

Low income: Inequality and Mobility Patterns in the 1990s. Empirical Evidence from the United States and Germany

Veronika V. EBERHARTER*

Abstract. This paper investigates low income inequality and mobility patterns and their socio-economic determinants in the United States and in Germany in the 1980s and the 1990s. Defining the low income line at half the median equivalent post-government income, different inequality and mobility measures show a polarisation of low income in Germany in the economic downturn in the 1990s. Compared to Germany the low income mobility in the United States with in both periods was less expressed and even decreased in the 1990s. The cross-country comparison showed an increasing gendering of low income spells, regardless of the different economic indicators in both the countries.

JEL Classifications: D31, D63, J32, J60.

Key Words: Personal income distribution, inequality measurement, poverty analysis and measurement, mobility measurement.

1. Introduction

Empirical investigations of income inequality and mobility in the 1980s point out remarkable differences between Germany and the USA. In a period with comparable economic conditions in both countries, concerning GDP (Gross Domestic Product) growth rates and unemployment rates, earnings and income inequality increased quite independently of the chosen data set, the sample settings or the income definitions. The level of income inequality in the United States is known to be among the highest in the OECD

* Assistant Professor, University of Innsbruck, Department of Economics,
Universitätsstrasse 15/3, A-6020 INNSBRUCK, AUSTRIA.

☎ : +43 512 507 7365, fax: +43 512 507 2980,

email: veronika.eberharter@uibk.ac.at

countries. In this period, the income inequality did not increase in Germany – neither within nor between socioeconomic groups (Freeman and Katz 1994; Atkinson 1996; Gottschalk 1997; Gottschalk and Smeeding 1997; Atkinson, 1999). Earnings mobility in both countries reached a comparable level, whereas the earnings mobility of women was higher than the earnings mobility of men (Abraham and Houseman 1994; OECD 1996; Burkhauser, Holtz-Eakin and Rhody 1997a; Gottschalk and Joyce 1998). Burkhauser and Poupore (1997b) found out a higher post-government income mobility in Germany compared to the US-experience in the 1980s up to the early 1990s. These empirical results contradict the conventional belief of a more liberal society in the United States, whereas in Germany government is more engaged in dampening the business cycle as well as trade-unions play a larger role in collective bargaining processes in the labor market.

In the 1990s the basic economic indicators in the USA and Germany were quite different. While the characteristic features in the USA were rising GDP-growth and decreasing unemployment rates, Germany is faced with volatile GDP-growth and increasing unemployment rates. These changing economic indicators are attributed to unification, product market internationalization, labor market liberalization as well as changes of the institutional labor market settings and of the employment behaviour of women (Blau 1993, Giele and Holst 1997). Atkinson (2000) argued that deteriorating economic situations lead to unemployment in Germany, whereas earnings inequality would result in the USA. (Figure 1)

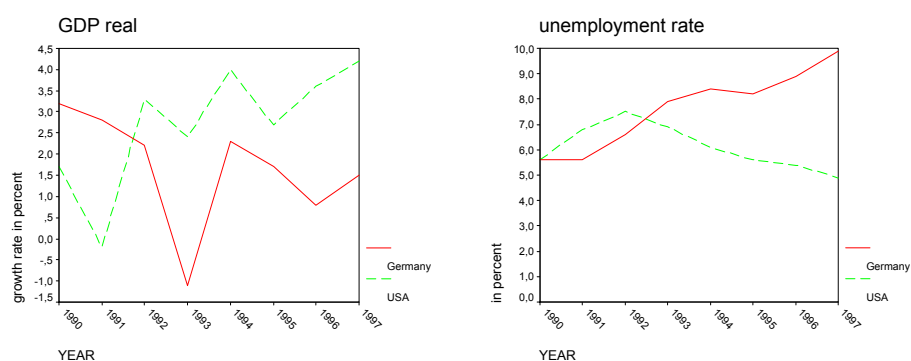


Figure 1: GDP growth, unemployment rates in Germany and in the USA, 1990-1997 (source: OECD)

From a socio-political and welfare point of view the implications of changing economic conditions on inequality and mobility at the lower tail of the income distribution as well as the determinants of low income immobility are of particular interest. Income inequality is the flip-side of income mobility; it indicates dynamic change and contributes to social mobility (Friedman 1962). High income mobility will, everything else being equal, make the distribution of lifetime income more equal. Inequality may be of less concern if income mobility is high, for the increase of income mobility may have offset the increase in inequality. However, we have to keep in mind that lifetime income is not necessarily a complete measure of inequality or to say it with Sen (1973), cross section and life-time inequality “supplement each other, reflecting two different aspects of it”.

The available contribution aims to analyze the basic patterns of inequality and mobility of low income groups in Germany and in the United States in the 1990's compared with the 1980's. The observation units were men and women aged 20 to 50 years with a positive individual income below the low income threshold, we define at the median of the equivalent post-government household income. The paper investigates whether the welfare policy and institutional as well as private network in Germany ease the negative economic effects on the income distribution or result in (a) an increasing inequality of the low incomes, (b) a decreasing mobility of low incomes and (c) an increasing influence of labor-market oriented socio-economic variables as gender, age or education on immobility in the low income area. For the United States, the paper questions whether the positive economic conditions in the 1990s were accompanied with (i) a decreasing low income inequality, (ii) an increasing mobility of low incomes and (iii) a decreasing influence of labor-market oriented socio-economic variables as gender, age or education on the immobility of low income.

2. Methodology

The headcount ratio (HR) is an indicator for the incidence of low income in a country. It allows for monitoring the proportion of individuals with low income. The headcount ratio is given by $HR = \frac{1}{n} \sum_{i=1}^q n_i$, where n is the total population and n_i is the number of individuals with low income.

The relative position of individuals or households is an indicator of individual welfare, the overall level of inequality is an indicator for the welfare of a country or a region. There exist a variety of inequality measures, each of them with properties that makes them suitable or not for measuring income inequality. We use the relative low income gap and the coefficient of variation to measure low income inequality. The relative income gap is related to the poverty gap, a frequently used inequality measure in poverty analysis (Kakwani 1980; Foster, Greer and Thorbecke 1984).

The poverty gap belongs to the P_α class of poverty measures (Foster, Greer and Thorbecke 1984). The general formula is $P_\alpha = \frac{1}{n} \sum_{i=1}^q \left(\frac{p - y_i}{p} \right)^\alpha$,

where n is the total population, q is the number of poor individuals, p is the poverty line, and $(p - y_i)$ is the difference of the income of the i -th individual to the p -line. When α equals 1, the P_1 measure is the poverty gap, which measures the average depth of poverty. To measure the inequality of low incomes we define the low income line (z -line) as the median of the equivalent post-government household income. We calculate the absolute

average deviation of individual income y_i from the z -line $d = \left| \frac{1}{n_i} \sum_{i=1}^q z - y_i \right|$.

The relative income gap results as $RIG = \frac{z - d}{z} \cdot 100$ respectively

$RIG = \frac{z - \left| \frac{1}{n_i} \sum_{i=1}^q z - y_i \right|}{z} \cdot 100$. The relative income gap RIG measures the

average income position of the low income group relative to the z -line.

The coefficient of variation indicates the relative dispersion of a distribution and is defined as the ratio of the standard deviation to the mean

of a distribution $CV = \frac{s}{\bar{x}}$, where s is the standard deviation and \bar{x} is the

mean of the equivalent post-government income below the z -line. The coefficient of variation is generally expressed as a percentage. The higher the coefficient of variation the higher the variability and the lower the coefficient of variation the higher the consistency of the data. The coefficient of variation belongs to the class of scale invariant inequality measures (Shorrocks 1978; Shorrocks 1980). Given this property the coefficient of

variation is an appropriate base for the inequality reduction mobility measure (M_{CV}), we use to analyze the “pure” low income mobility.

The relative income gap as well as the coefficient of variation give cross-sectional one-year snapshots of low income inequality. Therefore, longitudinal analysis is a more complete approach to understand low income inequality (Atkinson, Bourguignon and Morrison 1988; Gottschalk 1997). Rather than inspecting the causes of inequality the paper addresses on the relation between inequality and intra-distributional movements, that is the change from one time period to another of individual income positions within the distribution.

The change in the relative income position of the person i between the years r (q_r^i) and s (q_s^i) gives the positional low income mobility

indicator k_{rs}^i $\begin{cases} = 0 & \text{für } q_r^i = q_s^i \\ > 0 & \text{für } q_r^i < q_s^i \end{cases}$, which takes the value $k_{rs}^i = 0$, if

person i in year r and year s achieves an income below the z -line, while $k_{rs}^i > 0$ signals an income higher than the low income line in year s . The proportions of transitions $k_{rs}^i > 0$ out of all transitions in the respective

periods $\left(\frac{\sum_{i=1}^n (k_{rs}^i > 0)}{n} \right)$, then express the mobility rate of low income

positions.

To analyze the “pure” low income mobility we use an inequality reduction mobility measure, based on the coefficient of variation. Shorrocks (1980) proved for strictly convex scale-invariant inequality measures (Atkinson inequality measures, Theil inequality measures, coefficient of variation), in which inequality of the aggregated income is lower or equal the weighted sum of income inequality in each year $I(\sum_t Y_t) \leq \sum_t \omega_t I(Y_t)$,

whereby I represents the inequality measure, Y_t represents the income distribution in the year t and ω_t represents the ratio of mean income in year t to the mean aggregated income of all observation years. The inequality

reduction mobility measure then results in $M = 1 - \frac{I(\sum Y_t)}{\sum \omega_t I(Y_t)}$. The

Shorrocks measure equals to one, if income is perfectly mobile, that is for the equally distributed aggregated income. For two observation years, M is defined as $M = 1 - \frac{I(Y_A)}{\omega_1 I(Y_1) + \omega_2 I(Y_2)}$, whereby $Y_A = Y_1 + Y_2$ is the aggregated income of two years.

To compute the low income mobility measure M_{CV} , the mobility rates are weighted with the coefficient of variation $CV(Y) = \frac{s(Y)}{\bar{x}(Y)}$.

The income mobility measure then reads $M_{CV} = 1 - \frac{\bar{x}(Y_A) \cdot CV(Y_A)}{\bar{x}(Y_1) \cdot CV(Y_1) + \bar{x}(Y_2) \cdot CV(Y_2)}$ and transformed into the

$M_{CV} = 1 - \frac{s(Y_A)}{s(Y_1) + s(Y_2)}$. The mobility measure M_{CV} expresses the difference between perfect mobility $M=1$ and the relation of the standard deviation of the aggregated income Y_A and the sum of the standard deviations of the income distributions Y_1 and Y_2 .

From a socio-political point of view, not only do the extent of low income immobility but also the socio-economic determinants of low income spells respectively the relative risk of low income immobility are of particular interest. We define the dependent variable as the years an individual stayed in low income position, whereby low=0 indicates a low income spell of one or two years and low=1 indicates a low income spell of three to six years. The independent variables are individual characteristics (gender, years of education, employment status, age) and household characteristics [number of persons in the household, number of children (0-16) in the household].

The logistic regression predicts the probability that the dependent variable equals 1. The probability of a person i to have an equivalent post-government household income below the z -line for three or more years then is expressed by $Prob(low = 1) = \frac{e^Z}{1 + e^Z}$, whereby Z is the linear

combination $Z = B_0 + B_1X_1 + B_2X_2 + \dots + B_nX_n$ with $X=1, \dots, n$ independent variables and $B = 1, \dots, n$ regression coefficients. Using a logistic regression model instead of the traditional regression model we avoid two violations of the “classical regression assumptions”. Using the traditional regression method to predict the probability of binary dependent variables leads to heteroskedastic error terms. Heteroskedasticity occurs when the variance of the dependent variable is different with different values of the independent variables. For binary dependent variables, the results $\text{var}(e)$ equals $P(1-P)$, where P is the probability that $\text{low}=1$. Since P depends on X the “classical regression assumption” that the error term does not depend on the X s is violated. Using the traditional regression method the error term is not normally distributed, because P takes only two values, violating another “classical regression assumption”.

The logistic regression equation does not directly predict the probability that the dependent variable equals 1, but it predicts the log odds that the dependent variable equals 1. The odds of an event is defined as the ratio of the probability of $\text{low} = 1$ to the probability of $\text{low} = 0$. The logarithm of the odds then is $\log\left(\frac{\text{Prob}(\text{low} = 1)}{\text{Prob}(\text{low} = 0)}\right) = B_0 + B_1X_1 + B_2X_2 + \dots + B_nX_n$.

The logistic coefficients (B_i) can be interpreted as the change in the log odds associated with a one-unit change in the independent variable. The exponential value of the regression coefficients ($\exp B_i$) expresses the relative risk of staying for three to six years in the low income area when the i^{th} independent variable increases by one unit. For example, if the exponential value of $B_3=2$, then a one unit change in X_3 would make the event twice as likely (.67/.33) occur.

3. Data

The data are taken from the German Socio-Economic Panel (GSOEP) and the Panel Study of Income Dynamics (PSID), which were made available by the Cross-National-Equivalent-File (CNEF) project at the College of Human Ecology at Cornell University, Ithaca, N.Y.. These panel data provide with information on individual and household referred to socio-economic variables such as age, gender, education, employment status, household income, and household size and composition in the Germany and in the United States. The CNEF-Equivalent File contains an unbalanced panel of

about 40,000 individuals in the United States, starting in 1980 and an unbalanced panel of about 29,000 West German individuals, starting in 1984 (for a detailed description see Burkhauser, Butrica and Daly, 1999). For the available analysis, we use 12 waves of the data. We define “period I – 1986-1991“indicating the 1980s and a “period II – 1992-1997 “indicating the 1990s.

The income variable observed is the real (1991=100) equivalent (OECD equivalence scale) post-government income. In the GSOEP household post-government income is defined as the sum of household labor earnings, interest income, rental income, imputed income (owner occupied housing) as well as private and public transfers and social security pensions minus total household taxes. The PSID defines household post-government income as the sum of household labor earnings, interest income, imputed income (owner occupied housing), public transfers and social security pensions minus total household taxes. The paper focuses on women and men, aged between 20 and 50 years at the beginning of the respective observation period and with a positive income, that is lower than half the median equivalent post-government income („z-line“).

4. Empirical results

In the USA, the incidence of low income, expressed by the head-count ratio in both observation periods, is higher than in Germany. The proportion of persons with an equivalent post-government income below the z-line doubles the respective proportion in Germany. In both countries, the affliction of women in the low income area is more pronounced, indicating a feminization of low income (Figure 2).

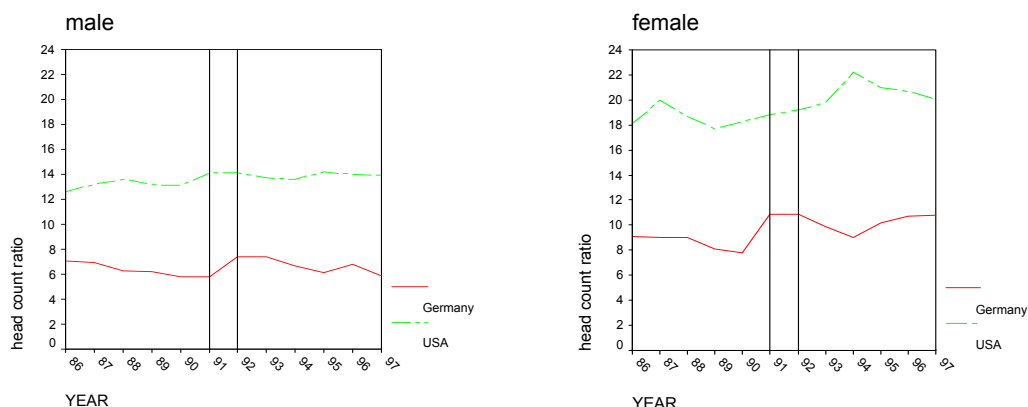


Figure 2: Low income head-count ratio

In both periods, the relative income gap indicates a higher inequality of the low income in the United States than in Germany. In period I (1986-1991), the low income distribution of German men, gained from the positive economic conditions, has been expressed by a decreasing relative income gap. In the USA the positive economic conditions were accompanied with a rather constant relative income gap for the income of men and women. In period II (1992-1997), the relative income gap increased in both countries in spite of the different economic conditions. Up to the mid of this period the relative income gap increased for both the income of women and men, which points to an increasing polarization of the equivalent post-government incomes below the z-line. At the end of period II (1992-1997), the relative income gap of German men and women increased and the unfavourable economic conditions were accompanied by an increasing polarization of the equivalent post-government incomes below the z-line (Figure 3).

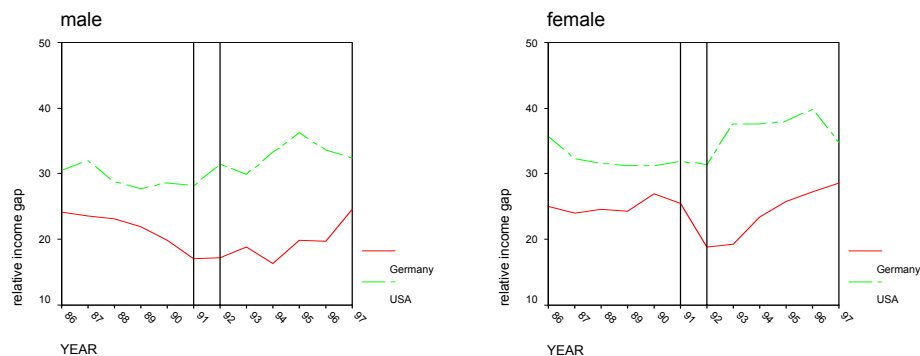


Figure 3: Relative income gap

In both periods, the coefficient of variation (CV) shows a higher low income inequality in the USA. In period I (1986-1991), low income inequality was at a quite constant level in both countries. In period II (1992-1997), the prospering economic conditions in the USA were accompanied with an increasing low income inequality. In both countries, women experienced a higher low income inequality (Figure 4).

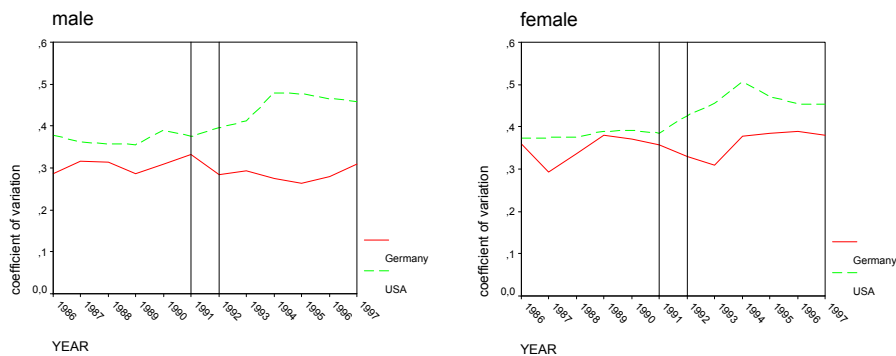


Figure 4: Coefficient of variation

In Germany the low income immobility is more pronounced than in the United States. In period I (1986-1991), the mobility rate of the low incomes reached 21.92 percent in Germany compared with 26.67 percent in the United States. In period II (1992-1997), the mobility rates increased in

both countries, but this increase was more pronounced in Germany. The low income positions of men in both countries were more volatile than the low income positions of women. In period II (1992–1997), the mobility rate of German men (35.38 percent) achieved approximately the respective mobility rate of U.S. men (36.53 percent), the income positions of German women (24.67 percent) were less volatile than the income positions of U.S. women (29.36 percent). Women experienced a higher low income head-count ratio, a higher low income inequality, an extended relative income gap, and a higher immobility of low income positions. These empirical results indicate a feminization of low income regardless of the economic situation in both countries (Table 1).

	Period I (1986 – 1991)		Period II (1992 – 1997)	
	immobility rate	mobility rate	immobility rate	mobility rate
German men	75.25	24.25	64.62	35.38
German women	80.30	19.70	75.33	24.67
Germany	78.08	21.92	70.13	29.87
US men	70.22	29.78	63.47	36.53
US women	75.24	24.76	70.64	29.36
USA	73.33	26.67	67.91	32.09

Table 1: Low income mobility

Concerning the mobility patterns, the empirical evidence shows a higher but rather constant low income mobility M_{CV} in Germany in both periods. The constant mobility patterns for the incomes of women and men result from rising inequality in the yearly incomes as well as in the aggregated incomes. In the USA, the mobility-patterns extremely differ in the observation periods. In period I (1986-1991), the constant income inequality in the individual years but the increasing inequalities in the aggregated incomes lead to an increase of income mobility. In period II (1992–1997), the increasing income inequality in individual years and the extraordinarily increasing inequality in the aggregated incomes lead to a decrease of income mobility. The decreasing mobility is more pronounced with the income of women. In this period, the low income mobility in the United States remained at a quite constant level for both women and men (Figure 5).

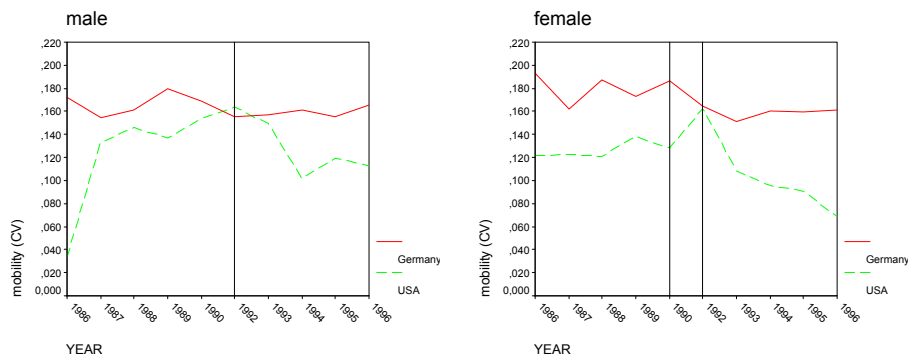
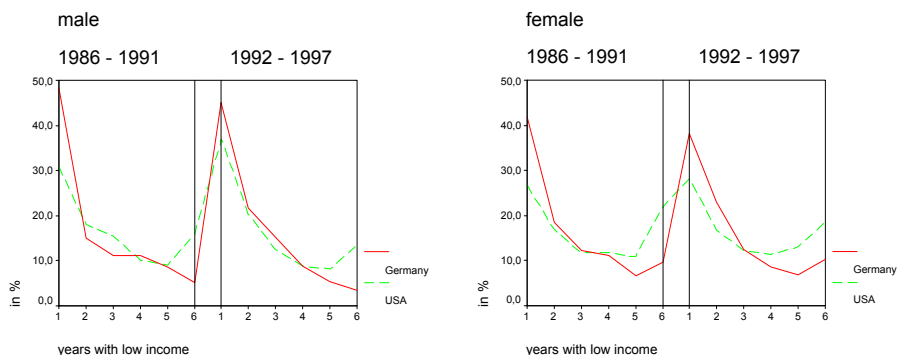


Figure 5: Inequality reduction mobility

A higher income mobility shortens the average duration of low income spells. Figure 6 shows that the proportion of individuals suffering n years with low income decreased with an increasing number of n. A u-shaped pattern indicates an increasing proportion of individuals staying three and more years in low income positions. In both countries, the u-shaped patterns were more pronounced with women, persons with a low educational level and unemployed people.



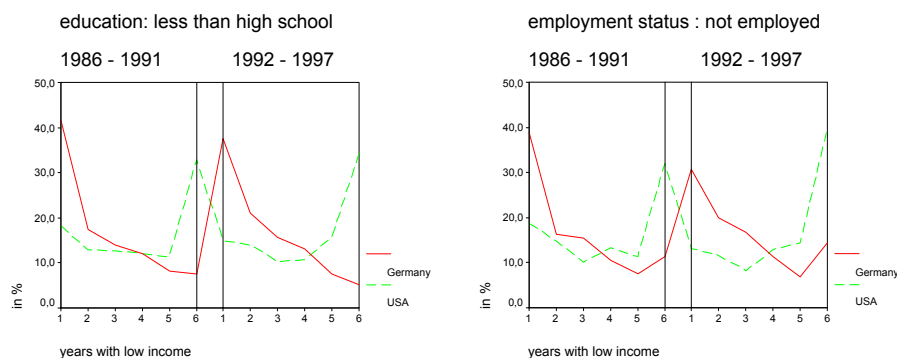


Figure 6: Low income spells

To examine the relative risk of low income immobility we execute the logistic regression for random samples of the data for each country in each period.¹ The proportion of correctly classified observation units amounts at 73 percent or 74 percent in period I (1986-1991), and decreased to about 70 percent in period II (1992-1997) in both countries. Table 2 shows the regression coefficients (B_i) and the relative risk ratio ($\exp(B_i)$), the t-values, and the R-values. The t-values indicate the relation between the estimated regression coefficients and their estimated standard errors. Positive R-values indicate that the value-changes of the independent variables increase the probability of extended low income spells. The low R-values indicate that the independent variables have only a small partial contribution to the model.

¹ Calculations for further samples corroborate the results.

(a) 1986 - 1991

	country	Germany				USA			
		Variable	B	expB	B/SE	R	B	expB	B/SE
X ₁	Age in 1986	-.0325*	.968	-2.196	-.0769	-.0387*	.962	-2.888	-.0905
X ₂	1 if male, 2 if female	-.3540	.702	-1.207	.0000	.2755	1.317	1.223	.0000
X ₃	Number of persons in the household in 1986	-.4046*	.667	-2.235	-.0797	-.4084*	.665	-2.876	-.0897
X ₄	Number of children in 1986	.5414*	1.718	2.579	.0992	.7324*	2.080	4.276	.1445
X ₅	Years of education in 1986	-.0176	.983	-0.335	.0000	-.2701*	.763	-4.781	-.1636
X ₆	employment hours in 1986	-.0007*	.999	-7.000	-.2297	-.0007*	.999	-7.000	-.2187
	N	378				584			
	χ^2	19.38				214.74			
	Iterations	4				4			
	Log likelihood	-211.56				-325.39			
	Correctly classified	73.28%				74.49%			

* statistically significant at 95% level

(b) 1992 - 1997

	country	Germany				USA			
		Variable	B	expB	B/SE	R	B	expB	B/SE
X ₁	Age in 1992	.0028	1.00	.237	.0000	-.0012	.999	-0.108	.0000
X ₂	1 if male, 2 if female	-.4549*	.635	-2.299	-.0644	.6657*	1.946	3.255	.0925
X ₃	Number of persons in the household in 1992	-.5491*	.578	-3.608	-.1179	-.2650*	.767	-2.316	-.0579
X ₄	Number of children in 1992	.8331*	2.30	4.618	.1562	.5708*	1.769	4.182	.1241
X ₅	Years of education in 1992	-.0800*	.923	-1.946	-.0476	-.3296*	.719	-6.809	-.2100
X ₆	employment hours in 1992	-.0007*	.999	-7.071	-.2272	-.0006*	.999	-6.420	-.1921
	N	608				740			
	χ^2	45.56				28.56			
	Iterations	3				4			
	Log likelihood	-351.52				-424.65			
	Correctly classified	69.41				69.19			

* statistically significant at 95% level

Table 2: Relative risk of low income for 3 to 6 years

In both countries, a higher age lowers the relative risk of low income spells of three and more years only in period I (1986-1992). The increasing employment hours and an increasing number of adults living in the household lower the relative risk of a longer low income spell. On the contrary, living in households with children implies a higher relative risk of low income for three and more years. Country differences exist concerning the direction and the intensity of the influence of gender and educational level. The German men experienced a lower relative risk for staying in the low income area for three or more years compared to men in the United States. A significant influence of gender on the relative risk of low income immobility only is given for the US sample in period II (1992-1997). In the USA a higher educational status lowers the relative risk of longer low income spells in both periods. This variable makes a high partial contribution to the model. In Germany, the educational status gained a significant influence on the relative risk of low income immobility only in period II (1992-1997).

5. Conclusions

Germany and the USA differ in institutional and social settings as well as private and social network, living conditions and employment behavior. In the 1990s, both countries were faced with different economic conditions too. Various investigations on the inequality and the mobility of earnings and equivalent post-government income stated higher inequality in the United States but higher mobility in the Germany. These findings contradict the conventional belief that the German welfare policy and trade unions strategies smoothen individual and household income volatility. The inequality and mobility patterns of low incomes, defined as positive individual income below half the median equivalent post-government income, analyzed in this article corroborate this puzzling empirical evidence.

- In Germany, the deteriorating economic indicators in the 1990s were accompanied by a polarization of the distribution of the equivalent post-government income below the z-line. Rising inequality and a widening relative income gap were particularly pronounced for women. In the United States, the relative income gap as well as the coefficient of variation showed a slightly decreasing low income inequality. The inequality reduction mobility based on the coefficient of variation, M_{CV} , showed a quite constant income mobility of German low incomes at a

higher level than in the USA. In the United States, the increasing low income inequality in period II (1992-1997) was accompanied by a decrease in low income mobility. These empirical results are compatible with longer low income spells in the USA compared to the situation in Germany. In the United States, the low income persistence is more pronounced, which can possibly be attributed to the differences in social and household network in both countries.

- In the United States, the empirical evidence showed a higher cross-sectional inequality, but a lower level of income mobility than in Germany. These results are similar to the findings for the overall earnings and income distributions of the two countries (Burkhauser, Holtz-Eakin and Rhody 1997a; Burkhauser and Poupore, 1997b).
- The direction and the intensity of the influence of gender and education on the relative risk of staying three or more years in the low income area differed in both countries: In the United States, gender and education gained a high influence on the relative risk of low income spells in both periods, whereas in Germany a significant impact was given only in period II (1992-1997) with deteriorating economic conditions.
- Compared to men, women experienced a higher low income incidence, a higher low income inequality, and a higher income immobility in both countries regardless of different economic conditions in the 1980s and in the 1990s. The feminization of low income situations was concerned with the social justice and must be of particular socio-political interest.

References

- Abraham, K.G. and S.N. Houseman (1994) "Earnings Inequality in Germany," In R.B. Freeman and L.F. Katz (Eds.), *Working Under Different Rules*, pp. 371-403 New York.
- Atkinson, A.B. (1996) "Income Distribution in Europe and the United States." *Oxford Review of Economic Policy* 12(1): 15-28.
- Atkinson, A.B. (1999) "The Distribution of Income in the UK and OECD Countries in the Twentieth Century." *Oxford Review of Economic Policy* 15(4): 56-75.
- Atkinson, A.B. (2000) "The Changing Distribution of Income: Evidence and Explanations." *German Economic Review* 1(1): 3-18.
- Atkinson, A.B., F. Bourguignon and C. Morrison (1988) "Earnings Mobility." *European Economic Review* 32: 619-632.
- Blau, F. D. (1993) "Gender and Economic Outcomes: The Role of Wage Structure." *Labour* 7: 73-92.
- Burkhauser, R.V., D. Holtz-Eakin, and St. E. Rhody (1997a) "Labor Earnings Mobility and Inequality in the United States and Germany during the Growth Years of the 1980s." *International Economic Review* 38: 775-794.
- Burkhauser, R. V. and J. G. Poupore (1997b) "A Cross-National Comparison of Permanent Inequality in the United States and Germany." *Review of Economics and Statistics* 79: 10-17.
- Burkhauser, R. V., B. A. Butrica and M. C. Daly (1999) "The PSID-GSOEP Equivalent File: A Product of Cross National Research," In W. Voges (Ed.), *Dynamic Approaches to Competitive Social Research: Recent Developments and Applications*, pp.53-66 Aldershot, Great Britain: Ashgate Publishing Ltd..
- Freeman, R.B. and L.F. Katz (1994) "Rising Wage Inequality: The United States vs. other Advanced Countries," In R.B. Freeman and L.F. Katz (Eds.), *Working under different Rules*, pp. 29-62 New York.

- Foster, J., Greer, J. and E. Thorbecke (1984) "A Class of Decomposable Poverty Measures." *Econometrica* 52: 761-766.
- Friedman, M. (1962) *Capitalism and Freedom*. Chicago University Press, Chicago.
- Giele, J. Z. and E. Holst (1997) "Dynamics of Women's Labor Force Participation in the United States and West Germany, 1983 to 1990," In T.A. Dunn and J. Schwarze (Eds.), *Proceedings of the 1996 Second International Conference of the German Socio-Economic Panel Study Users, Vierteljahreshefte für Wirtschaftsforschung*, 66(1): pp.55-61 Berlin: Duncker & Humblot.
- Gottschalk, P. (1997) "Inequality, Income Growth, and Mobility: The Basic Facts." *Journal of Economic Perspectives* 11(2): 21-40.
- Gottschalk, P. and T.M. Smeeding (1997) "Cross-National Comparisons of Earnings and Income Inequality." *Journal of Economic Literature* 32(2):633-686.
- Gottschalk, P. and M. Joyce (1998) "Cross-National Differences in the rise in earnings inequality: Market and institutional factors." *The Review of Economics and Statistics* 53: 489-502.
- Kakwani, N. (1980) "On a Class of Poverty Measures." *Econometrica* 48: 437-446.
- OECD (1996) "Employment Outlook. Chapt.3: Earnings inequality and mobility," pp. 59-108 Paris.
- Sen, A. (1973) *On Economic Inequality*. Clarendon Press, Oxford.
- Shorrocks, A.F. (1978) "Income Inequality and Income Mobility." *Journal of Economic Theory* 19: 376-393.
- Shorrocks, A.F. (1980) "The Class of Additively Decomposable Inequality Measures." *Econometrica* 48: 613-625.

Acknowledgements

The author wishes to thank the anonymous referee for her helpful comments and discussions. The shortcomings and errors remain the author's as usual.