Long-run changes in poverty – Germany before and after Reunification

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February 28, 2009

Preliminary version: Please do not circle without authors' consent.

Abstract.

We study income poverty in Germany between years 1978 and 2003, providing, by household types and regions, estimates based on an absolute and a relative poverty line. Most striking is the substantial poverty divide between the newly-formed and old German Laender. To quantify the separate contribution of differences in New and Old German Laender households' characteristics to the probability of being poor, a nonlinear Oaxaca-Blinder decomposition is conducted. Especially in the early years after reunification, the explanatory power of the decomposition is fairly low suggesting that the reunification shock played an overwhelming role for the East/West poverty divide. To assess poor peoples' material situation, we also provide income shares devoted to the purchase of necessities. These income shares are fairly stable over time, hence not suggesting an improvement of poor peoples' material situation.

Key words: Poverty, poverty decomposition, expenditure patterns, Engel curves, necessities, Oaxaca-Blinder decomposition, equivalence scale.

JEL codes: H53, I38

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1 Introduction

Poverty and child poverty in particular are recognized as key social problems. Duncan and Brooks-Gunn (1977) and later studies like Gregg and Machin (2000) suggest that growing up poor is likely to have negative effects on children's learning and social capabilities, and on their future life chances. Poor families' children are more likely to become a teen and sole parent, and they are less successful in the labor market (see, for example, Chase-Landsdale and Brooks-Gunn, 1995, Rodgers and Pryor, 1998, or Oreopoulos et al., 2008). According to medical studies, poverty during infancy and childhood is an important predictor of mortality risk from leading causes of death such as perinatal conditions (see, for example, Nelson, 1992), congenital anomalies (see, for example, Nersesian et al., 1985), and homicide (see, for example, Wise et al., 1985). Other studies find positive correlations between peoples' economic situation on the one hand and drug use and crime rates on the other (see Patterson, 2006). However, being poor is not only an individual tragedy. High poverty rates can create social costs for the overall economy, substantiating anti-poverty policies. Such social costs arise, for example, if households face credit constraints preventing them from undertaking efficient human investments. If income and wealth disparities are large, this may discourage and frustrate people. As a reaction, they might withdraw from social life, stop looking for work, or turn their backs on the democratic system. Finally, individuals who feel powerless in view of large economic disparities might see no other way but to infringe social and ethical rules and norms to improve their economic situation. All this is as true in rich as it is in poor countries.

We study income poverty in Germany between years 1978 and 2003. Results are decomposed by region of residence (newly-formed vs. old German Laender) and household type. Among households with residence in the old German Laender (Old Laender households), poverty is on the decline from the late 1970s to the early 1990s in case of an inter-temporally constant absolute poverty line but it stagnates since then. Between the years 1993 to 2003, about twelve percent of the West German population is income-poor, and the poverty gap ratio is about two percent. Applying a relative 60-percent-of-median standard poverty line, both the frequency and intensity of poverty is fairly stable over the whole time horizon. Most prone to poverty are single parents. Most striking, however, is the large divide in poverty rates between East and West Germany. Although region-specific poverty rates converge, the year 2003 poverty rate in East Germany still is around nine percentage points higher.

Not all of these findings are new. Several empirical studies already have investigated poverty in Germany. Examples are Burkhauser et al. (1996), Smeeding et al. (2000), Schluter (2001), Jenkins et al. (2003), Jenkins and Schluter (2003), Valletta (2006), and Corak et al. (2008). For a comprehensive literature review see Hauser and Becker (2003). This article builds upon aforementioned literatures, extending it along two crucial dimensions.

First, we want to investigate the role differences in the distributions of socioeconomic characteristics in East and West Germany play for the East/West poverty divide. For this reason, an Oaxaca-Blinder decomposition for nonlinear regressions is conducted. It quantifies how much of the poverty divide is due to differences in Old and New Laender households' socioeconomic characteristics, the so-called characteristics effect. In year 1993, the characteristics effect cannot explain any of the poverty divide, suggesting that the reunification shock, turning the New Laender economy upside down from a command to a market economy and also causing numerous firm liquidations, played a predominant role. The explanatory power of the decomposition is higher in more recent years. In year 2003 about 30 percent of the poverty divide can be explained.

Second, beyond merely measuring income poverty, we want to better understand the material situation of the income poor. Our indicator is the income share spent by the poor to meet basic needs. The smaller the income share spent on "necessities" (Deaton and Muellbauer, 1980) is, the better a household's economic situation.

Distinguishing "necessities" from "wants" has a long tradition dating back to Smith and Ricardo. According to Baxter and Moosa (1996, p. 88), "necessities" can be distinguished from "wants" by nine characteristics. Most important, they are "common to all consumers, ... essential to survive, ... may be completely satisfied, ... [and] there is an irreducible minimum." Classical examples for necessities are food and beverages, housing (including heating, etc.) and clothing.[1] Our indicator suggests that the living standard of poor people in the old Laender at best improved slightly during the observation period. Still in year 2003, income-poor childless two-adult households in the Old German Laender, for example, spend around 55 percent of their disposable income on necessities, compared with 58 percent in year 1978. Interestingly, poor people with residence in the newly formed Laender, ceteris paribus, spend smaller fractions of their budget on necessities than their Old Laender counterparts. This finding is driven by both smaller average living spaces and lower rents in the New Laender.

[1] Of course, in a rich country like Germany, not all necessity-related expenditures are exclusively driven by basic needs. Other factors like habit or a desire for self-fulfillment and esteem can also play role.

The paper is structured as follows. Section 2 explains several aspects related to the way poverty is measured, including a short introduction to the Oaxaca-Blinder decomposition approach. Section 3 is purely descriptive and presents poverty indices, with particular attention paid to differences across household types and regions (Old and New German Laender). Section 4 summarizes the results from the non-linear Oaxaca-Blinder decomposition approach. Information on the material situation of income-poor people and its inter-temporal changes are provided in Section 5. Section 6 concludes.

2 Methodological considerations

2.1 Conventions related to poverty measurement

Our analysis builds on six waves of the German Sample Survey of Household Income and Expenditure (EVS) collected at 5-year intervals between 1978 and 2003. The EVS is provided by the German Federal Statistical Office, and contains representative household data on incomes, taxes, social security contributions, social transfers, wealth, inventories, and expenditures, as well several other socio-economic and demographic characteristics. Per cross section, sample size ranges between 40,000 to 60,000 household units.

The assessment of poverty necessitates several conventions, which again have implications for the data preparation.[2] The first convention is the choice of the income concept. Following standard international approach, we chose *CPI-adjusted equivalent disposable household income* (henceforth "equivalent income"). *Disposable household income* is defined as market income (gross earnings, capital and self-employment income), plus public transfers and imputed rents, minus income taxes and social security contributions. To allow for inter-temporal comparisons, disposable household income is updated for changes of consumer price indices (CPI) and adjusted to prices in year 2003.[3] Equivalent income again is CPI-adjusted disposable household income divided by the *OECD modified scale*. The OECD modified scale assigns a value of 1.0 to the first adult household member, of 0.5 (0.3) to each further person of age 14 and above (below 14 years).

The second convention relates to the unit of analysis. Although the household is assumed to be the unit of income aggregation and income sharing, poverty is assessed on the

[2] See also Deaton (2004).

[3] Although most Newly formed Laender districts are low-price regions, we apply the same consumer price index to households with residence in the Old and Newly formed German Laender. The reason is that a rough distinction of consumer prices by Old and Newly formed German Laender does not adequately capture living conditions in Germany. For example, structurally weak areas in the Old Laender like Bavarian areas nearby the Czech border, as well as some regions in Rhineland-Palatinate, the Saarland and Hesse, are also low-price areas (see Kosfeld et al., 2007, for details).

individual level. In what follows, the head count ratio, for example, is the fraction of all persons living in households with an equivalent income below the poverty line. Hence, we use weighted poverty indices, where each household unit is weighted by its EVS sampling weight times the number of its members.

Third, a poverty line (p-line) must be defined. In Germany, an official p-line does not exist. For this reason, we follow the European Statistical Office which recommends a 60-percent-of-median standard as the p-line (see Eurostat, 2000, and Brewer and Gregg, 2002, for details).[4] Before reunification the relative p-line is derived from the equivalent income distribution for West Germany; and for the whole population since then.[5] In addition to the relative p-line, an absolute p-line of € 1,011.60 per month is applied. This absolute p-line coincides with the relative p-line in year 2003, and it is held constant over time in real terms. Relative p-lines tie down the minimum acceptable income to what other people get. Hence, poverty, for example, remains unchanged if incomes of all households grow over time at same rate. A decrease in poverty essentially mirrors an improving economic situation of low income relative to high income households. In case of an absolute p-line, poverty is constant if the income poor do not experience income growth, and a decline of poverty indicates an improvement of poor peoples' material living standards.

A fourth convention relates to the poverty measure selected. We employ a class of indexes introduced by Foster et al. (1984), covering two popular poverty measures with complementary features. Let z denote the p-line (in money units), let y_i denote equivalent income of observation i, and let $i = 1,...,q$ be a poor observation with $y_i < z$. Ignoring weighting factors, this class of measures can be written as:

$$(1) \qquad FGT(\alpha) = \frac{1}{N}\sum_{i=1}^{q}\left(1-\frac{y_i}{z}\right)^{\alpha} = \frac{1}{N}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^{\alpha},$$

where $g_i = z - y_i$ denotes the poverty gap pertaining to i, and N is the number of observations. For $\alpha = 0$, the index is the head count ratio. The head count ratio is a pure incidence measure, providing the frequency of poverty among the population but not "on the depth and distribution of poverty" (see Foster, 1998, p. 336). For $\alpha = 1$, FGT is the poverty gap ratio, the head count ratio times the average poverty gap. Gap measures add an important

[4] The 60-percent-of-median standard corresponds to an equivalent income (in prices of year 2003) of: €864.76 in year 1978, €901.90 in 1983, €918.19 in 1988, €925.83 in 1993, €972.46 in 1998, € 1,011.60 in 2003.

[5] Alternatively, distinct poverty lines for East and West Germany could have been applied (for a discussion see Corak et al., 2008). As equivalent income is on average (median) lower in the Newly formed Laender, this procedure would lead to lower poverty estimates in the New and higher poverty estimates in the Old Laender.

dimension to incidence measures, the intensity of poverty, i.e., how far the incomes of the income poor fall below the p-line.

We also provide FGT poverty estimates for different sub-populations, distinguished by region of residence (Newly formed and Old German Laender) and household composition. Altogether, nine household types are distinguished: single parents with one, two, and three or more children; (married or non-married) couples with one, two, and three or more children; childless single adults, childless couples, and other childless household units. Throughout the paper, we define children as persons below 18 years. Unweighted and weighted sample sizes by EVS sampling weights are provided in the Appendix (see Tables A1 and A2).

2.2 The non-linear Oaxaca-Blinder decomposition approach

An Oaxaca-Blinder decomposition for nonlinear regressions is conducted to investigate the role differences in the distributions of socioeconomic characteristics in East and West Germany play for differences in the poverty rates found in the two parts of Germany (see Oaxaca, 1973, Blinder, 1973, and Fairlie, 2005). This decomposition quantifies the separate contribution of group differences in individual/household characteristics to the probability of being poor *controlling for all other characteristics* (see Fairlie, 2005).[6]

The non-linear decomposition approach builds on logit regressions. In the logit regressions, the independent variable is a dummy, which is equal to one for a poor household unit i and zero else. Newly formed vs. Old German Laender households are assigned to two mutually-exclusive groups $g \in \{0,1\}$. In the logit model, the likelihood of i being poor is,

$$(2) \qquad P_i^g = \Pr(y_i^g < z) = F\left(x_i^g \beta^g\right) = \exp\left(x_i^g \beta^g\right) \Big/ \left[1 + \exp\left(x_i^g \beta^g\right)\right],$$

where x is a vector of household and individual characteristics, and F is the cumulative distribution function from the logistic distribution.

Based on the logit estimates, the difference in the poverty rates between groups "1" and "0" can be written as,

$$(3) \qquad \overline{P^1} - \overline{P^0} = \underbrace{\left[\sum_{i=1}^{N^1} \frac{F\left(x_i^1 \hat{\beta}^1\right)}{N^1} - \sum_{i=1}^{N^0} \frac{F\left(x_i^0 \hat{\beta}^1\right)}{N^0}\right]}_{characteristics-effect} + \underbrace{\left[\sum_{i=1}^{N^0} \frac{F\left(x_i^0 \hat{\beta}^1\right)}{N^0} - \sum_{i=1}^{N^1} \frac{F\left(x_i^0 \hat{\beta}^0\right)}{N^0}\right]}_{coefficient-effect\&unobservables}$$

(see Fairlie, 2005). In (eq.), $\overline{P^1}$ $\left(\overline{P^0}\right)$ denotes the poverty rate in group $g = 1$ $(g = 0)$, and $\hat{\beta}^g$ is the vector of coefficient estimates for g. The first term in brackets is the so-called

[6] A similar analysis has recently been conducted by Gradín (2008) to investigate differences in poverty rates between minorities in the United States.

aggregate characteristics effect which is the part of the poverty gap due to differences in the distributions of independent variables. The second term captures the part of the poverty gap which can be explained by differences in group processes determining poverty, but also due to group differences in non-quantified endowments. As it mixes up coefficient effects and the impact of non-observables (see Jones 1983, and Cain, 1986), its interpretation is difficult and ambiguous. For this reason, we refrain from commenting on the second term in the Sections that follow.

3 Poverty in Germany – the descriptive picture

For both p-lines, Figure 1 summarizes head count and poverty gap ratios. We comment on households situated in the Old German Laender first. For this sub-sample, the intensity of poverty has declined during the period under observation. In case of the absolute (relative) p-line, the poverty gap ratio falls from 3.37 percent (1.60 percent) in year 1978 to 2.32 percent in 2003. Evidence on the incidence of poverty is mixed. About 19 percent of the year 1978 population falls below our absolute p-line, compared with about eleven percent in year 2003. If the relative p-line is applied, the fraction of income-poor people increases from about nine percent in 1978 to about twelve percent in 1988, drops to about nine percent in 1993, and rises again to about twelve percent in year 2003.

The pronounced decline in the poverty rate between years 1988 and 1993 essentially is a technical effect driven by German reunification: equivalent income distributions by region (see Figure 2) show that the economic situation of East German households is worse compared to households living in the West. Compared to the before-reunification period, this effect shifts the income threshold associated with the relative p-line downwards.

Figure 1 also reveals a substantial East/West poverty divide. In year 1993 about 22 percent of the East Germans fall below the relative p-line compared with only about 13 percent of the West Germans. In fact, if an absolute p-line is applied, the East German poverty rate reaches almost 30 percent. The intensity of poverty in East Germany is also higher. In case of the absolute (relative) p-line, poverty gap ratios in East and West Germany differ by roughly two (three) percentage points. Encouragingly, the situation in the Newly formed Laender is improving over time, especially between years 1993 and 1998. However, both the incidence and the intensity of poverty outrange West German levels by far. In Section 4, we further scrutinize the East/West divide in poverty rates by means of Oaxaca-Blinder decomposition.

[Figures 1 & 2 about here]

Most vulnerable to poverty are single parent households. As can be taken from Figure 3, in year 1993 about 22 percent (31 percent) of West German single parents with one child (A1C1) are falling below the relative (absolute) p-line, and about 49 percent (56 percent) in the Newly formed Laender. For single parents with two children, the respective numbers are 36 percent (44 percent) in the West and even 55 percent (69 percent) in the East. Income poor single parents also face a higher intensity of poverty than other household types. Even worse, evidence is little for the economic situation of single parents to have improved over the period under observation. Only the economic situation of single parents in the Newly formed Laender slightly improves. All these findings hint at an extra poverty risk faced by single parents . Utilizing panel data, Corak et al. (2008) come up with a similar result.

[Figures 3 about here]

That children play an important role for the economic behavior of households is well-known (see Browning, 1992), and the basic problem of single parents is well understood: they rely on the earnings of a single person, typically a low-skilled part time working woman. Moreover, child-rearing requires a substantial amount of parental time and affordable childcare facilities are scarce. Hence, parents, and single parents in particular, face additional opportunity costs upon deciding to work, lowering their labor market participation rates compared to other household types. The result is an unemployment-poverty trap. For this reason, many scholars advocate tax allowance policies that reward working parents. Whether these policies can create sufficient work incentives is still an open question (see Brewer, 2001, who discusses related policies in the United States and the United Kingdom).

Indeed, the heavy reliance of single parents on social transfers supports the unemployment-poverty trap hypothesis. In Figures 4a and 4b, we depict the share of social transfers in disposable household income, the “transfer ratio”, against equivalent income. All graphs are based on estimates of locally weighted regression. Types of governmental transfers considered comprise social assistance, child benefits, child-raising allowances, first-home buyer allowance and related transfers. Not only is the transfer ratio of single parents by far the highest. In years 1993, 1998 and 2003, transfer ratios of Old Laender single parents are substantially higher compared with year 1978 to 1988 ratios. Most dependent on transfers are

New Laender households with a single parent. Here, transfers account for about 50 to 90 percent of the income-poors' budgets. Obviously, governmental transfers are crucial component of poor peoples' budgets. This applies particularly for single parents and East German households. Hence, these transfers serve as an insurance device against income losses and align income differentials across household types and regions.[7]

[Figures 4a & 4b about here]

4 Explaining the East/West poverty divide

The Oaxaca-Blinder decomposition results build upon two sets of logit regression coefficients. One set is derived from a regression where the sample includes both households with residence in the New and in the Old German Laender. Hence, estimates contain "mixed" information on the linkage between socioeconomic characteristics and poverty risk from a region with long-established functioning market and institutions (West Germany) and a region in transition (East Germany), especially in the early years after reunification. In the second regression, only a restricted sample is considered, i.e., households with residence in the Old German Laender. Hence, these regression coefficients tell us about the role of socioeconomic variables in an area with long-established institutions and functioning markets.

Let the Oaxaca-Blinder decomposition rest upon logit coefficients for the full sample. The decomposition determines the characteristics effect presuming that the full sample logit estimates are suited for explaining poverty in the newly formed Laender. Else, let the decomposition be based on the regression coefficients from the restricted sample. Then it gives the characteristics effect presuming that logit estimates for West German households are suited for explaining poverty in the newly formed Laender.

[Table 1]

4.2 Regression and decomposition results

In the logit regressions, we include the following right-hand variables: gender, age, family status, labor force status, and highest occupational degree of the household head, household

[7] Hauser and Fabig (1999) find that governmental social transfers also reduce high income mobility in the East German states.

type, number of income recipients, and number of earners. Table 1 gives an overview of the set of independent variables included in the regressions, and a breakdown of the sample by these variables (by region of residence) is provided in Table A3 of the Appendix.

Tables 2a-d summarize logit regression results. For each regressor, marginal effects are reported. Our regression benchmark is a childless couple (unwed) with a single earner; the household head is male, 30 to 39 years old, holds an engineering school degree (or equivalent) and is employed as a white collar worker. Compared with the regression benchmark, the poverty risk is higher for households headed by a female person, if the household head is divorced, younger, or holds a lower educational degree. The poverty risk is also higher if the household head is self-employed, a blue collar worker, unemployed or non-working (e.g., a pensioner). The poverty risk decreases in the age of the household head, if the household head is married or widowed, and/or a civil servant.

Concerning the household-level characteristics, the poverty risk decreases in the age of the other households members and also in the number of earners, yet increases in the number of children. The latter effect is more pronounced for single parents compared with two-parent households, supporting the descriptive findings of Section 3. Most of the regression results are robust for all three EVS cross sections, for both p-lines, and for both the restricted (West German households only) and the full sample.

[Tables 2a & 2b about here]

The results from the non-linear Oaxaca-Blinder decomposition are summarized in Tables 3a and 3b, where the separate contributions for the East/West poverty divide from several groups of independent variables are reported: sex, age, education, family status, labor-force status, age of other household members, household type, and number of earners. It is always the West German population which serves as the reference group and the East German population as the comparison group.[8] Moreover, as separate contributions from independent variables may be sensitive to the variable ordering, these orderings are randomized to approximate results over all possible orderings (see Fairlie, 2005, for details). To make the read more convenient, the top rows of the tables again summarize the poverty rates.

[8] The choice of the reference and of the comparison group can change the decomposition results. However, in our decomposition analysis we do not find such effects, and hence refrain from stating results from scenarios where reference and comparison group are reversed. All estimates can be provided by the authors upon request.

[Tables 3a & 3b about here]

The total explanatory contribution of group differences in regressors is given in the row "total explained." The explanatory power of the decomposition is limited, especially for the early years after German reunification. Using the full sample logit estimates, in year 1993 only 11.9 percent (10.9 percent) of the poverty divide can be explained by the characteristics effect. This means that if New Laender residents had the same characteristics as Old Laender residents, the discrepancy in poverty rates would be narrowed by a modest 1.5 percentage points. If we use the estimates from the restricted sample, the characteristics effect is even smaller, indicating that the socioeconomic characteristics-poverty nexus is region specific.

The ongoing transition of the East German command economy into a western-style market economy, however, should alleviate the explanatory power of the decomposition. Although the explanatory power in year 1998 is still low, it rises substantially in year 2003, reaching 31.4 percent for the full sample, and 28.1 percent for the restricted sample. It is also interesting to note that decomposition results based on the full and on the restricted sample logit regressors over time become more similarly, suggesting that socioeconomic characteristics start playing similar roles for individual poverty risks in the two parts of Germany.

From the considered set of socioeconomic variables, differences in the labor force status are a crucial factor accounting for the East-West poverty divide. The fraction of unemployed East German household heads is about twice the West German level. In recent years, an exodus of high-skilled and young East Germans also contributes to this difference. Moreover, a relatively small fraction of civil servants in East Germany, especially in the early years after German reunification, drives the poverty divide. That more East German household heads are female and/or divorced is another driving source. Finally, East/West differences in the age distributions of other household members contribute to the East/West poverty divide. In the opposite direction works the variable education.

Distributional differences in other household-level variables hardly matter. An interesting result, however, pertains the variable "number of earners". Over the observation period, the associated decomposition coefficient switches from positive to negative. Whereas above-average employment rates of females in the new federal states lowered the poverty risk in the early 1990s, rising unemployment and early retirement dominate in years 1998 and 2003.

Summing up, the decomposition shows that the characteristics effect can hardly explain any of the East/West divide in year 1993. Given the huge shock of reunification, turning the New Laender economy upside down from a command to a market economy, and numerous firm liquidations, this may not come as a big surprise. Yet, it may shed light on the psychological condition of the New German Laender population who often felt and still feels like second-class German citizens, powerless and unable to improve their economic situation. However, results for year 2003 not only show that poverty rates slowly converge. Differences in the distributions of household and individual characteristics start playing a more important role for the East/West poverty divide. This may result from various (interacting) factors: (a) a macro-level convergence of the New/Old Laender economies; (b) the implementation of institutional arrangements and the development of economic policies to speed up the convergence process;[9] and (c) the (non-) acquirement of skills determining a person's individual success labor market.

4. Material living standards of income-poor people

Better-off people spend a smaller fraction of their budgets on necessities – a regularity known as Engel's Law (Engel, 1857). Figure 5a (Figure 5b) gives such Engel curves for West (East) Germany.[10] Within each figure, nine graphs are provided, one for each household type. Each graph again contains up to six Engel curves (East Germany: three), one for each observation period. Engel curves provided are estimates of locally weighted regression.

The basket of 'necessities' is based on several EVS variables related to housing and energy, food, and clothing. *Housing and energy* covers rent, sublease, imputed rent, expenses for gas and electricity, solid and liquid fuels, as well as apportionment of costs related to heating and warm water. *Food* includes expenditures for food and beverages at home, and – due to data limitations – tobacco. *Clothing* covers all expenses related to clothes and shoes. Engel curves are derived from ratios of all the expenses related to necessities divided by household disposable income.

[Figure 5a and 5b about here]

[9] Indeed, Hauser and Fabig (2005) find empirical evidence in favor of a convergence in net equivalent income mobility in the two parts of Germany, "suggesting that the social protection system has greatly reduced mobility risks associated with the transformation process in the eastern states of Germany" (p. 303).

[10] Altogether, we have excluded 6,156 households which report implausibly high expenditures relative to disposable income (i.e., the expenditure share for necessities exceeds a value of one), and 96 households with incomplete expenditure records.

To assess the material situation of the income poor, we compute average income shares spend by the income-poor on necessities. These averages are provided in Table 4a (relative p-line) and Table 4b (absolute p-line) in the "Mean" columns.[11] For example, in year 1993 an income-poor couple with one child in West (East) Germany on average spent 55.738 (45.265) percent of its disposable income on necessities. In between adjacent columns ("P>|z|"), p-values of two-sample mean comparison tests (t-tests) for independent samples, e.g. samples in year 1978 vs. 1983; 1983 vs. 1988; etc., are provided. For example, consider the entry 0.002 in column "P>|z|" in between columns "1978" and "1983," row "A1C1, OL" in Table 4a. The p-value (0.002) reveals that single parents with one child below the poverty line in year 1983 spend a significantly smaller fraction of their disposable income on necessities as those in year 1983. All p-values are based on bootstrap samples based on 100 bootstrap replications. We also test for differences between East and West. For each household type, a t-test on the equality of mean budget shares between East and West Germany's income poor is conducted. Resulting p-values based on bootstrap samples (100 bootstrap replications) are provided in between rows "OL" and "NL." Consider, for example, the entry "0.000" in column "1993," row "A1C1, P>|z|" in Table 4a. The p-value indicates that East German single parents with one child below the relative p-line spend a significantly smaller fraction of their disposable income on necessities compared with their West German counterparts.

[Tables 4a & 4b about here]

Two regularities are revealed by Tables 4a and 4b. First, average income shares spent on necessities are fairly stable over time. In case of West Germany, a slight decrease can only be observed between years 1978 and 1983. In year 1983, childless two-adult households below the relative p-line, for example, spend approximately 6.3 percentage points less of their budget on necessities, parents with two children about 5.3 percentage points less. However, in year 1988 budget shares are again up year 1978 levels. In case of the absolute p-line, the picture is similar: year 2003 expenditure shares for necessities hardly differ from those in year 1978. To put it in a nutshell: there is hardly any evidence for a widening "range of choice and economic freedom" (Baxter and Moosa, 1999, p. 99) for West Germany's income-poor since year 1978.

[11] Averages are calculated using EVS household frequency weights.

Evidence for East Germany's income-poor is mixed. In case of the relative p-line, average expenditure shares are fairly stable over time for most household types (other childless, A1C1 - A1C3+, A2C2, A2C3+). For childless single adults (A1C0) and two-parent households with one child (A2C1), the average expenditure share is slightly on the rise, and slightly decreasing for childless couples (A2C0). For the absolute p-line, expenditure shares for single parents (A1C1 – A1C3) and couples with two children (A2C2) are about constant over time. For the other household types remaining (other childless, A1C0, A2C0, A2C1, A2C3), average expenditure shares are on the rise.

It is interesting to note that East Germany's income poor, ceteris paribus, spend significantly smaller fractions of their disposable incomes on necessities than income poor West German households. For example, in year 1993 (2003) East German income-poor couples with one child (A2C1) spend about 10 percentage points (8 percentage points) less on necessities than their West Germany counterparts. Higher square meter prices in West Germany[12] in combination with significantly smaller average housing sizes are the proximate cause. [13]

5 Conclusion

A major goal of welfare states all over the world is the reduction of poverty. Indeed, in case of an inter-temporally constant absolute p-line, we find a substantial decline in the poverty rate in West Germany between year 1978 and 2003. However, poverty rates based on a 60-percent-of-median standard fluctuate around ten percent over the entire observation period. Budget shares spend by the poor to meet basic needs do not indicate any inter-temporal improvement of their economic situation, leaving them in year 2003 as little room to maneuver as in year 1978. From all household types, most vulnerable to poverty are single parents.

Another Germany-specific goal is the creation of similar living circumstances across regions, yet poverty rates in the two Parts of Germany differ substantially. Despite some convergence, the year 2003 poverty rate in East Germany still is about nine percentage points higher. Our analysis indicates that the divide is owed to macroeconomic differences between the two regions rather than to differences in the socioeconomic characteristics of the

[12] Square-meter prices the New Laender are lower than the German average. However, substantial regional differences exist. Kosfeld et al. (2007) show that housing prices in some New Laender areas are significantly higher than the West German average.

[13] Since year 1998, the EVS documents square-meter sizes of households' residences. Averages and tests of significance for regional differences based on bootstrap samples are provided in Table A4 in the Appendix.

households. In recent years, however, differences in the socioeconomic characteristics contribute more to the poverty divide than in the early years after reunification.

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Table 1. Socioeconomic characteristics

Characteristics of the household head		Type of variable	Reference category
Gender	male; female	dummy	male
Age cohort	age cohort (in years: 0-4; 5-9; 10-14; 15-19; 20-29; 30-39; 40-49; 50-59; 60-69; 70 and above)	dummy variables 1: age cohort applies 0: else	age 30-39 years
Labor force status	self-employed farmer; other self employed, civil servant; white-collar worker; blue-collar worker; unemployed; non-working	dummy variables 1: status applies 0: else	white collar
Highest occupational degree	university; university of applied sciences; equivalent to engineering school; apprenticeship etc.; no occupational degree or still in job training	dummy variables 1: status applies 0: else	equivalent to engineering school
Family status	unwed; married; widowed; divorced	dummy variables 1: status applies 0: else	unwed
Household-level characteristics			
Family type	single adults with 0, 1, 2, 3+ children; two adults with 0, 1, 2, 3+ children; other	dummy variables 1: type applies 0: else	childless couple
Number of earners	0-5	dummy variables 1: number applies 0: else	
Number of household members - apart from household head - belonging to a specific age cohort	cohorts are defined as above	one covariate per age cohort	one-member household

Table 2a. Marginal effects of logistic regressions for total population (relative p-line)

	1993			1998			2003		
	dy/dx	Std.err.	P>|z|	dy/dx	Std.err.	P>|z|	dy/dx	Std.err.	P>|z|
HHH: female	0.010	0.000	0.000	0.025	0.000	0.000	0.033	0.000	0.000
HHH: married	-0.005	0.000	0.000	-0.007	0.000	0.000	-0.028	0.000	0.000
HHH: widowed	-0.013	0.000	0.000	-0.028	0.000	0.000	-0.043	0.000	0.000
HHH: divorced	0.003	0.000	0.000	0.005	0.000	0.000	0.014	0.000	0.000
HHH: self-employed farmer	0.215	0.001	0.000	0.182	0.001	0.000	0.509	0.001	0.000
HHH is self-employed	0.024	0.000	0.000	0.028	0.000	0.000	0.022	0.000	0.000
HHH: civil servant	-0.019	0.000	0.000	-0.033	0.000	0.000	-0.050	0.000	0.000
HHH: blue-collar worker	0.041	0.000	0.000	0.042	0.000	0.000	0.059	0.000	0.000
HHH: unemployed	0.141	0.000	0.000	0.154	0.001	0.000	0.274	0.001	0.000
HHH: non-working (pensioner, etc.)	0.039	0.000	0.000	0.073	0.000	0.000	0.108	0.000	0.000
HHH: university	-0.006	0.000	0.000	-0.011	0.000	0.000	-0.025	0.000	0.000
HHH: univ. of applied sciences	0.001	0.000	0.000	-0.011	0.000	0.000	-0.028	0.000	0.000
HHH: apprenticeship	0.008	0.000	0.000	0.019	0.000	0.000	0.010	0.000	0.000
HHH: no degree	0.033	0.000	0.000	0.095	0.000	0.000	0.109	0.000	0.000
HHH: 20-29 years	0.008	0.000	0.000	0.032	0.000	0.000	0.035	0.000	0.000
HHH: 40-49 years	-0.004	0.000	0.000	-0.007	0.000	0.000	-0.012	0.000	0.000
HHH: 50-59 years	-0.007	0.000	0.000	-0.011	0.000	0.000	-0.027	0.000	0.000
HHH: 60-69 years	-0.011	0.000	0.000	-0.018	0.000	0.000	-0.041	0.000	0.000
HHH: 70+ years	-0.007	0.000	0.000	-0.019	0.000	0.000	-0.050	0.000	0.000
Number of other HHM age 0-4 years	0.004	0.000	0.000	0.009	0.000	0.000	0.010	0.000	0.000
Number of other HHM age 5-9 years	0.006	0.000	0.000	0.002	0.000	0.000	-0.004	0.000	0.000
Number of other HHM age 10-14 years	0.009	0.000	0.000	0.015	0.000	0.000	0.013	0.000	0.000
Number of other HHM age 15-19 years	0.018	0.000	0.000	0.027	0.000	0.000	0.041	0.000	0.000
Number of other HHM age 20-29 years	0.004	0.000	0.000	0.013	0.000	0.000	0.026	0.000	0.000
Number of other HHM age 30-39 years	-0.005	0.000	0.000	-0.006	0.000	0.000	0.013	0.000	0.000
Number of other HHM age 40-49 years	-0.007	0.000	0.000	-0.004	0.000	0.000	0.012	0.000	0.000
Number of other HHM age 50-59 years	-0.008	0.000	0.000	-0.012	0.000	0.000	0.016	0.000	0.000
Number of other HHM age 60-69 years	-0.010	0.000	0.000	-0.036	0.000	0.000	-0.016	0.000	0.000
Number of other HHM age 70+ years	-0.008	0.000	0.000	-0.029	0.000	0.000	0.000	0.000	0.187
Single, childless	-0.001	0.000	0.000	0.008	0.000	0.000	-0.013	0.000	0.000
Single parent, 1 child	0.012	0.000	0.000	0.007	0.000	0.000	0.012	0.000	0.000
Single parent, 2 children	0.004	0.000	0.000	0.028	0.000	0.000	0.033	0.000	0.000
Single parent, 3+ children	0.008	0.000	0.000	0.008	0.000	0.000	0.011	0.000	0.000
Couple, 1 child	-0.006	0.000	0.000	-0.011	0.000	0.000	-0.002	0.000	0.000
Couple, 2 children	0.007	0.000	0.000	0.025	0.000	0.000	0.004	0.000	0.000
Couple, 3+ children	0.011	0.000	0.000	0.019	0.000	0.000	-0.009	0.000	0.000
Other household type	0.008	0.000	0.000	0.009	0.000	0.000	-0.005	0.000	0.000
Earners: 0	0.076	0.000	0.000	0.077	0.000	0.000	0.106	0.000	0.000
Earners: 2	-0.014	0.000	0.000	-0.031	0.000	0.000	-0.052	0.000	0.000
Earners: 3	-0.018	0.000	0.000	-0.038	0.000	0.000	-0.057	0.000	0.000
Earners: 4+	-0.020	0.000	0.000	-0.040	0.000	0.000	-0.067	0.000	0.000
Prob>chi2	0.000			0.000			0.000		
Log likelihood	-21,376,726			-22,922,873			-22,720,321		
Pseudo R2	0.271			0.251			0.270		

Note. Dependent variable: dummy poor. HHH denotes household head; HHM denotes household members.

Table 2b. Marginal effects of logistic regressions for total population (absolute p-line)

	1993			1998			2003		
	dy/dx	Std.err.	P>|z|	dy/dx	Std.err.	P>|z|	dy/dx	Std.err.	P>|z|
HHH: female	0.017	0.000	0.000	0.030	0.000	0.000	0.033	0.000	0.000
HHH: married	-0.003	0.000	0.000	-0.006	0.000	0.000	-0.028	0.000	0.000
HHH: widowed	-0.019	0.000	0.000	-0.032	0.000	0.000	-0.043	0.000	0.000
HHH: divorced	0.005	0.000	0.000	0.004	0.000	0.000	0.014	0.000	0.000
HHH: self-employed farmer	0.313	0.001	0.000	0.212	0.001	0.000	0.509	0.001	0.000
HHH is self-employed	0.022	0.000	0.000	0.026	0.000	0.000	0.022	0.000	0.000
HHH: civil servant	-0.030	0.000	0.000	-0.040	0.000	0.000	-0.050	0.000	0.000
HHH: blue-collar worker	0.064	0.000	0.000	0.047	0.000	0.000	0.059	0.000	0.000
HHH: unemployed	0.177	0.000	0.000	0.191	0.001	0.000	0.274	0.001	0.000
HHH: non-working (pensioner, etc.)	0.057	0.000	0.000	0.089	0.000	0.000	0.108	0.000	0.000
HHH: university	-0.009	0.000	0.000	-0.015	0.000	0.000	-0.025	0.000	0.000
HHH: univ. of applied sciences	0.003	0.000	0.000	-0.011	0.000	0.000	-0.028	0.000	0.000
HHH: apprenticeship	0.011	0.000	0.000	0.022	0.000	0.000	0.010	0.000	0.000
HHH: no dregree	0.048	0.000	0.000	0.102	0.000	0.000	0.109	0.000	0.000
HHH: 20-29 years	0.014	0.000	0.000	0.034	0.000	0.000	0.035	0.000	0.000
HHH: 40-49 years	-0.004	0.000	0.000	-0.009	0.000	0.000	-0.012	0.000	0.000
HHH: 50-59 years	-0.013	0.000	0.000	-0.016	0.000	0.000	-0.027	0.000	0.000
HHH: 60-69 years	-0.019	0.000	0.000	-0.021	0.000	0.000	-0.041	0.000	0.000
HHH: 70+ years	-0.014	0.000	0.000	-0.022	0.000	0.000	-0.050	0.000	0.000
Number of other HHM age 0-4 years	0.003	0.000	0.000	0.011	0.000	0.000	0.010	0.000	0.000
Number of other HHM age 5-9 years	0.008	0.000	0.000	0.006	0.000	0.000	-0.004	0.000	0.000
Number of other HHM age 10-14 years	0.013	0.000	0.000	0.020	0.000	0.000	0.013	0.000	0.000
Number of other HHM age 15-19 years	0.025	0.000	0.000	0.031	0.000	0.000	0.041	0.000	0.000
Number of other HHM age 20-29 years	0.006	0.000	0.000	0.016	0.000	0.000	0.026	0.000	0.000
Number of other HHM age 30-39 years	-0.011	0.000	0.000	-0.006	0.000	0.000	0.013	0.000	0.000
Number of other HHM age 40-49 years	-0.018	0.000	0.000	-0.005	0.000	0.000	0.012	0.000	0.000
Number of other HHM age 50-59 years	-0.012	0.000	0.000	-0.016	0.000	0.000	0.016	0.000	0.000
Number of other HHM age 60-69 years	-0.014	0.000	0.000	-0.040	0.000	0.000	-0.016	0.000	0.000
Number of other HHM age 70+ years	-0.013	0.000	0.000	-0.031	0.000	0.000	0.000	0.000	0.187
Single, childless	0.004	0.000	0.000	0.009	0.000	0.000	-0.013	0.000	0.000
Single parent, 1 child	0.017	0.000	0.000	0.010	0.000	0.000	0.012	0.000	0.000
Single parent, 2 children	0.015	0.000	0.000	0.040	0.000	0.000	0.033	0.000	0.000
Single parent, 3+ children	0.027	0.000	0.000	0.011	0.000	0.000	0.011	0.000	0.000
Couple, 1 child	-0.009	0.000	0.000	-0.007	0.000	0.000	-0.002	0.000	0.000
Couple, 2 children	0.020	0.000	0.000	0.026	0.000	0.000	0.004	0.000	0.000
Couple, 3+ children	0.030	0.000	0.000	0.021	0.000	0.000	-0.009	0.000	0.000
Other household type	0.026	0.000	0.000	0.009	0.000	0.000	-0.005	0.000	0.000
Earners: 0	0.110	0.000	0.000	0.078	0.000	0.000	0.106	0.000	0.000
Earners: 2	-0.022	0.000	0.000	-0.034	0.000	0.000	-0.052	0.000	0.000
Earners: 3	-0.030	0.000	0.000	-0.044	0.000	0.000	-0.057	0.000	0.000
Earners: 4+	-0.031	0.000	0.000	-0.046	0.000	0.000	-0.067	0.000	0.000
Prob>chi2	0.000			0.000			0.000		
Log likelihood	-26,635,793			-25,065,356			-22,720,321		
Pseudo R2	0.259			0.247			0.270		

Note. Dependent variable: dummy poor. HHH denotes household head; HHM denotes household members.

Table 2c. Marginal effects of logistic regressions for West German population (relative p-line)

	1993			1998			2003		
	dy/dx	Std.err.	P>|z|	dy/dx	Std.err.	P>|z|	dy/dx	Std.err.	P>|z|
HHH: female	0.004	0.000	0.000	0.021	0.000	0.000	0.019	0.000	0.000
HHH: married	-0.003	0.000	0.000	-0.011	0.000	0.000	-0.022	0.000	0.000
HHH: widowed	-0.007	0.000	0.000	-0.024	0.000	0.000	-0.026	0.000	0.000
HHH: divorced	0.001	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000
HHH: self-employed farmer	0.240	0.001	0.000	0.218	0.001	0.000	0.488	0.001	0.000
HHH is self-employed	0.015	0.000	0.000	0.034	0.000	0.000	0.023	0.000	0.000
HHH: civil servant	-0.011	0.000	0.000	-0.029	0.000	0.000	-0.042	0.000	0.000
HHH: blue-collar worker	0.016	0.000	0.000	-0.036	0.000	0.000	0.041	0.000	0.000
HHH: unemployed	0.086	0.000	0.000	0.184	0.001	0.000	0.263	0.001	0.000
HHH: non-working (pensioner, etc.)	0.024	0.000	0.000	0.085	0.000	0.000	0.103	0.000	0.000
HHH: university	-0.004	0.000	0.000	-0.009	0.000	0.000	-0.013	0.000	0.000
HHH: univ. of applied sciences	-0.006	0.000	0.000	-0.013	0.000	0.000	-0.025	0.000	0.000
HHH: apprenticeship	0.004	0.000	0.000	0.019	0.000	0.000	0.010	0.000	0.000
HHH: no degree	0.032	0.000	0.000	0.109	0.000	0.000	0.108	0.000	0.000
HHH: 20-29 years	0.004	0.000	0.000	0.029	0.000	0.000	0.027	0.000	0.000
HHH: 40-49 years	-0.002	0.000	0.000	-0.009	0.000	0.000	-0.010	0.000	0.000
HHH: 50-59 years	-0.004	0.000	0.000	-0.014	0.000	0.000	-0.027	0.000	0.000
HHH: 60-69 years	-0.008	0.000	0.000	-0.020	0.000	0.000	-0.038	0.000	0.000
HHH: 70+ years	-0.006	0.000	0.000	-0.022	0.000	0.000	-0.043	0.000	0.000
Number of other HHM age 0-4 years	0.002	0.000	0.000	0.012	0.000	0.000	0.009	0.000	0.000
Number of other HHM age 5-9 years	0.003	0.000	0.000	0.003	0.000	0.000	0.002	0.000	0.000
Number of other HHM age 10-14 years	0.006	0.000	0.000	0.017	0.000	0.000	0.011	0.000	0.000
Number of other HHM age 15-19 years	0.009	0.000	0.000	0.024	0.000	0.000	0.036	0.000	0.000
Number of other HHM age 20-29 years	0.005	0.000	0.000	0.014	0.000	0.000	0.027	0.000	0.000
Number of other HHM age 30-39 years	0.001	0.000	0.000	-0.005	0.000	0.000	0.010	0.000	0.000
Number of other HHM age 40-49 years	-0.001	0.000	0.000	-0.001	0.000	0.000	0.009	0.000	0.000
Number of other HHM age 50-59 years	-0.002	0.000	0.000	-0.014	0.000	0.000	0.012	0.000	0.000
Number of other HHM age 60-69 years	-0.003	0.000	0.000	-0.028	0.000	0.000	-0.001	0.000	0.000
Number of other HHM age 70+ years	0.001	0.000	0.000	-0.024	0.000	0.000	0.011	0.000	0.000
Single, childless	-0.001	0.000	0.000	0.008	0.000	0.000	-0.010	0.000	0.000
Single parent, 1 child	0.015	0.000	0.000	0.002	0.000	0.000	0.015	0.000	0.000
Single parent, 2 children	0.007	0.000	0.000	0.025	0.000	0.000	0.038	0.000	0.000
Single parent, 3+ children	0.017	0.000	0.000	0.003	0.000	0.000	0.019	0.000	0.000
Couple, 1 child	-0.000	0.000	0.000	-0.014	0.000	0.000	0.021	0.000	0.000
Couple, 2 children	0.005	0.000	0.000	0.022	0.000	0.000	0.009	0.000	0.000
Couple, 3+ children	0.005	0.000	0.000	0.012	0.000	0.000	-0.011	0.000	0.000
Other household type	0.005	0.000	0.000	0.007	0.000	0.000	-0.007	0.000	0.000
Earners: 0	0.051	0.000	0.000	0.068	0.000	0.000	0.086	0.000	0.000
Earners: 2	-0.010	0.000	0.000	-0.031	0.000	0.000	-0.043	0.000	0.000
Earners: 3	-0.012	0.000	0.000	-0.037	0.000	0.000	-0.047	0.000	0.000
Earners: 4+	-0.012	0.000	0.000	-0.037	0.000	0.000	-0.057	0.000	0.000
Prob>chi2	0.000			0.000			0.000		
Log likelihood	-12,663,455			-16,998,492			-17,370,935		
Pseudo R2	0.308			0.260			0.259		

Note. Dependent variable: dummy poor. HHH denotes household head; HHM denotes household members.

Table 2d. Marginal effects of logistic regressions for West German population (absolute p-line)

	1993			1998			2003		
	dy/dx	Std.err.	P>|z|	dy/dx	Std.err.	P>|z|	dy/dx	Std.err.	P>|z|
HHH: female	0.006	0.000	0.000	0.023	0.000	0.000	0.019	0.000	0.000
HHH: married	-0.003	0.000	0.000	-0.006	0.000	0.000	-0.022	0.000	0.000
HHH: widowed	-0.010	0.000	0.000	-0.024	0.000	0.000	-0.026	0.000	0.000
HHH: divorced	0.001	0.000	0.000	0.001	0.000	0.000	0.005	0.000	0.000
HHH: self-employed farmer	0.322	0.001	0.000	0.226	0.001	0.000	0.488	0.001	0.000
HHH is self-employed	0.013	0.000	0.000	0.030	0.000	0.000	0.023	0.000	0.000
HHH: civil servant	-0.017	0.000	0.000	-0.031	0.000	0.000	-0.042	0.000	0.000
HHH: blue-collar worker	0.024	0.000	0.000	0.034	0.000	0.000	0.041	0.000	0.000
HHH: unemployed	0.094	0.000	0.000	0.191	0.001	0.000	0.263	0.001	0.000
HHH: non-working (pensioner, etc.)	0.027	0.000	0.000	0.084	0.000	0.000	0.103	0.000	0.000
HHH: university	-0.007	0.000	0.000	-0.009	0.000	0.000	-0.013	0.000	0.000
HHH: univ. of applied sciences	-0.009	0.000	0.000	-0.012	0.000	0.000	-0.025	0.000	0.000
HHH: apprenticeship	0.008	0.000	0.000	0.020	0.000	0.000	0.010	0.000	0.000
HHH: no dregree	0.049	0.000	0.000	0.107	0.000	0.000	0.108	0.000	0.000
HHH: 20-29 years	0.011	0.000	0.000	0.030	0.000	0.000	0.027	0.000	0.000
HHH: 40-49 years	-0.000	0.000	0.000	-0.009	0.000	0.000	-0.010	0.000	0.000
HHH: 50-59 years	-0.007	0.000	0.000	-0.016	0.000	0.000	-0.027	0.000	0.000
HHH: 60-69 years	-0.012	0.000	0.000	-0.021	0.000	0.000	-0.038	0.000	0.000
HHH: 70+ years	-0.008	0.000	0.000	-0.022	0.000	0.000	-0.043	0.000	0.000
Number of other HHM age 0-4 years	0.002	0.000	0.000	0.012	0.000	0.000	0.009	0.000	0.000
Number of other HHM age 5-9 years	0.003	0.000	0.000	0.007	0.000	0.000	0.002	0.000	0.000
Number of other HHM age 10-14 years	0.006	0.000	0.000	0.018	0.000	0.000	0.011	0.000	0.000
Number of other HHM age 15-19 years	0.012	0.000	0.000	0.024	0.000	0.000	0.036	0.000	0.000
Number of other HHM age 20-29 years	0.006	0.000	0.000	0.015	0.000	0.000	0.027	0.000	0.000
Number of other HHM age 30-39 years	-0.000	0.000	0.000	-0.005	0.000	0.000	0.010	0.000	0.000
Number of other HHM age 40-49 years	-0.004	0.000	0.000	-0.000	0.000	0.000	0.009	0.000	0.000
Number of other HHM age 50-59 years	-0.001	0.000	0.000	-0.016	0.000	0.000	0.012	0.000	0.000
Number of other HHM age 60-69 years	-0.003	0.000	0.000	-0.027	0.000	0.000	-0.001	0.000	0.000
Number of other HHM age 70+ years	0.000	0.000	0.000	-0.022	0.000	0.000	0.011	0.000	0.000
Single, childless	0.002	0.000	0.000	0.010	0.000	0.000	-0.010	0.000	0.000
Single parent, 1 child	0.019	0.000	0.000	0.009	0.000	0.000	0.015	0.000	0.000
Single parent, 2 children	0.023	0.000	0.000	0.040	0.000	0.000	0.038	0.000	0.000
Single parent, 3+ children	0.039	0.000	0.000	0.004	0.000	0.000	0.019	0.000	0.000
Couple, 1 child	0.005	0.000	0.000	-0.008	0.000	0.000	0.021	0.000	0.000
Couple, 2 children	0.013	0.000	0.000	0.018	0.000	0.000	0.009	0.000	0.000
Couple, 3+ children	0.020	0.000	0.000	0.010	0.000	0.000	-0.011	0.000	0.000
Other household type	0.025	0.000	0.000	0.006	0.000	0.000	-0.007	0.000	0.000
Earners: 0	0.077	0.000	0.000	0.067	0.000	0.000	0.086	0.000	0.000
Earners: 2	-0.015	0.000	0.000	-0.030	0.000	0.000	-0.043	0.000	0.000
Earners: 3	-0.017	0.000	0.000	-0.037	0.000	0.000	-0.047	0.000	0.000
Earners: 4+	-0.018	0.000	0.000	-0.038	0.000	0.000	-0.057	0.000	0.000
Prob>chi2	0.000			0.000			0.000		
Log likelihood	-16,072,661			-18,561,689			-17,370,935		
Pseudo R2	0.294			0.255			0.259		

Note. Dependent variable: dummy poor. HHH denotes household head; HHM denotes household members.

Table 3a. Non-linear decomposition of East/West poverty divide (relative p-line)

		1993			1998			2003		
	Poverty rate, West	0.088			0.114			0.113		
	Poverty rate, East	0.214			0.191			0.201		
	Difference	-0.126			-0.077			-0.088		
		Coef.	Std.err.	P>|z|	Coef.	Std.err.	P>|z|	Coef.	Std.err.	P>|z|
full sample	HHH sex	-0.004	0.000	0.000	-0.005	0.000	0.000	-0.004	0.000	0.000
	HHH age	-0.002	0.000	0.000	-0.008	0.000	0.000	-0.002	0.000	0.000
	HHH family status	-0.003	0.000	0.000	-0.005	0.000	0.000	-0.007	0.000	0.000
	HHH labor force status	-0.016	0.000	0.000	-0.006	0.000	0.000	-0.013	0.000	0.000
	HHH education	0.013	0.000	0.000	0.013	0.000	0.000	0.008	0.000	0.000
	HHM age	-0.004	0.000	0.000	-0.002	0.000	0.000	-0.003	0.000	0.000
	HH type	-0.000	0.000	0.000	-0.001	0.000	0.000	-0.001	0.000	0.000
	Number earners	0.002	0.000	0.000	0.006	0.000	0.000	-0.006	0.000	0.000
	Total explained, pooled	-0.015 (11.9%)			-0.008 (9.6%)			-0.028 (31.4%)		
restricted sample	HHH sex	-0.002	0.000	0.000	-0.003	0.000	0.000	-0.004	0.000	0.000
	HHH age	-0.005	0.000	0.000	0.012	0.000	0.000	-0.003	0.000	0.000
	HHH family status	-0.001	0.000	0.000	-0.002	0.000	0.000	-0.007	0.000	0.000
	HHH labor force status	-0.014	0.000	0.000	-0.018	0.000	0.000	-0.012	0.000	0.000
	HHH education	0.023	0.000	0.000	0.017	0.000	0.000	0.007	0.000	0.000
	HHM age	0.004	0.000	0.000	0.017	0.000	0.588	-0.004	0.000	0.000
	HH type	0.004	0.000	0.000	0.004	0.000	0.000	-0.001	0.000	0.000
	Number earners	-0.024	0.000	0.000	-0.032	0.000	0.000	-0.003	0.000	0.000
	Total explained, restricted	-0.000 (0.1%)			-0.005 (6.5%)			-0.025 (28.1%)		

Note. Specifications labelled "pooled" use the coefficient estimates from the full sample (pooled regression); specifications labelled "restricted" use the coefficient estimates from the West German population. Decomposition results are based 50 replications using randomized ordering of variables. HHH denotes household head; HH denotes HH type.

Table 3b. Non-linear decomposition of East/West poverty divide (absolute p-line)

		1993			1998			2003		
	Poverty rate, West	0.122			0.129			0.113		
	Poverty rate, East	0.296			0.223			0.201		
	Difference	-0.175			-0.094			-0.088		
		Coef.	Std.err.	P>|z|	Coef.	Std.err.	P>|z|	Coef.	Std.err.	P>|z|
full sample	HHH sex	-0.006	0.000	0.000	-0.006	0.000	0.000	-0.004	0.000	0.000
	HHH age	-0.005	0.000	0.000	-0.008	0.000	0.000	-0.003	0.000	0.000
	HHH family status	-0.004	0.000	0.000	-0.004	0.000	0.000	-0.007	0.000	0.000
	HHH labor force status	-0.015	0.000	0.000	-0.006	0.000	0.000	-0.012	0.000	0.000
	HHH education	0.014	0.000	0.000	0.012	0.000	0.000	0.007	0.000	0.000
	HHM age	-0.008	0.000	0.000	-0.002	0.000	0.000	-0.004	0.000	0.000
	HH type	-0.003	0.000	0.000	-0.002	0.000	0.000	-0.001	0.000	0.000
	Number earners	0.007	0.000	0.000	0.008	0.000	0.000	-0.003	0.000	0.000
	Total explained, pooled	-0.019 (10.9%)			-0.008 (8.5%)			-0.028 (31.4%)		
restricted sample	HHH sex	-0.002	0.000	0.000	-0.004	0.000	0.000	-0.004	0.000	0.000
	HHH age	-0.002	0.000	0.000	-0.002	0.000	0.000	-0.003	0.000	0.000
	HHH family status	-0.003	0.000	0.000	-0.003	0.000	0.000	-0.007	0.000	0.000
	HHH labor force status	-0.011	0.000	0.000	-0.007	0.000	0.000	-0.012	0.000	0.000
	HHH education	0.026	0.000	0.000	0.013	0.000	0.000	0.007	0.000	0.000
	HHM age	-0.005	0.000	0.000	-0.002	0.000	0.000	-0.004	0.000	0.000
	HH type	-0.001	0.000	0.000	-0.001	0.000	0.000	-0.001	0.000	0.000
	Number earners	0.002	0.000	0.000	0.002	0.000	0.000	-0.003	0.000	0.000
	Total explained, restricted	0.004 (0%)			-0.004 (4.7%)			-0.025 (28.1%)		

Note. Specifications labelled "pooled" use the coefficient estimates from the full sample (pooled regression); specifications labelled "restricted" use the coefficient estimates from the West German population. Decomposition results are based 50 replications using randomized ordering of variables. HHH denotes household head; HH denotes HH type.

Table 4a. Expenditure shares of households below the relative p-line

House-hold type	Region		1978	P>|z|	1983	P>|z|	1988	P>|z|	1993	P>|z|	1998	P>|z|	2003
other childless	OL	Mean	57.009	0.000	50.216	0.004	54.009	0.499	58.445	0.964	51.850	0.217	55.447
		Std.err.	*0.855*		*0.616*		*0.944*		*1.093*		*1.108*		*1.200*
		P>|z|							0.000		0.000		0.000
	NL	Mean							46.084	0.154	47.465	0.923	47.221
		Std.err.							*1.514*		*1.152*		*1.078*
A1C0	OL	Mean	55.998	0.000	51.637	0.000	57.545	0.776	57.450	0.870	57.804	0.478	56.654
		Std.err.	*0.461*		*0.353*		*0.398*		*0.455*		*0.530*		*0.405*
		P>|z|							0.000		0.000		0.482
	NL	Mean							50.909	0.001	53.200	0.000	55.757
		Std.err.							*0.594*		*0.521*		*0.745*
A1C1	OL	Mean	58.217	0.002	52.318	0.000	58.840	0.226	61.628	0.242	57.051	0.209	56.903
		Std.err.	*1.389*		*1.070*		*1.005*		*1.341*		*0.822*		*0.940*
		P>|z|							0.000		0.000		0.000
	NL	Mean							52.577	0.114	51.969	0.347	50.257
		Std.err.							*1.339*		*0.948*		*1.198*
A1C2	OL	Mean	59.617	0.002	53.453	0.055	55.336	0.105	60.295	0.852	59.399	0.023	55.052
		Std.err.	*1.500*		*1.113*		*1.178*		*1.530*		*0.900*		*1.500*
		P>|z|							0.000		0.000		0.507
	NL	Mean							51.299	0.893	50.932	0.530	54.502
		Std.err.							*1.810*		*1.444*		*1.821*
A1C3+	OL	Mean	55.488	0.946	56.010	0.662	55.669	0.575	62.980	0.678	58.332	0.377	53.544
		Std.err.	*1.994*		*1.980*		*1.883*		*3.435*		*1.815*		*2.196*
		P>|z|							0.014		0.000		0.016
	NL	Mean							50.482	0.691	45.907	0.307	44.253
		Std.err.							*2.661*		*1.576*		*1.438*
A2C0	OL	Mean	58.030	0.000	51.694	0.000	55.678	0.001	58.374	0.015	55.501	0.210	55.659
		Std.err.	*0.481*		*0.445*		*0.579*		*0.829*		*0.889*		*0.708*
		P>|z|							0.000		0.057		0.007
	NL	Mean							48.363	0.004	52.506	0.189	53.068
		Std.err.							*0.757*		*0.797*		*0.928*
A2C1	OL	Mean	54.514	0.000	50.057	0.002	53.636	0.389	55.738	0.797	52.873	0.440	55.989
		Std.err.	*0.703*		*0.575*		*0.976*		*1.132*		*1.108*		*1.116*
		P>|z|							0.000		0.006		0.000
	NL	Mean							45.265	0.000	52.315	0.076	47.599
		Std.err.							*1.063*		*1.173*		*0.885*
A2C2	OL	Mean	52.568	0.000	47.260	0.005	50.090	0.257	51.360	0.034	56.012	0.615	54.279
		Std.err.	*0.692*		*0.653*		*0.706*		*1.170*		*0.893*		*1.238*
		P>|z|							0.000		0.000		0.000
	NL	Mean							47.050	0.643	45.157	0.216	47.030
		Std.err.							*0.896*		*0.679*		*1.008*
A2C3+	OL	Mean	51.845	0.004	48.409	0.852	50.096	0.050	51.387	0.257	53.325	0.967	51.664
		Std.err.	*0.637*		*0.785*		*0.962*		*0.865*		*1.117*		*1.308*
		P>|z|							0.001		0.217		0.039
	NL	Mean							44.200	0.036	49.133	0.229	46.908
		Std.err.							*1.512*		*2.226*		*1.888*

Note. Weighted averages using EVS household weights. P-values of t-tests for independent bootstrap samples; bootstrapped standard errors in italics (100 bootstrap replications). "OL" denotes the Old German Laender; "NL" the newly formed German Laender after reunification. "A" denotes an adult, "C" a child, and the adjacent digit gives the number of adults or children.

Table 4b. Expenditure shares of household below the absolute p-line

Household type	Region		1978	P>|z|	1983	P>|z|	1988	P>|z|	1993	P>|z|	1998	P>|z|	2003
other childless	OL	Mean	52.872	0.000	48.751	0.000	52.030	0.370	55.612	0.424	51.302	0.105	55.447
		Std.err.	*0.480*		*0.460*		*0.641*		*0.823*		*0.999*		*1.200*
		P>|z|							0.000		0.000		0.000
	NL	Mean							44.709	0.024	46.965	0.636	47.221
		Std.err.							*1.013*		*0.990*		*1.078*
A1C0	OL	Mean	54.234	0.000	50.235	0.000	56.090	0.471	56.337	0.520	56.921	0.055	56.654
		Std.err.	*0.318*		*0.338*		*0.360*		*0.407*		*0.465*		*0.405*
		P>|z|							0.000		0.000		0.484
	NL	Mean							49.471	0.000	52.471	0.000	55.757
		Std.err.							*0.529*		*0.489*		*0.745*
A1C1	OL	Mean	55.988	0.003	50.626	0.000	58.029	0.766	58.171	0.304	56.455	0.400	56.903
		Std.err.	*1.332*		*0.840*		*0.819*		*1.185*		*0.847*		*0.940*
		P>|z|							0.000		0.000		0.000
	NL	Mean							51.270	0.029	51.696	0.611	50.257
		Std.err.							*1.228*		*0.776*		*1.198*
A1C2	OL	Mean	56.214	0.010	52.474	0.051	54.769	0.593	58.234	0.094	59.288	0.018	55.052
		Std.err.	*1.174*		*0.944*		*1.085*		*1.340*		*0.969*		*1.495*
		P>|z|							0.001		0.000		0.456
	NL	Mean							50.168	0.716	49.404	0.224	54.502
		Std.err.							*1.317*		*1.322*		*1.821*
A1C3+	OL	Mean	53.332	0.651	54.570	0.613	55.218	0.758	61.206	0.664	56.643	0.768	53.544
		Std.err.	*1.756*		*2.517*		*1.647*		*3.028*		*1.612*		*2.196*
		P>|z|							0.082		0.001		0.009
	NL	Mean							51.725	0.439	46.057	0.362	44.253
		Std.err.							*2.871*		*1.375*		*1.438*
A2C0	OL	Mean	55.480	0.000	50.251	0.000	54.142	0.000	56.146	0.119	54.690	0.033	55.659
		Std.err.	*0.318*		*0.323*		*0.450*		*0.627*		*0.824*		*0.708*
		P>|z|							0.000		0.014		0.015
	NL	Mean							46.926	0.000	51.552	0.065	53.068
		Std.err.							*0.685*		*0.821*		*0.928*
A2C1	OL	Mean	51.239	0.000	47.582	0.000	51.321	0.096	53.321	0.377	52.732	0.249	55.989
		Std.err.	*0.398*		*0.433*		*0.675*		*1.039*		*1.031*		*1.116*
		P>|z|							0.000		0.000		0.000
	NL	Mean							44.028	0.001	50.127	0.652	47.599
		Std.err.							*0.873*		*0.936*		*0.885*
A2C2	OL	Mean	49.909	0.000	45.637	0.000	48.619	0.073	50.189	0.013	54.438	0.576	54.279
		Std.err.	*0.379*		*0.380*		*0.497*		*0.868*		*0.858*		*1.238*
		P>|z|							0.000		0.000		0.000
	NL	Mean							44.549	0.074	44.979	0.064	47.030
		Std.err.							*0.734*		*0.656*		*1.008*
A2C3+	OL	Mean	49.904	0.000	46.490	0.903	48.212	0.007	50.767	0.391	51.727	0.280	51.664
		Std.err.	*0.361*		*0.576*		*0.698*		*0.735*		*1.057*		*1.308*
		P>|z|							0.002		0.213		0.011
	NL	Mean							43.934	0.086	48.842	0.474	46.908
		Std.err.							*1.244*		*1.715*		*1.888*

Note. Weighted averages using EVS household weights. P-values of t-tests for independent bootstrap samples; bootstrapped standard errors in italics (100 bootstrap replications). "OL" denotes the Old German Laender; "NL" the newly formed German Laender after reunification. "A" denotes an adult, "C" a child, and the adjacent digit gives the number of adults or children.

APPENDIX

Table A1. Unweighted numbers of observations

Household type	Region	Year 1978	1983	1988	1993	1998	2003
others childless	OL	7,324	7,450	7,775	4,424	4,769	4,060
	NL				1,025	1,430	1,325
A1C0	OL	7,491	7,692	8,657	7,682	8,894	8,498
	NL				1,425	1,994	1,789
A1C1	OL	421	612	611	536	841	714
	NL				277	356	228
A1C2	OL	192	248	273	256	460	345
	NL				117	165	95
A1C3+	OL	84	56	69	63	129	79
	NL				18	27	9
A2C0	OL	14,218	12,075	13,133	9,560	12,403	12,107
	NL				2,809	3,641	3,428
A2C1	OL	6,848	6,426	5,295	3,133	3,909	2,836
	NL				1,110	1,105	925
A2C2	OL	7,437	6,938	6,219	3,868	5,693	3,960
	NL				1,371	1,401	688
A2C3+	OL	2,925	2,112	2,153	2,246	2,285	1,479
	NL				304	208	166

Note. See Table 4a for explanations of the acronyms.

Table A2. Weighted numbers of observations by household type

Household type	Region	Year 1978	1983	1988	1993	1998	2003
other childless	OL	2,865,372	3,006,604	3,069,687	3,311,345	3,154,807	3,036,815
	NL				795,954	898,691	824,176
A1C0	OL	5,982,981	7,239,850	8,190,776	9,399,791	10,800,000	11,400,000
	NL				2,366,409	2,182,156	2,578,543
A1C1	OL	202,444	369,162	491,273	460,913	544,172	689,288
	NL				256,471	192,830	214,334
A1C2	OL	84,374	131,844	188,579	208,946	236,081	298,913
	NL				104,467	74,819	87,271
A1C3+	OL	36,959	37,478	45,416	60,487	58,335	55,962
	NL				23,580	11,049	6,025
A2C0	OL	6,350,746	6,611,782	7,193,102	8,040,061	9,516,851	9,863,728
	NL				2,621,321	2,230,425	2,328,217
A2C1	OL	2,666,516	2,653,211	2,265,225	2,438,319	2,138,430	2,131,632
	NL				987,974	528,314	577,469
A2C2	OL	2,396,330	2,193,422	2,035,123	2,368,694	2,593,011	2,555,828
	NL				978,994	622,872	388,069
A2C3+	OL	1,001,262	724,724	647,917	975,751	901,272	926,799
	NL				196,476	85,589	88,239

Note. See Table 4a for explanations of the acronyms.

Table A3. Square meter sizes of housings, both poverty lines

			1998		2003
			Relative p-line	Absolute p-line	Relative & absolute p-line
other childless	OL	Mean	74.820	76.717	91.255
		P>|z|	0.000	0.000	0.000
	NL	Mean	66.323	67.418	69.182
A1C0	OL	Mean	48.674	49.438	48.313
		P>|z|	0.352	0.863	0.325
	NL	Mean	46.322	46.286	48.700
A1C1	OL	Mean	65.975	66.377	67.219
		P>|z|	0.000	0.000	0.375
	NL	Mean	60.526	60.900	67.537
A1C2	OL	Mean	75.951	76.074	79.943
		P>|z|	0.001	0.000	0.002
	NL	Mean	70.186	69.624	71.605
A1C3+	OL	Mean	95.052	95.936	90.096
		P>|z|	0.000	0.000	0.001
	NL	Mean	73.438	75.276	74.956
A2C0	OL	Mean	69.207	70.119	73.317
		P>|z|	0.000	0.000	0.000
	NL	Mean	58.796	59.122	64.611
A2C1	OL	Mean	72.929	73.801	80.533
		P>|z|	0.017	0.005	0.040
	NL	Mean	71.405	72.179	75.401
A2C2	OL	Mean	86.562	88.173	97.704
		P>|z|	0.000	0.000	0.000
	NL	Mean	75.837	76.809	81.260
A2C3+	OL	Mean	99.967	99.680	117.411
		P>|z|	0.021	0.004	0.009
	NL	Mean	92.419	91.838	108.501

Note. Weighted averages using EVS household weights. P-values of t-tests for independent bootstrap samples (100 bootstrap replications). See Table 4a for explanations of the acronyms.

Table A4. Breakdown of the sample (relative frequencies of all households, weighted)

	1993		1998		2003	
	Old Laender	New Laender	Old Laender	New Laender	Old Laender	New Laender
HHH: female	32.43	43.53	34.06	43.24	36.12	46.39
HHH: single	18.40	14.09	22.59	19.17	25.51	24.50
HHH: married	56.12	60.12	52.76	54.20	50.31	47.67
HHH: widowed	15.58	13.16	11.06	8.95	8.74	7.35
HHH: divorced	9.87	12.63	13.66	17.68	15.47	20.48
HHH: self-employed farmer	0.94	0.09	0.63	0.19	0.63	0.00
HHH is self-employed	6.73	2.36	5.86	4.15	5.45	4.43
HHH: civil servant	5.86	0.88	5.28	2.25	4.61	2.93
HHH: white-collar worker	22.84	27.03	28.64	27.59	30.30	25.74
HHH: blue-collar worker	21.32	23.89	19.28	21.43	16.76	18.34
HHH: unemployed	3.63	10.39	4.58	8.95	4.39	10.01
HHH: non-working (pensioner, etc.)	38.54	35.36	35.73	35.63	37.73	38.37
HHH: university	9.11	19.07	11.57	19.12	13.19	19.79
HHH: univ. of applied sciences	8.85	24.85	9.68	15.46	10.50	17.39
HHH: engineering school and similar degree	12.36	7.55	14.73	16.10	17.63	17.66
HHH: apprenticeship	55.02	45.10	56.10	46.05	51.92	41.24
HHH: no degree	14.63	3.43	7.83	3.28	6.71	3.91
HHH: 20-29 years	10.78	10.06	8.72	7.92	9.46	9.58
HHH: 40-49 years	20.25	21.83	21.98	19.58	19.01	16.00
HHH: 50-59 years	16.87	18.09	18.51	21.06	21.17	23.43
HHH: 60-69 years	18.31	21.56	17.43	17.81	15.74	15.10
HHH: 70+ years	15.15	15.76	15.05	15.94	16.06	16.96
Earners: 0	18.64	12.70	18.30	17.68	18.56	18.94
Earners: 1	37.04	39.56	38.07	42.18	40.31	46.26
Earners: 2	37.41	31.33	36.73	30.06	35.80	29.94
Earners: 3	22.53	26.29	22.81	23.77	21.77	21.02
Earners: 4+	2.58	2.65	2.09	3.53	1.98	2.54
Single, childless	0.53	0.17	0.34	0.45	0.32	0.24
Single parent, 1 child	22.48	19.95	23.24	21.97	24.14	25.89
Single parent, 2 children	11.99	8.45	12.84	10.00	12.79	10.47
Single parent, 3+ children	4.51	6.19	4.33	6.30	5.10	6.69
Couple, 1 child	27.32	29.87	29.06	29.50	29.27	29.93
Couple, 2 children	31.10	33.50	25.58	28.08	24.76	22.83
Couple, 3+ children	2.60	2.04	4.95	4.17	3.94	4.19

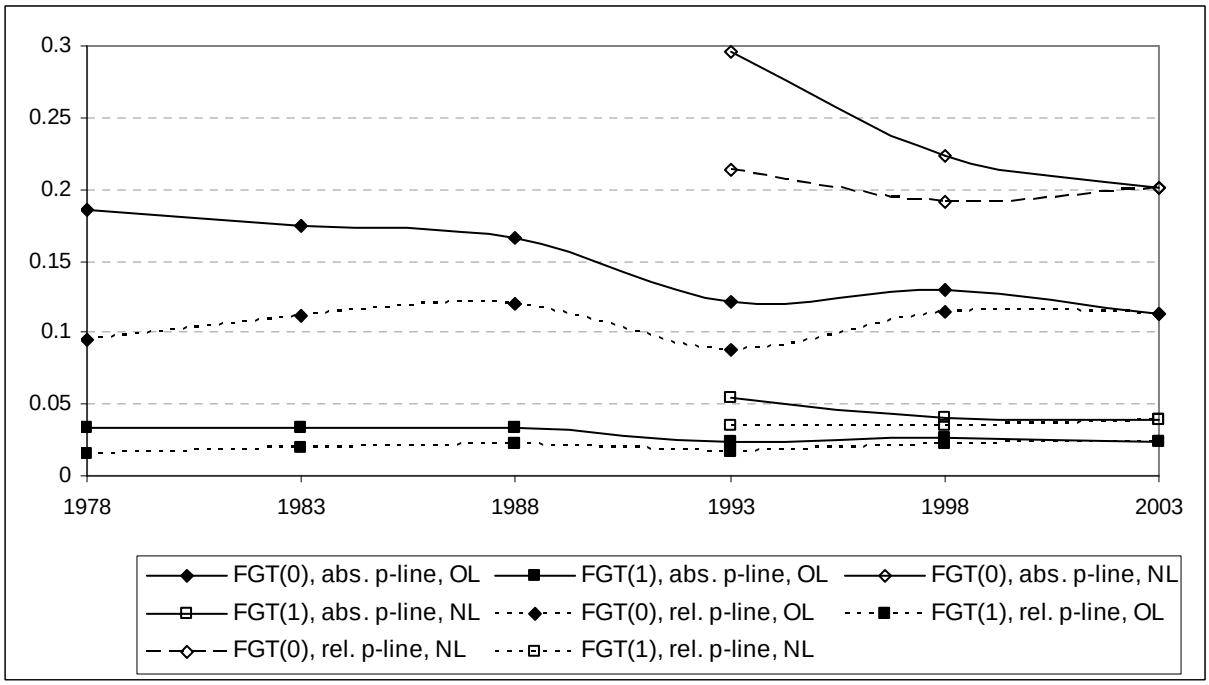

Figure 1. Poverty estimates for Old and New German Laender

Notes. Household units are weighted by EVS household weights times the number of household members. FGT(0) denotes the head-count ratio; FGT(1) the poverty gap ratio.

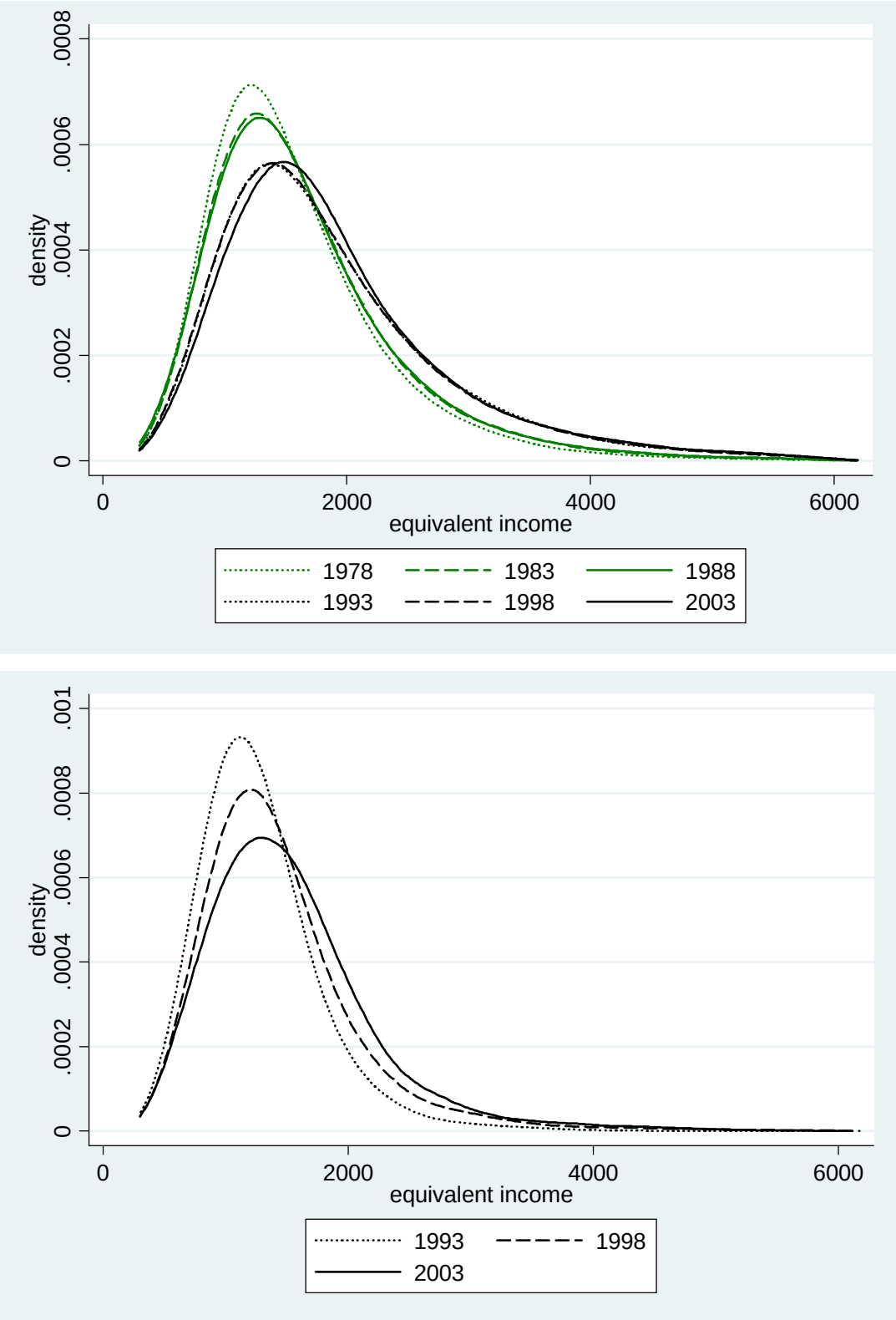

Figure 2. Equivalent-income distributions (upper graph: Old Laender; lower graph: New Laender

Notes. Distributions have been estimated using locally weighted regressions.

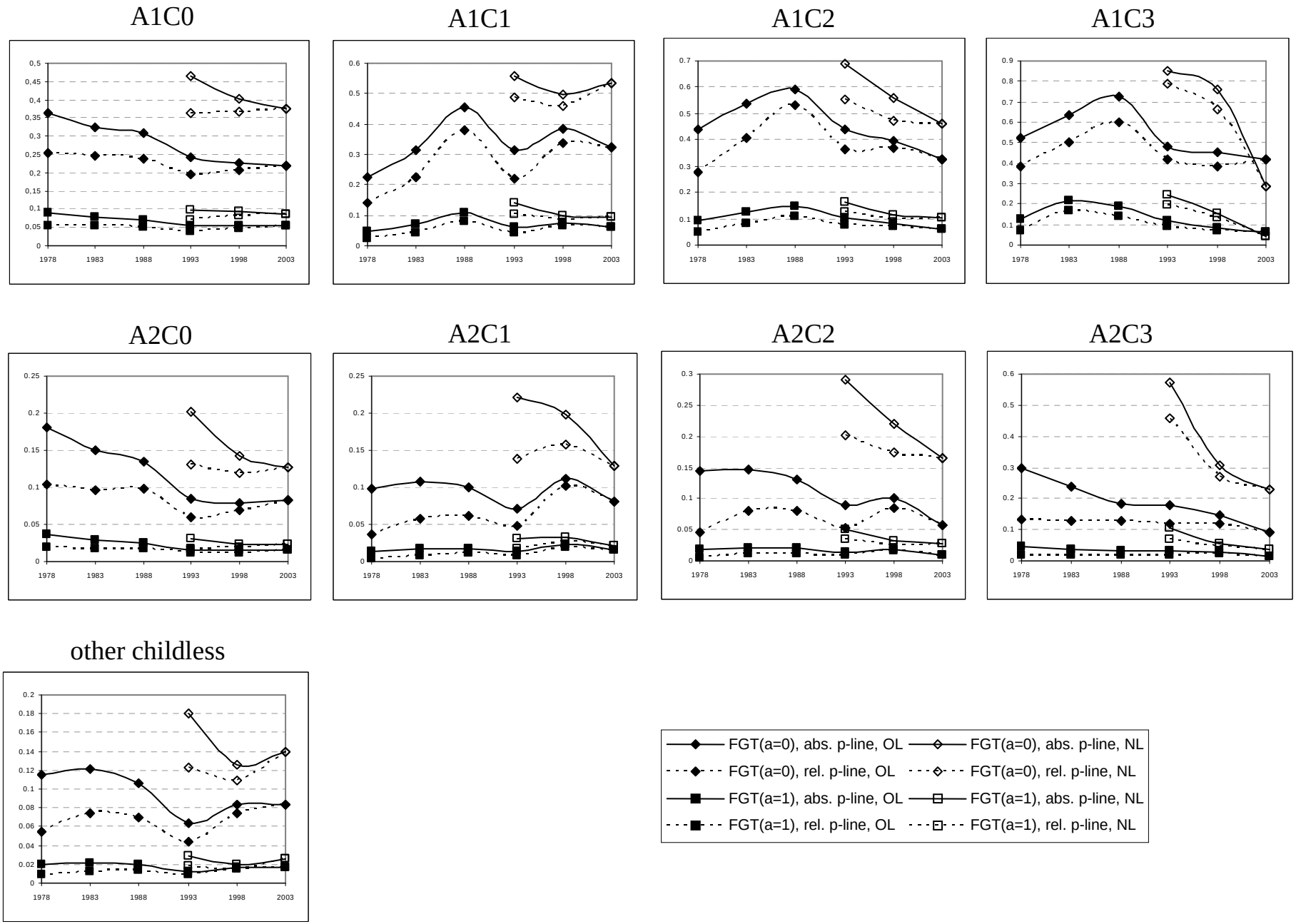

Figure 3. Headcount ratios and normalized poverty gaps by household types

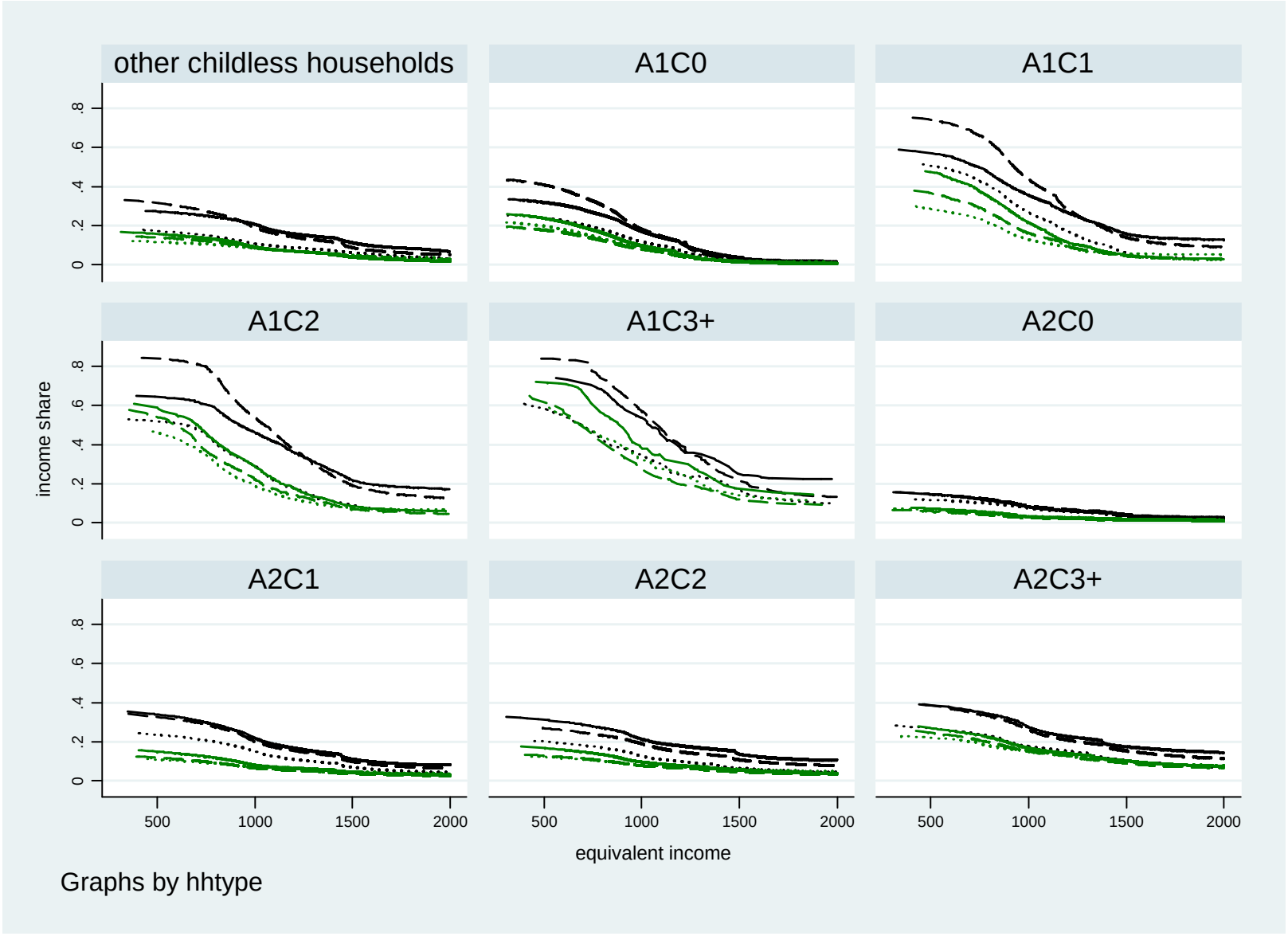

Figure 4a. Income share from transfers, Old Laender

Note. Year 2003: black solid line; 1998: black dashed; 1993: black dotted; 1988: grey solid; 1983: grey dashed; 1978: grey dotted.

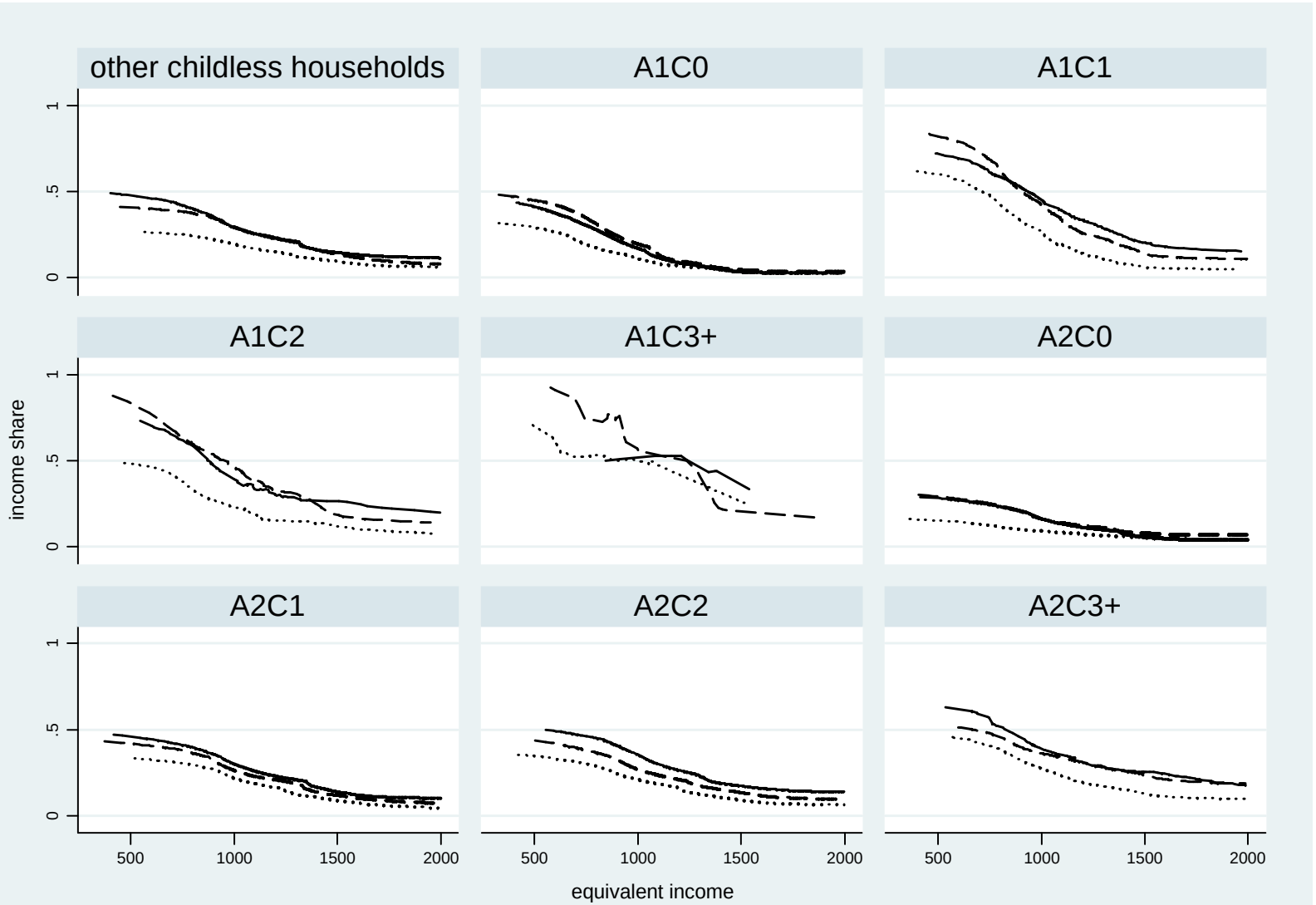

Figure 4b. Income share from transfers, New Laender
Note. Year 2003: black solid line; 1998: black dashed; 1993: black dotted.

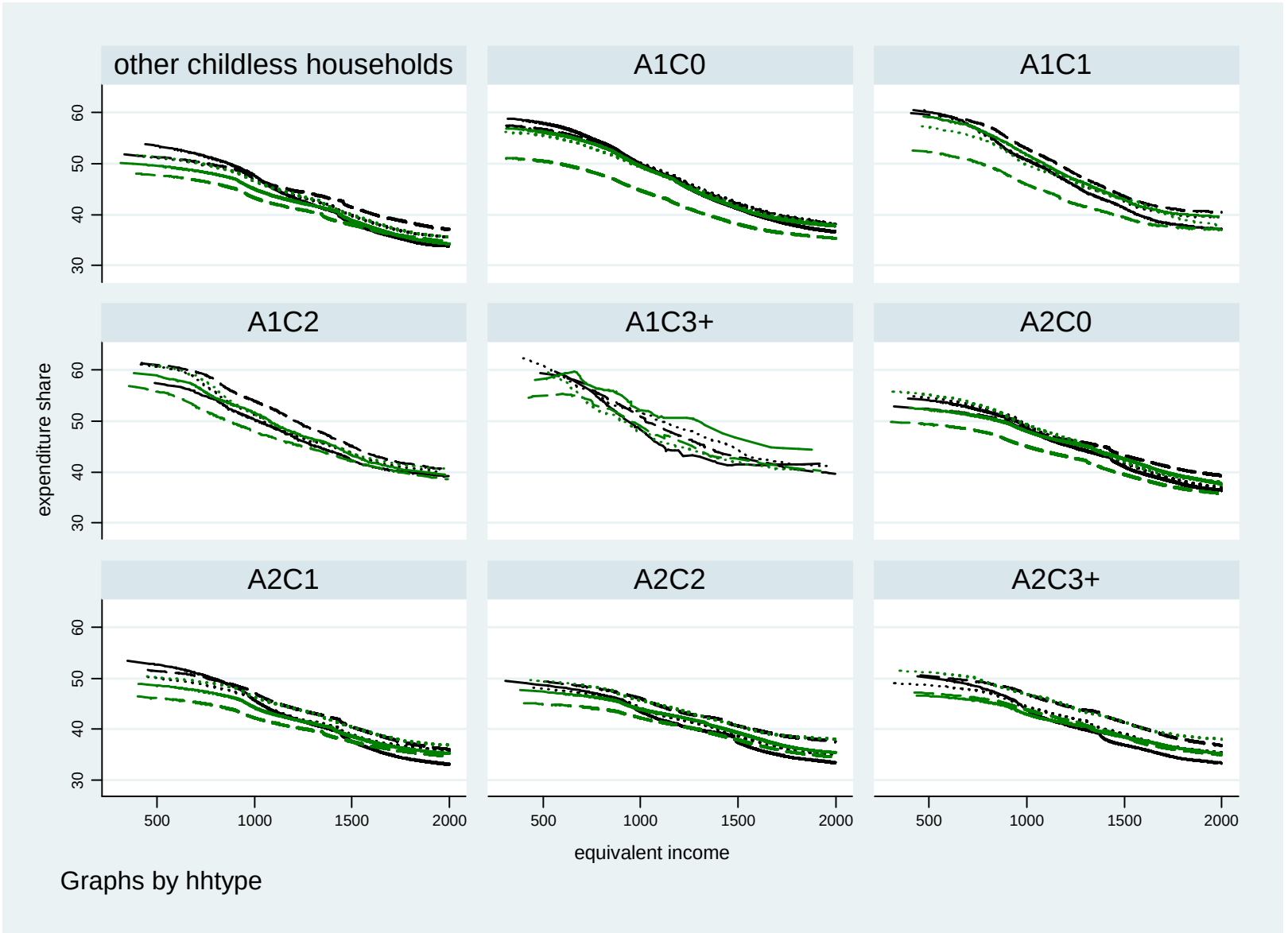

Figure 5a. Expenditure shares related to the purchase of necessities, Old Laender

Note. Year 2003: black solid line; 1998: black dashed; 1993: black dotted; 1988: grey solid; 1983: grey dashed; 1978: grey dotted.

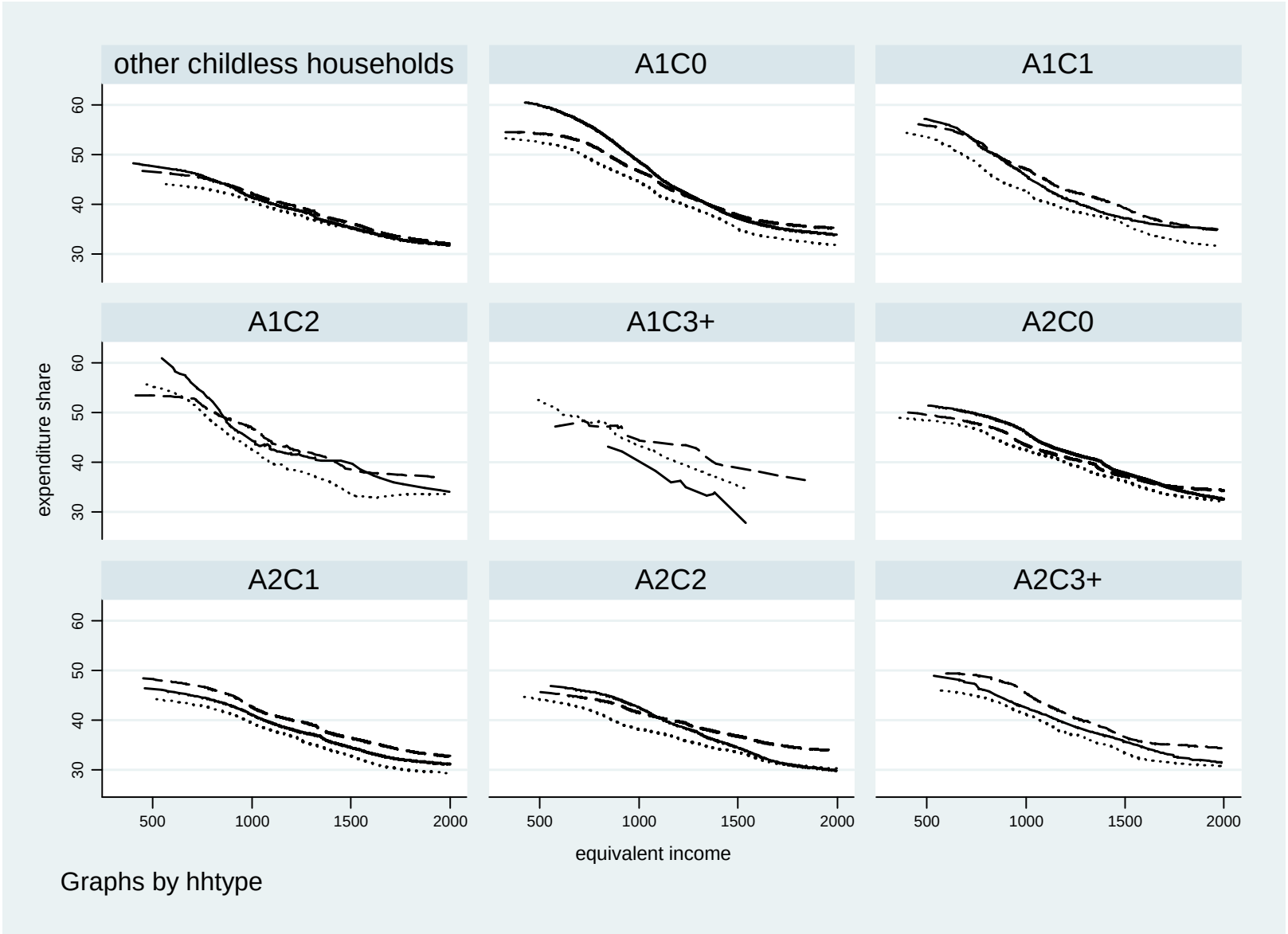

Figure 5b. Expenditure shares related to the purchase of necessities, New Laender

Note. Year 2003: black solid line; 1998: black dashed; 1993: black dotted.