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**LABOR EARNINGS AND HOUSEHOLD INCOME
MOBILITY IN REUNIFIED GERMANY: A
COMPARISON OF THE EASTERN
AND WESTERN STATES**

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Abstract

Using data from the German Socio-Economic Panel (GSOEP) we compare the economic mobility of persons living in the eastern and western states of Germany between 1990 and 1995. We find that gross individual labor income mobility was initially much higher in the east than in the west following reunification, but by 1995 the gap had been greatly reduced. We find similar results when we change our measures to more accurately reflect economic well-being. Gross equivalent labor income and net equivalent income mobility were initially higher in the eastern states than in the western states but there has been convergence over time. By 1995 there was little difference in net equivalent income mobility patterns in the two regions of Germany. This finding suggests that the German social protection system has dramatically reduced mobility risks associated with the transformation to a market economy in the eastern states of Germany.

1. Introduction

Economic mobility is a natural consequence of the competitive process in market economies which rewards those who correctly adapt to change and punishes those who do not. But in market economies, certain economic risks associated with income loss—unemployment, disability, etc.—are at least partly ameliorated by a social protection system. Centrally planned socialist economies, on the other hand, by insuring against all economic risks, greatly reduce economic mobility and the necessity to compensate for unfavorable events, but they do so at the cost of individual freedom and economic growth.

Dramatic political changes in central and eastern Europe at the end of the 1980s led to changes in their economic systems from centrally planned to more market-driven. The reunification of Germany led to the immediate and complete transfer of West German institutions, including its economic and social protection systems, to the former East Germany, which had been a centrally planned economy.

This extraordinary historical event raises two questions: first, did labor earnings mobility in the eastern states of Germany rise to or above the level of such mobility in the western states of Germany following reunification? Second, did the German social protection system ameliorate some of the mobility risks in labor earnings associated with the transformation to a market economy in the eastern states and yield mobility patterns in household size-adjusted income similar to those observed in the western states?

It is not an easy task to measure economic mobility and to make comparisons between geographical units. From a distribution perspective, at least three dimensions of economic mobility can be distinguished: first, economic mobility defined as changes in the relative position achieved by *gross individual labor* income, that is, personal pre-tax labor earnings; second, economic mobility defined as changes in the relative position with respect to *gross*

equivalent labor income, that is, total pre-tax household size-adjusted labor earnings; and third, economic mobility defined as changes in relative position with respect to *net equivalent* income, that is after-tax and transfer household size-adjusted income from all sources.¹

Very little is known about these dimensions of economic mobility. For highly industrialized market economies, cross-section analyses usually find small changes in the distributions of wages and net equivalent income, suggesting stratified societies (Atkinson, Rainwater and Smeeding 1995; Hauser and Becker 1997). In contrast, longitudinal studies based on panel data support the view of fairly mobile societies, at least with respect to net equivalent income. For the United States, Duncan et al. (1984) found high levels of mobility into and out of poverty in the 1970s and early 1980s. Jarvis and Jenkins (1996) also found considerable economic mobility in the United Kingdom between 1991 and 1994. Gustafsson (1994) derives the same result for Sweden between 1971 and 1981. Hauser and Berntsen (1992) and Berntsen (1992) showed that there was considerable mobility at all levels of the income distribution in West Germany in the early 1980s, and Habich and Krause (1994) found similar results for the western states of Germany through the end of the decade and into the early 1990s. Studies based on a cohort of Bremen social assistance recipients found high mobility at this lowest level of the social protection system in Germany. Less than 25 percent of social assistance recipients remained on the program for more than five years (Leibfried and Leisering 1995). On the other hand, Schluter (1996), who investigated income mobility in the western states of Germany during the 1990s, finds that “a person’s income position is strongly persistent” (p. 19). In contrast to this finding, Steiner and Kraus (1996) found a large degree of income mobility in the eastern states of Germany in the early 1990s. Mueller and Frick (1996) were among the first to compare income mobility in the eastern and western states of Germany. They found considerable

differences in net equivalent income mobility during the period 1990 to 1994. Mathwig and Habich (1996), using gross individual income as their unit of interest, also found considerable differences in mobility between 1990 and 1994.

Comparative studies of economic mobility in highly industrialized market economies are rare. Comparisons of income mobility in the United States and West Germany in the 1980s by Burkhauser, Holtz-Eakin, and Rhody (forthcoming a, forthcoming b) produced the surprising result that despite the great differences in labor market regulations, tax systems, and social protection systems, economic mobility with respect to labor earnings and net equivalent income was approximately the same in the two countries.²

To our knowledge, no panel data studies on economic mobility in centrally planned socialist economies exist. Nor are we aware of studies that analyze the changes in economic mobility following a change from a centrally planned socialist economy to a market-based economy. Our study is an attempt to fill this gap in the literature.³

In Section 2 we provide an overview of the institutional arrangements in the eastern and western states of Germany prior to and following reunification. In Section 3 we describe the data and methods used to analyze mobility. In Section 4 we compare income mobility in the eastern and western states of Germany with respect to gross individual labor income, gross equivalent labor income, and net equivalent income and we analyze the impact of the German social protection system on mobility as measured by these variables. We then summarize our findings in Section 5.

2. An Overview of the Institutional Arrangements in the Western and Eastern States of Germany⁴

The structure of the German social welfare system still reflects Bismarck's design. Social protection for workers from income loss due to unemployment, occupational accident, sickness, disability, old age, or the death of a breadwinner is based on social insurance, with contributions and benefits proportional to wage income to some upper limit. Special arrangements for craftsmen, independent workers, civil servants, professionals and farmers also exist. Only a small portion of the self-employed are not covered by these compulsory social insurance programs. The benefit rates range from 53 percent (means-tested unemployment assistance) to more than 90 percent (sickness allowance) of previous net-of-tax and contribution income. Pensions depend on the relative earnings position achieved in each year of working life and on the length of the period for which contributions were paid. All social insurance benefits are indexed to increases in net-of-tax and contribution wages. If social insurance benefits and all other income sources of a household do not sum up to a government-defined "socio-cultural subsistence level," a general social assistance scheme financed by general tax revenues provides additional means-tested benefits to reach this minimum.

Child allowances, maternity leave, educational allowances, job guarantees for mothers temporarily interrupting work to care for their children, student benefits, tax allowances, and family-related transfers implicit in some social insurance programs and the income tax schedule also contribute to reduce the cost of child rearing and of single-earner families.

The costs of health care for workers, employees, pensioners, and their family members up to a maximum are covered by mandatory social health insurance. High earners, civil servants,

and most of the self-employed must find private health insurance. A social insurance program to cover the cost of long-term nursing care has recently been introduced.

The German tax system relies on approximately equal proportions of direct and indirect taxation. Taxes on income and wages are progressive, with the highest marginal tax rate reaching 53 percent. However, the tax system has many loopholes, especially for self-employment and capital income, to avoid the highest marginal tax rates. In 1990 a surtax was introduced to pay for the costs of reunification. This tax was abolished in 1992 but reintroduced in 1994. Recently, the basic allowance in the income tax schedule was increased to the social-cultural subsistence level, as defined by social assistance regulations, to relieve low earners of tax liabilities. Tax payments and social security contributions amounted to 39.7 percent of GNP in the western states of Germany in the year before reunification (1989) and rose to 42.1 percent of GNP in 1995 (Institut der deutschen Wirtschaft 1996).

The German labor market can be characterized as a three-tier system. Basic rules to protect workers are set by law, but there is no minimum wage. Trade unions and employers' associations have a constitutionally protected right to negotiate wages and working conditions. Deviations from the minimum standards set by law can only be made in favor of workers. Individual labor contracts can deviate from negotiated agreements, only in favor of workers. Virtually the entire labor market is covered by these union-employer contracts.

In 1990 the former East Germany was transformed from a centrally planned socialist economy to a market-oriented economy. A monetary union was established in July in which wages and transfer payments were converted at a one-to-one rate. In October, the institutional settings of the western states of Germany were transferred to the eastern states in a single step. State owned industries and land in the east were transferred to a public body, called the

Treuhandanstalt, which was charged with the task of privatizing this property. Because most of the state enterprises were not competitive at world market prices they collapsed, changing forever the industrial structure in the eastern states. The transition process was accompanied by an enormous increase in official unemployment that would have been even higher in the absence of work and retraining programs and the extensive use of early retirement. (See Hauser et al. 1996 for an economic history of this period.)

Social security benefits in the east were based on the much lower wage level in the eastern states—about half that of the western states—and increased only in line with net wages in the east. Even though wages in the eastern states rose very rapidly (from roughly 35 percent of average wage in the western states in 1990 to roughly 71 percent in 1995, Institut der deutschen Wirtschaft 1996) as of 1997 they had not yet reached parity, and are not expected to do so until after the turn of the century. Therefore, social security benefits in the eastern states will continue to lag behind those in the west. On the other hand, the transformation of the pension system in the east increased most pensions and consequently the economic status of pensioners relative to wage earners. This effect was reinforced by temporarily granting supplements to low pensions and unemployment benefits in the eastern states of Germany.

3. Data and Methods

Our empirical results are based on data from the German Socio-Economic Panel (GSOEP). These data were developed at the Universities of Frankfurt and Mannheim in cooperation with the Deutsches Institut fuer Wirtschaftsforschung, Berlin (DIW), and Infratest Sozialforschung, Munich. In 1990 the DIW assumed control of the panel. The panel started with approximately 6,000 households in 1984 in the western states of Germany. These data are

representative of the population living in the western states of Germany including foreign “guest workers.” About two months before the monetary union was established, the panel was extended to the eastern states, thus covering the last days of the old East German regime. The 1990 wave of the GSOEP contains approximately 2,100 households in the eastern states of Germany. Each component of the GSOEP contains weights permitting a replication of the population in each year for use in cross-sectional analysis. Additionally, the data set contains longitudinal weights that correct at the individual level for persons who have left the panel prematurely. Using these weights it is possible to derive representative results by observing individuals over time, as is the case with our mobility analysis.⁵

Our analysis focuses on persons who were either working or registered as unemployed in 1990, and follows their paths through 1994.^{6,7} To avoid confusion between mobility of persons of working age and those who left the labor force because they reached mandatory retirement age, we additionally restrict our sample to persons who were aged 18 to 54 in 1990. Our sample consisted of 2,920 persons living in the eastern states of Germany and 4,943 persons living in the western states of Germany in 1990. Those who moved from one part of Germany to another between 1990 and 1995 are counted as members of their original location group.

We consider three different income concepts: *gross individual* labor income, *gross equivalent* labor income, and *net equivalent* income. We choose multiple measures because we are interested in multiple outcomes. While labor earnings mobility may offer important insights into the functioning of the labor market and its institutions, it is not a good measure of economic well-being. People live in households where they share resources and where additional earners may be present. Hence, an individual’s share of household income is a better measure of

economic well-being than individual earnings. We assume equal sharing and some returns to scale for those who live with others.

A second reason to look at other outcome measures is to focus on the importance of government policy on economic well-being. The tax, transfer and social protection systems in Germany redistribute income among the members of the society. To measure the effects of these systems on market-driven outcomes, we look at income net of taxes but including transfers. Hence, we analyze gross equivalent labor income as a proxy for pregovernment equivalent income, and net equivalent household income, that is, postgovernment income. This distinction can then be used to see how in the household context the presence of government affects income mobility.

Comparing incomes in the eastern and western states of Germany might seem difficult, at least for the year 1990, because income data for East Germany was collected in East German marks. However, since the monetary union of July 1990 replaced the East German mark with the West German deutsche mark at a one-to-one rate, the data collected in East German marks can be taken as a good approximation for the 1990 deutsche mark income of East Germans (see Hauser and Wagner 1996, p. 93).

All income measures are defined monthly. Information on gross individual labor income is obtained directly from the panel. However, we also include information on yearly bonus and other compensation (if paid, and after division by 12). Our measure of gross equivalent labor income is based on this measure of gross individual labor incomes for all household members divided by the equivalence weights of the household based on an OECD developed equivalence scale.⁸ Net household income is taken directly from the panel questionnaire. We add the

postgovernment value of the above mentioned bonuses to this amount and again divide by the sum of the equivalence weights.^{9,10}

Mean values of these income concepts were computed separately for the eastern and western states of Germany. All people with monthly incomes below 100 DM were excluded from the analysis. Relative income positions for every person in every year were computed by dividing their income by the mean value of the income concept under consideration. People were then grouped into brackets according to their relative position to the mean for each income concept. This grouping is not fully satisfactory since it ignores movements within the brackets. It has the further weakness that people close to the border of a particular income bracket are moved from one bracket to another by small changes in income. However, these income brackets allow us to operationalize the complex phenomenon of social mobility. The resulting mobility matrices offer a convenient way to track movements of people among income brackets in a single table. Mobility indices can then aggregate the information contained in these transition matrices into a single number. In this paper, we focus on the Bartholomew index. This index is based on the share of persons that move to another income bracket between the years of reference. A value of zero means no mobility. The higher the index, the greater is the mobility. The formula for calculating the Bartholomew index is

$$BI = \frac{1}{n} \sum_{i=1}^n \sum_{j=1}^n p_{ij} \frac{p_i}{p_j}, \quad i, j = 1, 2, \dots, n,$$

where: p_{ij} refers to the elements of the mobility matrix and is the fraction of those people who were in income bracket i in the first year that were in bracket j in the previous year.

p_i is the fraction of the whole sample that was in income bracket i in the first year.

n represents the number of income brackets.¹¹

This index assigns weights based on how far a person moves from his or her initial income bracket. The Bartholomew index is therefore sensitive to the number of income brackets considered.¹²

4. Mobility across Gross Individual Labor, Gross Equivalent Labor and Net Equivalent Income Groups in Germany

Gross Individual Labor Income Mobility

In centrally planned economies, wages tend to be more equally distributed than in market economies. Thus, many economists expected greater wage inequality in the eastern states of Germany after reunification. In fact, Steiner and Puhani (1996) find that an increasing spread of hourly wages did occur, although at a slower pace than expected. In contrast, the spread of hourly wages remained fairly constant in the western states.

The increasing wage spread in the eastern states of Germany probably contributed to greater gross individual labor income mobility, but more important to mobility was the enormous increase in unemployment following reunification. In 1990, employment in the eastern states did not officially exist. By 1995 it was officially measured at 16.9 percent. In the western states the unemployment rate was 4.3 percent in 1990. It rose to 7.5 percent in 1995.¹³ Since we are looking at gross individual labor income of all persons in the labor force, unemployment implies a complete loss of income from labor and, therefore, downward mobility. The larger increase in unemployment in the eastern states means this downward mobility should be more pronounced in the east than in the west. Additionally, the enormous industrial changes in the eastern states increase the risks of being either promoted or downgraded and thus increase overall mobility compared to the rather stable economy of the western states. The mobility matrices in Table 1 confirm these presumptions. We find much higher mobility across gross individual labor income

levels in the eastern than in the western states between 1990 and 1995: the percentages of stayers in the east are roughly one-half those in the west.¹⁴ This is further confirmed in Table 2, which shows the Pearson correlation coefficients of relative positions between the two years. The value is 0.42 for the eastern states and 0.68 in the western states (column 1, row 4). Figure 1 shows the Bartholomew index value which aggregates the information contained in Table 1. Again, gross individual labor income mobility is higher in the eastern than in the western states.

The higher mobility in the east should taper off as the transition process progresses and the structural changes diminish to a level typical of market economies. It is, therefore, interesting to look at the Bartholomew index calculated from the mobility matrices for the yearly transitions. We calculated matrices for each two-year pair in a similar manner to the ones reported in Table 1.¹⁵ Figure 2 shows that yearly gross individual labor income mobility peaked in the eastern states in 1991-1992 and has fallen in subsequent years. By 1994-1995 it approached the mobility level in the western states.

Income mobility is a necessary but not sufficient condition for changes in the aggregate income distribution. It is therefore interesting to investigate whether the mobility of gross individual labor income discussed above led to changes in the overall distribution of income from wages. Table 3 presents Gini coefficients for both the eastern and western states. They show that inequality rose by 29.9 percent in the eastern states between 1990 and 1995 but by only 2.6 percent in western states. Inequality was higher in the western than in the eastern states both in 1990 and in 1995, although by 1995 the gap had been reduced to approximately 50 percent of the initial difference.

Gross Equivalent Labor Income Mobility

As a second step of our analysis we change the viewpoint from gross *individual* labor income mobility to gross *equivalent* labor income mobility. This brings into play the *household effect*, i.e., the change in one's relative income position associated with household size, the age of household members, and the number of earners in the household. This household effect shows up in a rearrangement of the relative positions when one changes the viewpoint from gross individual labor income to gross equivalent labor income within a given period. However, the household context also influences income mobility between 1990 and 1995 in addition to the influence of individual wage changes and the possibility of individual unemployment. First, changes in the number and the age of the household members result in changes of the sum of the individual equivalent weights.¹⁶ These changes may lead to substantial movements in relative income positions and thus clearly lead to higher mobility.¹⁷ Second, pooling resources within a household affects income mobility. Changes in the number of earners may increase equivalent income mobility. However, mobility can also be reduced when individual wages are only part of a larger pool of financial resources, and their mobility is dampened by the constancy or even compensated for by opposite movements of other resources.

The influence of these various factors can be seen in Table 2. The Pearson correlation coefficient between the relative positions according to gross individual and gross equivalent labor income in 1990 is 0.48 in the east and 0.73 in the west (column 1, row 2). A partial explanation for the stronger household effect in the east can be found in the labor market experience of women. In 1990 the labor force participation rate of women in the eastern states was much higher than in the western states while rates for men were about the same.¹⁸ This means that there were more multiple labor earnings families in the east than in the west.¹⁹

Table 4 presents the gross equivalent labor income mobility matrices for the eastern and western states. Again, the main diagonal shows a greater share of stayers in the west than in the east. But the difference is no longer double. The values are now much closer, especially in the two lowest brackets that contain most of unemployed, directly or indirectly, via the household context. The Pearson correlation coefficients between one's position in the gross equivalent labor income distribution in 1990 and in 1995 is 0.40 in the east and 0.52 in the west (see column 5, row 2, Table 2). These correlations are both lower than we found for gross individual labor income. Figure 1 shows that the two values of the respective Bartholomew index are also closer than those for gross individual labor income. The differences in gross equivalent labor income mobility values are depicted in Figure 3. Mobility was highest in 1990-91, but the mobility in the eastern states rapidly approached that in the western states over this period. This is the same pattern found in Figure 2. The sum of this evidence is that mobility differences between the eastern and western states are smaller when household labor income is considered.

Next we ask to what extent changes in the household context contribute to mobility between 1990 and 1995, and whether there are differences between the eastern and western states. A comparison of Pearson correlation coefficients in Table 2 for gross individual labor income in 1990 and in 1995 (east: 0.42, west: 0.68) and gross equivalent labor income in 1990 and 1995 (east: 0.40, west: 0.52) shows that the difference between the two correlation coefficients is much greater in the western states. Changes in the household context clearly were more important in the west.

In 1995 the correlation coefficients between the individual relative positions based on gross individual labor income and gross equivalent labor income are much closer (0.61 in the eastern states and 0.64 in the western states) than in 1990. This points to a reduction of the

household effect in the eastern states and an increase in the western states. A partial explanation can be found in the increasing share of one-earner households in the eastern states due to the exit of women from the labor market.²⁰

Again, it is interesting to see how aggregate inequality developed during the years considered (see Table 3). First, all Gini coefficients for gross equivalent labor income are higher than the Gini coefficients for gross individual labor income. One possible explanation is that the household context leads to many new sources of differentiation for the individual's relative income position. Second, inequality rose in both parts of the country between 1990 and 1995, but to a much larger extent in the eastern states (30.5 percent) than in the western states (4.9 percent). Third, inequality was higher in the western states in both 1990 and 1995, although the gap was substantially smaller in 1995.

Net Equivalent Income Mobility

Our net equivalent income measure allows us to see to what extent the tax, transfer and social protection systems in the eastern and western states reduce mobility through a comparison with gross equivalent labor income mobility found in the previous subsection. We now focus on the mobility of the individual's relative positions in the economic well-being distribution as measured by net equivalent income.

The main aim of the German social protection system is to ameliorate income losses caused by a given set of labor market risks. Furthermore, a socio-cultural subsistence level is guaranteed to all regardless of the cause of their income loss. Progressive personal income taxes also aim to reduce upward and downward movements in income. Thus, we expect gross equivalent labor income mobility to exceed net equivalent income mobility. Whether the

mobility-reducing effect of government intervention was stronger in the east than in the west is an open question.²¹

Table 5 contains mobility matrices by net equivalent income categories. In contrast to our other two measures of mobility, now the percentages of stayers on the main diagonal are very similar. Table 2 confirms this narrowing. The Pearson correlation coefficients for net equivalent income in 1990 and 1995 are 0.42 (east) and 0.51 (west), a smaller difference than is observed for the other two income measures. Figure 1 shows almost no difference between the Bartholomew index values in the two regions. Moreover, both indices are lower than those for gross equivalent labor income, thus revealing the dampening effect of the tax and transfer systems on mobility.

Again it is worth looking at the underlying dynamics of the five-year transitions. As Figure 4 shows, the dampening of mobility by the tax, transfer and social protection systems was effective from the beginning. In each year and in both regions of Germany the values of the Bartholomew index for net equivalent income mobility are smaller than the values based on gross equivalent labor income (compare Figures 3 and 4). Moreover, the gaps between the values became smaller each year, and the value for the eastern states is very close to that in the western states for the transition from 1994 to 1995.

One can conclude from these results that policymakers were quite successful in easing the added turmoil and economic risks that accompanied the transition from a centrally planned economy to a market economy. It should be noted, however, that the fact that both regions of Germany have approximately the same degree of mobility in net equivalent income does not mean they have the same *level* of net equivalent income. Net equivalent income in the eastern states in 1995 was only 74 percent that of the western states in 1995.²²

Net equivalent income inequality was lower than gross equivalent income inequality for both parts of the country in 1990 as well as in 1995. This result is not very surprising given the extensive tax, transfer and social protection systems at work in Germany. Net equivalent income inequality grew in both parts of Germany to an extent that is roughly comparable to that of the other income concepts. Also, inequality in the east is lower than in the west in both years, with the gap diminishing over time (see Table 3).

5. Summary

In this paper we have defined economic mobility as changes in individual relative income positions based on three different concepts: gross individual labor income, gross equivalent labor income (taking the household context into consideration), and net equivalent income (taking government tax and transfer systems into consideration). The analysis is restricted to economic mobility of persons who were working full- or part-time or who were registered as unemployed in 1990. We showed that during the first half of the 1990s economic mobility in both regions of reunited Germany was broadly in accord with hypotheses derived from theory, although the economic theory of transition from a socialist economy to a market economy is not yet well developed, and even less so a theory of unification of two different economic systems.

Gross individual labor income mobility between 1990 and 1995 was much higher in the eastern states than in the western states of Germany, with mobility values in the eastern states approaching the roughly constant levels in the western states.

Gross equivalent labor income mobility between 1990 and 1995 was higher in the eastern states, but the gap was not as large as for gross individual labor income mobility. Gross equivalent labor income mobility is much higher than gross individual labor income in the western states of Germany but the two are roughly equal in the eastern states. These are explained by the different household context and how it changed over time in the two regions.

The household context is more important in the eastern states because women traditionally played a more important role in the labor market in the eastern states. This effect has become less important over time as women have dropped out of the labor market in the eastern states. By 1995 gross equivalent labor income mobility in the eastern states had moved close to the fairly constant levels in the western states.

The introduction of the German tax and transfer system to the eastern states immediately after reunification had a strong dampening effect on labor market driven economic mobility. The Bartholomew index for net equivalent income mobility between 1990 and 1995 was almost the same for the two regions. The dampening effect of government on mobility was greater in eastern states. Yearly net equivalent income mobility level show a rapid convergence of the two regions.

Inequality as measured by the Gini coefficient was always higher in the western states. However, the difference in the Gini coefficients was substantially smaller in 1995 than in 1990 due to the increase in inequality in the eastern states. Gross equivalent labor income inequality is higher than gross individual labor income inequality because the household effects further differentiates the income distribution. As theory suggests, net equivalent income inequality is lower than gross equivalent labor income inequality.

Future work should compare income mobility with respect to the various income concepts internationally. Only after studying income mobility patterns in other market oriented countries can one can tell whether the levels observed in the western states of Germany during the transition period between 1990 and 1995 can be considered “normal” and, therefore, can legitimately serve as a point of reference for the study of economies in transition.

Endnotes

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1. Average real labor earnings and average real net equivalent income increased far more in the eastern than in the western states of Germany following reunification (Sachverstaendigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung 1995). This paper will focus on the distribution of earnings and income, however, so changes in the *level* of the various income concepts are not taken into account. Here, we are only interested in how individuals change their relative positions in the distribution.
2. The data used in this analysis are from the United States Panel Study of Income Dynamics and the German Socio-Economic Panel. A selection of variables from these two panels were brought into an easy-to-use comparable form on CD-ROM by Richard Burkhauser and his team at Syracuse University in cooperation with the Deutsches Institut fuer Wirtschaftsforschung, Berlin.
3. However, since these results refer to the special German case, generalizations with respect to other post-socialist countries would be premature.
4. The statistics in this section are taken from Bundesministerium fuer Arbeit und Sozialordnung (1996). Lampert (1994) provides a more detailed discussion of the labor market regulations and the social security system discussed here. A fuller description of the transfer of German institutions to its eastern states can be found in Bundesministerium fuer Arbeit und Sozialordnung (1995).
5. More precisely, weighting was done as follows. For each longitudinal analysis each person belonging to the data set was assigned a separate weight. For example, income mobility between 1990 and 1995 was evaluated using the appropriate longitudinal weights resulting from multiplying the cross-sectional weight of 1990 with the probabilities that the person under consideration will stay in the panel in 1991, 1992 and so on. Income mobility between 1992 and 1995 was evaluated using the longitudinal weights resulting from multiplying the cross-sectional weight of 1992 with probabilities that the person under consideration will stay in the panel in 1993, 1994 and 1995. Mean incomes for all income concepts were calculated using the appropriate cross-sectional weights for the respective years.
6. At that time no official unemployment existed in East Germany while it was about 7.2 percent in West Germany. In 1995 the respective figures were 14.9 and 9.3 percent (see Institut der deutschen Wirtschaft 1996)

7. At that time no open unemployment existed in the eastern states of Germany while it was about 7.2 percent in the western states of Germany. In 1995 the respective figures were 14.9 and 9.3 percent (see Institut der deutschen Wirtschaft 1996).
8. The OECD scale (old) assigns a weight of 1 to the head of household, weights of 0.7 to other members aged 15 and older, and 0.5 to household members aged 15 and below. For an international comparison of equivalence scales and the consequences of using different scales, see Buhmann et al. (1988) and Burkhauser et al. (1996). A new study by Hauser and Faik (1996) shows that the equivalence scale implied in German regulations for social protection is similar to the OECD scale used.
9. Postgovernment labor is determined by deducting 35 percent of the gross amount for taxes and social security contributions.
10. We do not include the monetary value of owner occupied houses because data on this income component is not fully available. Other income from capital is included in net equivalent income but not in gross individual and gross equivalent labor income. Since income from capital cannot be separated, our measure will slightly overstate the dampening effects of taxes and transfers.
11. p_{ij} is defined to sum to one over j , p_i sums to one over i . This index is a slight modification of the index derived by Bartholomew (1973, p.24).
12. Other mobility indices have been suggested. A particularly common index was proposed by Shorrocks (1978a), focussing on the main diagonal of the transition matrix: $SI = (n - \sum_i p_{ii}) / (n-1)$. This index should not be confused with the measure termed the “Shorrocks index” by Jarvis and Jenkins (1996) which was proposed by Shorrocks (1978b). The latter is equal to the inequality measure for a longer-period income obtained by aggregating period income over m periods divided by the weighted average of the m sub-period inequality measures of the respective period’s income. “Under this definition, mobility is regarded as the degree to which equalization occurs as the observation period is extended” (Shorrocks 1978b, p. 386). Although we also used the former index, SI , in our analysis, results are not reported here because they do not substantially differ from those arrived at with the Bartholomew index.
13. These unemployment rates are based on the GSOEP data at the time of the interviews. Endnote 7 reports official unemployment rates for the respective months. Differences between the official rates and the GSOEP figures can be explained by the exclusion of some age cohorts of the labor force from our analysis, by longer sampling periods for the GSOEP and by sampling errors.
14. The first income bracket labeled is empty in 1990 for the eastern states since there was no official unemployment in East Germany. Persons who left the labor force because of early retirement are excluded in this analysis.
15. These matrices are available from the authors upon request.

16. Note that according to the old OECD equivalence scale, the weight of household members other than the head changes from 0.5 to 0.7 as soon as they become older than fourteen. If a couple splits into two single households, the sum of the weights per household changes from 1.7 to two times 1.0.
17. Although we now include the influence of all persons living in a household it should be kept in mind that still only those persons who worked full- or part-time or who were unemployed and who were aged 18 through 54 in 1990 are included in the analysis. Other persons influence mobility only indirectly via the equivalent income weight.
18. The labor force participation rate of women between aged 15 and 65 was 77.2 percent in the eastern states of Germany in 1991 (figures for 1990 not available) and 58.5 percent in the western states of Germany in 1990. For men the respective rates are 86.0 and 82.7 percent (see Institut der deutschen Wirtschaft 1996).
19. Household size itself did not differ substantially. The average household in the eastern states of Germany was 2.38 in 1991 (figures for 1990 are not available). The respective value for a household in the western states of Germany was 2.25 in 1990 (see Institut der deutschen Wirtschaft 1996).
20. In 1995 the rate of registered unemployment in the eastern states of Germany was 10.7 percent for men and 19.3 for women compared to zero official unemployment in 1990. Additionally, in the eastern states, a larger share of women than men employed in 1990 left the labor force for other reasons. The corresponding unemployment rates in the western states of Germany were 6.3 percent (men) and 8.4 percent (women) in 1990 and 9.3 percent (men) and 9.2 percent (women) in 1995 (see Institut der deutschen Wirtschaft 1996).
21. It is worth noting that the annual net transfers from the western to eastern states amounted to between 5 and 7 percent of the western states GDP during the first five years of the transformation process (Sachverstaendigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung 1995).
22. This value was calculated from the GSOEP data set used in this paper and refers to the subpopulation considered in this study.

**Table 1. Gross Individual Labor Income Mobility in the Eastern and Western States
of Germany between 1990 and 1995^a**

Percent of Mean		1995 Income Bracket							1990 Distribution by Income Group	
		Unemployed	Less Than 50	50 to 75	75 to 100	100 to 125	125 to 150	More than 150		
1990 Income Bracket	Unemployed	---	---	---	---	---	---	---	---	---
		42.1	24.5	11.0	9.1	8.5	2.8	2.3	4.3	
	Less Than 50	39.8	22.7	27.3	5.9	1.9	---	2.4	4.5	
		5.5	50.7	18.4	12.1	8.1	1.3	3.8	11.3	
	50 to 75	29.5	12.8	18.1	23.4	13.2	3.0	---	12.9	
		7.6	11.3	43.5	29.1	4.8	2.1	1.6	11.6	
	75 to 100	19.0	7.7	19.7	24.0	21.8	5.3	2.5	30.9	
	7.7	4.8	7.5	49.1	23.1	5.4	2.4	23.1		
100 to 125	11.9	2.1	12.5	25.4	24.6	12.3	11.3	28.3		
	6.2	4.6	3.1	20.0	41.5	17.5	7.2	19.3		
125 to 150	9.2	1.9	7.7	18.7	23.4	16.1	23.2	13.8		
	4.0	3.6	3.6	2.4	20.3	44.3	21.9	12.7		
More Than 150	8.8	1.3	5.5	10.5	17.3	21.6	35.0	9.7		
	3.8	1.6	0.4	1.9	3.0	11.5	77.7	17.8		
1995 Distribution by Income Group		16.9	6.0	14.8	21.5	20.4	9.8	10.7	100.0	
		7.5	10.8	10.4	21.0	18.3	12.8	19.2	100.0	

^aPercent of population in a given row income bracket in 1990 that moved to a given column income bracket in 1995. The upper left corner percentages in the cells refer to the eastern states of Germany and the lower right corner percentages refer to the western states of Germany. Data base: GSOEP 1990-1995.

Source: Authors' calculations.

Table 2. Pearson Correlation Coefficients of the Relative Income Positions for Those Living in the Eastern and Western States of Germany between 1990 and 1995^a

Income Measure	Income Concept					
	1990			1995		
	Gross Individual Labor Income	Gross Equivalent Labor Income	Net Equivalent Income	Gross Individual Labor Income	Gross Equivalent Labor Income	Net Equivalent Income
1990						
Gross individual labor income	--- ---	0.48 0.73	0.39 0.47	0.42 0.68	0.27 0.44	0.26 0.42
Gross equivalent labor income	0.48 0.73	--- ---	0.74 0.66	0.18 0.44	0.40 0.52	0.39 0.48
Net equivalent income	0.39 0.47	0.74 0.66	--- ---	0.17 0.36	0.36 0.49	0.42 0.51
1995						
Gross individual labor income	0.42 0.68	0.18 0.44	0.17 0.36	--- ---	0.61 0.64	0.46 0.46
Gross equivalent labor income	0.27 0.44	0.40 0.52	0.36 0.49	0.61 0.64	--- ---	0.71 0.66
Net equivalent income	0.26 0.42	0.39 0.48	0.42 0.51	0.46 0.46	0.71 0.66	--- ---

^aThe upper left values in the cells refer to the eastern states of Germany, the lower right values to the western states of Germany.
 Data base: GSOEP 1990-1995.
 Source: Authors' calculations.

Table 3. Gini Coefficients for the Eastern and Western States of Germany in 1990 and 1995^a

Income Measure	Eastern States		Western States	
	1990	1995	1990	1995
Gross individual labor income	0.1939	0.2519	0.3062	0.3141
Gross equivalent labor income	0.2204	0.2876	0.3133	0.3287
Net equivalent income	0.1710	0.2263	0.2619	0.2857

^aData base: GSOEP 1990-1995.
Source: Authors' calculations.

Table 4. Gross Equivalent Labor Income Mobility in the Eastern and Western States of Germany between 1990 and 1995^a

Percent of Mean		1995 Income Bracket						1990 Distribution by Income Group
		Less Than 50	50 to 75	75 to 100	100 to 125	125 to 150	More than 150	
1990 Income Bracket	Less Than 50	43.4 45.8	25.9 19.7	12.1 8.9	9.4 10.7	7.5 5.1	1.8 9.8	6.9 12.0
	50 to 75	28.8 21.1	22.8 33.3	20.0 24.6	15.5 12.5	8.9 3.9	4.0 4.6	13.7 16.7
	75 to 100	20.3 12.0	18.5 18.9	21.1 30.5	24.3 16.6	6.0 12.1	9.9 9.8	22.5 17.3
	100 to 125	18.2 10.7	16.5 9.2	20.1 16.7	14.1 30.5	18.3 16.8	12.8 16.1	23.1 15.4
	125 to 150	12.6 11.1	9.1 11.8	15.2 9.7	20.8 15.6	19.6 24.1	22.8 27.7	17.6 14.1
	More Than 150	9.5 5.5	5.7 8.1	18.6 9.0	10.5 9.5	13.9 8.1	41.8 59.7	16.2 24.5
1995 Distribution by Income Group		19.5 15.7	15.4 16.3	18.7 16.6	16.8 15.5	13.0 11.3	16.6 24.7	100.0 100.0

^aPercent of population in a given row income bracket in 1990 that moved to a given column income bracket in 1995. The upper left corner percentages in the cells refer to the eastern states of Germany and the lower right corner percentages refer to the western states of Germany. Data base: GSOEP 1990-1995.

Source: Authors' calculations.

Table 5. Net Equivalent Income Mobility in the Eastern and Western States of Germany between 1990 and 1995^a

Percent of Mean		1995 Income Bracket						1990 Distribution by Income Group	
		Less Than 50	50 to 75	75 to 100	100 to 125	125 to 150	More than 150		
1990 Income Bracket	Less Than 50	37.7 40.5	50.1 27.0	6.4 13.3	5.8 6.3	--- 6.4	--- 6.4	1.5 6.6	
	50 to 75	13.2 13.8	36.9 41.5	27.8 23.9	13.3 8.6	2.9 4.4	5.9 7.8	11.1 18.3	
	75 to 100	8.0 7.0	23.7 23.0	34.7 36.7	20.6 19.8	7.8 8.3	5.1 5.1	28.5 22.3	
	100 to 125	1.7 3.2	17.9 14.2	30.5 26.8	28.1 30.4	15.6 15.0	6.2 10.5	28.1 21.1	
	125 to 150	3.6 2.7	10.7 12.0	17.0 11.8	20.2 20.3	28.6 29.0	19.9 24.2	20.2 12.9	
	More Than 150	2.5 1.1	6.3 4.4	7.0 11.4	24.8 13.5	16.4 19.9	43.1 49.7	10.6 18.9	
1995 Distribution by Income Group		5.8 8.0	19.4 19.8	25.8 22.7	22.1 18.0	14.5 13.7	12.5 17.7	100.0 100.0	

^aPercent of population in a given row income bracket in 1990 that moved to a given column income bracket in 1995. The upper left corner percentages in the cells refer to the eastern states of Germany and the lower right corner percentages refer to the western states of Germany. Data base: GSOEP 1990-1995.

Source: Authors' calculations.

Figures

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