Review of Sociology 2000

Roland Habich-Zsolt Spéder

CONTINUOUS CHANGES - DIFFERENT VARIATIONS

Income distribution and income dynamics in three societies[*]

The study of income distribution and income dynamics can hardly be seen as the stepchild of sociological, economic and "transitological" research. The use of the Gini coefficient, decile ratios, or poverty head counts became obligatory scientific exercise in works studying the character of transformation from state socialism to market economies. Undoubtedly, many of these analyses use other, more subtle, indices as well, giving a more detailed account of the story of the past few years (Medgyesi et al. 1998). Although there is an ongoing debate about which East European country experienced the highest increase in income inequality, but the fact that there is such an increase is beyond question. (World Bank 1996; Andorka et al. 1997). In the first part of our study we carry out the above-mentioned "obligatory" exercises. The novelty of our analysis, thus, lies not in the manner we treat the question, but in the selection of countries (Hungary, the Western and the Eastern halves of Germany),[1] and in the attempt to (also) use (graphic) approaches as yet not applied in this field. We hope that the comparisons and new approaches will contribute to a more subtle understanding of the meanings of income inequalities.

The topic we discuss next - how income dynamics changed between earlier and later dates of the transition - is much less commonly made the focus of investigations. Although the presentation of the development of real income is unavoidable, and it is also true that in countries - as in Hungary - where longitudinal panel surveys have been carried out the dynamics shown by the results of the transition matrix calculations, just as the frequency of changes of income positions, caused unanimous astonishment (Kolosi et al. 1996; Spéder 1996), yet we cannot say that we have an accurate idea of the temporal changes in income distribution. In the second part of our study we would like to describe and interpret this aspect of income dynamics with the help of as yet infrequently used methods.

That this introduction is in some ways technical in character may suggest that our article is methodologically motivated. We do not deny that one aspect of our investigation was to make as much use as we could of the possibilities granted by our longitudinal panel data. This decision derives from our ambition to join the endeavours that aim to restructure and revise the system of social indicators (Noll-Zapf 1994; Zapf 1989). Nonetheless, throughout our investigation we were careful not to lose sight of the initial question of our research, which is as follows: *What do the changes of income inequalities and the curve of income dynamics tell us about the first decade of the transition?* In other words, *we want to grasp the characteristics of transformation through the interrelations of structural shifts and the dynamics of a chosen dimension (which, in our case, is income*[2]*).*

It is important to call attention to how the two points of view - *the structural and the dynamic* - differ. In following the changes of structure, what we measure is the *net* change between the selected points of time (the increase in the Gini coefficient), while the dynamic aspect summarises the *gross* change (what proportions of the population experienced income increase and decrease). Dynamics throws light on the processes by which new structures are created. This means a shift both in terms of analysis and in terms of understanding: a shift

from structural figures towards processes. In other words, we focus first on structural changes, and then on the mobility among changing structures. The dynamic approach - especially mobility at the household and the individual level characterising the entire period - has rarely been applied (Machtwig-Habich 1997; Müller-Frick 1996). Although very valuable descriptions have been produced of the patterns of household and individual mobility (Kolosi-Sági 1998), the temporal characteristics of the transition can be revealed only by analysing and understanding the alterations that take place year by year and throughout the entire period. The approach taken in the present paper applies this method.

Our analyses are in line with the system Zapf has worked out for social change in general, and for transformation[3] in particular (Zapf 1994). While measuring it, he reduces social change to its components, and differentiates between its units (its structures and institutions), levels (macro- meso and micro levels), and dimensions (pace, depth, aims, and controllability) (Zapf 1994, 14ff.). In our analyses we will be able to formulate assertions concerning the last group of factors, because - in our opinion - the indices of income dynamics may be interpreted as the valid measurements of the pace and depth of social change. The levels of change must also be mentioned, since measuring inequality and dynamics also reveals the differences between macro- and micro-level approaches. We will, however, bracket the first component, the structural and institutional factors, because we ignore political, economic, legal, and institutional changes, and do not deal with the interests and motivations of individuals, even if we are aware of the fact that income inequalities may be regarded as resulting from these structures. Yet even so, we hope to be able to present new aspects of the system changes that occurred in the nineties.

The advantages of a *comparative* study are obvious (Atkinson-Micklewright 1992; van den Bosch et al. 1996; Förster-Tóth 1997; Immerfall 1995). Comparing the societies of Hungary and East Germany highlights the general and the particular (country-specific) features of the process of transition. West Germany serves as a point of reference, since it can be regarded a case of normal social change occurring in a modern industrial society. This helps to reveal what significant differences exist between usual social change and processes associated with transformation.

We begin by presenting some figures for income development, using structural (static) income-inequality indicators.[4] Then follows a more detailed description of data for individual mobility over time. The interconnections revealed by the analysis of dynamics allow us to formulate some assertions and hypotheses concerning the features of social change. After the discussion of change in society as a whole, the focus shifts to the level of the individual.

Income distribution and income inequality in the 1990s

As mentioned before, it is a widely shared opinion that income inequality increases in the process of transformation (Förster-Tóth 1997). The changes that have taken place are not uniform; several different types of transformation have occurred, which we will not detail here; it will suffice to list some of those phenomena mentioned by other studies on the transition (Kornai 1993; Offe 1994; Zapf 1995). New markets replaced redistribution in income regulation; new firms have been established; state property has been privatised; the labour market has shrunk and has been restructured; as a consequence, unemployment has emerged; efforts have been made to strengthen the means-tested character of welfare programmes, etc. The focus here is on the *consequences these changes have for income*

inequality in transformation societies. The worst of these are commonly agreed to be rising poverty and mounting inequalities. The account of the transition provided by the commonly used inequality indices, and the ways in which the new types of income-trend indicators introduced here can contribute to these accounts, will presently be shown; precisely this is the purpose of the present section of the paper.

The distribution of income can be reshaped in a number of different ways. One possibility is that the rich become richer and the poor become poorer. Another - the view that is more commonly held in the Hungarian scientific community - is that the increase of inequality is a result of the fall of the middle income classes. Which hypothesis offers a more accurate description of the development taking place in countries under transition? Or should the analysis impel us to work out a new hypothesis? Are we witnessing the same developments in Hungary and in East Germany in the first place, and can we confidently state that in the western part of unified Germany no changes occurred in the period under investigation?

Before moving on to the details of the analysis, it must be mentioned that real incomes in East Germany increased enormously, mainly as a result of West German state transfers (Hauser et. al. 1996), and that the equivalent incomes in West Germany also increased, but on a much lower scale. Conversely, in Hungary, where "transformational recession" (Kornai) occurred without any international subsidies, consumer opportunities decreased.

Table 1 shows the developments between 1990 and 1996 reflected by two commonly used indices, P90/P10 and the Gini Coefficient.[5] Both indices indicate clear differences, whichever year we look at, income inequality being *highest in Hungary and lowest in East Germany*[6]. In West Germany, that is in a well functioning developed market economy, inequalities are lower than in Hungary at the beginning of the transformation process.[7] In terms of the levels of inequality, the Gini Coefficient and the more sensitive P90/P10 ratio produce almost the same picture. However, if we consider changes of income, it seems that transformation does create a more intensive change in income distribution in the countries in transition. It is especially the P90/P10 ratios that indicate increase in income inequality. This index shows evident increase in Hungary, and until 1995 also in East Germany. (Whether this increase can be deemed high or not is a relative question.) The Gini shows no changes in East Germany, which suggests that the West German welfare system has played an important role in the East German transition by blocking some of the negative effects. As we have anticipated, income inequality has barely altered in West Germany: here society seems to have been unaffected by the transformation and reunification.

Table 1. Inequality indicators for West Germany, East Germany, and Hungary.

Year	P90/P10			Gini Coefficient		
	West Germany	East Germany	Hungary	West Germany	East Germany	Hungary
1990	3.01	2.49		0.25	0.18	
1991	3.08	2.44		0.25	0.20	
1992	3.02	2.53	3.36	0.25	0.20	0.28

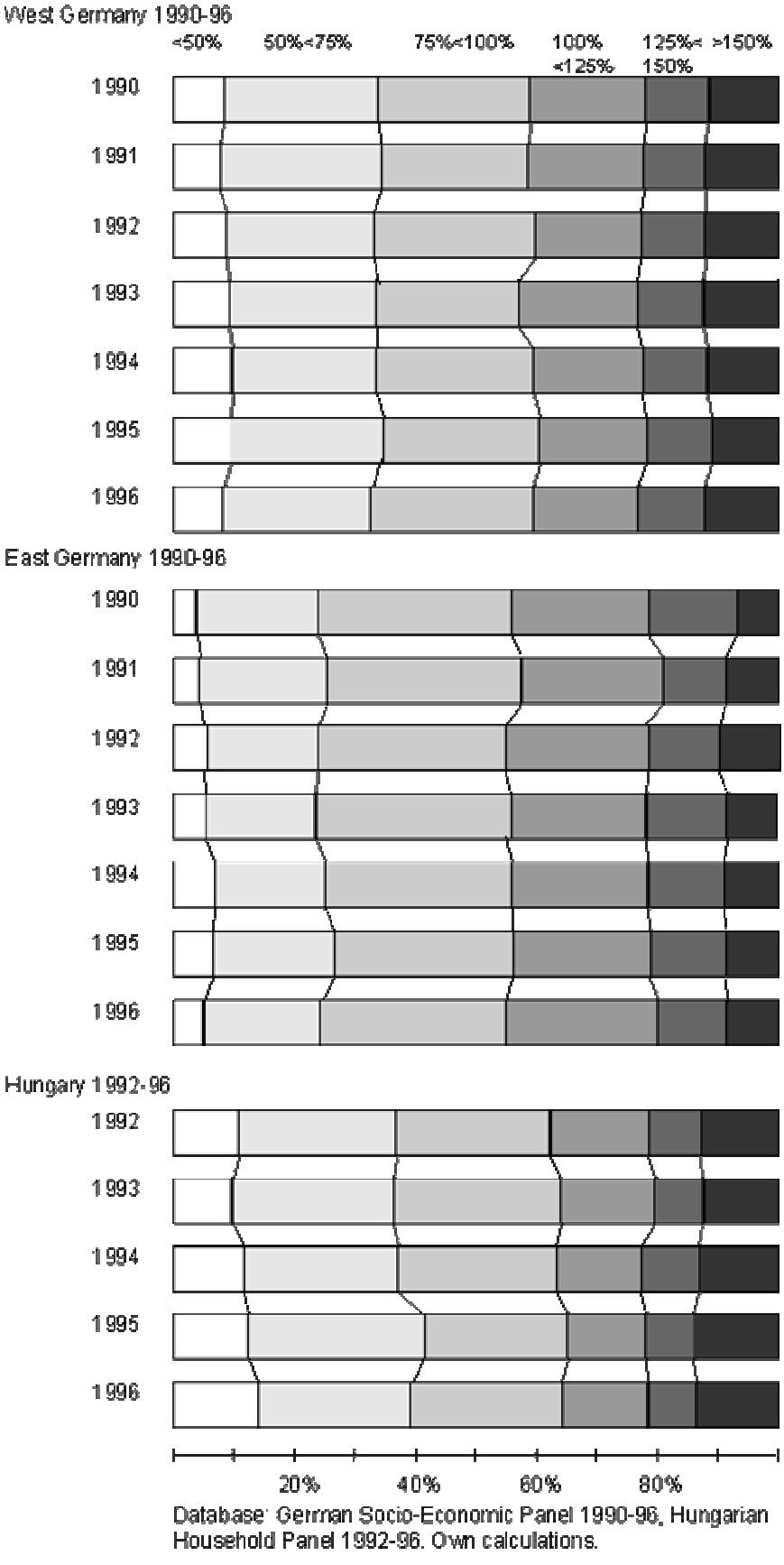
1993	3.03	2.50	3.25	0.25	0.20	0.28
1994	3.08	2.50	3.48	0.25	0.20	0.29
1995	3.05	2.65	3.63	0.26	0.20	0.30
1996	3.09	2.47	3.62	0.24	0.19	0.30

(Note: Equivalent household net income; e: 0.73; individual level, children included. Data base: GSEP, 1990-96, and HHP 1992-6. Authors' calculations.)

The indices used above are well known indicators of income inequality, but it is worth looking at some other structural measures as well. Another classic measure is the distribution of individuals among income categories (classes). We created six relative income categories for each country and each year based on annual mean equivalent net household income. Those in the bottom category - the group whose members we regard to be the poor - receive less than 50 per cent of the mean equivalent income. The second poorest category has incomes between 50 and 75 per cent of the mean. The next group contains those whose income is between 75 per cent of the mean and the mean itself. This is followed by groups reaching 125, and than 150 per cent of the mean. Thus, those who belong to the richest category receive one and a half times the mean income. For the sake of clarity, we present the distribution of the population among these categories graphically.

Looking at the results of *Figure 1*, our first impression is similar to the one obtained from *Table 1*. The differences among the three societies are clear, as is the relative stability of income distribution over time. Closer examination shows that the increase in income inequality in Hungary results from mounting poverty and from the rising proportion of the rich in the population. At the same time, the middle income category is shrinking, which phenomenon is especially conspicuous by comparison with Germany.

Figure 1. Relative income positions, 1990-96



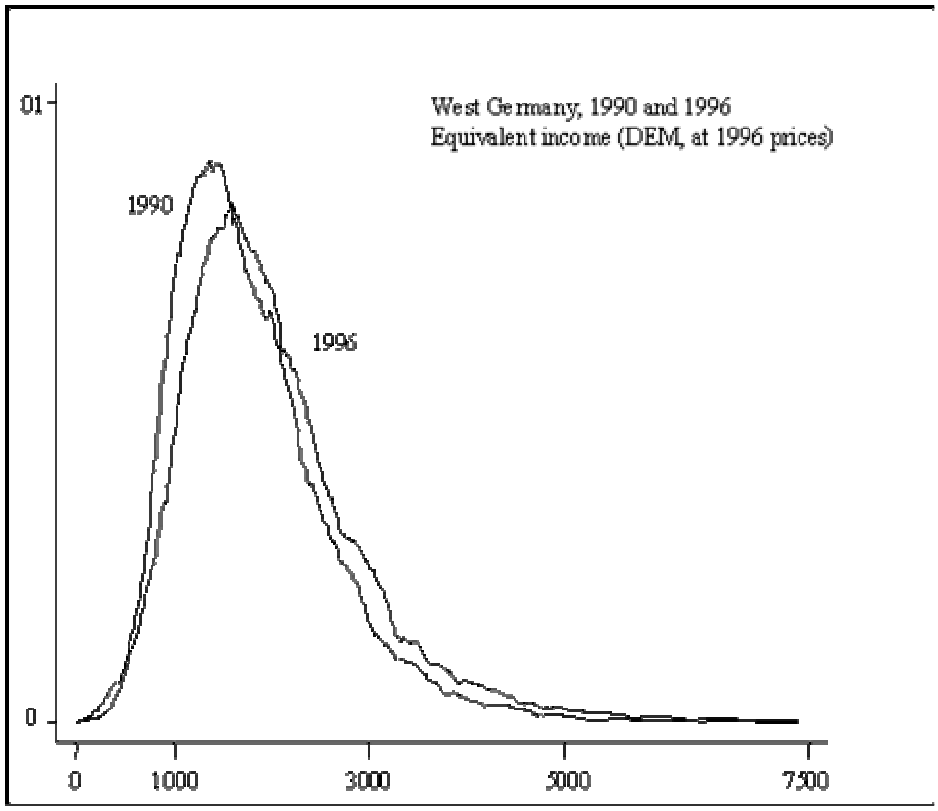
Database: German Socio-Economic Panel 1990-96, Hungarian Household Panel 1992-96. Own calculations.

Which of our initial hypotheses is supported by the above distribution measures? The first hypothesis was that *the rich are becoming richer and the poor poorer*. If this is the case, the position of those in the middle will be relatively stable, and changes will be confined to the extremes of the income distribution: we will observe falling incomes of the poor and rising incomes of the rich. The other hypothesis is that Hungary has a *shrinking middle category*. Here mounting inequality will result from shifts that cause households in a middle-class position to slip into poverty and/or to become rich. As already mentioned, *Figure 1* seems to suggest that the second case applies to Hungary. Further evidence for deciding between the two hypotheses is provided by trends observed in the so-called poverty gap. This parameter describes the distance between the income of the poor and the poverty-line. Poverty deepens when this distance grows. The analysis of the data from the HHP failed to reveal any noticeable increase in the poverty gap (Andorka et al. 1995; Szívós and Tóth 1998), that is, there is no increase in the gap between the average and the poor. So far, thus, our evidence supports the thesis of a shrinking middle income class in Hungary; we will return to the above two hypotheses after analysing the mobility between the income categories.

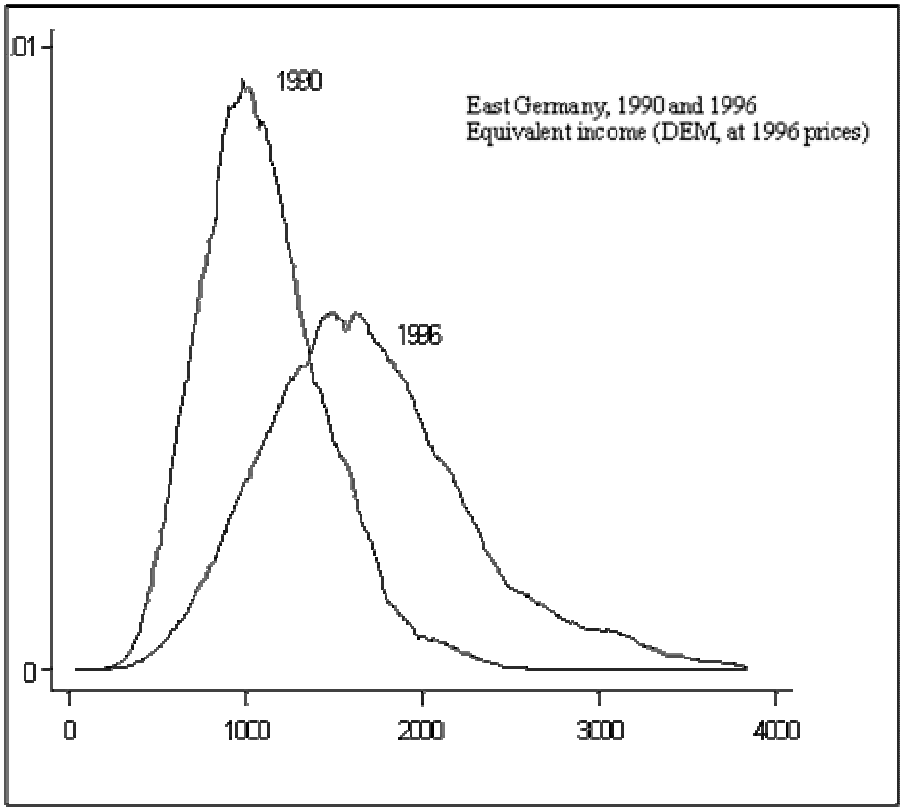
We also have to note, however, that the shifts we have observed are somewhat less intensive than we have anticipated. Although the differences can be seen more clearly through observing income categories than by studying the Gini Coefficient, the picture remains very similar, especially with regards to developments over time. Let us now look at a final structural indicator, the *Kernel Density Estimate* (Cowell et al. 1994; Becker and Hauser 1997). This is a very simple method, for all we have to do is to estimate the function which best approximates the density estimate of our empirical data. The result we get shows what proportion of the population falls into a given income position when we have a given empirical distribution.[8] In the case of the three countries under consideration, we used equivalent incomes deflated by inflation rates. We, however, have not converted German and Hungarian incomes, the estimate-functions thus are to be interpreted within each country. The results speak for themselves, telling a different story than did the results obtained from the analysis of the Gini Coefficient and the income categories (*Figures 2-4*).

East and West Germany clearly experienced a real income increase in the general income level during the period of the survey (the curves shift to the right), while Hungary saw a decrease in the income level (a shift to the left). With respect to the question posed in the present article, it is even more interesting to observe the relatively large alteration in the shape of the curves (if we compare the shape of the curves for the first and the last years investigated in each country). It is the two West German curves that seem to resemble each other the most, and it is the East German curves where the biggest differences can be observed. In East Germany the mountain has shrunk into a hill in six short years. In Hungary the shift is just the opposite, with the income-distribution mountain becoming higher and steeper. Furthermore, there is a longer slope on the right, and a steeper one on the left. What do the changes in the shapes of the curves suggest, especially with respect to East Germany and Hungary?

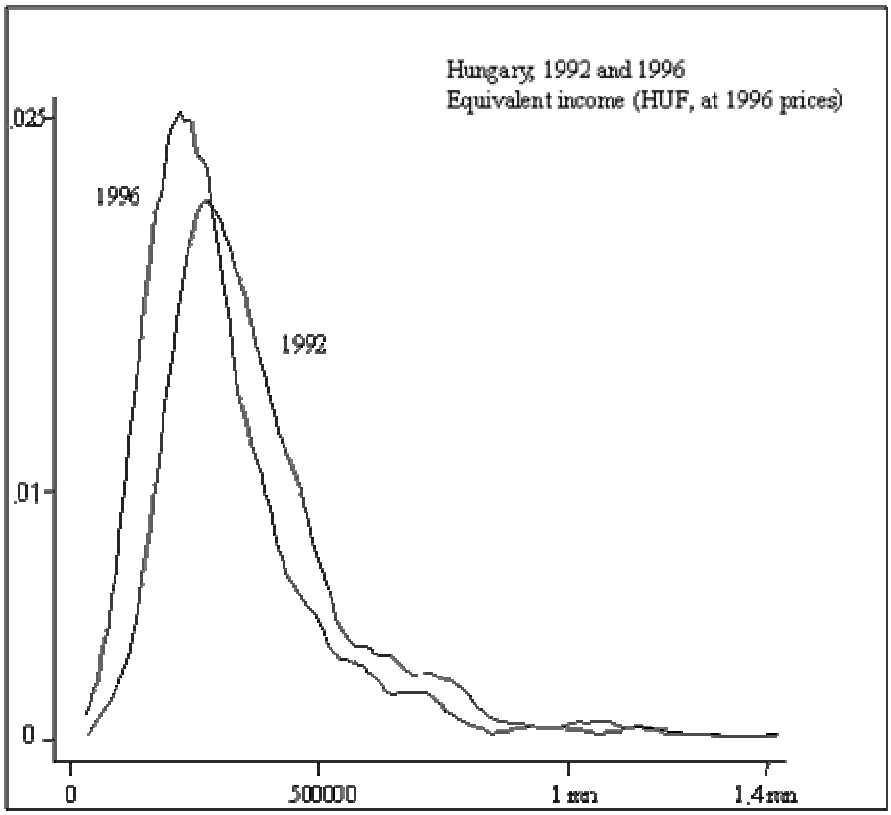
Figures 2-4. Kernel density estimates



Data base: GSEP, 1990-96. Authors' calculations.



Data base: GSEP, 1990-96. Authors' calculations.



Data base: HHP 1992-96. Authors' calculations.

A great majority of *Hungarian* society has moved closer to the mode of the income distribution and to each other (*Figure 4*). If we considered only the (bottom) four-fifths of the society, we could perhaps register a decrease over a five year period in income differences. However, if we also consider that the income position of those in the upper-middle and upper income categories have barely deteriorated, what is more, at one point of the distribution an interval was found where real income had even increased, then the nature of the increase in inequality in Hungary becomes readily visible. The increasing Gini Coefficients and P90/P10 ratios in Hungary thus are explained by both of the two different shifts.

Meanwhile individuals in *East German* society have tended to diverge from the mode income (they have "spurted"). Two low peaks have appeared in the middle, that is, the distribution has two modes. The height of the hill is barely larger than half the height of the mountain of 1990. The two slopes of the curve are quite similar, and smoother than they were before. At the same time, a considerable number of individuals were found on the right slope of the income distribution (this perhaps is the upper-middle income category). The evening and lengthening of the curve also tells us that members of the society are distributed on a larger income scale, which coincides with a wider *real income distance* among families. That is, if we assumed that the same order of income categories could be set up in 1996 as in 1990 - which, as we will see, is not the case, although the constancy of the Gini-index allows such a assumption - then we could conclude that the distance between the neighbouring families has grown. (In contrast, considering the large majority, real income distances have narrowed in Hungary.) In general it is surprising that behind the quite stable Gini measures we found such a large difference in the Kernel density income distribution.

The shape of the curve has also changed in the case of West Germany. There is a slight decrease in its height, as well as in the density around the mode income. At the same time, steepness has decreased on the left, while increased on the right side. The figure suggests the assumption that - although the stability of the Gini Coefficient hides this - West Germany has also experienced a minor transformation: those above the average have moved closer to the mode, while the poor have moved away from it (*Figure 2*).

According to the above figures one may say that the Kernel density estimates narrate "a new chapter of the transition story", with a new meaning. It tells us that the greatest changes took place in East Germany. This is where the greatest increase in mean income occurred (shift to the left), and the Kernel density describing income distribution completely modified. One possible sociological interpretation is that the distance between East German families has grown. Hungarian and West German changes - as compared to each other - occurred in the opposite direction. However, the Hungarian data show that while a significant part of the society (two-thirds, four-fifth?) has moved closer to each other, we can find condensations on the right side of the curve as well. We suppose that this is where those upper-middle and upper class individuals can be found whose income has deteriorated to a lesser degree than the average has, or even improved in absolute terms. This (smaller) group of society has moved further away from the middle (the average) and the distance between its members has also grown.

An evident methodological lesson to be learned from the foregoing discussion is that it is worth approaching the same problem from various directions, because this leads to a more subtle - and sometimes more contradictory - account of the subject of research. On the basis of these considerations - and in order to continue our "income story" - we will observe the components of the structural changes described above. The question to answer now is what individual and group-movements led to the occurrence of these changes, or put differently: What shifts in income trends can be found behind the structural changes.

Change at the micro level between two points of time: year-to-year mobility

Authors analysing panel data usually observe that the movements and fluctuations of households between income categories frequently explains the relative stability of income distribution (Duncan 1984; Hauser and Wagner 1995; Headey, Habich and Krause 1994a, and 1994b). Before analysing our data with this in mind, it is a good idea to formulate, through invoking some well-known theoretical models, our own hypotheses regarding *the dynamics of income inequality and the pace of social change*. Our point of departure is modernisation theory (Zapf 1994a). We start with the assumption that the pace of social change and the dynamics of income-position movements are very different in the three societies. (As mentioned earlier, the West German pattern basically served as a reference category.) We accepted as a fact that in industrial societies continuous social changes are taking place as a result of the operation of the labour market, ongoing innovations in other spheres of life, as well as the fluctuations of family cycles. Because we have assumed "stable dynamics" in developed industrial societies, we expected to find that there would be changes among income positions, but that the dynamics of these changes (the mobility pattern) would remain unaltered. In contrast, a much stronger mobility was anticipated for the countries in transition than for West Germany. We also expected to find differences between the two former socialist countries. The dynamics of change should be influenced by the different paths of transformation, including the strategies involved in changing the regime, the rebuilding of

institutions, and the recovery of the economy (Balcerowicz 1995; Offe 1994; Stark 1992). We expected to see that mobility in the beginning will be higher, and that it will then slow down earlier in East Germany than in Hungary.[9] We have also worked out an alternative hypothesis concerning the degree of the transition completion. If it is true that the transition (and change of regime) is a special type of change that is quicker and more comprehensive than those normally observed, then it must also be present in micro level dynamics. Transition may be regarded as accomplished when dynamics comes to a rest.

One simple method of showing this is the use of a transition matrix to analyse the turnover from one year to the next, or from the starting to the closing date.[10] The ratios of the transition matrix show whether people retain their income position over time, or whether they move upwards or downwards. *Table 2* presents the movements of individuals between income categories from an *outflow* perspective.[11] Income categories featured in this table are identical with the ones we have used earlier (see *Figure 1*). As an example, let us take a closer look at one of the income categories, and at the outflow from that category.[12]

Table 2. Distribution of individuals among income categories, by former income position (outflow perspective)

Income	Income categories 1994/1996						
categories	West Germany 1990-94						
1990	<50%	50-75%	75-100%	100-125%	125-150%	>150%	Total
<50%	49.7	29	11.6	7.0	1.9	0.8	8.3
50-75%	14.6	50.2	24.9	6.6	2.1	1.5	25.7
75-100%	4	21.3	43.9	20.6	6.1	4	25.2
100-125%	3.8	10.4	29	33.8	14.7	8.3	19.2
125-150%	0.9	7.1	11.7	28.4	32.9	19.1	10.4
>150%	0.9	3.8	8.8	11.8	16.5	58.1	11.2
N	869	2112	2320	1616	916	1022	8856
%	9.8	23.9	26.2	18.2	10.3	11.5	100
	East Germany 1990-94						
<50%	29.6	36.9	21.1	7.9	1.8	2.8	3.8
50-75%	11.8	31.5	31.1	17.9	6.4	1.3	20.2
75-100%	6.3	20	40.4	22.3	7.6	3.3	31.9
100-125%	3.3	12	33.2	25.6	19.5	6.5	22.8
125-150%	3.7	8	17.5	28.6	19.5	22.7	14.5
>150%	0.6	4.6	11.8	19.5	24.3	39.2	6.8
N	176	471	792	574	327	229	2569
%	6.9	18.3	30.9	22.3	12.7	8.9	100
	Hungary 1992-96						

<50%	45.5	28.8	14.8	5	2.1	3.7	9.4
50-75%	16.7	43.5	25.4	9.6	1.9	2.9	24.8
75-100%	9.8	27.7	39.3	12.7	3.2	7.2	25.6
100-125%	4.2	17.8	24.5	23.5	15.2	14.9	17.9
125-150%	6	11	18.2	19.8	20.7	24.4	8.6
>150%	6.6	6.1	11.4	15.6	16.7	43.5	14.1
N	565	1101	1088	609	357	593	4314
%	13.1	25.5	25.2	14.1	8.3	13.7	100

Data base: GSOEP, 1990-96 and HHP 1992-96. Authors' calculations.

In West Germany, 44 per cent of those who in 1990 belonged to the lower middle income category (75-100 per cent of the mean) remained in the same income category in 1994. The others changed their relative income positions in the course of five years: about 25 per cent slipped downwards and the remaining 30 per cent improved their position. About a twentieth of those who in 1990 belonged to this lower middle income category became rich by 1994 (*Table 2*). Comparing the same categories in East Germany and Hungary we can observe that 40 per cent of the respondents retained their income position. In terms of mobility, mobility downward was higher in Hungary than in East Germany, while a higher number of people were capable of improving their relative income position in East Germany than in Hungary.

It is not easy to compare the transition matrices of the different countries, because the relations between the countries are not identical in the case of each cell of the matrix. Comparison becomes somewhat easier if we consider only the cells in the *diagonal*. In this case we compare the proportion of those individuals who belonged to the same income category at both the observed points in time (the beginning and the end of the period).[13] According to our data, this proportion is the highest in the income categories in West Germany. In comparing East Germany and Hungary, the results do not always correspond. The proportion of those leaving the lower income categories was higher in East Germany, while with regards to average and above-average income categories the distributions vary.

How can these changes be interpreted with our initial questions in mind? After studying the figures it seems to be evident that *the societies undergoing transformation contain a far higher number of people whose relative income position has changed over time than does West Germany.* Behind the macro-structure of income distribution and income inequality that changes only very slowly we found an unexpectedly intensive and unceasing shift in income positions. It seems that the transformation is a more dynamic process than the "normal" changes taking place in modern industrial societies. The comparison of Hungary and East Germany shows that the latter country has a somewhat higher income mobility. This seems to contradict the results provided by the classic inequality indicators, but ties in with what the changes in the shape of the income distribution drawn by the Kernel Density Estimate suggested. We would also like to call attention to the fact that this flow also takes place under relatively stable economic and social conditions. Regarding theories of modernisation or social change, this is clear evidence for *continuous social change* in modern industrial societies (Hauser and Fabig 1998).

We have seen that transition matrices are not easy to handle and that they disregard structural changes. To resolve these problems, we have constructed what is known as the Glass/Prais Mobility Index, which serves to characterise the outflow from certain income categories (Machtwig-Habich 1997; Müller-Frick 1996). The Glass/Prais Index measures how mobility observed in a given income category in a given period of time relates to total (the whole of possible)[14] mobility.[15] Its value can be between 0 and 1, and the higher it is in an income category, the higher year-to-year mobility is in that category. This is a good way of illustrating change in mobility-stability patterns.

For the sake of greater clarity, we present the Glass/Prais Index graphically. In comparison with the shifts in the transition matrices, we have altered our procedure inasmuch as we here calculate and show the Glass/Prais Mobility Index for all the *year-to-year* periods. For the sake of arriving at conclusions in terms of contents, we here do not confine ourselves to characterising each country only by the four figures within the five year period. With all these considerations in mind, we can now expand the comparison between the countries. Thus we hope to be able to better compare

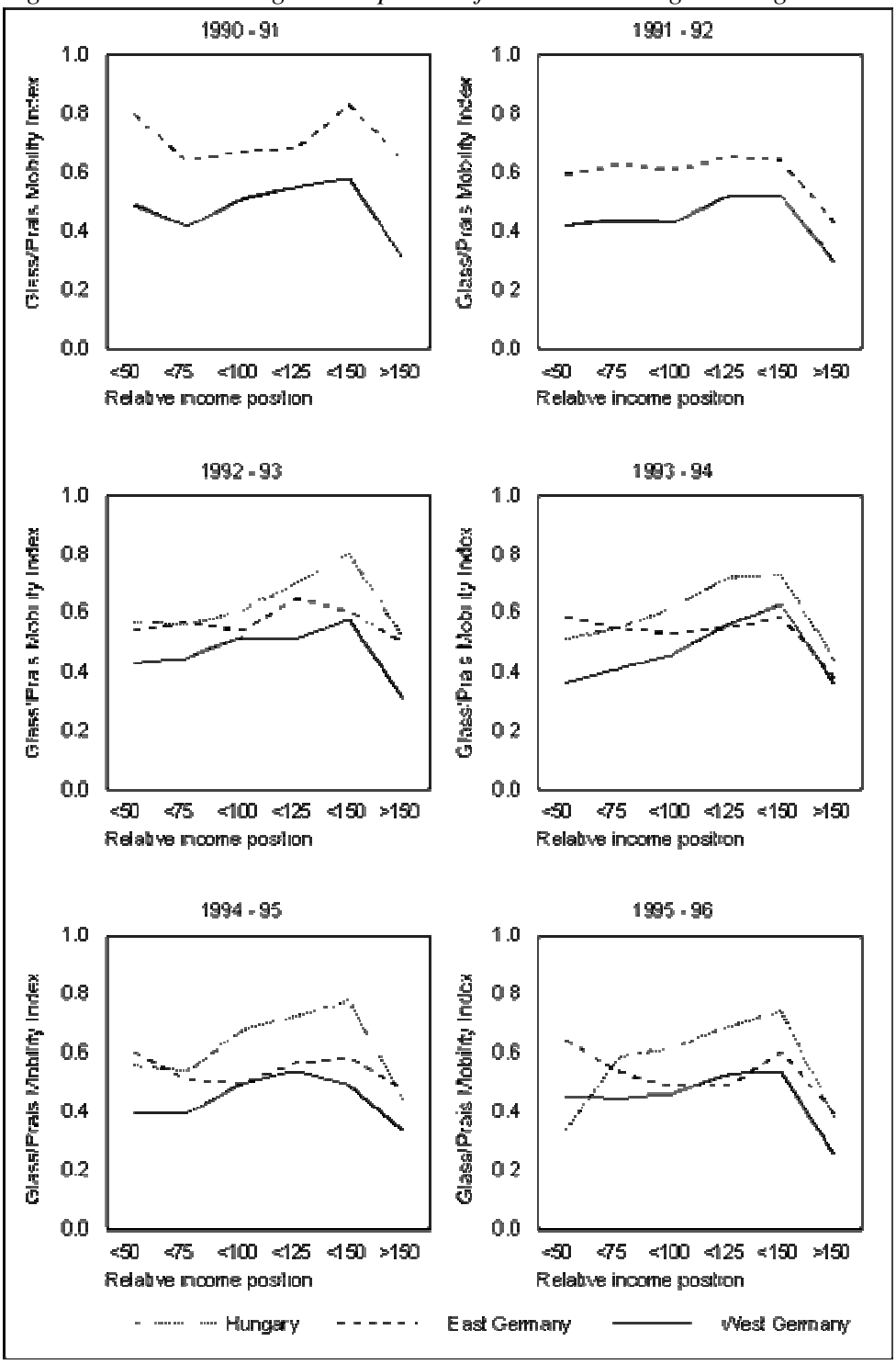
- the changes the selected societies have undergone between two points of the year-to-year period;

- whether there occurs a change with the passing of time in the curves of the studied societies, in other words, if there were changes in dynamics ("the changes of changes");

- whether there are similarities or dissimilarities in the changes of the mobility patterns.

What are the most interesting results obtained from the Glass/Prais Mobility Index?

Figure 5. Measuring the pace of social change using the Glass/Prais index



Source: GSOEP 1990-1996 and HHP 1992-1996. Author's calculation

The degree of income mobility in *West Germany*, a country not in transition, was quite high. Looking at the various income categories, there was not much change in the mobility *pattern* over the period investigated: the pattern in 1990 was very similar to the pattern six years later. The mobility was somewhat higher in the middle categories, partly because those at the ends of the scale had the chance to move only in one direction.

In *East Germany*, we find much higher mobility rates, which are confined to the very beginning of the transformation. According to the income-mobility patterns, the transformation *slowed down to West German* levels around 1993. In the ensuing years we can observe one special feature: the two bottom categories, the poor and the almost poor, had much better chances of escaping from poverty than the same categories did in West Germany. From this we can conclude that the *segmentation of the population into poor and not poor was less sharp in East Germany than it was in West Germany.*

Mobility in *Hungary* was higher than in East Germany (and of course also higher than in West Germany) in each of the four periods under investigation. However, if we observe the first periods we have data for in each country (1990-91 in Germany and 1992-93 in Hungary), a very similar pattern emerges in the two transitional countries. On the one hand, we know that the increase in inequality started at the very beginning of the 90s, that is, before the time for which we have longitudinal data in Hungary. We can thus conjecture that mobility in the earliest times of the transition must have been even more intensive than in the first period we have here investigated (1992-93). On the other hand, unemployment emerged in 1992, and the differentiating effect of the labour market probably became stronger in the period we have analysed. On these grounds, we have to assume that in the period when transition began in Hungary, and for which we have no panel data, income-position mobility probably was no higher than that observed in 1992. *What we can state with certainty is that the period of transformation was characterised by very high income mobility in every income category.*

In *Hungary* we cannot observe the same process of slowing down that characterises East Germany. This phenomenon leaves room for differing hypothesis about the Hungarian development. It can be assumed that in Hungary the transformation lasted somewhat longer than in East Germany, and has not yet finished in 1996,[16] but it can also be postulated that the "normal" mobility pattern of Hungary may be different from that of Germany, and that it will also be higher than Germany's in the future. It is worthwhile to quote at this point some of the results of the study of Hauser and Fabig (Hauser-Fabig 1998:4). They state, drawing on comparative studies, that income dynamics are very similar, in fact almost identical, in societies with as dissimilar welfare regimes and labour market systems as those of the USA and West Germany. In our case, the higher Hungarian mobility pattern is an indication of ongoing transformation.

Clear differences between the countries become apparent in terms of *income categories*, if the curves for the last period are considered. While the upper-income categories show the highest degree of stability in each country, with regard to the poorest, in Hungary stability seems greater than in Germany. The middle-income categories, on the other hand, show very high mobility. These observations suggest that the nature of transformation differs in these countries. In Hungary, in comparison with other countries, the poor seem to have become a strongly disadvantaged group in the last year. However, it is not impossible that this is due to a "one-off" instance of hardship, caused by the Bokros package of stabilisation measures introduced in 1995. By contrast, the West German welfare system seems to have functioned efficiently in East Germany, where people had the best chance of escaping poverty.[17]

High mobility rates in the middle categories in Hungary indicate that this category was "volatile" - not a place of "arrival", but one of "departure". Although the direction of movement was usually downward, there were paths leading upward as well.

Income dynamics during the whole period: overall income mobility pattern

We are still trying to understand income dynamics/mobility, but we would like to be able to treat year-to-year periods and the whole period simultaneously. We now want to illustrate and sum up the overall mobility patterns between 1990 and 1994 (in Germany) and between 1992 and 1996 (in Hungary). For this, it is necessary to modify both the analytical strategy and the methodological perspective and we have to introduce yet another method. For this reason, we have divided individuals' income careers into annual units of observation, and we have based our analyses on these units (observations). The tables that follow present the results of analysis of all "observations", which means that they report at an analytical level on "person-years"[18], This angle allows us to examine in more detail whether or not total mobility in the three societies differed significantly.

Let us look more closely at the mobility and stability of all income-category positions across the period of transformation (first step). The unit is "person-years" observed. The findings of *Table 3* are to be understood as referring to the distribution and the stability/mobility pattern of the relative income positions over time, as follows:

Table 3. Income positions over time: breakdown of proportions (percentage)[+]

Income positions	Proportion of all observations in total time in income category ("overall")			Proportion of persons experiencing income category ("between")			Proportion of the time a given person remains in the same income category ("within")		
	West Germany	East Germany	Hun-gary	West Germany	East Germany	Hun-gary	West Germany	East Germany	Hun-gary
<50	8	5	9	17	15	24	63	41	56
50-75	25	19	25	47	47	54	69	53	61
75-100	25	32	25	53	71	60	62	57	55
100-125	19	23	15	43	59	44	57	50	45
125-150	11	12	9	28	35	29	51	44	40
>150	12	8	16	22	20	32	73	55	68
Overall[++]				210	247	242			

Notes:
[+] "Overall": distribution of all *observations* (person-years) in each income category; "between": proportion of *persons* found at least once in a particular income position; "within": proportion of *observations per person* in the given income category (fraction of time).
[++] "Overall between": the sum of the "between" percentages
Data base: GSOEP 1990-94; HHP, 1992-96. Authors' calculations.

a) The "overall" percentage sheds light on the total distribution of all person-years - all yearly income class experiences of all the individuals - in the income position concerned. This could be regarded as a generalisation of the annual distributions.[19] These three columns are

significant, because they show how many times individuals have been classified in certain income categories over the whole period.

b) The next three columns again regard individuals as points of reference. The "between" percentage shows the proportion of all persons who have ever been - regardless of duration - in the income position in question. In other words, we learn what proportion of persons experienced a certain income position at least once.

c) The "overall between" in the bottom row of the three middle columns is a measure that can be interpreted as contrasting overall mobility over the whole period between the countries. The higher the value, the higher the proportion of the population involved in total mobility is.

d) The last three columns report on how many times (for how long) individuals stayed in a particular income category. These "within" percentages denote the fraction of time as compared to the whole period - five years - which a person has spent in a specific position. If only the same people belonged to a given income category in every observed year, then we would have 100 here.

To make things clearer, let us take an example. We assume that in the three societies the proportions of all observations which fall either into the under-privileged or into the privileged positions vary. This expectation is confirmed when we see that in West Germany only 8 per cent of observations fell into the lowest income category (poverty), while in East Germany this proportion was about 5, and in Hungary about 9 per cent. As for the wealthiest category, the proportions were 12 per cent for West Germans, 8 per cent for East Germans and 16 per cent for Hungarians. However, these different figures tell only parts of the story.

Let us see what we can learn from the proportions in the "between" category. These percentages add to our discussion by documenting the proportion of people involved - at any time and for any duration - in the lowest and highest income categories. In West Germany 17 per cent of the total population fell at least once into poverty position. The equivalent proportion for East Germans was around 15 per cent, while in Hungary it was 24 per cent. The relative figures for the wealthiest position were very similar to these, only at a different level.

This picture, however, is incomplete without considering the "duration" of the state of poverty and wealth. This is supplied by the "within" percentage, which denotes the number of observations of a person in a certain income category, as compared to the whole period. This figure is a measure of the stability of income classes. If we compare the two extreme positions, we find that the top (the privileged) position seems more stable than the bottom one (that of poverty). Put differently: poverty proved to be less stable than wealth.

What do these figures and proportions then mean with respect to the particular counties? The point to note from this analytical framework is that there were different chances and risks associated with winning or losing a specific income position in the course of time.

In general, it seems clear that in Hungary the lower and the top positions were more stable than the others. The second highest position (125 to 150 per cent) was the most precarious. A very low percentage of all observations and only a minority of people fell into this category, and they had a relatively small chance of remaining there over time. Perhaps one could interpret this as the presence of a new, unstable, Hungarian upper-middle class. When the

various documented indicators are compared, a segmentation of income positions seems to have begun. The stability patterns ("within") lead us to suppose - especially when compared to the proportions in the two parts of Germany - that in Hungary the position of the lowest and the topmost income categories have stabilised, almost to the same degree that we find in West Germany.

In East Germany we find a different story. Here the figures do not indicate that borders between income categories would be becoming rigid. Unlike in Hungary, the overall East German trend seems to be towards the average. We find a higher number of person-years around the mean income category than we do in West Germany. A vast majority of East Germans (>75 per cent) have at some point in time occupied lower-middle income position.

As already mentioned, even in the reference case of West Germany there was much greater fluctuation than could have been anticipated. We, therefore, want to stress again that societies undergoing "usual" social change display processes of considerable mobility at the micro level and stable income distribution at the macro level.

All in all, we have eventually come up with further evidence showing that total income mobility in East Germany and in Hungary was higher (240 per cent) than in West Germany (210 per cent). Furthermore, behind proportions of mobility almost identical in the two former socialist countries we found different patterns in income position mobility: in Hungary - in comparison with East Germany - a very high number of people experienced lower income categories, and have stayed there for much longer spans of time.

As a last step - and only for the sake of completing the picture since we do not expect to get different results - let us examine the *generalised probability matrices*. This differs from the previously presented matrix in that here there is a "generalisation" of year-to-year transitions. In other words, this method filters the undulations of the yearly eventualities which the Glass/Prais index made visible for the countries in transition. The matrix presents chances for transitions relative to the whole of the period. The probabilities can be interpreted as the proportion of individuals remaining in a given position (diagonally) in each year, and as the chances for someone to move from one income category into another. Let us look once more at an example.

Table 4 illustrates the probability of transition between income categories. The line for West Germany shows that the population in poverty has an "annual risk" of 59 per cent of remaining poor in each of the following years, and a 41 per cent chance for escaping poverty. Chances of moving to the neighbouring income category (into the 50-75 per cent category) are 32 per cent, and there is no chance for jumping into, for example, the income category of the wealthiest.

Table 4. Transition probabilities between income positions, 1990-94/96

Initial income category	Final income category					
	Lowest	2	3	4	5	Highest
	Transition probabilities					

West Germany 1990-96						
Lowest	59	32	6	2	1	0
2	9	66	20	4	1	1
3	2	18	59	17	3	1
4	1	5	21	52	16	5
5	1	3	7	24	45	21
Highest	1	1	3	8	16	71
East Germany 1990-96						
Lowest	35	44	16	3	1	1
2	10	50	31	7	1	1
3	3	18	53	21	4	1
4	1	7	26	46	16	5
5	1	2	9	31	38	19
Highest	1	2	5	11	25	56
Hungary 1992-96						
Lowest	50	32	11	3	1	3
2	14	53	26	6	1	1
3	4	26	46	16	4	4
4	2	9	28	34	16	11
5	1	5	13	27	27	28
Highest	1	3	6	9	16	65

Data base: GSOEP, 1990-94 and HHP, 1992-96. Authors' calculations.

As we have indicated, no surprising novelties are to be found in *Table 4*. But some of its results are worth repeating. One is that in the two countries in transition the numbers in the diagonal - the probability of staying in the income class in question - are always lower than in West Germany. Another feature that emerges here is that there are differing outflow probabilities in the two countries in transition. When these two countries are compared, we find that in East Germany there is a greater chance of outflow in the case of those who are in the two bottom (the poor) and in the topmost (the wealthy) categories. At the same time, in Hungary the probability of staying in a category is the lowest in the middle and the upper-middle positions.

In our concluding remarks to this section we would like to suggest a new possibility for interpreting transition matrices. The fact of mobility processes and their empirical patterns

could, in a theoretical sense, be seen as valid *indicators of the "openness" of a society.* These data reveal whether or not borders exist between certain income positions, between certain conditions of material well-being, and if they do, how easily they can be crossed. Do people living at a certain level of wealth have a future chance of finding themselves in more favourable circumstances? The case of West Germany - especially if we also consider the fact that researchers have found quite similar outflow probabilities in the rather different social structure of the U.S.A. (Hauser-Fabig 1998) - shows us the degree of "openness" and the kind of income mobility "pattern" that characterise developed industrial countries, "open" societies. Upward leaps are not impossible, but the most probable mobility pattern in each income category is a transition to the neighbouring category. It is important to state this because as a result of the transformation in the former socialist countries the opportunities for changing income categories in a given period of time have opened up to an even greater degree than is common in Western societies. In the proceeding period - although we do not have empirical data for substantiating this assumption - these countries were most likely characterised by lower mobility dynamics than modern industrial societies.[20] The point is, however, that the income mobility patterns in the two countries in transition are different from those of a stable Western capitalist society.

Summary

Here we restrict ourselves to the summary of some of our findings about social change in general, and of those made specifically about the transformation of systems, while we also call attention to some unresolved problems.

(1) The literature on inequality (Atkinson-Micklewright 1992; Becker-Hauser 1997; Förster-Tóth 1997) confirms that according to commonly used inequality indicators (Gini coefficient and/or decile distribution) the rate of change is rather moderate. The data of our study have also confirmed this view. At the same time, these data have also clearly demonstrated that there are very frequent shifts of individual positions underlying the stability of macro-social distribution. This is in keeping with the present authors' understanding of social change and with their everyday experiences. The pertinent theory of social change holds that modern industrial societies may be characterised by constant modifications taking place in the economy and in social life (Zapf 1994). Consider such background factors as the dynamics of the labour market (entrance, exit, career), or planned and unforeseen changes in family life and family cycle (birth of children, moving in and out, divorce, death). The role of innovation in the economy and society should not be forgotten either (Zapf 1994d). The macro level stability of developed industrial societies - as for instance that of West Germany - is the result of this constant micro level mobility.

(2) The post-socialist societies we examined are countries in transition, which show significantly *higher mobility* than does West Germany. This statement has been verified both by using Glass/Prais mobility indices and by applying the index of total mobility. This high degree of dynamics is motivated partly by structural and institutional changes (economic, political, legal, institutional transformations) typical of the system change, which we did not treat in this paper, and also by the fact that as a result of the transformation, micro level processes characteristic of modern industrial societies emerged and began to operate.

(3) The similarities and differences between mobility in Hungary and in East Germany provide grounds for the formulation of a new hypothesis. Bearing in mind the entire income mobility of the two countries, one may say that *the dynamics of changes in income positions - the circulation within the income distribution system - is just as characteristic of the transformation as the increase of income inequality*.

(4) Clear differences were found in the pace of transformation in the two post-socialist countries. East Germany showed very fast change only in the first two years of transformation, while in Hungary a higher degree of mobility lasted longer. It can be assumed that the "unification effect" on East Germany was to some extent responsible for high mobility (Müller-Frick 1996), and consequently the effect of transformation has been weaker than in Hungary.

(5) The analysis shows that using traditional inequality measures we find no difference between West and East Germany concerning the trends, but variation emerged in the shape of the income distribution and the pattern of individual mobility. Thus, *the invariance of income distribution may have resulted from very different individual mobility regimes*.

(6) Over the whole period, there was less chance to escape poverty in Hungary than in East Germany, where we also find higher stability among the rich. East Germany's adoption of the West German social system - heavy taxation for the rich and the support for the poor - seems to have been effective in avoiding breaches in society.

(7) In East Germany, a robust middle-income category seems to have emerged. In contrast, in Hungary a process of polarisation seems to have taken place. The middle-category is very "fragile" in Hungary.

(8) We have also noted the possibility of an interpretation that naturally needs to be substantiated by further research. We have suggested that the indices measuring the dynamics and patterns of income mobility could be regarded as indicators of the "openness" of a society. Of course, we do not believe that there are "closed" societies where nobody changes his/her position, or that there would be societies which are entirely open, where an individual's position in the next year is a matter of pure chance. What we do hypothesise, however, is that the differences in the dynamics of societies may be constant, which may indicate the degree of openness of a given society.

We conclude this summary by acknowledging that our analyses must by no means be regarded as complete. It is our opinion that both the relative stability at the macro level and the steady dynamics at the micro level are interrelated in ways that require further explanatory investigations.

References

Andorka, R.- Spéder, Zs.-Tóth, I. Gy. 1995. *Developments in Poverty and Income Inequalities in Hungary 1992-1994*. Report to the World Bank Budapest Office

Andorka, R.- Ferge, Zs.-Tóth, I. Gy. 1997. Is Hungary really the least unequal? (A discussion of data on income inequalities and poverty in central and eastern European countries) *Journal of Russian and East European Finance and Trade,* 33: 6, 67-94.

Atkinson, A. B.-J. Micklewright 1992. *Economic Transformation in Eastern Europe and the Distribution of Income.* Cambridge: Cambridge University Press

Balcerovicz, L. 1995. *Socialism, Capitalism, Transformation*. Budapest: Central European University Press

Becker, I. 1998. *Zur personellen Einkommensverteilung in Deutschland 1993: Fortsetzung des Trends zunehmender Ungleichheit*. Universität Frankfurt, Fachbereich Wirtschaftswissenschaften, Institut für Konjunktur, Wachstum und Verteilung, EVS-Project, Arbeitspapier 13.

Becker, I.-R. Hauser 1997. *Einkommensverteilung und Armut. Deutschland auf dem Weg zur Vierfünftel-Gesellschaft?* Frankfurt a. M.: Campus

Cowell, F.A.-S.P. Jenkins-J. A. Litchfield 1992. *The Changing Shape of the UK Income Distribution: Kernel Density Estimates*. University College of Swansea, Department of Economics, Discussion Paper Series, No. 9-06.

Duncan, G. J. 1984. *Years of Poverty, Years of Plenty.* Ann Arbor: Institute for Social Research, University of Michigan

Flemming, J.-J. Micklewright 1997. *Income Distribution, Economic Systems and Transition*. Paper presented at the Conference on "Inequality and Poverty in Transition Economies," 23-24 May, EBRD, London

Förster, M.-I. J. Tóth 1997. *Poverty and Inequalities: Hungary and the Visegrád Countries Compared*. Paper presented at the Conference on "Inequality and Poverty in Transition Economies," 23-24 May, EBRD, London

Förster, F. M.-Szívós, P.-Tóth, I. Gy. 1998. A jóléti támogatások és a szegénység Magyarországon. [The role of the welfare programs and poverty in Hungary]. In: Kolosi-Tóth-Vukovics (eds.) *Társadalmi riport 1998*. Budapest: Tárki

Habich, R. 1996. Problemgruppen und Armut: Zur These der Zwei-Drittel-Gesellschaft. In: W. Zapf-R. Habich (eds.) *Wohlfahrtsentwicklung im vereinten Deutschland. Sozialstruktur und Lebensqualität*. Berlin: edition sigma, 161-88.

Hauser, R.-G. Wagner 1995. *Die Einkommensverteilung in Ostdeutschland - Darstellung, Vergleich und Determinanten für die Jahre 1990-1994*. Mimeo

Hauser, R.-H. Fabig 1998. "Labor Earnings and Household Income Mobility in Reunified Germany: A Comparison of the Eastern and Western States". Forthcoming in *Review of Income and Wealth.*

Headey, B.-R. Habich-P. Krause, 1994a. Long- and short-term poverty. Is Germany a two-thirds society? *Social Indicator Research*, 31: 1-25.

- - - 1994b. *The Importance of Government Policy on Income Levels and Inequality in United Germany 1990-1992.* Berlin: German Institute for Economic Research, Vierteljahreshefte 1/2.

Immerfall, St. 1995. *Einführung in den europäischen Gesellschaftsvergleich.* Passau: Rothe

Kolosi, T.-M. Sági, 1998. Hullámzó háztartások. [Fluctuating households]. In: Kolosi- Tóth-Vukovics (eds.) *Társadalmi riport 1998*. Budapest: Tárki

Kornai, J. 1993. Transformációs visszaesés: Egy általános jelenség vizsgálata a magyar fejlõdés példáján [Transformational Recession: A General Phenomenon Examined through the Example of Hungary's Development]. *Közgazdasági Szemle*, 40: 7-8, 569-599.

Machonin, P. 1997. *Social Transformation and Modernization. On Building Theory of Societal Changes in the Post-Communist European Countries*. Prague: Sociologické Nakladatelstvi

Macthwig, G.-R. Habich, 1996. Berufs- und Einkommensverläufe in Deutschland nach der Vereinigung. In: R. Hauser et al. (eds.)*, Soziale Sicherheit für Alle?* Opladen: Leske + Budrich, 12-101.

Medgyesi, M.-Szívós, P.-Tóth., I. Gy. 1998. A háztartások jövedelmi szerkezete, egyenlõtlenségek, szegénység és jóléti támogatások. [The income structure of the households, poverty, and welfare programms]. In: Szívós-Tóth (eds.) *Társadalmi tény-kép 1998.* Budapest: Tárki

Müller, K.-Frick, J. 1996. Die Äquivalenzeinkommensmobilität in den neuen und alten Bundesländern 1990-1994. In: R. Hauser et al. (eds.) *Soziale Sicherheit für Alle?* Opladen: Leske + Budrich, 103-154.

Offe, C. 1994. *Der Tunnel am Ende des Lichts. Erkundungen der politischen Transformation im Neuen Osten*. Frankfurt am Main: Campus

Rose, R.-C. Haerpfer; 1996. *The Impact of a Ready-made state: Advantages of East Germans.* Studies in Public Policy, No. 268. Glasgow: Centre for the Study of Public Policy

Spéder, Zs. 1996. Változások évrõl évre.[Changes year-to-year]. In: Andorka-Kolosi-Vukovics (eds.) *Társadalmi riport 1996*. Budapest: Tárki, 44-69.

- 1998. Poverty Dynamics in Hungary during the transformation. *Journal of Economics of Transition,* 6: 1, 1-21.

Spéder, Zs.-A. Schultz-R. Habich 1997. Soziale Ungleichheit in der ostmitteleuropäischen Transformation. In: W. Glatzer-G. Kleinhenz (eds.) *Wohlstand für alle?* Opladen: Leske + Budrich, 335-408.

Stark, D. 1992. Path dependence and privatisation dtrategies in East Central Europe. *East European Politics and Societies*, 6: 1, 17-54.

Szívós, P.-Tóth, I. Gy. 1998. A háztartások jövedelmi szerkezete, egyenlötlenségek, szegénység és jóléti támogatások. [The income composition of the households, inequality, poverty and welfare supports.] In: E. Sik-I. Gy. Tóth (eds.) *Zárótanulmány az MHP 6. hullámáról* (Report on the 6th wave of the Hungarian Household Panel). Budapest: BKE-TÁRKI, 44-57.

van den Bosch, L.-L. De Lathouver-H. Deleeck 1996. Poverty and Social Security Transfers - Results for Seven Countries and Regions in the EC. In: N. Ott-G. Wagner (eds.) *Income Inequality and Poverty in Eastern and Western Europe*. Heidelberg: Physica, 91-124.

Vogel, J. 1997. *The European "Welfare Mix". Institutional Configuration and Distributive Outcome in Sweden and the European Union in Longitudinal and Comparative Perspective.* Paper presented at the Conference of the International Society for Quality-of-Life Studies, Charlotte N.C., 20-23 November.

Zapf, W. 1994. *Modernisierung, Wohlfahrtsentwicklung und Transformation*. Berlin: edition sigma.

- 1995. Zwei Geschwindigkeiten in Ost- und Westdeutschland. In: E. Holtmann-H. Sahner (eds.) *Aufhebung der Bipolarität*. Opladen: Leske + Budrich, 69-81.

* This paper was prepared for the workshop "Social Change in an Enlarging Europe: Welfare Development, Structural Changes and Theoretical Approaches" held at Collegium Budapest Institute for Advanced Study, 15-16 May, 1998. Some of the papers presented at the workshop will be published in the discussion paper series of the WZB. This article is a new version of the WZB Working Papers FS III 99-402, "Income Dynamics in Three Societies".

1. We regard the two parts of Germany as two different societies, thus henceforth we will be speaking of East and West Germany.

2. We should note that income is not simply one of several indicators, but the most important one of them all. Because equivalent income is the most widely used and perhaps the most accurate indicator in measuring economic well-being, throughout our study, we use the concept as an indicator of economic well being. In order to take into consideration the economies of scale in household consumption we use the 0.73 elasticity.

3. For Zapf, the reconstruction of West Germany and Italy after 1945, or Spain's and Portugal's transition from dictatorship into democracy are just as much a cases of transformation as is the changing of the system in the beginning of the nineties in ex-socialist countries.

4. The investigation is based on the German Socio-Economic Panel (henceforth GSOEP) and the Hungarian Household Panel (henceforth HHP). These two data bases are identical or very similar in terms of their crtiteria of representatives and the structuring and contents of their questionnaires. For further details on the German panel, cf. Hanefled 1987; Wagner et al. 1994. On the Hungarian HHP, see the annual reports: Sik-Tóth 1992, 1993, 1995, 1996, 1997; Tóth 1994.

5. For Hungary we only have data from after 1992.

6. For a detailed analysis of income inequality in the former socialist countries, see Fleming and Micklewright 1997, and Förster and Tóth 1997.

7. This is in keeping with the data of Förster et al. 1998, which tell us that income inequaity observed in Hungary is higher than in many other developed industrial countries of Europe. Considering the 1987 income surveys of HCSO, we can conclude that increase of income inequality was most intensive at the end of the eighties and at the beginning of the nineties, since according to these data, the Gini was around 0.23, and the P90/P10 around 2.7 (cf. Spéder 1998). Unfortunately, the HCSO income surveys and the HHP survey are not entirely compatible, but it is fair to suppose that the trends are not misleading.

8. On this method and on its use in analysing income inequality, see the study by Cowell et al. 1994, referred to above.

9. We note here that in our research we have regarded the degree of mobility as a valid measure for the quality of social change.

10. The datum relating to the whole of the period indicates the income position at the end of the period gained by individuals who belonged to a certain income category at the beginning of the period.

11. In principle, transition matrices can be analysed from two points of view. The outflow perspective gives information about movements from the beginning to the end of the period. The inflow perspective looks specifically at the pattern of recruitment of current income positions.

12. The distribution if the transition matrix also depends on the length of the period considered. This means that we will have to analyse periods of the same length. In the case of Hungary, we have looked at the period between 1992-96, and in the case of Germany, we analysed the years between 1990-94 - a decision based on considerations mentioned above.

13. We disregard the distances of the movements.

14. As if the final position were independent of initial group positions.

15. Ways of computing the Glass/Prais index are detailed by Machtwig-Habich 1997: 28ff. This index, as far as we can tell was used to measure the tempo of social change for the first time in the mentioned study.

16. We are aware that this is in contradiction with the views of several researchers involved in the HHP project, but in our case, it is the stabilising of mobility patterns that means the completion of the process.

17. This apparently contradicts the statements of Hauser and Fabig, who conclude that German welfare and tax system had the effect of decreasing mobility. However, they used an aggregate, and not an income-category-specific index.

18. This change of perspective is to be noted. The level of analysis here is not the individual, but the sum of all yearly "events" happening to the individual.

19. A way of summing up the distribution tares indicated in the diagrams of the first figure.

20. At this point it is a valid objection that the income mobility analysed in our article is connected to social mobility, which describes the restructuring of social status and the individual and group movements between them. To reflect on this problem even on the level of mentioning it in passing would have led us far beyond the scope of the present study.