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## Rich and poor: Stability or change? West German income mobility 1984 - 93

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Diskussionspapiere  
Discussion Papers

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**RICH AND POOR: STABILITY OR CHANGE?  
WEST GERMAN INCOME MOBILITY 1984-93**

by

Peter Krause<sup>1</sup> and Bruce Headey<sup>2</sup>

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# **Deutsches Institut für Wirtschaftsforschung**

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**RICH AND POOR: STABILITY OR CHANGE?**

**WEST GERMAN INCOME MOBILITY 1984-93\***

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## **ABSTRACT**

Using data from the German Socio-Economic Panel (N=6950), this paper analyses equivalent income mobility in West Germany, 1984-93. Four hypotheses, derived from recent North American research and from sociological theory (stratification theory) are tested. They are: 1. that in West Germany, as in the U.S., the poor are a more stable (less mobile) group than the rich; 2. that, as stratification theory predicts, most moves up and down the income distribution are 'short distance' moves; 3. that income polarization (i.e. a declining middle class) has occurred and; 4. that overall income mobility has not increased in the last decade.

All but the last hypothesis proved to be false, so the concluding section assesses the implications of these unexpected results for economic and sociological theory.

## **RICH AND POOR: STABILITY OR CHANGE?**

### **WEST GERMAN INCOME MOBILITY 1984-93**

Using data from the German Socio-Economic Panel (GSOEP), this paper examines income mobility in West Germany during the last decade. It assesses the extent to which individual equivalent incomes changed relative to each other and seeks to answer the question, 'Has West German society been static in the sense that the same people stayed rich, while others stayed poor, and the middle class remained in the middle? Or was there, perhaps, a great deal of change with many people becoming temporarily well-off or even rich, but then suffering a decline in income, while other people became poor but soon escaped from poverty?'

While the paper is mainly concerned with West Germany, it also includes some comparisons with the United States and draws on the American literature for hypotheses about likely developments in the last decade. In the United States it appears that there was a high degree of income mobility in the 1970s and 1980s with the top decile being an even less stable group than the bottom (Hungerford, 1993). Studies of earlier post-War decades had, however, suggested that the well-off were a more stable group than the poor (Mirer, 1974; Morgan & Duncan, 1981). Research on poverty has established the apparently paradoxical finding that, while the majority of people who become poor soon escape (within two years), it is nevertheless true that a majority of those who are poor at any given time are long term poor (Bane & Ellwood, 1986; Burkhauser, Duncan, Hauser & Bernsten, 1990; Duncan et al, 1984; Smeeding et al, 1993). The paradox can be understood by thinking of spells of poverty as being like spells in hospital. If one checks hospital records, one typically finds that most people who enter have short stays (e.g. overnight surgery) but that a majority of beds at any one time are occupied by the long term sick (Bane & Ellwood, 1986). Less research has been done on the rich (but see Juster & Kuester, 1991; Kessler & Wolff, 1991) but in view of Hungerford's (1993) recent findings, a plausible hypothesis may be that spells of riches are typically shorter than spells of poverty.

Another interesting finding from recent American research, which will be treated here as a hypothesis about West Germany, is that the income distribution has become polarized with a declining middle class and more households with incomes well above and well below the median (Duncan, Smeeding & Rodgers, 1991; and see Morris, Bernhardt & Handcock, 1994; Wolfson, 1994). Despite polarization, there has not, however, been an overall increase in the income mobility in the U.S. in the 1980s compared with the 1970s (Hungerford, 1993).

We are conscious that economists and sociologists have quite different expectations about income mobility. At least since data from the Michigan Panel Study of Income Dynamics (PSID) became available, economists have been aware that there is considerable mobility of household incomes from year to year and certainly from decade to decade, although few households shift from the very top to the very bottom of the distribution or vice-versa (Duncan et al 1984). Sociologists, on the other hand, generally endorse the picture of society embodied in stratification theory. Stratification theory, which is close to being the basic paradigm of sociology, holds that inequalities are long term, cumulative and substantially due to family social background (Cosser et al, 1987; Erikson & Goldthorpe, 1992; Parkin, 1972). For present purposes, a specific prediction of stratification theory is that income inequality will be long term. In other words, there will not be substantial mobility of relative incomes and such changes as are found will only be 'short distance' moves up and down the income distribution (Erikson & Goldthorpe, 1992). Many sociologists are, of course, aware of the PSID results but appear to have treated them as inconvenient discordant data and not integrated them into sociological theory. There has perhaps been some tendency to treat them as data from one particular society, which may be regarded as a particularly open and mobile society and not typical of Western 'capitalist' societies. One contribution of this paper is to assess whether in Germany, which has quite different political, economic and welfare state structure from the United States, income mobility is just as great (Esping-Andersen, 1990) or even greater (Burkhauser/Poupure, 1993).

Although there is no strong reason to suppose that West German income mobility in the last decade has been similar to American, the American results are used here to provide hypotheses and a basis for comparison and explanation. Accordingly, our hypotheses are:

1. The poor are a more stable (less mobile) group than the rich.
2. There has been a high degree of income mobility in the last ten years, but most moves up and down the equivalent income distribution have been 'short distance' moves.
3. Income polarization has occurred; the tails of the income distribution have increased and the middle class has declined.

But 4. Overall, equivalent income mobility has not increased in the last decade.

It should be understood that the paper deals only with the equivalent incomes (and assets) of the 6950 West Germans for whom GSOEP data are available every year from 1984 to 1993. The GSOEP was extended to East Germany in 1990 after the overthrow of communism, but East German data are not used<sup>1</sup>. For all ten years respondents have been placed (eg. in deciles) within a West German (not an all-German) household income distribution. In a sense, this is a fictive world, because since 1990 Germany has been united. It does have the advantage, however, of enabling us to see whether income mobility has increased or decreased in West Germany since the revolution that produced unification.

The paper is organised as follows. Income mobility is analysed using three methods: decile transition matrices, counts of how many times individuals were rich or poor in 1984-93 (cf. Duncan et al, 1984), and analysis of the length of poverty spells and richness spells (cf. Bane & Ellwood, 1986). It will be seen that the data indicate a high degree of income mobility, probably greater than in the United States.<sup>2</sup> In the latter part of the paper we assess whether these results hold up in the face of three possible criticisms. The first is that the appearance

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<sup>1</sup> East Germans who have moved to the West since 1989 are excluded from analysis, but West Germans who have moved East are included.

<sup>2</sup> The comparison is inexact because Hungerford's (1993) results were based on annual household net incomes, whereas ours are based on equivalent incomes (ie. incomes adjusted for household size; see below). However, Burkhauser & Ponpore (1993) showed that not only annual income, but also permanent incomes are more unequal in the US compared to (West-)Germany.

of income mobility is deceptive; most people who apparently escape poverty, or who cease to be well-off, only move just across the 'borderline'. A second possible criticism is that the appearance of mobility is largely due to the inclusion of young people who are not yet established in their careers (Bjorklund, 1993; Gustafsson, 1994). This point can be addressed by restricting analysis to respondents of prime working age (30-55 years). A third potential criticism is that income mobility would appear less substantial if, instead of using annual figures and capturing annual fluctuations, we used a measure of longer term or 'permanent' income. This issue is addressed by repeating the analyses using five year periods of income (cf. Hungerford, 1993).

## **METHODS**

### **The German Socio- Economic Panel (GSOEP)**

The GSOEP began in 1984 with a national representative sample of West Germans (9070 individuals aged 16 and over in 4528 households). Additionally, sample were drawn from the five main groups of foreigners living in the country: Greeks, Italians, Spanish, Turks and Yugoslavs (3175 individuals in 1393 households). It may be noted that in 1990 the panel was extended to East Germany, though East German data are not used in this paper.

A major problem in most surveys is that the poor and the rich (or at least the very rich) are under-sampled. Both groups are hard to contact initially and, in a panel study, hard to retain for successive interviews. In the GSOEP considerable efforts were made to avoid under-sampling. Checks with Census data indicate that in the first wave in 1984 the poor were not under-represented, nor were the well-off (Rendtel, 1990). In the case of the very rich it is hard to be sure, because it is unknown exactly how many there are in the first place. In the second wave (1985) the poor (but not the well-off) did drop out at a slightly higher rate average, but since than their attrition rate has been no higher then the rest of the sample (Rendtel, 1990). In this paper, following conventional procedures, the slight under-representation of the poor is, as far as possible, compensated for by weighting results, using

as weights variables which define or are associated with riches and poverty, including household income, age, sex and the occupational status of the head of household.

All results are based on interviews with the 6950 individuals in households who answered questions about income in all ten waves of the survey so far available (1984-93). Children under 16, who were not interviewed but whose existence was of course recorded, are included in all estimates. Foreigners (guest-workers) are also included with the results weighted so that Germans and the major foreign populations are represented in correct proportions.<sup>3</sup>

## MEASURES

### (i) income and wealth

The aim is to measure respondents' material standard of living, rather than the broader concept of welfare. The measure used as a proxy for material standard of living is equivalent income. This means the household's net income from all sources (i.e. labor income + public transfers, including superannuation + private transfers + property income - direct taxes), adjusted for household size. The best method of adjusting for household size remains in dispute. Use of household per capita income, which seems the obvious approach, makes no allowance for economies of scale in larger households or for the fact that, in general, children are cheaper to keep than adults. In practice, in many OECD studies and studies based on the Luxemburg Income Study, a measure of equivalent income is now used (eg. Smeeding et al, 1993). Equivalence weights are based on a concept of income "needs", but there is no international agreement on weights. The OECD, it should be noted, has recently changed its weighting system, downgrading the weights attributed to both additional adults and children in the household. It has been shown empirically that the weights assigned to additional

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<sup>3</sup>. The weighting of panel results is complicated. As noted above, the 6950 respondents who provided income data every year were placed in the national income distribution according to their position relative to all respondents interviewed that year. This involved using the appropriate cross-sectional weights for each year. This produced minor anomalies. In particular, it meant that not exactly 10% of respondents were placed in each income decile each year, since it was their position relative to the total sample and not just each other which mattered. In longitudinal analyses (eg. analysis of how often individuals were rich or poor during the 10 years) longitudinal panel weights were used.

household members substantially affects which households are designated as rich and poor (Buhmann et al, 1988). The weights implied by the German Social Assistance program (Sozialhilfe), which are used in this paper, assign high weights to children and thus make large families appear worse-off than would be the case if lower weights (eg. the new OECD weight of 0.3 for children) were assigned.

**TABLE 1**  
**German Social Assistance Equivalence Weights<sup>a</sup>**

Household Position	Equivalence Weight
Head	1.00
Age 16-21	0.90
Age 22+	0.80
Age 12-15	0.75
Age 8-11	0.65
Age 0-7	0.45

**a. These weights are implied by the Social Assistance benefit payments.**

It should be understood that the same equivalent income is attributed to all household members, who are thus assumed to have the same material standard of living.

Calculations of equivalent income in this paper are based on reports of the household's current monthly net income, given in the annual interviews. It seemed possible that monthly incomes would fluctuate more rapidly than estimates of annual income and thus lead to over-estimation of transitions into and out of riches and poverty. American research is divided on this point (Shorrocks, 1978; but see Benus and Morgan, 1975). Using the GSOEP data,

Rendtel et al (1992) showed that monthly and annual income figures give virtually identical income distributions and transition estimates for entry and exit from poverty (see also Headey, Krause and Habich, 1994). Since monthly income data are available for ten years, whereas annual income data have only been computed for six years, it is preferable to use the former.

The measure of equivalent income used here has significant limitations. Ideally, perhaps, material standard of living should be directly measured by consumption (expenditure) data not income. It has been shown that U.S. household expenditure data are more stable than income data and indicate less inequality (Cutler and Katz, 1992; see also Slesnick, 1991). However, detailed expenditure data are not available in the GSOEP or any other panel study, so equivalent income serves as a proxy. As Ringen (1991) pointed out, it is best regarded as a measure of potential consumption rather than actual standard of living.

The equivalent income measure should ideally include an estimate of the imputed net rent of owner occupiers but, unfortunately, except for one year, the GSOEP contains no estimate of the market value of owner occupied dwellings.

The GSOEP collected data on assets (net worth) in 1988 but not in other years, so it is possible to show the correlation between wealth and income (see below) but not assess changes in wealth, or, as has been done in a few studies, to calculate an annuitized annual income based on wealth (Townsend, 1979). It seems probable that some households, including temporarily income poor households, keep their standard of living on a more even keel by drawing on assets. Ruggles and Williams (1989) estimated that one-third of poverty spells in the U.S. would be eliminated, making reasonable assumptions about income flows derived from drawing on assets.

## **ii. defining the rich and the poor**

In practice, almost all academic (although not government) definitions of riches and poverty are relative rather than absolute definitions. That is, they are definitions which categorize people as poor or rich relative to their position in the total income distribution rather than in terms of ability to afford a predefined diet or standard of housing (Ringen, 1987). Two types of relative definition are commonly used; quantile definitions (eg. richest 5% or 10%, poorest 5% or 10%) and definitions expressing riches or poverty in relation to mean or median income. In this paper two alternative quantile definitions are used for both rich and poor. The rich are defined as those receiving the highest 5% or 10% of equivalent incomes, and the poor are those receiving the lowest 5% and 10% of incomes. Use of quantile definitions facilitates comparisons with a recent American study of income mobility (Hungerford, 1993) and, as Table 2 shows, has the effect of defining almost exactly the same people as rich and poor as would conventional definitions based on mean income.

**TABLE 2**  
**Defining Rich and Poor: Quantile and Mean-based Definitions 1993**

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<b>Definitions</b>	
<b>Quantiles (Equiv. Income)</b>	<b>Relative to Mean (Equiv. Income)</b>
Richest 5%	> 200% of X = 4.3% of sample
Richest 10%	> 150% of X = 13.0% of sample
Poorest 5%	< 40% of X = 5.0% of sample
Poorest 10%	< 50% of X = 10.4% of sample

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The poorest 5% and 10% in 1993 almost exactly correspond to two conventional definitions of poverty as below 40% and 50% of mean equivalent income (Smeeding et al 1993). At the

top end of the distribution the richest semi-decile are approximately the same people who receive over 200% of equivalent income, and the richest decile are a somewhat smaller group than those with over 150% of mean income.

Table 3 gives basic descriptive information about the average household net incomes and equivalent incomes of West Germans in 1993 and the incomes of those defined as rich or poor.

**TABLE 3**  
**Monthly Incomes of Rich and Poor in 1993**

Quantile	Household Net Income <sup>a</sup>	Equivalent Income <sup>a</sup>
Mean (X)	DM 4042	DM 1811
Richest 5%	>DM 7875	> DM 3500
Richest 10%	>DM 6600	>DM 2885
Poorest 5%	<DM 1390	<DM 720
Poorest 10%	<DM 1750	<DM 889

**a** The richest and poorest quantiles in terms of household net income and equivalent income are not exactly the same people because the first figure is not adjusted for household size.

Finally, some descriptive information about the relationship between income and wealth. In 1988 the GSOEP collected data on household net worth, which comprised savings, the cash-in value of life insurance, stocks and shares, equity in owner occupied housing, and the value of jewellery, paintings etc (but not cars and furniture) minus debts. 20.1% of households reported zero or negative net worth and a further 21.5% had assets under DM20,000. At the other extreme, 1.8% had a net worth between DM800,000 and 0.7% (80

respondents) had net worth over DM 1.5 million. (So in the GSOEP, unlike many surveys, the rich and very rich are by no means notable by the absence).

As in other countries (eg. Kessler & Wolff, 1991), correlations between wealth and income are 'surprisingly' weak. For 1988 the correlation between the log of net worth and log of household net income was 0.38 ( $r \ln \text{ net worth, } \ln \text{ equivalent income} = 0.20$ ) with the correlation between wealth and ten years of income (1984-93) being identical. If one excludes the young and the old, on the grounds that the former are likely to be accumulating assets and the latter running them down, and restricts the analysis to households whose head is of prime working age (30-55 years), the correlation between net worth and household net income was 1988 is still only 0.40 ( $r = 0.41$  for income 1984-93).

These moderate correlations imply that there are lots of households with high asset levels and quite low current incomes, and vice-versa. For example, 15.6% of households in the top equivalent income decile for the years 1984-93 combined, who were headed by people of prime working age, claimed to have zero or negative net worth. Among the poorest income decile, 6.4% claimed a net worth over DM400,000.

## RESULTS

As background information for assessing evidence about income mobility, it is useful to know that inequality remained almost unchanged during this decade. The Gini coefficient declined slightly from 0.279 in 1984 to 0.268 in 1993. This means that individual income mobility was taking place against a background of stable aggregate inequality.

Our first two hypotheses are (1) that the rich have been a less stable group than the poor and (2) that there has been a high degree of income mobility in the last ten years but most moves have been 'short'. Table 4 presents preliminary evidence by answering the question, 'What happened by 1993 to individuals starting out in different income deciles (and in the top and bottom semi-deciles) in 1984?' The underlined figures on the top left to bottom right

diagonal indicate percentages who, after ten years, were still in the same quantile as they had started in. It should be noted that, as in all such income distribution tables, the higher degree of apparent stability in the top and bottom quantiles is misleading and reflects the fact these people could only move in one direction (while all others could move in both directions) and would have required relatively large percentage changes in income to do so.

**TABLE 4**  
**Income Mobility 1984-93: Equivalent Income Deciles (Semi-Deciles)**

		1993 Income Deciles (Semi-Deciles)												
		0-5%	5-10%	10-20%	20-30%	30-40%	40-50%	50-60%	60-70%	70-80%	80-90%	90-95%	95-100%	
		1	2	3	4	5	6	7	8	9	10			
1984 Income Deciles (Semi- Deciles)	0-5%	1	<u>24.4</u>	8.0	10.6	13.7	11.4	8.3	9.1	7.0	5.3	1.8	.2	
	5-10%		11.1	<u>11.9</u>	21.0	9.9	10.3	11.4	5.1	4.1	6.7	7.1	.4	1.0
	10-20%	2	7.7	12.9	<u>18.5</u>	10.5	10.4	9.8	6.7	7.1	7.5	5.8	2.9	.2
	20-30%	3	4.4	8.2	16.1	<u>15.7</u>	10.6	10.7	8.2	8.2	8.6	5.8	1.8	1.6
	30-40%	4	3.2	2.0	10.9	14.4	<u>12.0</u>	10.5	8.6	12.7	8.1	12.9	2.3	2.5
	40-50%	5	3.1	2.5	9.5	13.7	12.5	<u>14.2</u>	10.3	10.9	10.5	8.0	2.7	2.0
	0-60%	6	5.3	.5	5.6	9.3	12.3	12.9	<u>10.9</u>	13.9	14.5	10.8	3.0	.9
	60-70%	7	1.4	1.3	4.4	7.4	9.4	13.2	11.5	<u>15.8</u>	17.5	11.0	3.0	3.1
	70-80%	8	1.2	2.3	5.1	8.9	7.7	12.7	14.5	14.1	<u>13.8</u>	12.3	3.5	4.0
	80-90%	9	.4	1.0	4.2	3.0	6.9	5.2	10.8	13.5	15.7	<u>20.0</u>	11.0	8.3
	90-95%		.2	1.9	3.7	2.5	4.0	2.6	6.0	5.4	12.1	27.5	<u>14.3</u>	19.9
	95-100%	10	.1	.4	.4	1.6	3.6	2.2	9.7	5.5	9.1	14.3	19.4	<u>33.8</u>

Note: Unweighted N = 6950. Kendall's Tau-c=0.35. Likelihood Ratio  $G^2 = 16696.48$  ( $p < .00001$ )

Both hypotheses appear to be false. In Germany, unlike the USA, the rich in recent years have clearly been a more stable group than the poor (cf. Duncan, 1984; Hungerford, 1993). Just over a third of those in top semi-decile in 1984 were still in place in 1993 compared with 24.4% of people in the poorest semi-decile.<sup>4</sup> In the next-to-top semi-decile 14.3% stayed, whereas in the second poorest semi-decile 11.9% had not moved. In the ninth decile 20.0% remained in place, while in the second decile the figure was 18.5%. Later evidence (Tables 5 and 6) will give stronger confirmation that the richer quantiles are indeed more stable than the poorer.

The overall degree of income mobility was, as expected, quite high. Kendall's tau-c (an ordinal scale correlation measure with upper and lower bounds of +1 and -1, appropriate for rectangular matrices) was 0.35. However, it does not appear reasonable to infer that most moves up and down the income distribution were 'short'. Of those who started in the poorest semi-decile, 23.4% were in the top half of the income distribution a decade later. Similarly, 24.4% of those in the second poorest semi-decile had reached the top half of the distribution by 1993. In other words just under a quarter of the poor in 1984 (almost half what would be expected purely by chance) had achieved middle class incomes by 1993. Very few had made it into the top decile, but considerable numbers had made it into the 6th, 7th, 8th and even 9th deciles.

'Long distance' changes in relative income position were much less likely among those who started at the top end of the distribution in 1984. 8.3% of individuals who started in the top semi-decile were in the bottom half of the income distribution by 1993, as were 14.9% of those starting in the second richest semi-decile. However, extreme riches to rags stories (moves from the top to the bottom decile) actually appear to have been more common than extreme rags to riches stories.

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<sup>4</sup>. This does not mean, of course, that these individuals necessarily remained in the same quantile for each of the ten years.

The income mobility picture for foreigners (guest-workers) is quite different from the German picture. Appendix I shows that the few foreigners who started in the top decile in 1984 were less likely to stay rich than Germans and much more likely to plunge to the bottom half of the distribution by 1993. At the low income end, foreigners also have worse prospects. The foreigners who started poor were more likely than Germans to stay poor, and they had much less chance of making it into the top half of the income distribution by 1993. It should be remembered that most of the guest-worker families in the GSOEP are headed by first generation immigrants. Seifert's (1992) research indicates that in the second generation the income levels and mobility of foreigners become more similar to Germans.

The reasons for the quite high degree of income mobility in Western countries are well known and so will be very briefly summarized. Mobility of equivalent incomes is more due to changes in family composition (more or fewer mouths to feed) and especially to changes in household labor force participation, than to changes in the head of household's earnings (Duncan, 1984; Bane & Ellwood, 1986). However, changes in the head's earnings are responsible for some moves into and many out of poverty (Bane & Ellwood 1986). In both countries marital break-up is likely to move mothers and children into poverty, with the short term consequences in Germany being even worse than in the U.S. (Burkhauser et al., 1990). On the other hand, public transfers prevent considerably more households from being in poverty (especially extreme poverty) in Germany than the U.S. (Burkhauser et. al., 1990).

A second method of analyzing the mobility of rich and poor in 1984-93 is to ask how many times each individual who remained in the panel was rich or poor in this period. Table 5 reports straightforward 0 (never rich, never poor) to 10 (always rich, always poor) scores.

**TABLE 5**

**How Many Times Were People Rich or Poor in 1984-93?**

	Number of Times Rich or Poor											100%
	Never 0	1	2	3	4	5	6	7	8	9	Always 10	
Richest 5%	86.2	4.7	2.3	1.4	1.1	1.3	0.7	0.5	0.4	0.5	0.8	100%
									2.9%			
Richest 10%	76.1	7.4	3.7	2.1	1.5	1.5	1.8	1.5	1.3	0.9	0.2	100%
									7.8%			
Poorest 5%	80.7	10.5	3.7	1.8	1.3	0.9	0.5	0.5	0.2	-	-	100%
									1.2%			
Poorest 10%	69.0	12.6	5.1	4.4	2.8	1.8	1.1	1.5	0.8	0.3	0.7	100%
									4.4%			

Note: Unweighted N = 6950

Confirming previous results, Table 5 also shows that the rich were a more stable group than the poor, although at both ends of the distribution there was considerable mobility. 86.2% of panel members were never in the richest semi-decile, while 13.8% were at least once. 2.9% managed to stay there more than half the time (6-10 years), although only 0.8% were in the richest group every year. These figures suggest considerable volatility, but it is clear that there is even greater volatility at the bottom end. Lots of people are at risk of poverty. 19.3% were in the poorest semi-decile and 31.0% were in the poorest decile at least once in the decade. However, the chances of remaining persistently poor were fortunately even less than the chances of being persistently rich. Nobody at all was in the poorest semi-decile for the entire decade or even for nine years, and only 1.2% were there for more than half the time. Just 0.7% remained in the poorest decile for the entire period and 4.4% were there more than half the time.

It is tempting to conclude that it is easy to strike it rich in Germany but hard to stay rich. Many people are at risk of poverty but not many are persistently poor. (Possible counter-interpretations are discussed below).

Bane and Ellwood (1986) rightly criticized the years of riches/poverty 'count' method for over-estimating mobility. They pointed out that the method ignores problems of left and right censoring. For example, at the extreme, there could be people included in Table 5, who became poor many years before 1984, who happened to escape poverty in 1985, who fell back into poverty in 1993, and who will remain poor for the rest of their lives. These people would be counted as twice poor (1984, 1993) and thus be misleadingly classified as short rather than long term poor. The problem is that Table 5 includes people whose spells of poverty or riches began at unknown times (left censoring) and/or ended at unknown times (right censoring).

The formal technique of spell analysis involves omitting left censored spells but estimating termination dates for right censored spells. This latter procedure ideally requires a long time

series and a very large sample of spells. With ten years of data and just moderate size samples, we have adopted a more cautious approach. Only spells of riches or poverty beginning in 1985-88 have been analyzed, and rather than estimate termination dates, we simply show the number of spells which were still continuing in 1993 and had thus been underway at least five years (1988-93).

**TABLE 6**  
**Spells of Riches & Poverty: Exit Probabilities**

Probability of not being rich or poor	Richest 5%	Richest 10%	Poorest 5%	Poorest 10%
After 1 year	.54	.50	.71	.64
After 2 years	.69	.68	.83	.80
After 3 years	.80	.76	.89	.90
After 4 years	.84	.79	.93	.92
After 5 years	.88	.86	.95	.93
After 6 years	.89	.88	.96	.94
After 7 years	.90	.88	.97	.95
After 8 years	.90	.88	.98	.96
Right censored	.10	.12	.02	.04
(Total)	(100%)	(100%)	(100%)	(100%)
(N) <sup>a</sup>	(347)	(570)	(836)	(1,340)

a N = unweighted number of spells.

Spell analysis confirms a picture of greater income volatility than is found in the United States (cf. Bane & Ellwood, 1986). If we define all spells lasting three years or less as short term, then 80% of spells in the richest semi-decile were short, as were 76% of spells in the richest decile. Poverty spells, as we would now expect, were even shorter. Fully 90% of

spells within the poorest decile were over within three years. A comparable American figure is approximately 70% (Headey, Krause & Habich, 1994).

Table 6 does, however, suggest a higher estimate of medium and long term spells of riches and poverty than might be inferred from Table 5 (in which people not spells were the unit of analysis). Table 6 indicates that 12% of spells of riches (richest semi-decile) lasted over 5 years, whereas Table 5 reported (correctly but perhaps misleadingly) that only 2.9% of the panel were rich for over half the decade. At the other end of the distribution, Table 6 shows that 7% of spells of poverty (poorest decile) lasted over five years, whereas Table 5 indicated that 4.4% of people were poor more than half the decade.

Somewhat in contrast to a perspective which emphasises high income mobility, spell analysis can also be viewed as showing that the longer one stays rich or poor, the less likely is one ever to change. Thus, while 64% escaped poverty (lowest decile) in the first year, only another 16% escaped in the second year, another 10% in the third year, 2% in the fourth year and so on. From figures like these, it is easy to calculate what percentage of people who are rich or poor at any given time are relatively short term rich or poor, and what percentage are long term. In the U.S. it has been shown that a large majority of people who are poor at any particular moment are in the midst of a spell of poverty lasting five years or more (Bane & Ellwood, 1986). In Germany the results are somewhat less dramatic, although still startling enough. Of those who were in the poorest decile in 1989 (a convenient year for calculation, being in the middle of the decade), 41.6% were in the midst of a spell lasting over five years.<sup>5</sup> Of those in the richest semi-decile, 45.9% were in the midst of a spell over five years.

It is important to remember the paradox that spell analysis reveals, namely that although most spells of riches or poverty are short, a fairly high percentage of people in any cross-section are long term stayers (recall the hospital analogy discussed earlier).

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5. Again, because of the fairly short time series and the limited number of spells, we have not used the formal technique of spell analysis.

A final point relating to Table 6: note that the total number of spells of poverty is between two and three times the number of spells of riches (whether decile or semi-decile definitions are used). This may be taken as further confirmation that in Germany poverty is usually a more transient state than riches.

### **Possible counter-interpretations**

Three possible criticisms or counter-interpretations of our results are considered in this section. It might be argued that we exaggerate income mobility by not taking account of the possibility that many people who move into or out of riches or poverty may only move just across arbitrary cut-off points, without any substantial change occurring in their incomes. Secondly, it may be that the appearance of mobility is largely due to the inclusion of young people who are still building their careers and old people who are running down their assets and whose incomes may decline. What is the picture if we confine analysis to households headed by individuals of prime working age (30-55 years)? Finally, is the appearance of mobility due to using too short an accounting period? Would results be substantially different if the accounting period was, say, five years rather than one?

First, the possibility that apparent mobility is mainly due to 'short-distance' moves across arbitrary cut-off points. In discussing the 1984-93 decile transition matrix (Table 4) we saw that nearly a quarter of the poor in 1984 were in the top half of the income distribution by 1993, and that 11-12% of those who started in the top decile finished in the bottom half of the distribution. Clearly, this evidence runs against the hypothesis that changes were preponderantly 'short-distance'. Further evidence comes from calculating the average incomes in the years when they were not rich (poor) of people who were sometimes rich (poor) in 1984-93.

TABLE 7

What Happened to the Rich/Poor In Years When Not Rich/Not Poor?<sup>a</sup>

Income	(1) X Income	(2) X Income	(3) X Income
Groups	1984-93 <sup>b</sup>	When Rich/Poor <sup>b</sup>	When Not Rich/ Not Poor <sup>b</sup>
<b>Richest 5%:</b>			
Rich 5/10 years	3311 (193%)	4024 (235%)	2597 (152%)
Rich 9/10 years	4202 (245%)	4336 (253%)	2999 (175%)
<b>Richest 10%:</b>			
Rich 5/10 years	2724 (159%)	3329 (194%)	2118 (124%)
Rich 9/10 years	3902 (228%)	4059 (237%)	2486 (145%)
<b>Poorest 5%:</b>			
Poor 5/10 years	771 (45%)	538 (31%)	1004 (59%)
Poor 9/10 years	522 (30%)	487 (28%)	839 (49%)
<b>Poorest 10%:</b>			
Poor 5/10 years	892 (52%)	692 (40%)	1093 (64%)
Poor 9/10 years	656 (38%)	618 (36%)	1000 (58%)

a All equivalent incomes are in constant DM (1985 = 100).

b Figures in parentheses indicate the percentage of average annual income for the entire Panel for the period (1984-93) received in the years in questions. Average annual equivalent income for 1984-93 was DM 1712.

Table 7 shows what happened to the incomes of groups of the rich and poor (a) for the whole decade (b) for the years when they were rich/poor and (c) for the years when they were not rich/not poor. The main interest lies in column (3). In the years when they lost their rich or poor status did people move a long way across the borderline or only just across? Take people who were sometimes in the richest semi-decile. To be in this group people had to have an equivalent income over 200% of the mean. So it is interesting that people who were in this group five years out of ten had incomes in the other five years which averaged only

152% of the mean. In other words they dropped far below the 200% level. Even people who were rich nine years out of ten had average incomes in the one year when they were not rich of 175% of the mean (i.e. 12.5% below the level defined as rich).

Now consider people who were sometimes in the poorest decile. To be there they had to have incomes below 50% of the mean. Those who were poor for half the decade had incomes when not poor which were 64% of mean income, or 28% above the defining level for 'their' group. Even people who escaped poverty for just one year had incomes in that year which were 16% above the defining level for the group.

It seems clear that in years when they move out of riches or poverty, the 'sometimes' rich and 'sometimes' poor do so by fairly substantial margins. On the other hand, one would not wish to minimize the constraints. All groups who were sometimes poor (even those who were poor in just one year) had average incomes for the decade and for the years when they were not poor which were below the national average. Similarly, all groups that were sometimes rich had decade-long incomes and incomes when they were not rich which were comfortably above the national average.

The validity of a second criticism, that the degree of income mobility is overstated due to the inclusion of households headed by people of all ages (especially the young), can readily be assessed by restricting analysis to households headed by people of prime working age (30-35 years). For all panel members the correlation (Kendall's tau-c) between decile rankings in 1984 and decile rankings in 1993 was 0.35 (Table 4). For people living in households headed by individuals of prime working age the correlation was modestly higher at 0.41. Re-runs of the 'count' analyses in Table 5 (number of times rich/poor) and the spell analysis of Table 5 on this restricted group confirm that its degree of equivalent income mobility is only slightly less than for the national sample. This group, like all others except perhaps the aged, experiences fairly frequent changes in household composition, household labor force

composition, in head's and partner's earnings, in health and all other factors which make for income mobility (Duncan, 1984).

A third possible criticism related to our use of a measure of short term income rather than a measure of longer term income. It is often argued that long term (or 'permanent' income) provides a more valid measure of standard of living (Friedman, 1951), although this view would not appeal to households with no savings who suffer short term poverty.

Following Hungerford (1993), we have re-run some analyses using 5-year periods of income as a proxy for long term or 'permanent' income. Unsurprisingly, there is a higher correlation between equivalent income deciles for the periods 1984-88 and 1989-93 (Kendall's tau-c = 0.65) than for the single years 1984 and 1993 (Kendall's tau-c = 0.35). However, this does not demonstrate the claim that longer or medium term equivalent income is more stable than short term. To assess this claim the appropriate comparison is between consecutive annual incomes and consecutive five year periods. It transpires that in Germany equivalent incomes are not much more stable over the longer period. The five year Kendall's tau-c of 0.65 compares with a tau-c of 0.68 for 1984-85 annual equivalent incomes and a tau-c of 0.69 for 1992-93 incomes. This lack of major difference confirms the view of Benus and Morgan (1975) that results using measures of adjusted household income are not very sensitive to length of accounting period<sup>6</sup>.

### **Income polarization and a disappearing middle class?**

It has been pointed out that standard measures of inequality like the Gini and Theil coefficients are inappropriate as measures of income polarization because they measure changes across the whole distribution rather a decline of the middle relative to both tails. Using newly developed measures, Wolfson (1994) and Morris, Bernhardt and Handcock (1994) have shown that income polarization has occurred in Canada and the United States in the last twenty years.

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<sup>6</sup> It should be notified that inequality is greatest using wealth, second for permanent income and lowest for annual income (Burkhauser/Frick/Schwarze, 1994).

There is little evidence of a similar polarization in West Germany in the last decade. Using Wolfson's (1994) measure of the percentage of individuals with equivalent incomes in the range of 75-150% of median income, one finds only slight change. In 1984 55.9% of people fell within that range, and by 1993 the figure was 54.3%. Furthermore, although this small change could conceivably be interpreted as evidence of a decline in the middle class, it was not symptomatic of polarization, because only one tail of the income distribution increased not both. The proportion of individuals with incomes below 75% of median increased from 25.0% to 27.0%, while those with incomes above 15% actually declined from 19.1% to 18.7%. It should be pointed out, however, that panel data are not ideal for testing the polarization hypothesis, since panels are not precisely representative samples of the current population. Repeated cross-sectional surveys would provide a sounder test.

### **Has income mobility increased?**

Hungerford (1993) found that, contrary to expectations about the Reagan years, overall income mobility in the U.S. did not increase in the 1980's compared with the 1970's. There were, however, interesting changes in the prospects of households in specific deciles. People in the bottom five deciles were less likely to move up the income distribution in the 1980's, whereas people already above the middle (especially those in the 7th and 8th deciles) had better prospects of moving up.

In the case of West Germany, it might be thought that income mobility would have increased as a consequence of economic turbulence since reunification. In fact, no such change has occurred. Kendall's tau-c correlating decile ranks in 1984 with decile ranks in 1988 was 0.56, and the comparable correlation for 1989 to 1993 was 0.54. This difference-between-correlations is statistically non-significant even at the 0.05 level. The Kohl Government remained in power throughout the decade and the social market economy (Sozialmarktwirtschaft) and welfare state were not greatly modified.

## DISCUSSION

Only one of our four initial hypotheses derived from American experience has been confirmed for West Germany. We have found that in Germany in the last decade the rich have been a more stable group than the poor. A plausible explanation for the contrast with the U.S. is that property income is more volatile than labor income (Mirer, 1974), and well-off households in the U.S. receive a larger share of their total income in the form of property income than is the case in Germany.<sup>7</sup> In particular, share ownership is much more widespread in the U.S.

Income mobility in Germany has been considerable and the hypothesis drawn from stratification theory that most 'moves' up and down the income distribution would be 'short' has not been confirmed. Close to a quarter of the poor (lowest decile) in 1984 were in the top half of the distribution by 1993, and 11-12% of the rich (top decile) in 1984 were in the bottom half of the distribution a decade later. These findings have significant implications for stratification theory, which is clearly intended to apply to all capitalist systems, and which holds that inequalities are long term. Stratification theory plainly needs substantial revision to take account of panel data results which show that in some Western countries, including Germany, markets and governments distribute and redistribute income and other key resources in ways quite contrary to the theory's predictions (Headey & Krause, 1994; Smeeding et al, 1993).

Again in contrast to the U.S., no clear evidence was found of income polarization or a declining middle class. Results relating to the remaining hypothesis - that overall income mobility would not increase in the second half of the decade - happened to run parallel to American experience.

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7. It has not been possible to confirm this speculation with solid evidence about the share of property income in total income of the richest 5% and 10% in Germany. Net property income appears to be under-reported in the GSOEP.

There is always some tendency among economists and other social scientists to assume a convergence of trends in income development in Western capitalist countries. Recently, there has been much discussion of a possible trend towards income polarization, which has been attributed both to growing numbers of very highly skilled jobs in modern society and the simultaneous growth in demand for very low skilled service jobs (MacDonald's jobs). The growth in high skill jobs is partly explained by the revolution in information technology and the growth in low skill jobs reflects the continued expansion of the service sector; personal services, fast foods and so forth (Martin, Bernhardt & Handcock, 1994).

The finding that recent German and American trends in income mobility differ indicates the limitations of convergence assumptions. Nobody doubts the importance of the labor force developments just referred to, but cross-national differences in political, economic and welfare state institutions also have huge effects on net income distribution. Germany has a much larger and more redistributive welfare state than the U.S. (Esping-Anderson, 1990; Smeeding et al, 1993).

From the Luxembourg Income Study, the GSOEP, the PSID and other sources, panel data are becoming increasingly available for Western countries. It will therefore become increasingly feasible to test hypotheses about the relative importance of factors contributing to income mobility with evidence from enough countries to develop well grounded empirical generalisations.

## APPENDIX

Table A1 should be read in conjunction with Table 4, which gives income mobility results for the entire panel with Germans and foreigners weighted appropriately.

### Income Mobility of Germans and Foreigners, 1984-93<sup>a</sup>

			1993 Income Deciles (Semi-Deciles)												
			0-5%	5-10%	10-20%	20-30%	30-40%	40-50%	50-60%	60-70%	70-80%	80-90%	90-95%	95-100%	
			1	2	3	4	5	6	7	8	9	10			
1984	0-5%	1	24.5	6.2	9.9	14.0	11.8	8.6	9.7	7.7	5.8	1.6	-	0.2	
			23.6	24.4	16.8	11.2	7.8	5.4	3.5	1.5	1.1	3.9	-	0.9	
	5-10%		9.6	12.0	20.4	8.8	10.9	12.2	4.9	4.1	7.3	8.2	0.5	1.1	
			20.9	11.1	25.3	16.8	6.2	6.0	6.3	4.1	2.9	0.1	0.3	0.1	
	10-20%	2	7.7	12.3	18.4	10.6	10.0	8.8	7.1	7.3	8.0	6.4	3.2	0.2	
			7.6	19.4	19.4	9.3	15.4	19.6	3.1	4.1	2.1	-	-	-	
	20-30%	3	4.0	7.7	16.0	15.7	10.7	10.9	8.0	8.5	8.8	6.9	1.9	1.7	
			9.4	16.3	17.1	15.7	9.6	8.5	11.8	4.2	5.7	0.9	0.8	-	
	Income	30-40%	4	2.8	1.8	10.4	14.4	12.1	10.3	8.7	12.7	8.4	13.4	2.4	2.6
				10.7	5.1	19.5	14.8	9.3	14.0	6.5	13.0	1.8	4.6	0.4	0.2
Deciles	40-50%	5	3.2	2.3	8.8	13.4	12.9	14.3	10.3	11.5	10.5	8.3	2.8	2.1	
			0.5	6.0	22.3	20.1	6.0	11.7	10.3	2.2	11.7	3.4	0.8	0.2	

			1993 Income Deciles (Semi-Deciles)											
			0-5%	5-10%	10-20%	20-30%	30-40%	40-50%	50-60%	60-70%	70-80%	80-90%	90-95%	95-100%
			1	2	3	4	5	6	7	8	9	10		
(Semi- Deciles)	0-60%	6	5.3	-	5.4	9.3	12.2	12.8	11.0	14.1	15.0	11.1	3.1	0.8
			5.8	13.2	12.3	8.0	16.6	17.2	9.1	8.1	2.3	4.1	1.2	2.1
	60-70%	7	1.5	1.1	4.5	7.1	9.5	12.6	11.6	15.9	17.8	11.4	2.9	4.1
			0.3	7.2	0.6	16.0	6.3	30.4	7.7	14.4	8.9	1.2	4.7	2.3
	70-80%	8	1.2	2.7	4.9	8.8	7.6	12.9	14.4	14.2	13.9	12.2	3.5	4.1
			-	8.9	14.2	10.5	10.5	6.9	17.5	7.2	8.5	14.7	0.5	-
	80-90%	9	0.1	0.7	4.0	2.8	6.8	5.0	11.0	13.4	15.6	20.4	11.4	8.7
			5.6	7.1	8.6	9.5	8.0	9.0	5.8	15.3	19.1	9.6	2.2	-
	90-95%	10	0.2	1.4	3.6	2.3	4.1	2.6	6.1	5.5	12.0	27.7	14.6	19.9
			0.5	24.8	7.4	11.0	-	-	1.2	-	16.2	17.3	-	21.4
	95-100%		-	0.4	0.3	1.4	3.6	2.2	9.8	5.4	9.2	14.4	19.3	34.1
			9.1	-	3.0	33.4	11.9	-	-	11.7	-	-	30.9	-

**a** German results in normal type; results for foreigners in italics

Note: Unweighted N for Germans = Kendall's Tau-c = 0.35. Likelihood Ratio  $G^2 = 15974.44$  ( $p < .00001$ )

Unweighted N for foreigners = Kendall's Tau-c = 0.27. Likelihood Ratio  $G^2 = 974.44$  ( $p < .00001$ )

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