

Luxembourg Income Study Working Paper Series

Working Paper No. 132

**Rowing Between Scylla and Charybdis:
Income Transitions in Central European Households**

Barbara Torrey, Timothy Smeeding and Debra Bailey

October 1995

(scanned copy)



Beyond Scylla and Charybdis? Income Transitions in Central European Households

Barbara Boyle Torrey
National Research Council
Washington, D.C.

Timothy M. Smeeding
Center for Policy Research
The Maxwell School
Syracuse University
and
Luxembourg Income Study

Debra Bailey
Center for Policy Research
The Maxwell School
Syracuse University

February 1996

*The authors would like to thank the U.S. Agency for International Development for their support of the Luxembourg Income Study and our research teams, also the U.S. National Institute on Aging for their research support. We would like to thank, without implicating, our Central European teams led by Jiri Vecernik (Czech Republic), Endre Sik (Hungary), Brunon Gorecki (Poland), and Rastislav Bednarik (Slovakia). Without their help this paper would not be possible. Finally, we thank the participants of the National Academy of Science Conference on Economic Transformation Households and Health, especially Emmanuel Jiminez, and also Michael Förster for the insightful comments we received. The authors accept responsibility for all errors of omission and commission.

I. Introduction

Between 1989 and 1993, Central European countries experienced more rapid economic declines than at any time since World War II. Real GDP and total employment declined between 11 and 20 percent in the Czech and Slovak Republics, Hungary, and Poland and real wages in all but Hungary fell by 20 percent in 1990-91 alone. Poland experienced hyperinflation, and consumer prices in the Czech and Slovak Republics and Hungary doubled from 1989 and 1993 (Table 1). In 1992, real GDP per capita in these countries had fallen to between 20 percent and 30 percent of comparable United States levels.¹

The unprecedented increases in inflation and declines in GDP and employment between 1989 and 1993 were accompanied by further uncertainties in the legal and social transitions. And some of the fundamental social securities of the state socialist governments threatened to disappear with the collapse of these governments. These transformations meant that Central European households had to navigate between the Scylla of major decline in their national economies, and the Charybdis of the accompanying legal and social transitions. This paper uses national household income surveys and other consumption data to address how these economic, legal, and social changes affected the economic status of households and individuals in Central Europe.

The households examined in detail are in the Czech Republic, Hungary, and Poland.² The measure of economic status used is household and individual income supplemented by household consumption data. National household surveys from each country have been standardized to facilitate over time and cross country comparisons. This paper briefly describes the household surveys employed and then addresses the following questions:

- What were the levels of relative poverty in these Central European countries before the collapse of the communist economies and how did those rates change after the collapse?

- During the first five years of the economic transitions, how did income distribution and income inequality of the populations change?
- How did the economic status of the most vulnerable populations change? and,
- How did the economic changes affect household consumption?

The answers to these questions are not conclusive, in part because the economic transitions are still in progress and survey data limitations preclude final answers. Moreover, other measures of welfare (i.e., subjective views of satisfaction, analysis of time use and health status) would provide a richer picture of the effects of transition but are beyond the scope of this paper. But the data are suggestive, and the continuing transitions in these countries will provide the opportunity to reevaluate the findings in this paper.

II. The Data

The main findings of this paper are based on national household survey data collected in Central European nations from 1987 to 1992 and on individual country analyses of the data by Vecernik et al., Sik et al., Gorecki et al., and Bednarik et al.³ This section reviews the characteristics of the data sources and their biases, it also describes the Luxembourg Income Study (LIS) database, which has standardized these datasets and made them comparable with other OECD nations.

A. Central European Household Surveys

The Central European countries of the Czech Republic, Hungary, and Poland have histories of national household surveys dating back to the 1950's.⁴ Current household surveys in these countries share many of the characteristics of surveys in Western countries. They use national sampling frames and standardized questionnaires; they also ask detailed questions about household structure and income. The broad goals of each survey are to measure some form of well-being, but

the specific purposes and designs of each survey differ. Table 2 summarizes some of the details about the specific surveys used in this study.

The Czech survey is designed to provide information on social stratification, social mobility and the level of living. Comprehensive data on income differentiation are also collected. The Hungarian Household Panel is designed to provide statistics on level of living, but it also measures the role of in-kind benefits. The Hungarian income survey is much larger and targets income received. The Polish survey collects quarterly data on expenditures and therefore is not entirely comparable to the other two surveys. But it also collects data quarterly and annually on income sources and levels. In addition, the Polish survey collects data on the ownership of durables and housing conditions.

Each of these surveys is sponsored in whole or in part by the central statistical office of the country. The sample designs employed by the four countries are all drawn from census tracts. However, the designs differ in terms of complexity. The most complex design is the two-stage, two-phase rotation sampling design used by Poland. The complete design assumes a four year rotation period and provides panel data from two-thirds of the sample.

For the Czech Republic a random sample of the population is drawn then stratified by region and locality. The address list of households is supplemented from data on new urban areas and newly built apartments. The Hungarian sample is proportionally stratified with households randomly drawn from census tracts of settlements by address. The sample is drawn from the general purpose household sample from of the Hungarian Central Statistical Office. The Hungarians weight their data, but the Czech and Polish surveys assume that the data resulting from the sampling design are self-weighted.

All three surveys collect data through the use of personal interviews. In addition most of the Polish data are collected using a budget notebook or diary which is maintained by a member of the household, usually the female homemaker.

B. Sampling Biases

The sample population of each survey is the national non-institutionalized population. But each survey has groups that are either underrepresented or excluded, which may bias the results. The Polish survey before 1992 excluded households headed by the nonfarm self-employed. While this was not an important exclusion in the past, the exclusion means that the survey is became less useful in understanding how the small but growing population of self-employed entrepreneurs have developed. The Czech sample excludes households headed by persons employed in the police and military service. The Hungarian samples are designed to include all persons living in private households; however, generally those which include household members in the military are excluded. Because the police and military are not a large proportion of the population in either country, their exclusion is not likely to bias estimates presented here.

C. Response Bias and the Informal Economy

Another source of bias is likely to be the non-response rate to the survey. In 1987 Hungarian non-response in the Household Income Survey was 3 percent, but in the 1992 Household Panel it had grown to ____ percent. In 1992 the non-response was only 7 percent in Slovakia and 16 percent in the Czech survey, while it was 31 percent in Poland. While these are not excessive compared with surveys in democratic countries, they are adding an undetermined bias in the results.

The most important source of bias, however, is likely to be the incomplete capturing of the income generated in the informal economies that are now increasing in size and importance in all three countries. Every Central European economy under communism had what was then called a “second” economy that went uncontrolled by the state and thus was not included in Material Product

accounts. In Hungary, the size of this second economy was estimated to be about 10 percent of national income in the 1980's, not much different from that found in Italy. While every income decile had some unreported income, it went disproportionately toward the upper income classes.⁵

Since the transition, the new "informal" sector consists of both legal and illegal market transactions, which are not reported and recorded in national accounts. The size of these activities as a percentage of GDP in Hungary is now estimated to be from 12 percent to 30 percent of the formal economy and have a different distribution than the previous second economy.⁶ Recent estimates from the Hungarian Central Statistical Office indicates that the proportion of this informal economy that goes to the top decile has increased since the 1980s.⁷ In fact, informal income has become more concentrated in both the highest and lowest deciles since 1992.⁸

In order to determine the effects of the informal economy on the income distribution we simulated its estimated distribution on the Hungarian Household Panel. We made the assumption that the informal economy is 15 percent and 25 percent of reported disposable income (DPI) which was the range suggested by Sik.⁹ Persons were ranked by deciles of equivalent disposable income as reported officially in the household survey. Hungarian research suggests that persons in the lowest reported personal DPI quintile in Hungary receive about 20 percent of the unreported informal economy, the highest quintile receives about 50 percent of the informal income, and the rest (30 percent) is distributed among the middle three quintiles. Each of the incomes of those in the bottom two deciles was increased proportionately by .20 of the informal economy. For the 15 percent case, this is an increase of 3 percent of current DPI. The top two deciles received .50 of the informal economy or 7.5 percent of current DPI on the same basis. The remaining 30 percent of the informal economy, 4.5 percent of the current DPI, was proportionately added to the incomes of the middle 60 percent of the population.

This exercise was repeated for the case where the informal economy was 25 percent of total DPI, using the same distribution, but higher values (i.e., 5 percent of current DPI went to the bottom two deciles, 12.5 percent to the top two deciles, and 7.5 percent to the middle eight deciles). Persons were then re-ranked and the Gini and Atkinson recomputed. We also calculated the percentile points of the distribution (incomes at the 10th and 90th percentiles as a percent of the median income) and the decile ratio (ratio of the 90th percentile income to the 10th percentile income).

The results were a bit surprising (Table 3). The Gini falls by only 3 percent (.008) from the reported official income distribution. While the Atkinsons increased by 13 percent ($e=1$) to 27 percent ($e=2$) when comparing actual incomes to those with a 25 percent unreported economy, the decile ratio changes by only 9 percent. Clearly the bottom of the distribution did better: the P_{10} ratio rose 33 percent. But so did the top, where the P_{90} increased 22 percent. Thus, both the bottom and the top of the distribution improved their position compared to the middle income groups, and the Gini changed hardly at all.

Additional details and alternative assumptions are needed to further amplify these results, and to test their effect on poverty and other distributional measures, such as “middle class” status. However, these rough estimates suggest that the Gini coefficient and other overall measures of distribution such as the decile ratio may not be much affected by the exclusion of the informal economy. The exclusion of the informal economy, however, may tend to overestimate the poverty of people in the lowest quintile. Detailed estimates of unreported income by income decile do not exist for the other Central European countries. But it will be important to test whether these results are similar in other countries when data becomes available.

D. Luxembourg Income Study

The Luxembourg Income Study (LIS) has documented and standardized more than 70 nationally representative household surveys in 25 nations so that comparisons among countries can

be made. Standardization includes forty-two income variables and thirty demographic definitions; disposable personal income (DPI) is the main income concept used for comparison of the status of individuals and of households among countries.

Households are characterized not only by the age and gender of the household head, but also by size. Household income is adjusted for the size of the household using an equivalence scale, which is similar to the one used by the OECD in its recent reports on income distribution and poverty. The equivalence scale used for the adjustment is 1.0 for the first adult, .66 for additional adults, and .33 for each child. Adjusted, or equivalent, income (EI) is defined as personal disposable income (DPI) divided by family size (S), raised to an exponent (E) to capture economies of scale

$$(EI = DPI/S^E),$$

An *E*-value of .6 approximates the equivalence scale used in this paper. This value is similar to recent OECD studies which have used *E*-values of .55, and .50.¹⁰ We also use unadjusted household incomes as a comparison point. The effect of using this scale instead of the more common Central European tradition of per capita income adjustment has a significant effect on countries that have families with many children. The effects will be discussed in more detail in the section below on estimates of the poverty of vulnerable populations.

The major limitation of the harmonized surveys in the LIS is that although they permit comparisons of individual and household well-being based on cash income; these harmonized surveys do not include other measures of well-being such as consumption, in-kind benefits, or health status. This means that the comparisons are always limited; while it is important to understand the income levels and trends, it is also important to realize that they provide only a partial portrait of individual and household well-being. This is especially true in economies where income was relatively less important in the distribution of goods and services.

Despite the limitations of the surveys and of income measures, they can be helpful in providing clues about how the people and households of Central Europe are managing their transitions to market economies. Given the issues with the data, major conclusions should not be drawn on small changes in income. But the trends that are discussed in this paper should be the basis for further research on the patterns and rhythms of the household transitions in Central Europe.

III. Trends in Relative Poverty Rates

The recent transitions of the Central European economies had been preceded in the 1980s by stagnant economies and a slow but steady increase in the percentage of people below the official “minimum income” lines. The official minimum income definitions or “poverty” lines varied as a percent of average income from 42 percent in Czechoslovakia to almost 60 percent in Hungary at the beginning of the 1980s (Table 4). During the 1980's the “minimum” income gradually eroded as a percentage of average income in Hungary and Poland. However by 1992, after the transition and following the real income decline of 1990 and 1991, the “official minimum” rose considerably in Poland (to 65 percent of average income) and the Czech Republic (to 56 percent). The Hungarian Central Statistical Office revised its calculation of subsistence minimums in 1991 using more recent consumption data and a new food basket raising the “minimum” for two person active households to more than 72 percent of average income in 1992.¹¹

In Hungary and Poland where the “minimum” income significantly fell relative to the average income in the 1980s, the percentage of the population below the “minimum” income during that period, nonetheless, increased (Table 4). By 1987-88, Poland had twice the percentage of people below the minimum income as did Hungary, which had almost twice the percentage as did Czechoslovakia. Poland was the poorest of the three countries, both relatively and absolutely, even though it defined its minimum income as a lower percentage of average income than did the others

in 1987. By 1992, although the minimum threshold had risen in all countries relative to average wages, the percentage of the population below the “minimum” continued to rise to more than 30 percent in Poland, and 16 percent in Hungary. The absolute level of poverty in the Czech Republic continued to fall to only 5 percent, far below that of most western nations.

The definition of these countries’ minimum income levels clearly differed between countries and over time, even within countries. Any comparison of levels and trends among the countries is therefore frustrated by a lack of a consistent definition of minimum income. In order to make more accurate comparisons over time and across nations, this paper uses a consistent definition to measure both trends within countries and relative levels of poverty among them. The definition we begin with is the OECD definition of poverty: persons in households with incomes less than 50 percent of adjusted median income. The same equivalence scale described above is used to adjust incomes for differences in size. We also report unadjusted household income figures.

In the three Central European countries studied only a small percentage of persons fell below the 50 percent of median poverty level before 1989. While the percentage of poor persons increased from the mid-1980s to the early 1990s in all three countries, the percentage was still quite small by international standards in 1992 (Table 5, col. 1) and very close to similar relative income poverty rates in the European Community.¹²

Many more people have between 50 percent and 75 percent of equivalent median income than have less than 50 percent (Table 5, col. 2). While the fraction of households with incomes less than half the median is a sensible relative and absolute poverty measure for rich OECD nations, it is possibly too low on an absolute level to maintain subsistence in these transition economies. Thus, 75 percent of the median may be a more appropriate poverty measure for transition nations.

Of course, the percentage of people who were below 75 percent of adjusted median income was higher than below 50 percent, but the change in the percentage of people in all three countries

below the 75 percent level was very small between the 1980s and the 1990s. There was a modest increase in Hungary. There was no change in the Czech Republic; and only a slight increase in Poland from 1987 to 1992 (Table 5, col. 3). The stability of these relative measures was unexpected given the substantial declines noted in the macro economy.

While the percentage of people who received 50 percent or less of the median equivalent income increased in each country, the percentage of households, instead of individuals, with household income at or below 50 percent of median income (unadjusted for family size) decreased in the Czech Republic, and Poland after the transitions and remained constant in Hungary (Table 5, col. 1). The percentage of households living below 75 percent of unadjusted median income remained constant in Hungary, fell in the Czech Republic and in Poland. Across all three nations, the rate of relative poverty was consistently higher at the household level than at the individual level because the poor households are disproportionately small and therefore, have fewer people to earn income. The household units, however, appear to have had smaller changes in their relative poverty rates than individual poverty rates. In summary, during the first five years of economic transitions in the three countries, relative poverty increased modestly for individuals below half of adjusted median income, and below 75 percent. On an unadjusted basis, poverty rates decreased or remained stable for households over this period.

IV. Trends in Income Inequality

Before the economic transitions in Central Europe, income inequality was generally lower than in western countries.¹³ But like the western countries, measured income inequality among individuals (based on equivalent income) was consistently lower than was inequality based on unadjusted household income. This reaction explores the level and trend in inequality in the transition nations compared to western nations over similar time periods.

A. Level and Trend in Inequality in the Transition Nations

Income inequality for individuals in Czechoslovakia was the smallest of the three countries prior to 1989; Hungary and Poland had similar levels of inequality in the late 1980s (Table 6). Income inequality for persons increased during the economic transitions by 10 percent in the Czech Republic (1988 to 1992) and by 11 percent in Poland (1987 to 1992) as measured by the Gini coefficient. These are substantial changes by international standards but the levels of inequality were still modest and the changes were similar to those found in Sweden, the United Kingdom, and the United States over this same period.¹⁴ The Gini coefficient increased 26 percent in Hungary between 1989 and 1992, a larger change than that experienced elsewhere, but the magnitude of the increase may be, in part, the result of comparing two different datasets, even though both are nationally representative surveys.

Income inequality for households as measured by the Gini coefficient increased by 11 percent in the Czech Republic, 16 percent in Hungary and remained stable in Poland between 1987 and 1992. In Poland the household Gini coefficient jumped in 1990, the year when the real GDP declined 12 percent, but two years later had returned nearly to the pre-transition level.

The Atkinson measure allows societal preferences of income distribution to be considered. In this measure, the parameter (e) represents the weight attached by society to inequality in the income distribution. This (e) parameter ranges from zero, or indifference, to infinity, where society is concerned only with the position of the lowest income group.¹⁵ The value of the Atkinson measure can be interpreted as the proportion of total income that would be required to achieve the current level of social welfare if all incomes were equally distributed. The lower the Atkinson value, the less weight is given to the lowest income groups. We have selected Atkinson measures with $e=1.0$ and 2.0 , the latter giving greater weight to changes in the income distribution among those with the lowest incomes. Because the Atkinson measure is more responsive to changes in the lower

tail of the distribution than is the Gini, disproportionate increases in this measure would mean that the poor have suffered the largest changes in inequality. But changes in the Atkinson measure for the Czech Republic and for Poland mirrors the changes noted above in the Gini coefficient, thus assuring us that changes in the income of lower income groups are similar to those observed in the rest of the population.

The increase in income inequality during the transition was accompanied by a decrease in the percentage of people in the middle income classes (75-150 percent of median equivalent income) (Table 5, col. 7). The decrease was largest in the Czech Republic from 1988 to 1992 followed by Hungary. The change in the percentage of persons in this middle income in Poland was lowest of all. Interestingly, the large decline in the middle income group in the Czech Republic was entirely offset by increases in upper income groups (Table 5, cols. 8 and 9). In Hungary and in Poland, there was increased polarization in the distribution. That is, in Hungary, both higher and lower groups shared in the 7 percent decline of persons in the middle class. In Poland both the top and the bottom shared in the small (3 percent) decline in the middle between 1987 and 1992.

While persons moved up and down the distribution, the total household, in contrast to individual, income distribution did not move very much. The change in the fraction of households in the 75 percent to 150 percent range was negligible in the Czech Republic and Poland and very small in Hungary.

B. Comparable Levels of Inequality: OECD and Transition Countries

Estimates for the most recent year available in LIS suggest that the level of adjusted income inequality for persons in the Czech and Slovak Republics is most similar to that found in the Scandinavian economies while Hungary and Poland are similar to France, Canada, Australia, and the United Kingdom (Table 7).¹⁶ Interestingly, Russia had the most unequal income distribution in 1992 of all countries for which we have LIS data in the 1980s and 1990s. When we impose a top

code of ten times the median adjusted income in each country, the Russian Gini changes by a large fraction while estimates in other countries change little, if at all.

C. Summary

It appears that there is a wider range of disposable income inequality in the five transition countries, including Russia, than in the major and much richer OECD nations based on these preliminary results. But it also appears that the trend toward greater inequality in these nations is, so far, no greater than in the West. One final comparison can be drawn between East and West on the topic of polarization. There is independent evidence in both the United States and the United Kingdom suggesting that polarization has increased in these nations during the 1980s.¹⁷ Similar evidence was found here for Hungary and to a lesser extent in Poland. To the best of our knowledge, no other Western nations have experienced similar changes in incomes during the 1980s and early 1990s.

V. The Vulnerable Populations

A. The Old versus the Young

Vulnerable populations during severe economic changes tend to be those who have fewer labor market skills or mobility such as children, the old, women, and those in single parent families. Before the economic transitions, pensioners were relatively poorer than other groups in the three countries studied. While children in all three countries lived in households that had approximately the median income of the country, the elderly had only about 72 to 77 percent of the median (Table 8). When the income status of these two groups (as measured by the ratio between median income of the groups, regardless of living arrangements, and total median income) is compared during the early years of the transition the economic status of children improved in Hungary, and stayed about the same in Poland and the Czech Republic. Additionally, the income status of the

elderly improved relative to the median in both Poland and the Czech Republic where pensions were explicitly adjusted to protect them from the hyperinflation in the first years after the transition. This resulted in the improvement of the incomes of the pensioners relative to other groups, including children who generally lived in households where real incomes fell with the real wages of household adults (Table 8).

The measurement of the vulnerable populations is particularly sensitive to the equivalence scales used to adjust for family size. The former communist countries used a per capita equivalence scale which ignores the economies of scale of the household as an economic unit. The per capita equivalence scale tended to over adjust for children in the family and to make households with children appear poorer than they might have been if they had used an equivalence scale such as one used here. While the Central European countries that continue to use per capita income scales estimate large rates of poverty, especially among children, those using equivalence scales, such as the ones used here, estimate lower poverty rates, in particular lower rates of poverty among children.¹⁸

The one vulnerable household type is one parent families living on their own. These households are relatively poorer than almost every household type, except perhaps single women living alone in Western nations.¹⁹ But, unlike Western countries, these households only make up only 3 to 4 percent of all households in the countries examined. Very few single parent families live in separate households in Central Europe. They are much more likely to be found in extended families that are counted as "Other households with children," particularly in rural areas. These "other" households make up 13 percent of all households in the Czech Republic and Poland, and 20 percent in Hungary. These "other" households with children had incomes that were quite close to the median income before and after the transitions for both the Czech Republic and Hungary. In Poland, these households had 92 percent of the median income in 1992.

The income status of “other” household types relative to the national median income changed very little in the Czech Republic (Table 8). In Hungary relative income of households without children declined; in Poland they improved. No obvious pattern of vulnerability among different household types is obvious across the countries. It suggests that the more disaggregated the data become, the more unique the household transitions look in each country.

Children may have suffered in other terms however. Cornia argues that negative trends in child welfare are apparent in preschool and secondary education, morbidity, low birth weight, juvenile crime rates, and teenage pregnancy in Central European countries.²⁰ Of course, negative trends in many of these areas can also be found in Western nations during the 1980s and 1990s. And, the decline in health status and mortality among the transition country populations was already underway when the transitions began. However, we agree that one can argue that these are more important indicators of children’s well-being than is income alone.

B. Urban versus Rural Populations

It is now clear that the urban populations have held a relative income advantage during the Central European economic transitions. The household surveys used in this paper suggest that in most cases the income status of the median young person and median elder person was better in the capital city and region than outside the capital region in all three countries in the most recent survey data. The variance in adjusted median income between the capital and the most rural regions was least in the Czech Republic (no difference for children and 11 percent higher median income in the capital for the elderly); and was the largest between Budapest and Eastern Hungary (36 percent larger in Budapest for children and 26 percent larger for the elderly). Similar findings for Hungary are reported by Toth and Förster.²¹ The regional differences in Poland were less severe than in Hungary (26 percent higher for children and 17 percent higher for the elderly in Warsaw compared to the South Eastern Region). Recent unemployment rates are consistently lower in the capital city

than the country average as well (7 percent in Warsaw versus 15.5 in Poland as a whole; 0.2 in Prague versus 3.5 in Czech Republic; 2.6 versus 8.5 in Hungary).²²

C. Women versus Men

Because women earn lower wages than men in both Western and Central Europe, they are also considered more vulnerable to economic transitions than male workers. The registered unemployment rates are higher for women in the Czech Republic and Poland than men's but they are lower in Hungary.²³ The labor force participation rates of both men and women have fallen in all three countries, and in all three it has fallen more for women than for men.

Female headed households also do more poorly than their male headed counterparts. Female headed single parent households and one person households both consistently have lower median incomes. The most striking differences are in Poland where nearly 40 percent of single mothers have less than 75 percent of the median income while single fathers have rates half as high. Elderly women in one person households are perhaps the most vulnerable group having only about two-thirds the income of their male peers. But single elderly women households are only about 4 percent of the households in the three countries examined here.

D. Human Capital

One of the outcomes of the economic transition to a market economy is the decline of demographic factors (age and household size) as explanatory variables in income distribution and the increasing importance of human capital and occupation.²⁴ Under the communist economies, household income had been strongly correlated with age and household size (due to wages structure based on seniority and very high labor force participation rates of women) and only weakly related to education. But with the break down of the command economy, a much higher premium has been placed on education and occupation in the Czech Republic. In Poland, education has a strongly positive effect on the level of private sector income.²⁵

Low educational attainment is also correlated with persistent poverty in Hungary. Hungarian households in which the head has less than a primary education constitute between 20-37 percent of the poor but only 17 percent of the total population.²⁶

VI. Household Consumption and Expenditure Trends

A. Durables Ownership

With substantial decreases in wages and employment since 1989, real decreases in consumption were also expected. Since the beginning of the transition, however, consumer consumption of durable goods has increased in every country and some of these changes have been substantial (Table 9). In Poland, the percentage of households that own cars have increased by more than one-third. While many of the cars are second hand, they still represent a substantial purchase. The number of Polish worker households with video cassette recorders has increased substantially from almost nothing in 1989 to more than 50 percent of the households headed by nonfarm workers in 1992. Similar increases can be noted among Polish mixed (farmer-worker) households, and to a lesser extent, among farmer households.

Central European consumers were also increasing their purchases of other luxury durables during the transition, with a marked increase in color televisions and a corresponding decrease in the consumption of black and white televisions. Similar patterns of increased ownership of automobiles and televisions were observed in Slovakia with most of the changes there occurring between 1991 and 1994. Smaller changes in ownership of most consumer durables were observed in the Czech Republic and Hungary between 1989 and 1991.

These increases of nonessential durables tend to support the hypothesis that households have mitigated some of the increases in individual poverty, inequality, and hardships. It also suggests that households may be responding to high inflation rates by consuming durables and financing pent-up

demand from previous savings. Whether these patterns represent one-time purchases of previously unavailable goods (such as color TVs, cars, and VCRs) or continuing patterns of sustainable increased consumption must await additional data.

One strategy for coping with hardship during the transition is the liquidation of nonessential assets.²⁷ Thus, it is particularly interesting to note that in Hungary the number of consumer durables in households without members in the labor force—particularly including pensioners—increased over this period. Polish and Slovak pensioners, with their real increases in pensions, also increased substantially their consumption of cars, washing machines, and freezers. Czech consumption data, when disaggregated by income, shows that while the lowest income population clearly consumes less than the average in the country, especially families with children, pensioner households tended to increase their consumption of some non-necessities such as leisure goods.²⁸

Thus, many of the most vulnerable populations have been able to find the means to take advantage of the increases in the availability of consumer goods since the transition. This consumption data suggests that while real measured incomes may be declining for many people in Central Europe, other adjustments may be happening at the household level that permit a real increase in consumption of nonessential durables.

B. Housing

We also expected that the transition might lead to reduced consumption of housing. Rising housing prices and falling incomes could have forced families to move in with one another, producing rapid growth in “other” household types. But household crowding has not yet emerged in the nations which we have studied. Living together continues due to both tradition (rural areas) and necessity (single mothers, older women), but it is not rapidly increasing. Due to slow deregulation of utility prices and abandonment of rights to flats by previous “state” owners, housing costs remain reasonable in these nations, not rising above 15 percent to 20 percent of total

expenses.²⁹ For instance, in 1990 in the Czech Republic, most state (or local government) owned apartments were restituted for free to the legal owners of 1947 or their successors. In fact, some of the crowding found in central cities in Central Europe may be due to persons who voluntarily move in with their families and split the cash rent paid on the dwelling of the mover.³⁰ The fact that there is a shortage of empty units is also noted by Garner who reports that divorcees in the Czech Republic often continue to live together until one partner finds a new partner and moves out.³¹ Thus, while Central European housing is not always plentiful or luxurious, neither are increasing rents forcing widespread evacuation of people from their homes.

VII. Conclusion

The analysis above suggests that while the macro economies of Central Europe were declining quite dramatically, the poverty rate of individuals increased only slightly; income inequality of individuals using adjusted incomes increased more than the inequality among households using unadjusted incomes; and children and the aged did not generally lose ground in terms of reported incomes. In fact, the elderly increased their relative income positions in Poland and in the Czech Republic. Moreover, consumption of nonessential durables actually increased on average, while housing posts remained a modest share of income.

Overall income inequality in the Czech and Slovak Republics in 1992 is still at or below that found in the most equal societies in the West, i.e. those in Scandinavia. In Poland and Hungary, income inequality is at the same level as is found in Australia, Canada, France, and the United Kingdom. Only in Russia does one find very high levels of income inequality in the 1990s.

Several hypotheses about how Central European households are weathering the economic storms in the last five years are hinted at in both the data and analyses made at LIS and by our Central European colleagues:

- All of the former state socialist countries had developed “second” economies to compensate for the distribution problems and supply shortages under the centrally planned economies. The organization of these informal economies did not disappear when state socialism collapsed; they became the basis for the larger and now more extensive informal economies of the nascent market economies. If the simulation of the distribution of this newer informal economy in Hungary is correct, then it is in part minimizing the effects of poverty in the lowest deciles at the same time as it is modestly increasing overall income inequality.³²
- Under state socialism the social and familial networks were very strong. This is reflected in part in the different structure of households in central Europe compared with the OECD countries. There are many more “other households” which represent mainly multi-generational extended families, a phenomenon common in Asia, but much rarer in Western European and North American countries. Single parent households and single elders living alone are rare in Central Europe because they live within larger household units. Private transfers among the social and familial networks may be helping to redistribute resources to minimize the economic poverty.³³
- The social safety net that was one of the foundations of the socialist political systems did not disappear in 1989. In fact, the remnants of the system were explicitly used in the Czech Republic and Poland to protect pensioners.³⁴ This is why their relative economic status actually improved during the beginning of the transition. Sustainability of these pensions is, however, in doubt.^{35,36}

Other changes will tend to help mitigate the macro economic impacts at the household level such as changing household structures and declining fertility rates. Also, the level of human capital is high in Central Europe with educational attainment levels similar to the levels in Western Europe. Human capital is becoming increasingly important relative to demographic variables in explaining income levels in the Czech Republic, while other analyses suggest that similar situations exist in other Central European nations. As rates of return to education increase in their economies in transition, the substantial amount of human capital may help distribute broadly the rewards of economic development.

The households of Central Europe are employing a number of strategies to minimize the effects of the income decline in the macro economy. The economic transitions in Central Europe,

however, are not yet over. One question will be whether the adaptations used in the short term for acute problems are still successful if the problems of the transition become chronic.

Notes

1. World Bank, *World Bank Atlas*, Washington, DC: The World Bank, 1994.
2. The paper concentrates on the Czech Republic, Hungary, and Poland where we have good data and analysis of changes in poverty and inequality over time. The Slovak Republic and Russia are included in some analyses where we have data on their 1992 level of economic well-being and its distribution. But they are not included in all analyses because we have no reliable data on income trends in these nations.
3. J. Vecernik, S. Perusicova, T. Zuda, and S. Howard, "Household Incomes and Social Policies: The Czech Republic in the Period 1989-1995"; E. Sik, Z. Berencsi, and G. I. Toth, "Aspects and Trends of Social Inequality in Hungary"; B. Gorecki, I. Topinska, and M. Wisniewski, "Poland Country Paper."; R. Bednarik, J. Filipova, and S. Valna, "LIS Country Paper: Slovakia." Papers presented at the Luxembourg Income Study Conference on Economic Hardship and Social Protection in East-Central Europe, Walferdange, Luxembourg: July, 1995.
4. T. Garner, W. Okrasa, T. Smeeding, and B. Torrey, "Household Surveys of Economic Status in Eastern Europe: An Evaluation." *Economic Statistics for Economies in Transition: Eastern Europe in the 1990s*, Bureaus of Labor Statistics, Washington, D.C., February, 1991.
5. O. Eleto and Laszlo Vita, "A Micro-Simulation Experiment for the Estimation of the Possible Effects of Income from the Underground Economy on the Income Distribution: Methods and Results." International Statistical Institute, 47th Session, Paris. August 29 to September 6, 1989.
6. E. Sik, "From the Multicolored to the Black and White Economy: The Hungarian Second Economy and the Transformation," *International Journal of Urban and Regional Research*. Volume 18, Number 1, 1994.
7. I. Toth and M. Förster, "Income Poverty and Households: Income Composition in Hungary". Presented to the 3rd Prague International Workshop on Social Responses to Transformations in East-Central Europe. Prague, Czech Republic, May 6-8, 1994.
8. P. Galas, "A jövedelemegyenlőtlenség valtozása Magyarországon 1987, 1992-1994. (The Trend of Income Inequality in Hungary, 1987, 1992-1994). Budapest: MTA Világgazdaság: Kutató Intézet, 1995.
9. E. Sik, "Measuring the Unregistered Economy in Post-Communist Transformation," *EuroSocial Report*, 52, 1995.
10. A.B. Atkinson, L. Rainwater, and T. Smeeding, *Income Distribution in OECD Countries: Evidence from the Luxembourg Income Study*. Paris: OECD, October 1995.

11. Hungarian Central Statistical Office, *"A Letminimum Szinjen Esalatt Elo Nepesseg Jellemzoi"* (Characteristics of the Population Living at and Below the Subsistence Minimum Level) Budapest, 1993.
12. P. Gottschalk and T. Smeeding, "Cross-National Comparisons of Levels and Trends in Inequality," Mimeo, May, 1995.
13. A.B. Atkinson and J. Micklewright, *The Economic Transformation of Eastern Europe and the Distribution of Income*. Cambridge, UK: Cambridge University Press, 1992.
14. T. Smeeding and P. Gottschalk, "The International Evidence on Income Distribution in Modern Economies: Where Do We Stand?" Invited paper for the International Economic Association, Tunis, December 1995.
15. A.B. Atkinson, *The Economics of Inequality*. Clarendon Press, Oxford, 1975.
16. Here we employ a slightly different equivalence scale with an E value of .5. The quantitative and qualitative results would be the same for E = .6. We chose E = .5 here because many of these estimates come from the recent OECD benchmarks published in Atkinson, Rainwater, and Smeeding (1995) and are thus comparable over a wider range of nations.
17. P. Gottschalk and T. Smeeding 1995; Smeeding and Gottschalk 1995.
18. A. Szulc, "How Many Losers? The Polish Poverty Statistics Reconsidered." *International Journal of New Ideas* Volume IV, Number 1, 1995.
19. L. Rainwater and T. Smeeding, "Doing Poorly: The Real Income of American Children in a Comparative Perspective." LIS Working Paper No. 127. Luxembourg: August, 1995.
20. G. Andrea Cornia, "Ugly Facts and Fancy Theories: Children and Youth during the Transition". Occasional Papers Series No. 47, UNICEF, Florence, Italy, April, 1995.
21. I. Toth and M F6rster, "Income Poverty and Households: Income Composition in Hungary". Presented to the 3rd Prague International Workshop on Social Responses to Transformations in East-Central Europe. Prague, Czech Republic, May 6-8, 1994.
22. B. Milanovic, "Poverty, Inequality, and Social Policy in Transitions Economics," Research Paper Series, Paper No. 9, World Bank, February, 1995.
23. Employment Observatory, "Central and Eastern Europe Employment Trends and Developments," *Alphametrics*, No. 6, October, 1994.

24. J. Vecernik, "Changing Earnings Distribution in the Czech Republic: Survey Evidence from 1988-1994. *Economics of Transition*, Vol. 3(3), 355-371, 1995.
25. Heyns, Barbara. *The Dynamics of Market Transition*. Final Report submitted to the National Council on Soviet and East European Transition.
26. Toth, Istvan G., Rudolf Andorka, Michael Forster, and Zsolt Speder, "Poverty, Inequalities and the Incidence of Social Transfers in Hungary, 1992-1993." Mimeo. TARKI Budapest: June 1994.
27. V.G. Trembl, "Population Welfare and Health: A Survey of Recent Developments in Russian Statistics" Mimeo. Paper presented at the National Academy of Science Conference Economic Transformation Households and Health. Washington D.C.: September, 1995.
28. T. Garner, "Moving to a Better World? Coping Behaviors During Economic Uncertainty, A View from Eastern Europe." Mimeo. Paper presented at the National Academy of Science Conference Economic Transformation Households and Health. Washington D.C.: September, 1995.
29. R. Struyk, Raymond (ed.), "Economic Restructuring in the Former Soviet Bloc: Evidence from the Housing." Mimeo. Paper presented at the Luxembourg Income Study Conference on "Economic Hardship and Social Protection in East-Central Europe." Walferdange Luxembourg, July, 1995.
30. S. Johnson, and O. Ustenko, "Complementaries Formal Employment, and Survival Strategies" Forthcoming, *Economies in Transition*, National Academy of Sciences, Washington D.C.: 1996.
31. T. Garner, "Moving to a Better World? Coping Behaviors During Economic Uncertainty, A View from Eastern Europe." Mimeo. Paper presented at the National Academy of Science Conference Economic Transformation Households and Health. Washington D.C.: September, 1995.
32. E. Sik, "Changing Earnings Inequality under the Economic Transformation: The Czech and Slovak Republics, 1984-1992," Mimeo, June, 1995.
33. D. Cox, E. Jimenez, and W. Okrasa, "Family Safety Nets during Economic Transition: A Case Study of Poland," *Employment Observatory*, Central and Eastern Europe, Employment Trends and Developments, No. 6, October, 1994.
34. O. J. Blanchard, K. Froot, and J. Sachs, *The Transition in Eastern Europe*, Volume 1 and 2. Chicago: The University of Chicago Press, 1994/

35. J. Sachs, "Postcommunist Parties and the Politics of Entitlements," *Transition: The Newsletter About Reforming Economies*, 6(3) (March): 1-4, 1995.
36. World Bank, *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth*. Oxford University Press: New York, 1994.

Table 1
Macro Economic Characteristics of the Transition Period

	Czech Republic	Hungary	Poland	Slovakia
Growth of Real GDP (percent)¹				
1990	-1.2	-4.0	-11.6	-2.5
1991	-14.2	-10.7	-7.0	-11.2
1992	-6.4	-4.5	+2.6	-7.0
1993	-0.9	-0.9	+3.8	-4.1
Growth 1989-1993	-21.1	-19.8	-11.5	-24.8
1994	+2.6	+2.0	+5.0	+4.8
Real GDP Per Capita in 1992 U.S. Dollar Value				
	\$7,700	\$6,260	\$5,010	\$6,450
As percent of the United States²				
	31.1	25.3	20.2	26.1
Annual Consumer Price Inflation (percent)¹				
1989	1.4	17.1	251.1	1.3
1990	9.7	28.9	585.8	10.4
1991	56.6	35.0	70.3	61.2
1992	11.1	23.0	43.0	10.0
1993	20.8	22.5	35.3	23.2
1994	10.0	18.8	29.5	13.4
Growth of Total Employment (percent)¹				
1990	-1.0	-3.6	-4.2	-0.9
1991	-5.5	-7.8	-6.4	-7.9
1992	-2.6	-5.5	-4.2	-5.2
1993	-1.5	-6.6	-0.6	-2.8
Growth 1989-1993	-10.2	-21.5	-14.7	-15.8
1994	+1.2	-2.0	-1.6	0.0
Growth in Real Wages (percent)¹				
1989	0.8	0.8	11.6	1.4
1990	-5.5	-0.2	-27.4	-6.1
1991	-26.3	-3.7	0.2	-25.2
1992	10.3	1.7	-2.9	8.7
1993	3.6	-0.4	-1.1	-4.3
Growth 1989-1993	-19.1	-1.9	-22.0	-25.5
1994	6.5	5.0	1.9	2.6
Sources: ¹ Employment Observatory, Central and Eastern Europe #6, European Commission October 1994. ² World Bank, 1994.				

Table 2

Selected Characteristics of Central and Eastern European Household Surveys

	Czechoslovakia/Czech (C) and Slovak (SL) Republics	Hungary	Hungary	Poland
Country				
Name of survey	Microcensus	Household Income Survey (HCSO)	Household Panel (HHP)	Household Budget Survey (IIBS)
Year of survey examined	1980, 1984, 1988 Czechoslovakia; 1992 CZ and SL, separately	1983, 1987	1992	1987, 1990, 1992
Frequency	every 3 to 5 years	every 5 years	annually	quarterly/annually
Household sample size	102,637 Czechoslovakia; 15,677 Czech Republic; 15,221 Slovak Republic	14,790	2,059	10,800
Population coverage	Noninstitutional population living in households. Persons absent for longer than 6 months were excluded in 1992.	Noninstitutional populations living in private households including self-employed.	All individuals with a non-institutional address	Noninstitutional population excluding nonfarm self-employed, police, military, communist party administration.
Sample design	Two stage stratified sample from the population census stratified by size of locality and by number of flats within the census tract.	Drawn from the "uniform system of Household Surveys" a disproportionate random sample of 1980 census tracts.	Four stage stratification from the 1990 census with additional subsample for Budapest.	Two-stage, two-phase rotation sampling.
Reference person	Head of household, defined as male if complete family, parent if incomplete.	Head of household.	Head of household defined as the oldest active male, if no active members the head is the oldest male.	Head of household: person whose income is the major source of livelihood for the household.
Primary unit of collection	Economic/consumer household is the observational unit while address is the sample unit. All households at address are included in sample. Persons are asked to declare if they are members of a common household	Economic/consumer household is the observational unit while address is the sample unit. All households at address are included in sample. Households are all persons living together who share a common budget.	Economic/consumer household is the observational unit while address is the sample unit. A household is defined to be all persons living under the same roof, sharing income and expenditures.	Economic/consumer unit (identified as a household). If not a single person than a group of persons living together who share a household budget.
Non-response rates	In 1993 the non-response rate was 15.7 percent in CR; 7 percent in SR.	The total non-response rate was 3 percent		The non-response rate was 30.9 percent of the household selected to participate for the first time in 1992.

Source: See Endnotes 3, and 4.

Table 3
**Simulated Effects of the Informal
Economy on Hungarian Incomes¹ in 1992**

Estimate	Gini	Atkinson		Decile Points ²		Decile Ratio ³
		e=1	e=2	P ₁₀	P ₉₀	
Actual Person Adjusted DPI ¹	.282	.133	.272	54.4	182.6	3.37
Simulated Person Adjusted DPI Informal Economy=15 percent ⁴	.276	.118	.210	65.8	207.5	3.15
Simulated Person Adjusted DPI Informal Economy=25 percent ⁵	.274	.115	.196	72.5	222.0	3.06

¹All income measures use 1.00, .67, .33 equivalence scale and person weights.

²The decile points are the ratio of the 10th percentile person's income to the median (P₁₀) multiplied by 100, and the 90th percentile person's income (P₉₀) to the median multiplied by 100.

³The decile ratio is the ratio of P₉₀ to P₁₀.

⁴Assumes informal economy is 15 percent of disposable. See text for simulation details.

⁵Assumes informal economy is 25 percent of disposable. See text for simulation details.

Source: Authors' simulation from Luxembourg Income Study.

Table 4 "Minimum" Income in Central and Eastern European Countries			
Country	Year	"Minimum" Income as a Percent of "Average" Income	Percent of Population Below "Minimum" Income
Czechoslovakia	1980	42	8
	1988	42	7
Czech Republic	1992	56	5
Hungary	1982	59	10
	1987	53	13
	1992	72	16
Poland	1982	44	20
	1987	40	26
	1992	64	30
Source: See Endnotes 3 and 13.			

Table 5

**Distribution of All Households and Persons into Brackets
Defined by Percentage of Median Income
(in percents)**

From..Until Under..of Median Income		0-50 (1)	50-75 (2)	0-75 (3=1+2)	75-100 (4)	100-125 (5)	125-150 (6)	75-150 (7=4+5+6)	150-200 (8)	200 and more (9)	All (10)
Czechoslovakia 1980, 1988, 1991² and The Czech Republic 1988, 1992											
All Households, Unadjusted Income											
Czechoslovakia	1980	21.2	13.2	34.4	15.7	19.9	15.2	50.8	11.7	3.1	100
	1988	19.8	14.6	34.4	15.7	19.8	15.3	50.8	11.9	3.0	100
	1991	12.3	14.2	26.5	27.4	15.8	9.3	52.5	9.8	11.1	100
Czech Republic	1988	19.7	15.0	34.7	15.3	19.4	15.5	50.2	12.3	2.8	100
	1992	16.7	13.8	30.5	19.5	16.5	13.6	49.6	13.4	6.4	100
All Persons, Equivalent Income^a											
Czechoslovakia	1980	5.4	13.4	18.8	31.1	31.1	13.0	75.2	5.4	0.6	100
	1988	3.5	14.3	17.8	32.2	31.2	13.1	76.5	5.2	0.5	100
	1991	5.7	17.5	23.2	29.9	17.3	10.3	57.5	9.7	9.6	100
Czech Republic	1988	3.1	13.3	16.4	29.9	31.9	14.8	76.6	6.3	0.7	100
	1992	6.9	9.5	16.4	17.7	19.3	17.9	54.9	19.1	9.7	100
Hungary 1987, 1992²											
All Households, Unadjusted Income											
	1987	17.7	15.9	33.6	16.4	15.2	11.3	42.9	12.9	10.6	100
	1992	17.9	14.5	32.4	16.7	13.9	10.4	41.0	13.3	12.4	100
All Persons, Equivalent Income¹											
	1987	3.6	18.4	22.0	28.0	20.3	11.3	59.6	10.9	7.5	100
	1992	7.8	19.8	27.6	22.4	19.1	11.2	52.7	11.0	8.6	100
Poland 1987, 1990, 1992											
All Households, Unadjusted Income											
	1987	17.5	16.3	33.8	16.2	16.4	13.7	46.3	14.2	5.8	100
	1990	17.3	16.7	34.0	15.9	14.8	12.0	42.7	14.1	9.1	100
	1992	15.2	16.3	31.5	18.5	16.2	11.8	46.5	14.2	7.9	100
All Persons, Equivalent Income¹											
	1987	4.3	20.2	24.5	25.5	21.8	13.9	61.2	11.2	3.1	100
	1990	5.9	20.2	26.1	23.9	19.8	13.4	57.1	11.6	5.2	100
	1992	6.3	19.0	25.3	24.7	20.2	13.4	58.3	11.3	5.2	100

¹Uses 1.00, .66, .33 equivalence scale and person weights.

²The Czechoslovakia 1991 and Hungary 1987 surveys differ from the 1980, 1988 Czechoslovakian and 1992 Hungarian surveys. Thus, trends should be interpreted with caution.

Sources: Luxembourg Income Study and Endnote 3.

Table 6

**Comparisons of Gini and Atkinson Measures of Income Inequality
for Households (Unadjusted Income) and for Persons (Adjusted Income)¹**

		Gini Coefficient		Atkinson Measure			
		Household	Person ¹	Household		Person ¹	
				e=1	e=2	e=1	e=2
Czechoslovakia	1980	.278	.168	.145	.314	.048	.102
	1988	.290	.158	.134	.284	.041	.086
Czech Republic	1988	.291	.192	.150	.310	.061	.131
	1992	.320	.210	.161	.312	.078	.140
Slovak Republic	1992	.283	.173	.132	.262	.054	.103
Hungary	1989	.312	.237	na	na	na	na
	1992	.361	.295	na	na	na	na
Poland	1987	.294	.217	.144	.290	.074	.145
	1990	.325	.248	.170	.327	.101	.186
	1992	.299	.243	.147	.284	.095	.177

¹Uses 1.00, .66, .33 equivalence scale and person weights.

Sources: Luxembourg Income Study and Endnote 3.

Table 7

Measures of Inequality in OECD Countries and in Transition Economies

Country	Year	Gini (1)	Gini (2)
A. OECD Countries			
Finland	1991	.223	.223
Austria	1982	.228	.227
Sweden	1992	.229	.229
Belgium	1992	.230	.230
Norway	1991	.233	.232
Luxembourg	1985	.238	.238
Germany (West)	1984	.250	.248
Netherlands	1991	.254	.254
Italy	1991	.255	.255
Denmark	1987	.257	.256
Canada	1991	.286	.284
France	1984	.296	.291
Spain	1990	.308	.306
Australia	1989	.301	.304
United Kingdom	1986	.304	.302
Switzerland	1982	.323	.302
Ireland	1987	.330	.326
United States	1991	.343	.342
B. Transition Countries			
Czech Republic	1992	.189	.188
Slovak Republic	1992	.208	.204
Hungary	1991	.289	.286
Poland	1992	.291	.289
Russia	1992	.437	.383
Gini (1)=Gini coefficient for equivalent disposable income (EI) where $EI=DPI/S^E$. S=family size, E=.5, person weighted. Gini (2)=Gini (1) top coded at 10 times median disposable income. Sources: Luxembourg Income Study and Endnote 10.			

Table 8

Ratio of Group Median Equivalent Income to National Median

Household Type:	Czech Republic			Hungary			Poland		
	Income Ratio ¹		Change in Ratio	Income Ratio ¹		Change in Ratio	Income Ratio ¹		Change in Ratio
	1988	1992	1988-1992	1987	1992	1987-1992	1987	1990	1987-1992
Households with Head Under Age 60									
One person household	1.05	0.98	-7	1.08	0.87	-21	0.96	0.95	1.17
Couples without children	1.22	1.13	-9	1.18	0.94	-24	1.22	1.15	1.32
Couples with children	1.01	1.03	2	1.06	1.25	19	0.99	0.96	1.01
One parent families	0.86	0.88	2	*	*	*	0.77	0.80	0.85
Other households with children	1.08	1.03	-5	0.98	1.00	2	na	na	0.92
Other households without children	1.16	1.12	-4	1.08	0.91	-17	1.17	1.16	1.10
Households with Head Over Age 60									
One person household	0.58	0.75	17	0.72	0.60	-12	0.72 ³	0.72 ³	0.88 ³
Two person household	0.80	0.87	7	na	0.75	na	na	na	na
Other	1.03	0.98	-5	0.79	0.85	6	0.79	0.94	0.89
Individuals									
Children under 18	0.98	1.01	3	1.00	1.18	18	0.98 ²	0.99 ²	0.94
Elderly over 60	0.72	0.85	13	0.81	0.74	-7	0.77	0.75	0.94

¹Ratio of median equivalent income of group to national median equivalent income.²Children were defined as 16 and under in Poland in 1987 and 1990.³Poland estimates are for one or two person households with a head age 60 or over.

* = Too few in sample.

Source: Luxembourg Income Study and Endnote 3

Table 9
Stock of Consumer Durable Goods per 100 Households

	Czech Republic				Hungary				Poland				Slovak Republic								
	Total Population		Active Population		Inactive Population		Worker Headed Household		Pensioner Headed Household		Farmer Headed Household		Farmer-Worker Headed Household		Pensioner Headed Household		Farmer Headed Household				
	1989	1991	1989	1991	1989	1991	1989	1991	1989	1991	1989	1991	1989	1991	1989	1991	1989	1991			
Car	60	61	54	55	12	14	31	41	9	15	30	42	28	49	42	41	52	19	51	61	
Television			128	123	107	105	129	130	115	111	114	122	120	132	107	94	147	102	108	177	
Color			61	76	31	42	51	91	21	53	20	49	21	65	38	53	81	53	37	85	
Black & White	131	134	67	47	76	63	78	39	94	58	94	73	99	67	69	41	66	49	71	92	
Refrigerator	119 ²	120 ²	104	103	99	99	101	100	94	96	96	99	101	101	17 ³	57 ³	79 ³	86 ³	16 ³	45 ³	87 ³
Deep-Freeze			44	64	21	38	20	30	9	16	34	57	33	56	18	20	41	29	35	68	
Video Recorder (VCR)			18	32	1	4	5	53	1	14	1	15	1	28							
Automatic Clothes Washer	154 ⁴	158 ⁴	50	47	19	16	59	70	27	40	23	29	29	37	30	33	64	32	29	55	

¹Includes employees and the registered unemployed.
²Includes freezers.
³Refrigerator with freezer.
⁴Includes spin-driers.
Sources: See Endnote 3