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Vierteljahrshefte zur Wirtschaftsforschung

Provided in Cooperation with:
German Institute for Economic Research (DIW Berlin)

Suggested Citation: Burkhauser, Richard V.; Holtz-Eakin, Douglas (1994) : Changes in the distribution of wage earnings in the United States and Germany during the 1980s, Vierteljahrshefte zur Wirtschaftsforschung, ISSN 0340-1707, Duncker & Humblot, Berlin, Vol. 63, Iss. 1/2, pp. 27-35

Changes in the Distribution of Wage Earnings in the United States and Germany During the 1980s

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The decade of the 1980s was a turbulent economic time in both the United States and Germany. Both countries suffered their most serious post World-War II recession in the early part of the decade, with unemployment peaking at post-war highs in 1983. In each country, however, this was followed by substantial economic growth and falling unemployment rates for the rest of the decade (see Table 1). In the United States the consequences of this prolonged period of economic growth have been given mixed reviews by policy analysts and social critics. Proponents point to the longest peacetime economic expansion in this century. Critics argue that while economic growth is preferred to economic stagnation, the price paid in the form of greater inequality in wage earnings was too high.

Such social judgements are always controversial. In this context, these difficulties are exacerbated by two factors. First, the vast majority of studies of wage inequality in the United States have been forced to rely upon a series of cross-sectional observations on the wage distribution (for excellent reviews of these studies, see Levy and Murnane 1982, and Karoly 1993). Cross-sectional data may be used to measure wage inequality at a moment in time. But comparisons over time are hampered by the inability to determine whether changes in the cross-sectional distribution are the consequence of changes in the wage earnings of workers in a given quintile, or the result of changes in the workers who comprise that quintile over time. Nor can they distinguish between permanent shifts in the return to different levels of human capital and transitory changes in these returns. For these reasons, our analysis will begin with cross-sectional data but will then use longitudinal data to focus on changes in wage earnings through time for each worker in our sample.

The second complication that typically arises in the discussion of earnings inequality is the absence of a standard for comparison. Our analysis provides a cross-national context to the issue of wage inequality by tracing the movement in wage earnings of workers in the post-recession years of the 1980s in both the United States and Germany. Because the labour market policies — indeed social policies more generally — differ greatly between the countries, such a comparison provides a valuable perspective on the trade-off between growth and equality that policymakers within each country must consider.

[1] This study is funded by the National Institute on Aging, Program Project # 1-PO1-AG09743-01, "The Well-Being of the Elderly in a Comparative Context."

Table 1

Macro-Economic Indicators in the United States and Germany 1980-1989

Year	Economic Growth[1])		Unemployment Rate[2])	
	United States	Germany	United States	Germany
1980	(0.2)	1.5	7.0	3.0
1981	1.9	0.0	7.5	4.4
1982	(2.5)	(1.0)	9.5	6.1
1983	3.6	1.9	9.5	8.0
1984	6.8	3.3	7.4	7.1
1985	3.4	1.9	7.1	7.2
1986	2.7	2.3	6.9	6.4
1987	3.4	1.6	6.1	6.2
1988	4.5	3.7	5.4	6.2
1989	2.5	3.9	5.2	5.6

[1]) Annual percentage change in real GNP/GDP. — [2]) Percentage of total labour force.
Source: OECD Economic Outlook No. 48, December 1990.

We begin by using our data to compute yearly measures of wage earnings by quintile in each country, thus providing the link between our longitudinal analysis and the larger body of studies using cross-sectional data. Next, we take full advantage of the panel nature of both data sets by tracing changes in wage earnings of the same individuals over the post-recession period in the United States and Germany. We summarize our multi-period data by approximating changes within the distribution of wage earnings by assigning people to quintiles and tracing their movements across quintiles over the period.

Our results suggest that despite substantially different public policies with respect to the workplace, shifts in the relative rewards for working over the post-recession years of the 1980s in the two countries were remarkably similar. Even more surprising, American workers appear to have had slightly more stable wage earnings over the period than did German workers.

Data and Methods

Our empirical results are based on two longitudinal data sets. For the United States we use the cross-year 1989 response-nonresponse file of the Panel Study of Income Dynamics (PSID). For Germany we use the 1993 Syracuse University English Language Public Use File of the German Socio-Economic Panel (GSOEP). Since 1968, the PSID has interviewed annually a representative sample of some 5,000 families. At least one member of each family was either part of the original families interviewed in 1968 or born to a member of one of these families. Partial information on individuals who ceased to be respondents prior to 1989 is included in our analysis whenever possible. For our cross-sectional analyses, the data are weighted using the year specific individual weight appropriate for the particular statistic being estimated. Our intertemporal analyses use unweighted data. For a more complete discussion of these data, see Hill (1992). We look at economic information for the calendar years 1982 to 1988.

The GSOEP is a more recent longitudinal data set developed at the Universities of Frankfurt and Mannheim in cooperation with the Deutsches Institut für Wirtschaftsforschung, Berlin (DIW), and initially financed by the German National Science Foundation. In 1990 the DIW assumed control of the panel with funding through 1995 from the Bund-Länder-Kommission für Forschungsförderung. The National Institute on Aging has provided funding to Syracuse University to translate the documentation and make a public use file of the data available to English-speaking researchers. The panel started in the spring 1984. It comprises about 6,000 families, for which ten yearly waves have been conducted (1984-93). Seven waves (1984-90) are used here, providing information on calendar years 1983 to 1989. The data are representative of the German population, including "guest workers." For a more complete discussion of the public use version of these data, see Wagner, Burkhauser, and Behringer (1993).

Our sample consists of all individuals with non-zero wage earnings in any given year. When making comparisons across years, we exclude only those individuals for whom we do not have information in the relevant years. Thus, the sample is not restricted to those individuals who are present in all years; rather the sample sizes change with the years being compared.

Measuring Mobility in the Wage Earnings Distribution

For each year we rank individuals according to their wage earnings and assign each to a quintile of the earnings distribution. Such rankings are at the heart of cross-sectional measures of inequality. However, we use our panel data to measure movements by individuals within the distribution by defining indicator variables t^i_{qr}, where t^i_{qr} is equal to 1 if individual i made a transition from quintile q to quintile r, and is equal to zero otherwise. For the sample as a whole, our estimate of the probability of moving between quintiles q and r is given by

$$P_{qr} = \frac{1}{N} \sum_{i=1}^{i=N} t^i_{qr}.$$

Transition probabilities provide insights into the nature of inequality observed in cross-sections. One possibility is that the distribution of workers is quite static and changes in inequality stem from changes in wages *per se*. In such a distribution one would anticipate large probabilities of remaining in the same quintile ($p_{qr} \approx 1$ for $q = r$), with low probabilities of mobility ($p_{qr} \approx 0$ for $q \neq r$). Alternatively, changes in inequality may be driven by changes in the individuals in each part in the distribution. In a dynamic, flexible labour market one would observe a greater probability of changing quintiles, and a correspondingly lower probability of remaining in the same location in the earnings distribution.

Variations in earnings that move individuals across the earnings distribution may be permanent or transitory phenomena. Our data permit us to compute the transition probabilities for time periods varying from one to five years, which permits some insight into the relative permanence of shocks to wage earnings for individuals[2]. Consider a simple example in which (log) wage earnings of each individual consists of two components: a fixed, permanent component and yearly, transitory fluctuations. That is $y_{it} = \mu_i + \epsilon_{it}$. In these circumstances, the probability of making a transition to another quintile will depend only upon the relative sizes of the yearly shocks (the ϵ's) for the two years

[2] It is possible to compute transition probabilities that differ by year. Thus, one could identify, for example, changes in the one-year transition probabilities through time. Given our focus on cross-national features of mobility, we choose instead to concentrate on average transition probabilities computed using all the years available in our data.

under consideration. For example, suppose that an individual receives a positive fluctuation in (log) earnings in year t ($\epsilon_{it} > 0$) and a negative shock in year $t+1$ ($\epsilon_{it+1} < 0$). The change in earnings is given by $y_{it+1} - y_{it} = \epsilon_{it+1} - \epsilon_{it} < 0$. Thus, the probability of making a downward transition among the quintiles of the earnings distribution depends upon the sizes of the transitory disturbances to earnings. The example applies not just to adjacent years, but to all time comparisons. For any such comparison, only the relative sizes of the transitory shocks in the comparison years affects the probability of making a transition across quintiles. Given a probability distribution for the transitory disturbances, the corresponding probabilities of changing quintiles will be fixed, and not depend upon the length of the time period under consideration. In this case, the probability of moving, say, from the middle to the highest quintile will be the same over a three-year period as it is over a one-year period. All that will matter is the variations in earnings in each of the comparison years.

In contrast, to the extent that fluctuations in earnings are driven by permanent changes for each individual, the probability of making a transition will rise with the length of the time considered. In effect, longer time periods permit a greater number of shocks to move the individual across the income distribution[3].

More realistically, earnings will be determined by a wider variety of factors and will reflect a richer set of correlations over time. From a broad perspective, the earnings of all individuals will be affected by the average growth in the economy and year-specific macroeconomic shocks. To the degree that they are common to all individuals, however, such period effects will not affect the ordering of individuals' earnings. Accordingly, they will not affect the transition probabilities. In a growing economy, individuals will also likely be exposed to a wider variety of earnings shocks. While not permanent, these shocks will tend to persist through time as the economy adjusts to the higher growth path. Thus, transition probabilities will reflect the persistence of transitory shocks to the labour market in the growth setting.

Results

Tables 2 and 3 present summary measures of the wage earnings distribution in the United States and Germany. These measures are computed using the PSID and GSOEP, but treat the data for each year as separate cross-sections. Further, the data are weighted using weights appropriate for each survey year. In these ways, the measures are computed in the spirit of a conventional cross-sectional analysis of the wage earnings distribution.

For each year, the tables contain the mean wage for each quintile of the earnings distribution. To emphasize the distributional aspects, earnings are presented as a percent of the mean wage in the middle quintile. For example, the 16.3 shown as the entry for the lowest quintile in 1982 in Table 2 indicates that the mean wage in this quintile equalled 16.3 percent of the mean wage for the middle quintile for the United States in 1982. In both tables, the entries for the middle quintile in each year are equal to 100 percent by construction. Finally, the bottom row displays the real average earnings for each year.

There are several interesting aspects to the tables, particularly when viewed from the perspective of the inequality debate in the United States. First, in any given year the

[3] In each example, macroeconomic shocks that are common to all individuals will have no impact on transition probabilities.

Table 2

Mean Earnings by Quintile for the Entire United States Wage Earnings Distribution[1])
(mean earnings as percent of mean for middle quintile)

Quintile	1982	1983	1984	1985	1986	1987	1988
Lowest	16.3	17.1	17.0	17.6	18.7	18.4	19.7
Next Lowest	57.8	58.6	57.9	59.0	59.4	59.0	61.0
Middle	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Next Highest	153.9	152.1	152.5	151.8	152.4	151.0	151.7
Highest	293.4	290.8	298.0	298.6	298.0	290.9	295.6
Real Mean Earnings[2])	$16,707	$17,202	$17,787	$18,179	$18,773	$18,945	$19,070

[1]) All data are weighted using the individual weight for the survey year. — [2]) Nominal earnings converted to real dollars using the CPI-U (all items); 1982-84 = 100.

Source: The 1989 Response-Nonresponse File of the Panel Study of Income Dynamics.

Table 3

Mean Earnings by Quintile for the Entire German Wage Earnings Distribution[1])
(mean earnings as percent of mean for middle quintile)

Quintile	1983	1984	1985	1986	1987	1988	1989
Lowest	20.9	19.9	18.4	18.7	17.9	18.4	17.8
Next Lowest	66.1	63.2	63.0	61.5	59.6	62.3	60.4
Middle	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Next Highest	128.0	129.5	129.9	131.4	129.9	130.1	129.4
Highest	222.8	230.4	222.3	226.2	216.9	223.9	227.2
Real Mean Earnings[2])	DM 30,245	DM 30,534	DM 29,819	DM 30,845	DM 31,280	DM 32,555	DM 33,081

[1]) All data are weighted using the individual weight for the survey year. — [2]) Nominal earnings converted to real Deutsch Marks using the IMF deflator; 1982 = 100.

Source: The 1993 Syracuse University English Language Public Use File of the German Socio-Economic Panel.

mean earnings of the earners in the top two quintiles in the United States are higher relative to the middle quintile than is the case in Germany. But the relative differences between the lower two quintiles and the middle quintile is about the same in the two countries. Furthermore, the trend in the United States seems to be toward greater equality than in Germany. The first row of Table 2 suggests that on average the lowest quintile gained relative to the middle during the expansion years in the United States. In contrast, the opposite appears to be true in Germany. This pattern is repeated for the next lowest quintile; the average earnings rose relative to the middle quintile in the United States, but declined in Germany. Thus, focusing on the lower 40 percent of the earnings distribution presents a pattern of increasing equality in the United States. Over the same period, however, these quintiles suffered a decrease in relative earnings in Germany.

The upper quintiles also present interesting contrasts. In the United States, the next highest, or fourth quintile suffered a moderate deterioration in mean wages between 1982 and 1988, while this quintile gained modestly in Germany. Lastly, the uppermost quintile showed relative advancement in both countries.

As emphasized at the outset, interpreting cross-sectional patterns in these tables is complicated by our inability to observe the effects on each worker over time. Have the gains in the lower quintiles in the United States been achieved by an increase in the wage earnings of the same individuals, or by the downward movement of higher-earning individuals into this portion of the distribution? To gain insight into these issues, and especially the degree to which the contrasting patterns in the two countries are driven by different labour market dynamics, we turn now to an individual-level analysis of our longitudinal data sets.

In Table 4 we summarize mobility in the United States by tracing the transition of workers in the wage earnings distribution across fixed periods of time using all seven years of our data. For example, the top left corner of Table 4 shows that 71.7 percent of workers who were in the lowest wage earnings quintile in any given year remained in that same quintile one year later. The next four columns of that row show that the remaining 29.3 percent of workers moved to higher quintiles over the one-year period. But most workers, 21.4 percent, merely moved up to the next lowest quintile. The second row in Table 4 shows that when we increase our time period to two years, there is somewhat more movement. Over the period 1982 to 1988, 64.9 percent of those in the lowest wage earnings quintile remained there two years later, while 24.3 percent moved up to the next lowest quintile.

The 125 transition rates captured in Table 4 can be summarized by looking first at the diagonals and then at the off-diagonal elements. The diagonals show the "immobility rate" in the United States. That is, the values in each of the diagonal cells show the percentage of workers who started in a given quintile and remained there over the transition periods we capture. In the United States "immobility" falls over time since the percentage of workers in these cells falls as we extend the length of time of our analysis. Conversely, as can be seen by looking at the off-diagonal cells, mobility rises — the percentage of workers in each of these cells rises — as we extend the length of time of our transition measure.

In Table 5 we repeat our transition analysis using the data for Germany and observe the same phenomenon of greater mobility over time[4]. But our interest is less in the transition

[4] Sample sizes for the computations in Tables 4 and 5 are shown in Appendix 1.

Table 4

Quintile-to-Quintile Transition Rates for the Entire United States Wage Earnings Distribution[1])
1982-1988

Quintile	Trnsition Iriod	Lowest	Next Lowest	Middle	Next Highest	Highest	Total
Lowest	+1	71.7	21.4	4.9	1.7	0.4	1.00
	+2	64.9	24.3	7.5	2.4	1.0	1.00
	+3	60.9	25.3	9.0	3.5	1.3	1.00
	+4	57.8	26.3	10.0	4.2	1.7	1.00
	+5	55.5	25.8	11.7	5.3	1.9	1.00
Next Lowest	+1	19.5	56.4	18.9	4.3	1.0	1.00
	+2	22.5	50.7	20.0	5.2	1.6	1.00
	+3	24.2	46.4	20.6	6.8	1.9	1.00
	+4	24.9	43.8	20.5	8.2	2.5	1.00
	+5	25.4	41.2	21.4	8.7	3.2	1.00
Middle	+1	5.5	17.6	57.7	17.0	2.2	1.00
	+2	7.5	19.1	53.2	17.3	2.8	1.00
	+3	8.6	20.9	47.8	19.2	3.5	1.00
	+4	10.1	21.0	45.1	20.2	3.7	1.00
	+5	11.0	22.7	41.4	20.5	4.4	1.00
Next Highest	+1	2.5	3.6	16.6	63.8	13.5	1.00
	+2	3.7	4.5	16.6	59.9	15.2	1.00
	+3	4.3	5.5	19.1	54.5	16.6	1.00
	+4	5.0	6.5	20.0	50.2	18.3	1.00
	+5	5.4	7.9	20.9	46.9	19.0	1.00
Highest	+1	0.8	1.1	1.9	13.2	83.0	1.00
	+2	1.3	1.4	2.8	15.1	79.4	1.00
	+3	2.0	1.8	3.5	16.0	76.7	1.00
	+4	2.2	2.4	4.4	17.2	73.9	1.00
	+5	2.7	2.5	4.7	18.6	71.6	1.00

[1]) Each cell shows the rate of transion from a given quintile in the wage earnings distribution in period t to another quintile over the designated period s from t + 1 to t 5.

Source: The 1989 Response-Nonsponse File of the Panel Study of Income Dynamics.

patterns within Tables 4 and 5 ıan in comparisons between them. Three broad anc surprising conclusions emerge from comparing the mɛices. First, and perhaps most surprising, a greater fractio of the observations lie on the diagonal cells in the UnitedStates than in Germany. That is, during the growth yeɛs of the 1980s a larger percentage of individuals remaı in their same earnings quintile in the United States :han in Germany. This characterization becomes moredistinct as one moves to higher quintiles in the earnings ɛstribution (especially the middle to highest quintiles), or wen one looks over longer time horizons. Second, given arupward move to another quintile, the move is more likelyo be modest, only to the next quintile or two, in the UniteɛStates than in Germany. This pattern also becomes strnger as one looks over longer horizons. Third, given adownward transition, the move is more likely to be only tohe next quintile or two in Germany than in the United Staɛs.

Table 6 summarizes wage arnings mobility for the United States and Germany durig the growth years of the 1980s. In this table we focus on the direction and magnitude of mobility by consolidating the quintile-by-quintile transition rates found in Tables 4 and 5. For example, we compute for the United States the fraction of the individuals in all quintiles, and for all years, that remain in the same quintile one year later. In effect, this is a weighted average of the transition rates in the first rows of the diagonal cells of Table 4, where the weights are based on the sample sizes in each quintile. We repeat the analysis for each transition period, and report these as our global measures of immobility for the United States for each period. Using the data from Table 5, we then repeat this procedure for Germany[5].

We next extend our summary measures to incorporate mobility using the off-diagonal elements of Tables 4 and 5. In both countries, we compute the fraction of the sample in all quintiles, and for all years, that moved up one quintile by

[5] Sample sizes for these computations are shown in Appendix 2.

Table 5

Quintile-to-Quintile Transition Rates for the Entire German Wage Earnings Distribution[1])
1983—1989

Quintile	Transition Period	Lowest	Next Lowest	Middle	Next Highest	Highest	Total
Lowest	t+1	76.2	17.2	4.0	1.7	1.0	1.00
	t+2	67.0	20.6	7.1	3.7	1.7	1.00
	t+3	60.2	22.7	9.4	5.3	2.3	1.00
	t+4	55.1	23.7	11.2	7.0	4.0	1.00
	t+5	52.3	23.7	12.2	7.6	4.1	1.00
Next Lowest	t+1	17.0	59.2	17.0	4.9	1.9	1.00
	t+2	22.3	51.0	17.4	6.8	2.6	1.00
	t+3	26.3	45.2	17.9	7.3	3.2	1.00
	t+4	28.5	42.4	17.3	7.8	4.1	1.00
	t+5	29.1	39.9	17.3	9.3	4.4	1.00
Middle	t+1	3.8	17.2	57.5	18.4	3.1	1.00
	t+2	5.9	20.5	50.0	19.7	3.9	1.00
	t+3	7.1	22.8	45.7	19.8	4.6	1.00
	t+4	8.6	24.2	41.3	20.6	5.4	1.00
	t+5	9.2	24.7	39.1	21.5	5.5	1.00
Next Highest	t+1	1.9	4.6	18.0	61.4	14.1	1.00
	t+2	2.9	5.5	21.6	55.0	15.1	1.00
	t+3	4.1	6.4	22.2	51.4	15.9	1.00
	t+4	4.8	6.8	24.7	47.9	15.8	1.00
	t+5	6.2	7.7	24.9	44.9	16.3	1.00
Highest	t+1	1.1	1.9	3.4	13.6	80.0	1.00
	t+2	1.9	2.5	4.0	14.8	76.8	1.00
	t+3	2.3	2.9	4.7	16.2	74.0	1.00
	t+4	3.0	3.0	5.5	16.7	71.8	1.00
	t+5	3.2	4.0	6.5	16.7	69.7	1.00

[1]) Each cell shows the rate of transition from a given quintile in the wage earnings distribution period t to another quintile over the designated period s from t + 1 to t + 5.

Source: The 1993 Syracuse University English Language Public Use File of the German Socio-Economic Panel.

the next year[6]. We repeat the analysis to yield an analogous measure of the fraction that moved up two quintiles, that moved up three quintiles, and so forth. Also, we compute the weighted average transition rates for downward movements of one or more quintiles across the wage distribution. The end result of these efforts is a set of probabilities for immobility, upward mobility, and downward movement for each of the five transition periods in both countries.

As can be seen in Table 6, global immobility rates are significantly higher in the United States than in Germany in nearly all the transition periods. Indeed, for transition periods of greater than one year, the differences in immobility are statistically significant at the one percent level. Looking at the remainder of the rows reinforces the mobility picture. We find that the great majority of cells show German mobility to be higher, and the differences for upward mobility are nearly all statistically significant. Hence, we would characterize wage earnings mobility in the United States in the growth years of the 1980s as significantly lower than in Germany.

Conclusion

Conventional wisdom in the United States holds that the social benefits of prolonged economic growth in the 1980s were tempered by the greater inequality in wage earnings that accompanied it. Critics of American economic policy take an even stronger position, that social policies should have countered the growing wage inequality. But no studies have compared the United States experience with that of other modern industrial countries in the 1980s to see if the patterns of wage changes were affected by alternate economic policies.

[6] Individuals in the highest quintile are not eligible for this computation, so the sample sizes will differ. Again, however, this measure is a weighted average of the transition rates that lie just above the diagonal in Table 4.

Table 6

Comparing United States and German Global Mobility Measures[1]) for the Entire Wage Earnings Distribution

Change in Quintile		Transition Period				
		t+1	t+2	t+3	t+4	t+5
Down 4	United States	0.8	1.3*	2.0	2.2	2.7
	Germany	1.1	1.9	2.3	3.0	3.2
Down 3	United States	1.8	2.5	3.0	3.7	3.9
	Germany	1.9	2.7	3.5	4.0	5.1
Down 2	United States	3.7	4.9	5.9	7.0	7.9
	Germany	4.0	5.1	6.1	7.0	7.8
Down 1	United States	16.7	18.3**	20.1**	20.8**	21.9**
	Germany	16.4	19.8	21.9	23.5	23.8
No Mobility	United States	66.5	61.6**	57.3**	54.2**	51.3**
	Germany	66.9	60.0	55.3	51.7	49.2
Up 1	United States	17.7**	19.2**	20.4**	21.3**	21.6**
	Germany	16.7	18.2	19.1	19.4	19.7
Up 2	United States	3.8	5.2**	6.4**	7.3**	8.3**
	Germany	4.0	5.9	7.1	8.1	9.0
Up 3	United States	1.3**	2.0**	2.7**	3.4**	4.3**
	Germany	1.8	3.1	4.3	5.5	6.0
Up 4	United States	0.4**	1.0**	1.3**	1.7**	1.9**
	Germany	1.0	1.7	2.3	3.0	4.1

Notes: [1]) Each entry shows the number of individuals making the transition as a fraction of those eligible to make the transition. Column totals will not sum to 1 as a result. — ** Indicates that the United States and German rates are significantly different at the 1 percent level. — * Indicates that the United States and German rates are significantly different at the 5 percent level.

Source: The 1989 Response-Nonresponse File of the Panel Study of Income Dynamics; and The 1993 Syracuse University English Language Public Use File of the German Socio-Economic Panel.

Using both cross-sectional and longitudinal data we have provided a first look at how individuals wage earnings changed in the United States and Germany over the growth years of the 1980s. We find that the evolution of earnings through time appears to be remarkably similar in the two countries. Specifically, measured in *relative* terms, variations in earnings over time are slightly greater and the probability of changing quintiles in the earnings distribution somewhat larger in Germany than in the United States.

We conclude that the forces that determine the evolution of wage earnings (and thus earnings inequality) do not appear to be unique to either the United States or Germany. Instead, similar patterns appear in both countries. By implication, these forces are unlikely to be traced to the specific labour market policies of either country. In addition, our longitudinal evidence suggests that the ordering of individuals within the wage earnings distribution is subject to substantial change. We believe the evolution of inequality is a fundamentally dynamic process, and hence, one should be wary of attempts to characterize it through the use of repeated cross-sectional analysis. Instead, greater attention should be paid to the use of longitudinal data sets that permit repeated observation of individual workers.

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Appendix 1

Sample Sizes for Quintile-to-Quintile Transition Rates in Tables 4 and 5

Quintile	Transition Period	PSID	GSOEP
Lowest	t+1	8,403	6,738
	t+2	6,521	5,182
	t+3	4,894	3,865
	t+4	3,455	2,677
	t+5	2,163	1,667
Next Lowest	t+1	8,405	6,742
	t+2	6,540	5,185
	t+3	4,895	3,869
	t+4	3,457	2,678
	t+5	2,163	1,668
Middle	t+1	8,411	6,739
	t+2	6,523	5,184
	t+3	4,895	3,866
	t+4	3,457	2,679
	t+5	2,164	1,669
Next Highest	t+1	8,405	6,742
	t+2	6,522	5,185
	t+3	4,895	3,869
	t+4	3,457	2,678
	t+5	2,163	1,668
Highest	t+1	8,409	6,744
	t+2	6,525	5,187
	t+3	4,897	3,869
	t+4	3,458	2,680
	t+5	2,165	1,669

Source: The 1989 Response-Nonresponse File of the Panel Study of Income Dynamics; and The 1993 Syracuse University English Language Public Use File of the German Socio-Economic Panel.

Appendix 2

Sample Sizes for Global Mobility Measures in Table 6[1])

Change in Quintile		Transition Period				
		t+1	t+2	t+3	t+4	t+5
Down 4	United State Germany	8,409 6,744	6,525 5,187	4,897 3,869	3,458 2,680	2,165 1,669
Down 3	United State Germany	16,814 13,486	13,047 10,372	9,792 7,738	6,915 5,358	4,328 3,337
Down 2	United State Germany	25,221 20,225	19,570 15,556	14,687 11,604	10,372 8,037	6,492 5,006
Down 1	UnitedState Germany	33,626 26,967	26,092 20,741	19,582 15,473	13,829 10,715	8,655 6,674
No Mobility	United Stats Germany	42,029 33,705	32,613 25,923	24,476 19,338	17,284 13,392	10,818 8,341
Up 1	United Stats Germany	33,620 26,961	26,088 20,736	19,579 15,469	13,826 10,712	8,653 6,672
Up 2	United Stats Germany	25,215 20,219	19,566 15,551	14,684 11,600	10,369 8,034	6,480 5,004
Up 3	United Stats Germany	16,808 13,480	13,043 10,367	9,789 7,734	6,912 5,355	4,326 3,335
Up 4	United Stats Germany	8,403 6,738	6,521 5,182	4,894 3,865	3,455 2,677	2,163 1,667

[1]) Entries show the total numbeof observations that are eligible to experience each transition.

Source: The 1989 Response-Noresponse File of the Panel Study of Income Dynamics; and The 1993 Syracuse University English Language Public Us File of the German Socio-Economic Panel.