| 1988 | 29,287 | | | | | | | |

Notes: The components of income and consumption are shown as (mean) shares of total income and consumption, respectively.

Table 3. Poland: Measures of Overall Inequality

| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Gini Coefficients | | | | | | | | | | | | | |
| Total income | 0.252 | 0.254 | 0.246 | 0.256 | 0.263 | 0.250 | 0.235 | 0.230 | 0.248 | 0.262 | 0.255 | 0.265 | 0.276 |
| Income excluding transfers | 0.373 | 0.375 | 0.368 | 0.385 | 0.384 | 0.389 | 0.404 | 0.416 | 0.416 | 0.437 | 0.432 | 0.448 | 0.451 |
| Nondurables consumption | 0.196 | 0.200 | 0.205 | 0.211 | 0.219 | 0.209 | 0.208 | 0.205 | 0.222 | 0.228 | 0.222 | 0.227 | 0.235 |
| Total consumption | 0.230 | 0.234 | 0.239 | 0.244 | 0.258 | 0.241 | 0.233 | 0.227 | 0.247 | 0.254 | 0.247 | 0.262 | 0.271 |
| Half the Square of the Coefficient of Variation | | | | | | | | | | | | | |
| Total income | 0.085 | 0.090 | 0.085 | 0.091 | 0.105 | 0.086 | 0.079 | 0.077 | 0.097 | 0.103 | 0.096 | 0.105 | 0.112 |
| Income excluding transfers | 0.184 | 0.190 | 0.186 | 0.203 | 0.210 | 0.207 | 0.230 | 0.244 | 0.265 | 0.281 | 0.278 | 0.294 | 0.306 |
| Mean Log Deviation | | | | | | | | | | | | | |
| Total income | 0.075 | 0.079 | 0.077 | 0.078 | 0.087 | 0.075 | 0.071 | 0.069 | 0.079 | 0.086 | 0.081 | 0.086 | 0.093 |
| Income excluding transfers | 0.224 | 0.214 | 0.213 | 0.221 | 0.244 | 0.247 | 0.268 | 0.278 | 0.404 | 0.357 | 0.333 | 0.317 | 0.444 |

Notes: The inequality measures shown here are for the individual distributions of income and consumption. Household income and consumption are adjusted using the food-share based equivalence scale and allocated equally to individuals in the household. Income and consumption data for 1993-97 are adjusted for the change in survey frequency.

Table 4. Quantile Shares of Income and Consumption

| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Total Income | | | | | | | | | | | | | |
| Quantile range | | | | | | | | | | | | | |
| ≤ 20 | 9.0 | 9.1 | 9.5 | 9.4 | 9.3 | 9.7 | 10.4 | 10.5 | 10.2 | 9.6 | 9.9 | 9.4 | 9.1 |
| 21-40 | 14.8 | 14.9 | 15.0 | 14.7 | 14.4 | 14.9 | 15.3 | 15.2 | 14.6 | 14.5 | 14.6 | 14.3 | 14.3 |
| 41-60 | 18.5 | 18.1 | 17.9 | 17.5 | 17.6 | 18.0 | 18.4 | 18.6 | 17.9 | 17.9 | 17.9 | 17.7 | 17.8 |
| 61-80 | 23.0 | 22.4 | 22.0 | 21.6 | 22.0 | 22.3 | 22.4 | 22.8 | 22.0 | 22.0 | 22.2 | 22.0 | 22.1 |
| >80 | 34.6 | 35.5 | 35.7 | 36.8 | 36.7 | 35.1 | 33.4 | 32.9 | 35.3 | 35.9 | 35.5 | 36.6 | 36.8 |
| Income net of transfers | | | | | | | | | | | | | |
| ≤ 20 | 2.4 | 2.2 | 2.2 | 2.2 | 2.7 | 2.2 | 1.9 | 2.0 | 1.7 | 1.2 | 1.3 | 0.9 | 0.5 |
| 21-40 | 12.7 | 12.9 | 13.3 | 12.7 | 12.5 | 12.5 | 12.1 | 11.3 | 11.2 | 10.8 | 10.7 | 10.0 | 10.2 |
| 41-60 | 19.0 | 18.8 | 18.7 | 18.0 | 18.1 | 18.6 | 18.9 | 18.3 | 17.9 | 17.8 | 17.8 | 17.3 | 17.7 |
| 61-80 | 25.3 | 24.4 | 24.0 | 23.7 | 24.0 | 24.8 | 25.5 | 26.0 | 24.9 | 25.1 | 25.2 | 25.1 | 25.1 |
| >80 | 40.6 | 41.6 | 41.8 | 43.4 | 42.8 | 41.8 | 41.6 | 42.4 | 44.3 | 45.2 | 45.1 | 46.7 | 46.5 |
| Total consumption | | | | | | | | | | | | | |
| ≤ 20 | 10.7 | 10.8 | 10.9 | 10.7 | 10.1 | 10.6 | 11.0 | 10.7 | 11.1 | 11.0 | 11.1 | 10.8 | 10.6 |
| 21-40 | 14.6 | 14.7 | 14.8 | 14.6 | 14.2 | 14.7 | 15.0 | 14.9 | 15.0 | 14.9 | 14.9 | 14.7 | 14.8 |
| 41-60 | 18.0 | 18.0 | 17.8 | 17.6 | 17.6 | 18.0 | 18.2 | 18.3 | 18.3 | 18.2 | 18.3 | 18.1 | 18.2 |
| 61-80 | 22.4 | 22.0 | 21.8 | 21.8 | 22.1 | 22.1 | 22.3 | 22.5 | 22.3 | 22.3 | 22.5 | 22.5 | 22.5 |
| >80 | 34.3 | 34.4 | 34.7 | 35.3 | 35.9 | 34.7 | 33.5 | 33.6 | 33.3 | 33.5 | 33.2 | 33.9 | 33.9 |
| Nondurables consumption | | | | | | | | | | | | | |
| ≤ 20 | 11.6 | 11.7 | 11.9 | 11.6 | 11.2 | 11.5 | 11.8 | 11.2 | 11.1 | 11.0 | 11.1 | 10.8 | 10.6 |
| 21-40 | 15.4 | 15.7 | 15.8 | 15.5 | 15.4 | 15.6 | 15.8 | 15.5 | 15.0 | 14.9 | 14.9 | 14.7 | 14.8 |
| 41-60 | 18.7 | 18.8 | 18.7 | 18.6 | 18.6 | 18.8 | 18.7 | 18.7 | 18.3 | 18.2 | 18.3 | 18.1 | 18.2 |
| 61-80 | 22.7 | 22.4 | 22.1 | 22.3 | 22.7 | 22.5 | 22.4 | 22.6 | 22.3 | 22.3 | 22.5 | 22.5 | 22.5 |
| >80 | 31.7 | 31.3 | 31.5 | 32.0 | 32.2 | 31.7 | 31.3 | 32.0 | 33.3 | 33.5 | 33.2 | 33.9 | 33.9 |

Note: Each column indicates the share of aggregate income or consumption accounted for by persons within different quantile ranges for that variable.

Table 5. Decomposition of Inequality Measures for Income

| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Half the square of the coefficient of variation (x100) | | | | | | | | | | | | | |
| Total | 8.5 | 9.0 | 8.5 | 9.1 | 10.5 | 8.6 | 7.9 | 7.7 | 9.7 | 10.3 | 9.6 | 10.5 | 11.2 |
| Between-group | 1.4 | 1.2 | 0.8 | 1.2 | 1.8 | 0.9 | 0.6 | 0.6 | 1.5 | 1.4 | 1.1 | 1.5 | 1.4 |
| Within-group | 7.1 | 7.8 | 7.7 | 8.0 | 8.7 | 7.8 | 7.3 | 7.0 | 8.2 | 8.9 | 8.5 | 9.0 | 9.8 |
| Mean log deviation (x100) | | | | | | | | | | | | | |
| Total | 7.5 | 7.9 | 7.7 | 7.8 | 8.7 | 7.5 | 7.1 | 6.9 | 7.9 | 8.6 | 8.1 | 8.6 | 9.3 |
| Between-group | 0.8 | 0.6 | 0.4 | 0.6 | 1.0 | 0.5 | 0.3 | 0.3 | 0.8 | 0.7 | 0.6 | 0.8 | 0.8 |
| Within-group | 6.7 | 7.3 | 7.3 | 7.2 | 7.7 | 7.0 | 6.8 | 6.6 | 7.2 | 7.9 | 7.5 | 7.8 | 8.5 |
| Gini coefficients | | | | | | | | | | | | | |
| Workers | 0.186 | 0.192 | 0.191 | 0.189 | 0.208 | 0.211 | 0.208 | 0.211 | 0.222 | 0.234 | 0.228 | 0.240 | 0.248 |
| Farmers | 0.475 | 0.483 | 0.478 | 0.496 | 0.440 | 0.420 | 0.366 | 0.321 | 0.313 | 0.362 | 0.341 | 0.366 | 0.414 |
| Mixed, worker-farmers | 0.272 | 0.279 | 0.276 | 0.285 | 0.271 | 0.253 | 0.229 | 0.220 | 0.223 | 0.234 | 0.244 | 0.252 | 0.267 |
| Pensioners, other | 0.211 | 0.212 | 0.203 | 0.205 | 0.214 | 0.206 | 0.210 | 0.203 | 0.225 | 0.231 | 0.226 | 0.228 | 0.240 |
| Urban | 0.201 | 0.203 | 0.198 | 0.202 | 0.223 | 0.217 | 0.213 | 0.210 | 0.239 | 0.247 | 0.241 | 0.250 | 0.257 |
| Rural | 0.317 | 0.307 | 0.287 | 0.302 | 0.296 | 0.278 | 0.249 | 0.249 | 0.247 | 0.270 | 0.261 | 0.273 | 0.286 |
| Ginis for worker-headed households | | | | | | | | | | | | | |
| Labor income | 0.237 | 0.243 | 0.240 | 0.252 | 0.262 | 0.268 | 0.278 | 0.289 | 0.285 | 0.292 | 0.288 | 0.295 | 0.298 |
| Income excl. transfers | 0.230 | 0.232 | 0.230 | 0.243 | 0.255 | 0.257 | 0.264 | 0.270 | 0.271 | 0.280 | 0.274 | 0.287 | 0.291 |

Notes: Socio-economic groups are defined on the basis of the household's primary source of income.

Table 6. Poverty Rates

| Year | Income | | Income excluding transfers; lump-sum redistribution of transfers | | Nondurables consumption | |
|------|-------------------|-------------------|---|-------------------|----------------------------|-------------------|
| | $\leq 1/2$ median | $\leq 2/3$ median | $\leq 1/2$ median | $\leq 2/3$ median | $\leq 1/2$ median | $\leq 2/3$ median |
| 1985 | 0.03 | 0.10 | 0.10 | 0.17 | 0.01 | 0.05 |
| 1986 | 0.03 | 0.10 | 0.09 | 0.16 | 0.01 | 0.06 |
| 1987 | 0.04 | 0.11 | 0.10 | 0.17 | 0.01 | 0.08 |
| 1988 | 0.03 | 0.08 | 0.09 | 0.15 | 0.01 | 0.07 |
| 1989 | 0.02 | 0.07 | 0.08 | 0.14 | 0.01 | 0.07 |
| 1990 | 0.06 | 0.20 | 0.13 | 0.25 | 0.04 | 0.17 |
| 1991 | 0.05 | 0.17 | 0.13 | 0.24 | 0.04 | 0.16 |
| 1992 | 0.06 | 0.20 | 0.16 | 0.27 | 0.04 | 0.18 |
| 1993 | 0.08 | 0.23 | 0.16 | 0.29 | 0.04 | 0.17 |
| 1994 | 0.10 | 0.26 | 0.18 | 0.31 | 0.06 | 0.23 |
| 1995 | 0.09 | 0.24 | 0.17 | 0.30 | 0.06 | 0.22 |
| 1996 | 0.08 | 0.21 | 0.17 | 0.28 | 0.05 | 0.20 |
| 1997 | 0.07 | 0.18 | 0.15 | 0.25 | 0.05 | 0.19 |

Notes: Household income and consumption are adjusted by food-share based equivalence scales and deflated by the aggregate CPI. Each individual in a given household is then assigned the same level of income or consumption. The poverty lines based on median real income and real consumption are computed using data across all years. Each column indicates the fraction of the sample population below 1/2 or 2/3 of median real income or consumption, respectively. Median annual real income and real nondurables consumption at 1992:Q4 prices are, respectively, 3,374 and 2,829 in new zloty (10,000 old zloty = 1 new zloty). Using the OECD PPP exchange rate for 1992 (0.677 new zloty = US\$1), this yields income poverty lines expressed in U.S. dollars of 2,492 (1/2 median) and 3,323 (2/3 median) per equivalent unit. The corresponding poverty lines based on consumption are 2,089 and 2,786. Poverty lines for different families can be constructed using the equivalence scales in the last column of Table B1. The poverty lines are the same for the first and second panels.

Table 7. Social Transfers

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| General Government Expenditures | | | | | | | | | | |
| (in percent of GDP) | | | | | | | | | | |
| Cash transfers to individuals | 9.4 | 11.2 | 10.6 | 17.3 | 19.9 | 20.4 | 20.2 | 19.7 | 18.7 | 19.4 |
| Pensions | 7.1 | 8.2 | 8.1 | 12.2 | 14.8 | 15.0 | 14.9 | 14.5 | 14.3 | 14.4 |
| Unemployment benefits | 0.0 | 0.0 | 0.2 | 1.2 | 1.7 | 1.2 | 1.2 | 1.2 | 1.1 | 1.0 |
| Other benefits | 2.3 | 3.0 | 2.3 | 3.9 | 3.4 | 4.2 | 4.1 | 4.0 | 3.3 | 4.0 |
| Mean Cash Transfers (HBS data) | | | | | | | | | | |
| Total transfers | 41154 | 41792 | 36254 | 44948 | 44694 | 43486 | 44171 | 44860 | 46786 | 48197 |
| (avg. ratio to total income) | (23.4) | (21.8) | (26.3) | (32.2) | (33.6) | (31.6) | (32.8) | (32.7) | (32.4) | (31.3) |
| Pensions | 29857 | 30497 | 27307 | 33520 | 33346 | 33172 | 34672 | 36240 | 38008 | 40715 |
| (avg. ratio to total income) | (17.0) | (15.9) | (19.8) | (24.0) | (25.1) | (24.1) | (25.8) | (26.4) | (26.3) | (26.4) |
| Other cash benefits (incl. UI) | 11280 | 11279 | 8927 | 11404 | 11323 | 10315 | 9498 | 8620 | 8777 | 7482 |
| (avg. ratio to total income) | (6.4) | (5.9) | (6.5) | (8.2) | (8.5) | (7.5) | (7.1) | (6.3) | (6.1) | (4.9) |
| General Government Balance | | | | | | | | | | |
| (in percent of GDP) | | | | | | | | | | |
| | 0.0 | -7.4 | 3.1 | -6.5 | -6.7 | -2.9 | -3.0 | -3.1 | -3.4 | -3.1 |
| Real GDP (annual % change) | | | | | | | | | | |
| | 4.0 | 0.3 | -11.6 | -7.0 | 2.6 | 3.8 | 5.2 | 7.0 | 6.1 | 6.9 |

Notes: The data on real GDP and government expenditures are taken from various IMF sources. The figures in the middle panel (mean transfers in HBS data) are expressed in terms of 1992Q4 prices.

Table A1. Percentile Differentials for (Log) Income

| Percentile Differential: | 90-10 | 90-50 | 50-10 | 75-25 | 75-50 | 50-25 |
|--------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Total Income | | | | | | |
| 1986 | 1.01 (0.01) | 0.50 (0.01) | 0.51 (0.01) | 0.51 (0.01) | 0.25 (0.01) | 0.26 (0.01) |
| 1991 | 1.02 (0.01) | 0.52 (0.01) | 0.50 (0.01) | 0.52 (0.01) | 0.27 (0.01) | 0.25 (0.01) |
| 1994 | 1.07 (0.01) | 0.55 (0.01) | 0.52 (0.01) | 0.53 (0.01) | 0.27 (0.01) | 0.26 (0.01) |
| 1996 | 1.09 (0.01) | 0.56 (0.01) | 0.53 (0.01) | 0.54 (0.01) | 0.28 (0.01) | 0.27 (0.01) |
| Income Net of Transfers | | | | | | |
| 1986 | 1.75 (0.02) | 0.61 (0.01) | 1.14 (0.01) | 0.75 (0.01) | 0.32 (0.01) | 0.42 (0.01) |
| 1991 | 2.17 (0.02) | 0.70 (0.01) | 1.48 (0.02) | 0.90 (0.01) | 0.39 (0.01) | 0.52 (0.01) |
| 1994 | 3.10 (0.03) | 0.76 (0.01) | 2.34 (0.03) | 1.01 (0.01) | 0.41 (0.01) | 0.60 (0.01) |
| 1996 | 3.19 (0.03) | 0.77 (0.01) | 2.42 (0.03) | 1.04 (0.01) | 0.42 (0.01) | 0.62 (0.01) |

Notes: The reported differentials for the logarithms of real income are three-year averages centered on the years shown above. Standard errors are in parentheses.

Figure 1. Percentile Differentials for (Log) Income

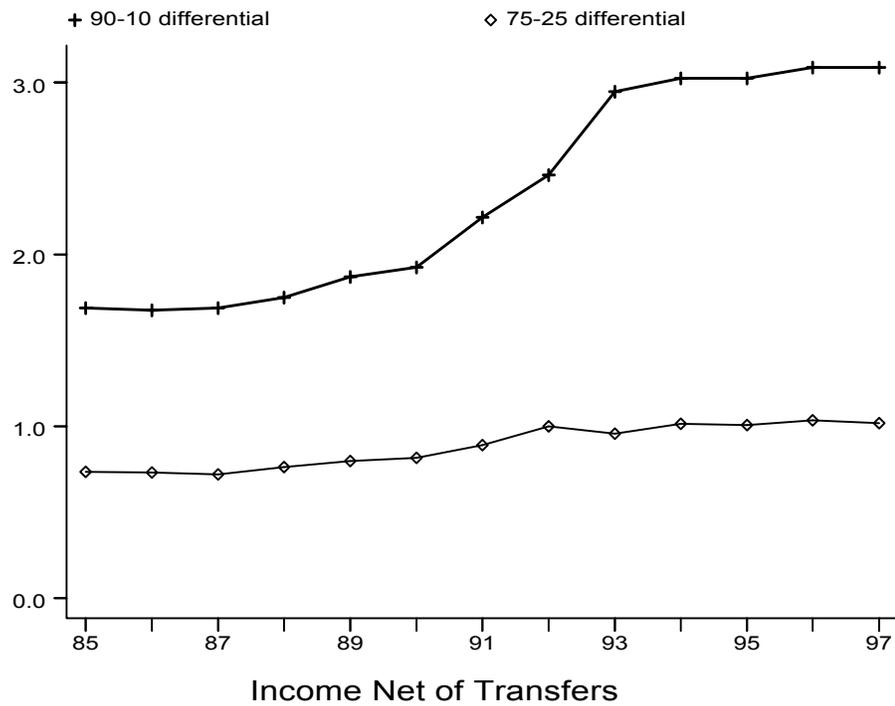
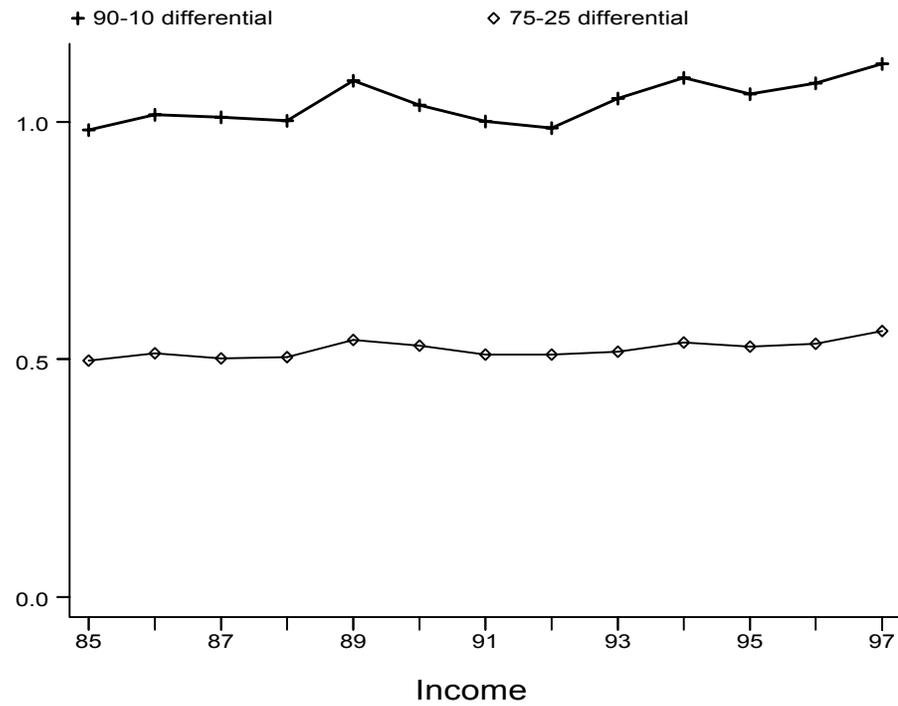
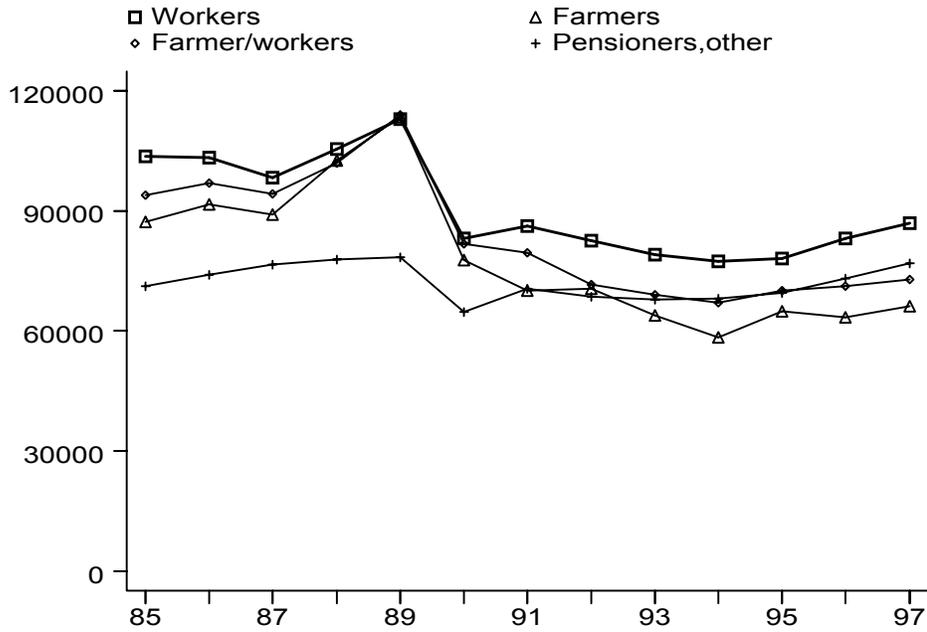
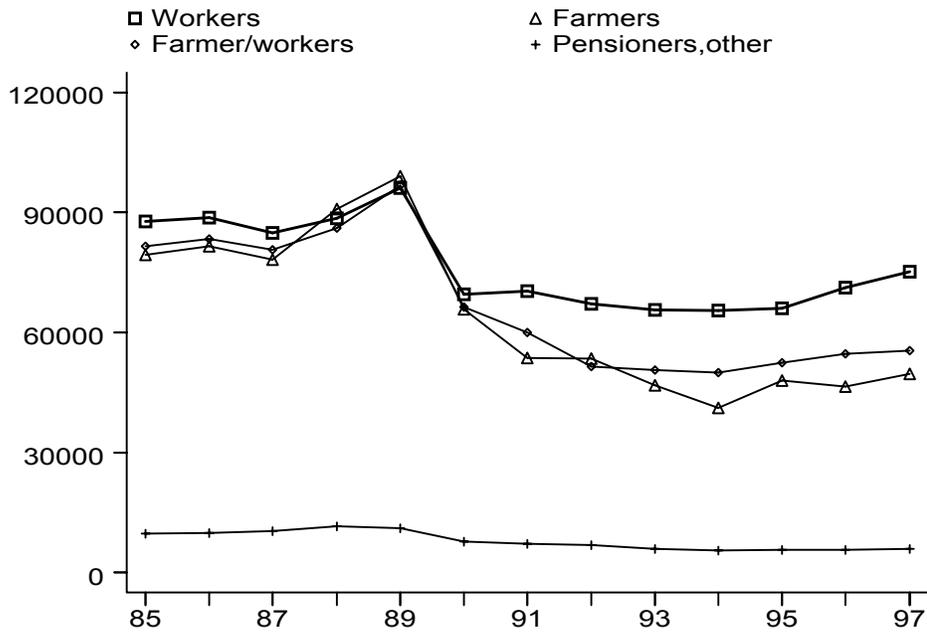


Figure 2. Median Income by Socioeconomic Group



Median income (total) per equivalence scale unit



Median income (net of transfers) per equivalence scale unit

Figure 3. Transfers, Income Net of Transfers: Nonparametric Estimates

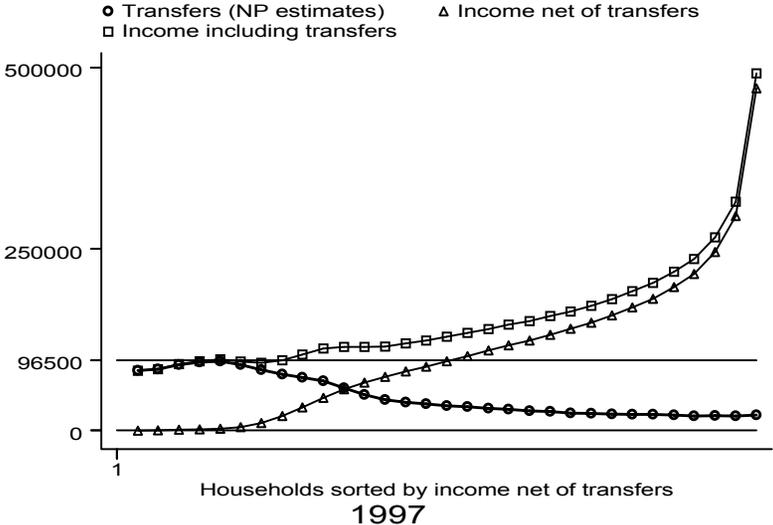
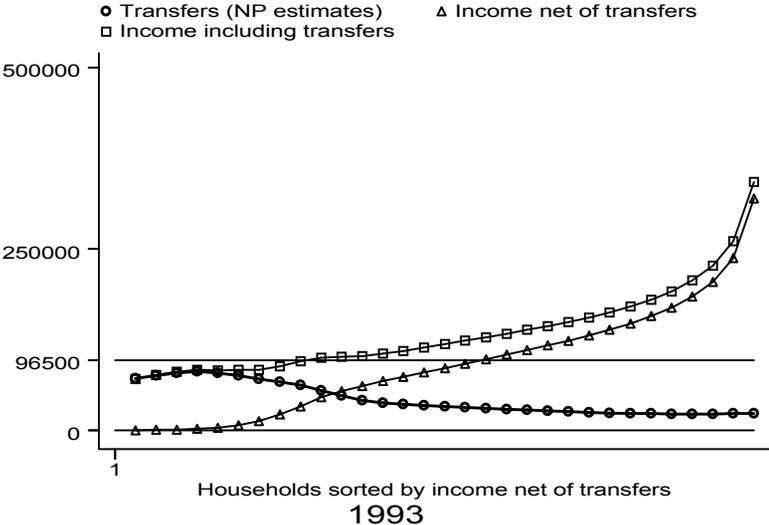
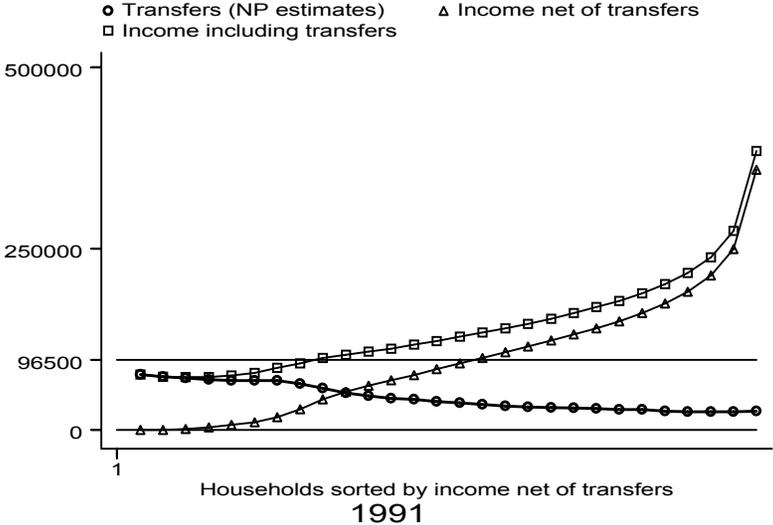
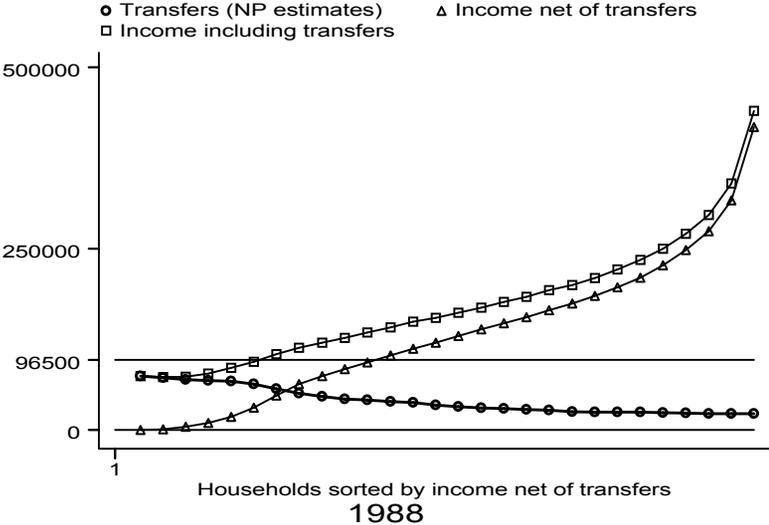


Figure 4. The Relationship of Transfers to Inequality and Growth

