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A COMPARISON OF ALTERNATIVE MEASURES OF ECONOMIC WELL-BEING FOR GERMANY AND THE UNITED STATES

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This paper, using six waves of data (1984–89) from the United States Panel Study of Income Dynamics (PSID) and the German Socio-Economic Panel (GSOEP), compares economic well-being using single year income, multi-year income, and wealth as measures. We find inequality to be greater in the United States than in Germany regardless of the measure used. However, the relative degree of inequality varies across measures. When we disaggregate our data by age and gender categories, in general we find greater inequality in the United States, but wealth inequality among older Germans is greater than it is among older Americans.

It has been argued that economic well-being is less equally distributed in the United States than in most industrialized Western European countries. Yet most of our knowledge of economic well-being is based on single year comparisons of income. (See Atkinson, Rainwater, and Smeeding, 1995 for a recent review of this literature.) Single year income may mix transitory components with more permanent components of income and hence give a distorted view of both the level and distribution of economic well-being within a country and relative to other countries.

Permanent income has long been argued to be a better measure of economic well-being than single year income because it is more closely related to consumption. Unfortunately, measures of permanent income require multi-period data bases which, until recently, have not been available for countries outside the United States. This paper takes advantage of an excellent longitudinal data base—the German Socio-Economic Panel (GSOEP)—to develop a multi-period measure of an individual's income and compare the distribution of this measure of permanent income with the more standard distribution of yearly income for both the United States and the Federal Republic of Germany.

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It has also been argued that one's stock of wealth in a given period is a better measure of one's economic well-being since it, too, provides a better measure of consumption than yearly income flows. While wealth is not regularly captured in either the GSOEP or in the United States Panel Study of Income Dynamics (PSID), it was measured once in the GSOEP and twice in the PSID. We also compare the distribution of this alternative source of economic well-being with the distribution of yearly income in the two countries.

We find that single period measures of income inequality overstate inequality in permanent economic well-being when it is measured using average income over a six-year period, but understate inequality in permanent economic well-being when it is measured using net private wealth holdings. However, while our measures of inequality vary according to the resource base we choose, we find greater measured inequality in the United States than in Germany regardless of the resource base chosen. When we disaggregate our data into age and gender categories we also find greater income inequality within age groups in the United States than within those same age groups in Germany. Surprisingly, this is not the case for wealth inequality. While overall wealth inequality is greater in the United States than in Germany, wealth inequality among older Germans is greater than it is among older Americans.

1. Data and Methods

1.1. *The PSID Data*

Since 1968, the PSID has annually interviewed a representative sample of some 5,000 families.[1] At least one member of each family was either part of the original families interviewed in 1968 or born to a member of one of these families. All data are weighted by the most recent individual weight for the particular statistic being estimated. We look at economic information for income years 1983 through 1988 and the special wealth supplement for 1989. For a complete discussion of these data, see Hill (1992).

The quality of the PSID data on income and wealth is quite high. Several studies have attempted to compare different income components in the PSID with other data sets. The Unicon Research Corporation was commissioned by the National Science Foundation to conduct comparisons of the descriptive characteristics of individuals who had been lost and those remaining in the panel. Becketti *et al.* (1988) find that while there were statistically significant differences in the empirical distributions of observed characteristics between the PSID and the Current Population Survey (CPS), most were of no practical significance. For some variables, particularly education and income, there was some reason to believe the reports in the PSID may be more accurate than those in the CPS.

Duncan and Hill (1989) compare various transfer-income sources for PSID with national aggregates in 1980 of Aid to Families with Dependent Children; Supplemental Security Income; Old-Age, Survivors, and Disability Insurance; and other social welfare programs. PSID aggregates equal 91.8 percent of the

[1]A family in the PSID and in the GSOEP is defined as all related and unrelated members of a housing unit sharing common living and eating arrangements.

official aggregates. This is a major improvement over the 1979 CPS counts. Gottschalk and Moffitt (1992) look at labour earnings and hourly wage rate distributions of 2,500 white men aged 16 to 59 during the years 1970 through 1988 in both the PSID and CPS. They find considerable conformity in age, education, marital status, and levels of weeks worked. Regression analysis of the earnings and wage distribution over the period shows similar directions of change in between-education group levels as well as in within-group dispersion. The magnitudes differ somewhat, however.

Fitzgerald, Gottschalk, and Moffitt (1994) find the PSID sample was roughly consistent with the CPS in 1968 and has remained so through 1989 for male heads, wives, and female heads. However, as a rule the PSID finds higher earnings than does the CPS. One reason for this may be a "success bias" in panel studies. However, this discrepancy has not worsened over time.

The most comprehensive assessment of the quality of the PSID wealth data was made by Curtin, Juster, and Morgan (1989). This study compares the 1984 Wealth Supplement of the PSID with the 1983 Survey of Consumer Finance (SCF) and the 1984 Wealth Supplement to the Survey of Income and Program Participation (SIPP). The SCF, which contains an oversample of very wealthy individuals, was deemed the best but, taking SCF as the benchmark, the PSID looked closer to actual population characteristics than did the SIPP. They find that the PSID closely paralleled the SCF distribution of wealth up to about $200,000 in the income distribution.

1.2. *The GSOEP Data*

The GSOEP is a more recent longitudinal data set developed at the Universities of Frankfurt and Mannheim, in cooperation with the German Institute for Economic Research, Berlin (DIW), and initially financed by the German National Science Foundation. In 1990 the DIW assumed control of the panel, with funding from the Bund-Länder-Kommission für Forschungförderung. The English Language Public Use File of the GSOEP used here was developed with funds from the United States National Institute on Aging. The panel started in the spring of 1984. It comprises about 6,000 families. Twelve yearly waves have been conducted (1984–95) and six waves (1984–89) are available to us, providing information on income years 1983 through 1988.[2] The data are representative of the population living in the western states of reunited Germany, including foreign "guest workers." For a more complete discussion of this public use file, see Wagner, Burkhauser, and Behringer (1993). As was the case with the PSID, all GSOEP data are weighted by the most recent individual weights. For a fuller discussion of the GSOEP weighting procedures, see Rendtel (1993).

In Germany there has been no complete census since 1970. A long delayed census in 1987 was drastically reduced because of public concern about confidentiality. However, a micro-census (1 percent sample) is done yearly. Berntsen (1992a) has compared the distribution of income across 18 classes of monthly net

[2]In 1990, the GSOEP was expanded to include a representative sample of the eastern states of reunited Germany. Our analysis is limited to non-foreign Germans living in the western states of reunited Germany.

income using the 1985 micro-census with those same classes using the 1985 GSOEP. With the exception of the four highest income classes, where the GSOEP shares are higher, both distributions are similar. In addition, Berntsen and Hauser (1987) have compared GSOEP income values with income values from the 1981 German Consumer Expenditure Survey (EVS). The EVS is a cross-sectional population survey on income, consumption, and wealth administered by the German Central Statistical Office (Statistisches Bundesant, 1991). (For detailed information, see Euler, 1981.) They found similar relationships. However, the German EVS sample is made up of "volunteers" and, hence, is not a random sample.

Detailed information on the wealth supplement in the 1989 wave of the PSID is readily available in English (see Hill, 1992), but this is not the case for the 1988 GSOEP wealth supplement. So we briefly provide summary information here. The GSOEP wealth data were gathered in 1988. They include information on the stock of private wealth held on the last day of 1987. Interviews were conducted with 4,564 households, or 95 percent of the 4,814 households that took part in the regular GSOEP interview. (For additional information, see Schlomann, 1992.)

The wealth data include information on financial assets, annual life insurance, real estate, and business and farm property. They contain no information on the value of household durables, claims on government-provided old age insurance, private pension wealth, or future earnings. Although it might be possible to estimate the value of old age insurance as well as future earnings from the GSOEP, the present analysis concentrates only on the wealth components reported by the respondents. This is consistent with our treatment of wealth information from the 1989 PSID special supplement. As in most other studies dealing with wealth, we exclude the information we do have on the asset value of life insurance. Furthermore, in this paper we attempt to measure net private wealth only. That is, we exclude public wealth (one's right to social security pensions, public housing, health care, etc.). In addition, we do not capture other aspects of private wealth that may be important but are difficult to capture—employer pension wealth, the asset value of life insurance, and human capital.

While we have tried to hold constant the sources of wealth in the two countries, it is possible that broader definitions of wealth could result in different relative inequality results. How the results would change is not obvious. On the one hand, employer pension wealth is more important in the United States than in Germany and is probably more equally distributed across the income distribution than the forms of wealth we capture. On the other hand, the social insurance system in Germany plays a more important role than does social insurance in the United States, so it is likely that if the right to public transfers were included in our analysis of wealth, this expanded measure of wealth would make the United States look relatively more unequal.

One way to show the ability of the GSOEP micro level data to capture wealth is to compare it with other micro level data. We compare the GSOEP with the 1988 EVS. The EVS measures the stock of private taxable wealth held on the last day of 1988. It excludes foreigners and high-income households (those with 25,000 DM per month or more of net household income). EVS interviews were conducted with about 45,000 households. The sample was drawn using a quota sample procedure rather than a random procedure as in the GSOEP.

Table A1 in the Appendix shows the share of households with savings accounts, savings accounts with savings and loan associations, and stocks and bonds in both the EVS and GSOEP surveys. Despite the fact that the EVS is a more intensive survey on wealth, shares of different types of financial assets are reported similarly in both surveys.

1.3. *Comparability of Income and Wealth Measures in the PSID–GSOEP Data*

PSID methodology played an influential role in the development of the GSOEP, so its questions and methods of following respondents are similar in design to those in the PSID. Both panels ask detailed questions on income sources. A major difference in the two questionnaires, however, is that the year is the time unit in the PSID while the month is the time unit in the GSOEP. Fortunately a yearly measure for each of the components of family income has been constructed from monthly GSOEP information and can be found in the Syracuse University PSID–GSOEP Equivalent Data File.

For instance, for labour earnings this construct is the product of the number of months in the income year that a respondent received payments from a given source multiplied by the average monthly amount the respondent estimates receiving from that source in the income year. The sum of these products forms the base of an estimate of annual gross labour earnings during the previous year.[3] In addition, the actual yearly labour earnings measure also includes overtime and bonus pay, which are captured by separate questions. These irregular payments include end of year bonuses, holiday pay, Christmas pay, and profit-sharing, as well as any other earnings that the respondent classifies as job-related—classified as *other bonus income* in the survey questionnaire. A more detailed discussion of the labour earnings variable and other constructed income variables used for cross-national comparisons using PSID and GSOEP data can be found in Burkhauser, Butrica, and Daly (1995).

To measure current net private wealth with GSOEP data, gross wealth was first computed by summing the 1987 value of housing property; other real estate, farm and business property; savings; and stocks and bonds as asked in the 1989 GSOEP wealth supplement. After deducting remaining debts, which were asked separately on the GSOEP, from our gross wealth summation, a measure for current net wealth was obtained. In contrast, the PSID wealth supplement from 1989 asked respondents to directly report their net wealth components, i.e. current value minus debt. It then asked about other debt. Thus, our net wealth value for the PSID is constructed by summing these net wealth components and deducting additional debt.

To have comparable net wealth components for both countries, we had to assign debt to the appropriate components of gross wealth (housing, real estate, business, stocks, savings). In the GSOEP case the whole amount of the debt was assigned in that way, while in the PSID case only the remaining debt was so assigned. The resulting disaggregation of net wealth by components is found in Appendix Table A2. Some of the parameters differ slightly from those shown in

[3]To the degree workers' actual monthly earnings fluctuations are systematically not fully captured by their reported average, this could smooth differences in actual yearly variations in labour earnings.

the text because they are based on the entire cross-sectional population rather than the longitudinal sample used in the text.

1.4. *Measures of Economic Well-Being*

Annual pre-tax, post-transfer family money income, including government in-cash transfers, is the most common yardstick of economic status in the United States. It is obtained by summing all sources of income for all family members during a calendar year. To this standard measure we add the in-kind value of food stamps in the United States. Since this is the most common way that economic well-being is measured in the United States, we use this as our basic single period income measure here and call it *standard yearly income* in our tables.

As a start to our measure of permanent income, we add the imputed rental value of owner-occupied housing in both countries to this standard yearly measure.[4] In addition, because we are interested in comparing economic well-being in a cross-national context and because the tax systems in the United States and Germany are so different, we subtract personal taxes and social security contributions from this more comprehensive measure of yearly family income. This second measure of yearly family income we call *net-of-tax yearly income* in our tables.

The tax burden for those families in the GSOEP was computed using tax calculation routines first developed by the Special Collaborative Group 3—project C-8 in Frankfurt and Mannheim. A detailed discussion of the simulations is found in van Essen, Kassella, and Landau (1986). We used updated and modified tax calculation routines developed by and described in Berntsen (1992b). For the United States we used the tax routine provided in the PSID data. In both the United States and Germany our tax models ignore local and state taxes on property or income. Sales taxes are also ignored.[5] Tax adjusted values for both these datasets are available in the Syracuse University PSID–GSOEP Equivalent Data File. See Burkhauser, Butrica, and Daly (1995) for a detailed discussion of these data.

There are many reasons why yearly family income measures of the type suggested above are less than ideal measures of economic well-being (Moon and Smolensky, 1977). Among the most important is differences in family size. To adjust for differences in family size it is necessary to use an equivalence scale. At one extreme, one could simply use per capita family income. However, that would assume no returns to scale in home production for households greater than one. At the other extreme, one could simply assign all family income to each family

[4]This variable is constructed in the Syracuse University PSID–GSOEP Equivalent Data File. Respondents in the PSID are not asked the rental value of their own home. Therefore, it is calculated as 6 percent of equity in the home, apartment or farm, where equity is the difference between value of the house and the remaining mortgage principal. Imputed rent for the PSID is constrained to be non-negative. In the GSOEP the head of the family is asked how high the estimated monthly rent without heating costs is for the family's house or apartment. To get an annual estimate of imputed rent, this value is multiplied by 12. See Burkhauser, Butrica, and Daly (1995) for more details.

[5]In the United States there is considerable variation in state and local tax burdens across locations. In Germany, there are no state or local income taxes and the value added tax is uniform across locations.

member. This in effect would say there were "perfect" returns to scale in home production for households greater than one.

The most commonly used equivalence scale in the United States was developed for the federal government's annual calculation of poverty thresholds. It was originally based on food standards adjusted for family consumption. It implies relatively high returns to scale. The most commonly used German equivalence scale is derived from the proportions of the Social Assistance benefit. It is based on a "basket of goods" approach to determine a subsistence minimum defined by experts. It implies very low returns to scale. Burkhauser *et al.* (1990) and more recently Burkhauser, Smeeding, and Merz (1996) have shown that United States and German comparisons of economic well-being are sensitive to the use of these two scales.

There is no universally accepted family size-adjusted equivalence scale (see Buhmann *et al.*, 1988 for a more general discussion of the sensitivity of different equivalence scales in cross-national comparisons), but we choose one that lies between the two scales discussed above with respect to returns to scale. This OECD Family Equivalence Scale is based on expert opinion and assumes a weight of 1 for the first adult, 0.7 for all other adults, and 0.5 for all children (aged 15 and younger) in the family. This scale was first used in OECD (1982) and has since been used in several cross-national studies of income inequality and poverty (see for instance O'Higgins and Jenkins, 1990; Teekens and Zaide, 1990). This OECD scale is used in all our measures of economic well-being, including wealth per equivalent person.

We assume that family members equally share family income during the period when they are together.[6] Our unit of analysis, however, is the individual since, in addition to a single year measure of income, we also want to use a multi-year measure of income. To do so, it is necessary to trace income over several years. Therefore, because household composition can change over time, we must use the individual as our unit of analysis.

We take fuller advantage of the longitudinal nature of our data sets to create a measure of net-of-tax permanent income for each individual in our data. We minimize transitory shifts in income by estimating the average family size-adjusted net-of-tax income for each member of our sample over the six-year period 1983 through 1988. We can then compare a person's net-of-tax family size-adjusted income in 1987 with that person's net-of-tax permanent income. Finally we take advantage of special modules on family wealth that were added to the 1988 wave of the GSOEP and the 1989 wave of the PSID to compare the family size-adjusted wealth of individuals with our single year and permanent income measures.

1.5. *Choosing an Inequality Measure*

There are numerous measures of cross-sectional inequality in the literature (see Atkinson, 1983). The first measure we use is the Theil (I_1) measure of income inequality. It is additively decomposable, which permits overall inequality to be portioned into differences between subgroups and within subgroups. For example,

[6]Jenkins (1991) makes a strong case for studying the within-family distribution of income. Lazear and Michael (1988) attempt to do so with respect to adults and children in a given family.

the total population can be subdivided by age with an additively decomposable measure used to determine overall inequality, as well as how much of this inequality is due to inequality between age groups and how much is due to inequality within age groups. More generally, a population can be partitioned into any number of mutually exclusive subgroups, with overall inequality expressed as a weighted sum of within-group inequality plus a weighted sum of between-group inequality. Additively decomposable inequality measures satisfy the requirements of the Dalton–Pigou principle of transfers, as well as population replication and mean independence. (See Shorrocks, 1980.)

The Theil (I_1) measure of income inequality is

$$I_1 = \frac{1}{n} \sum_i \frac{y_i}{\mu} \log \frac{y_i}{\mu}, \tag{1}$$

in which y_i is individual income, n is the number of individuals, and μ is mean income.

I_1 can be decomposed as follows:

$$I_1 = \sum_{g=1}^{G} v_g I_{1g} + \sum_{g=1}^{G} v_g \log \left(\frac{v_g}{p_g} \right). \tag{2}$$

The first term describes the inequality within each of the G population-subgroups. The second term measures the inequality between these subgroups using v_g, the share of total income in subgroup g, and p_g, the share of the total population in this group. To yield the overall inequality I_1 the within components as well as the between components are weighted by the share of total income in subgroup g, v_g.

Our other measure of cross-sectional inequality is the Gini coefficient. The Gini coefficient is a Lorenz-based measure and is relatively insensitive to transfers at either end of the distribution. The Gini coefficient does not have the property of additive decomposability. It is included here primarily because it is one of the more frequently used calculations in the literature. Our Gini (GINI) measure is

$$\text{GINI} = \left[\frac{1}{2n^2 \mu} \right] \sum_{i=1}^{n} \sum_{j=1}^{n} |y_i - y_j|, \tag{3}$$

in which y is individual income, n is the number of individuals, and μ is mean income.

2. Measuring Economic Well-Being

Table 1 provides information on the distribution of income in the United States and Germany as it is traditionally measured in the United States and contrasts this standard yearly income measure with a more comprehensive net-of-tax yearly income measure and measures of permanent income and wealth. The first two rows contain Theil (I_1) and GINI inequality values for the United States for each of these resource base measures. As can be seen in column 1, standard family size-adjusted yearly income inequality using our Theil (I_1) index

TABLE 1

INEQUALITY IN STANDARD YEARLY INCOME, NET-OF-TAX YEARLY INCOME, NET-OF-TAX PERMANENT INCOME, AND WEALTH IN THE UNITED STATES AND GERMANY

Inequality Scale	Standard Yearly Income[a]	Net-of-Tax Yearly Income[a]	Net-of-Tax Permanent Income[b]	Wealth[c]
		United States		
Theil (I_1)	0.332	0.298	0.227	1.360
GINI	0.409	0.385	0.349	0.761
Median[d]	$14,481	$13,508	$13,325	$18,148
		Germany		
Theil (I_1)	0.151	0.114	0.098	0.941
GINI	0.297	0.257	0.236	0.694
Median[d]	25,605 DM	20,154 DM	19,411 DM	35,000 DM

Source: The 1989 Response–Nonresponse File of the Panel Study of Income Dynamics, the 1994 Syracuse University English Language Public Use File of the German Socio-Economic Panel, and the 1994 Syracuse University PSID–GSOEP Equivalent Data File.

Note: The population includes only those individuals living in families with positive income in all years 1983 through 1988. All values are adjusted for family size using OECD family equivalence scales.

[a]Income year 1987.

[b]Income years 1983 through 1988.

[c]Income year 1988.

[d]In 1988 dollars or deutsche marks.

was 0.332 in the United States. Our GINI measure of income inequality was 0.409.

Not surprisingly, net-of-tax yearly income, which also includes the rental value of owner-occupied housing, is more equally distributed. As can be seen in column 2, both our Theil and GINI measures of inequality fall. Column 3 shows that net-of-tax permanent income is less unevenly distributed in the United States than is net-of-tax yearly income. Both our Theil and GINI measures of inequality fall. However, our wealth measure in column 4 provides an alternative view of the bias that single period income brings as the resource base for economic well-being measures. Both the Theil and GINI inequality measures of wealth are substantially higher than are the income inequality measures.[7,8]

[7]One reason for the greater inequality in wealth holding is that the wealth value of social security insurance programs and other government-based entitlement and the insurance value of means-tested programs are not included in our measure of private wealth. In addition, private wealth held in employer pensions is also excluded.

[8]Measures of wealth are particularly sensitive to problems of sampling error or robustness. Since large holdings of wealth are relatively rare events, the number of relatively wealthy cases may vary widely from sample to sample. Relatively small variation in the number of cases with relatively large wealth and essentially the same weight can strongly influence the results. To ascertain the importance of a small number of very large wealth holders to our result we did two things. First, we looked at the wealth in the United States and Germany held by the ten wealthiest families in the PSID and GSOEP along with the individual weight assigned to each person in the family and the share of total wealth assigned to each person. In Germany the largest share of wealth assigned to any single weighted person was 0.8 percent. In the United States it was 1.4 percent. However, even among persons in the ten wealthiest families the typical weighted share in Germany was in the 0.2 to 0.3 percent range and in the 0.5 to 0.6 percent range in the United States. Second, we repeated our analysis of wealth in Tables 1 and 8 excluding the top 1 percent of the population based on wealth. While median wealth and overall wealth inequality fell in both countries, the relative rankings of wealth between age groups and between countries did not change.

The patterns observed for the United States across rows 1 and 2 are repeated in Germany across rows 4 and 5. The Theil (I_1) and Gini measures of net-of-tax income are found to be more equally distributed than are such measures of standard pre-tax, post-transfer yearly income. Net-of-tax permanent income is more equally distributed in Germany than is net-of-tax yearly income, and wealth inequality in Germany exceeds both single year and permanent income inequality. While the size of our inequality measure changes depending on the resource base we choose, the United States is found to have greater inequality than Germany across all measures.

TABLE 2

DISTRIBUTION OF STANDARD YEARLY INCOME BY QUINTILE IN 1987 AND THOSE INCOME QUINTILES' SHARES OF NET-OF-TAX YEARLY INCOME, NET-OF-TAX PERMANENT INCOME, AND WEALTH IN THE UNITED STATES AND GERMANY

Income Quintile[a]	Share of Standard Yearly Income[b]	Share of Net-of-Tax Yearly Income[b]	Share of Net-of-Tax Permanent Income[c]	Share of Wealth[d]
		United States		
Lowest	5.0	5.8	7.6	3.8
Next Lowest	10.5	11.3	12.8	8.2
Middle	15.7	16.3	17.2	11.4
Next Highest	22.6	22.9	22.8	19.1
Highest	46.2	43.7	39.6	57.5
		Germany		
Lowest	8.2	9.6	11.7	10.1
Next Lowest	13.3	14.7	15.6	15.5
Middle	17.5	18.1	18.2	15.8
Next Highest	23.0	22.9	22.3	21.1
Highest	38.0	34.6	32.2	37.5

Source: The 1989 Response–Nonresponse File of the Panel Study of Income Dynamics, the 1994 Syracuse University English Language Public Use File of the German Socio-Economic Panel, and the 1994 Syracuse University PSID–GSOEP Equivalent Data File.

Note: The population includes only those individuals living in families with positive income in all years 1983 through 1988. All values are adjusted for family size using the OECD family equivalence scales.

[a]Each column reports the share of income or wealth held by the original members of the standard yearly income quintiles.

[b]Income year 1987.

[c]Income years 1983 through 1988.

[d]Income year 1988.

Table 2 provides additional insights into the relationship across the four resource bases discussed in Table 1. Column 1 of Table 2 is similar to column 1 of Table 1 in that it looks at the distribution of standard yearly income in the United States in 1987. However, in this table we report the share of that income held by each income quintile. Individuals in the lowest quintile held 5.0 percent of pre-tax, post-transfer income in 1987 while those in the highest quintile held 46.2 percent of such income.

In the next three columns of Table 2 we hold constant the individuals captured in each of the standard yearly income quintiles and see how their share of the other three resource bases changes. Column 2 shows the share of net-of-tax yearly income held by the members of each of our original quintiles of standard yearly

income. As can be seen by comparing the two columns, individuals originally in the lower four quintiles gain at the expense of individuals in the highest quintile. The United States tax system is progressive. This is consistent with the decrease in our inequality measures across the first two columns of Table 1.

Column 3 of Table 2 offers some additional insight into the fall in measured inequality between column 2 and column 3 of Table 1. Column 3 of Table 2 shows the share of net-of-tax permanent income that was held by the members of the 1987 standard yearly income quintiles. Compare these shares with the share of net-of-tax income, found in column 2, held by people in those same standard yearly income quintiles. While the lowest 20 percent of the population, as measured by their standard yearly income in 1987, hold only 5.8 percent of all net-of-tax yearly income, this same population holds 7.6 percent of all net-of-tax permanent income. Thus, a comparison of columns two and three of Table 2 shows a "regression to the mean" phenomenon; the lowest two standard yearly income quintiles hold a greater share of net-of-tax permanent income than of net-of-tax yearly income, while the highest two standard yearly income quintiles have lower relative shares of net-of-tax permanent income than of net-of-tax yearly income. Positive transitory income, even after adjusting for taxes and the rental value of a home in column 2, appears to exaggerate the relative permanent advantage of individuals in higher income quintiles in 1987, while negative transitory income appears to exaggerate the relative permanent disadvantage of individuals in lower income quintiles in that year.

The measure of wealth in column 4 tells a different story. While individuals in the lowest 20 percent of the standard yearly income distribution hold 5.0 percent of household size-adjusted standard yearly income, they hold only 3.8 percent of net tangible wealth. In contrast, individuals in the highest 20 percent of the standard yearly income distribution hold 46.2 percent of standard yearly income but 57.5 percent of net tangible wealth.

As in Table 1, the patterns observed for the United States (Rows 1 through 5) are repeated in Germany (Rows 6 through 10). Net-of-tax yearly income is more equally distributed than standard pre-tax, pre-transfer yearly income, with most of the difference coming from reductions in the share of income held by the top quintile. Net-of-tax permanent income is more equally distributed in Germany than is net-of-tax yearly income. Regression to the mean results in individuals in the two lower standard yearly income quintiles controlling a greater share of net-of-tax permanent income than they do net-of-tax yearly income; individuals in the two higher single year income quintiles have the opposite experience. As is the case in the United States, the share of wealth held by the highest standard yearly income quintile in Germany exceeds the share of permanent income they hold. However, it is a much lower share, 37.5 percent, than is held by their counterparts in the United States. In the next section we look more closely at how income and wealth are distributed across age and gender groups in the two countries.

2.1. *Measuring Economic Well-Being across Age and Gender Groups*

Table 3 reports median net-of-tax yearly income, median net-of-tax permanent income, and median wealth by age group as well as the ratio of these medians

TABLE 3

RELATIVE ECONOMIC WELL-BEING ACROSS THE AGE DISTRIBUTION

Age in 1988	United States (in dollars)			Germany (in deutsche marks)		
	Net-of-Tax Yearly Income[a]	Net-of-Tax Permanent Income[b]	Wealth[c]	Net-of-Tax Yearly Income[a]	Net-of-Tax Permanent Income[b]	Wealth[a]
Aged 49 or less						
median	$12,975	$12,506	$11,077	20,236 DM	19,188 DM	29,508 DM
ratio to all ages	0.96	0.94	0.61	1.00	0.99	0.84
Aged 50 to 58						
median	19,609	19,178	56,291	22,263	21,144	62,560
ratio to all ages	1.45	1.44	3.10	1.10	1.09	1.79
Aged 59 to 64						
median	17,626	18,128	64,000	21,729	21,189	90,588
ratio to all ages	1.30	1.36	3.53	1.08	1.09	2.59
Aged 65 and over						
median	12,177	13,097	58,929	18,217	18,312	23,353
ratio to all ages	0.90	0.98	3.25	1.04	0.94	0.64
All ages						
median	13,508	13,325	18,148	20,154	19,411	35,000
ratio to all ages	1.00	1.00	1.00	1.00	1.00	1.00

Source: The 1989 Response–Nonresponse File of the Panel Study of Income Dynamics, the 1994 Syracuse University English Language Public Use File of the German Socio-Economic Panel, and the 1994 Syracuse University PSID–GSOEP Equivalent Data File.

Note: The population includes only those individuals living in families with positive income in all years 1983 through 1988. All values are adjusted for family size using the OECD family equivalence scales.

[a] Income year 1987.

[b] Income years 1983 through 1988.

[c] Income year 1988.

to the median for all ages. In the United States we find the standard inverse U-shaped distribution for net-of-tax yearly income. Income peaks among those aged 50 to 58 and declines thereafter. Our net-of-tax permanent income measure follows the same pattern but with a smaller relative peak at ages 50 to 58 and slightly smaller decline at older ages. Our wealth measure has a similar inverse U-shape but peaks at ages 59 to 64 before declining.

In Germany, differences across age groups are much less pronounced. While net-of-tax yearly income does peak at ages 50 to 58, there are quite modest declines at older ages. There is virtually no difference in net-of-tax permanent income between those aged 50 to 58 and those aged 59 to 64 in Germany and only a modest decline past age 65. As in the United States, wealth peaks at ages 59 to 64 in Germany, but unlike permanent income, wealth falls dramatically for those aged 65 and over and is lower relative to younger people than is the case in the United States. While the patterns of income distribution across ages appear to be quite similar in the United States and Germany, the median person aged 65 and over in Germany holds much less wealth relative to the median younger German than is the case in the United States.[9]

Table 4 further disaggregates our populations by comparing the median income of women and men within the age groups used in Table 3. The median woman in the United States is found to have only 93.2 percent of the net-of-tax yearly income of the median man in 1988. This ratio falls slightly with respect to net-of-tax permanent income and even more so with respect to wealth. In Germany the pattern is similar except with respect to wealth where the median woman has only 65.2 percent of the wealth of the median man, the greatest difference between the sexes in the three measures used.

Differences between median net-of-tax yearly income of women and men are greater at older ages in both Germany and the United States but the percentage of difference is more pronounced in the United States. This is also true of net-of-tax permanent income, although the differences are smaller both within age groups and between countries. Perhaps the biggest surprise is with respect to wealth. In the United States, wealth differences between women and men are actually somewhat smaller than their differences in income at older ages. In contrast, wealth differences between women and men in Germany at older ages are substantially greater than are income differences. The greatest single gender difference within any age group is found among older German women and men, where the median woman aged 65 or over has only 35.2 percent of the wealth of the median man aged 65 or over.

[9]To our knowledge, no other studies of wealth using the GSOEP data have been done, but Schlomann (1992) does look at the wealth distribution in Germany using the 1983 EVS. In Table 6.16, page 164, he reports an overall GINI measure for family net wealth adjusted by dividing family net wealth by total family members (he effectively assumes no returns to scale) of 0.66. This is close to our measure of 0.69 in Table 1 using the OECD family equivalence scale and GSOEP data. In Table A3.2, page 311, he looks at mean per capita size adjusted household wealth by the age and gender of the head. Like our findings in Table 4, he finds older female-headed households had substantially less net wealth—93,558 DM—than older male-headed households—127,232 DM. More recently Guttmann (1995) finds a drop in mean financial wealth for families with a head aged 65 and over using more recent 1993 EVS data. Laue (1995), using the same data, finds a decline of home ownership for households with heads aged 65 and over relative to younger heads.

TABLE 4

RELATIVE ECONOMIC WELL-BEING ACROSS AGE AND GENDER GROUPS

Age in 1988	Gender	United States (in dollars)			Germany (in deutsche marks)		
		Median Net-of-Tax Yearly Income[a]	Median Net-of-Tax Permanent Income[b]	Median Wealth[c]	Median Net-of-Tax Yearly Income[a]	Median Net-of-Tax Permanent Income[b]	Median Wealth[a]
All ages	women	$13,071	$12,853	$16,529	19,577 DM	18,974 DM	27,556 DM
	men	14,019	13,929	19,558	20,838	19,876	42,235
	ratio	93.2	92.3	84.5	94.0	95.5	65.2
Aged 0 to 49	women	12,592	12,135	10,386	19,636	18,782	25,405
	men	13,323	12,906	11,852	20,634	19,604	33,197
	ratio	94.5	94.0	87.6	95.2	95.8	76.5
Aged 50 to 58	women	18,386	17,553	50,471	22,102	21,347	63,333
	men	21,001	20,065	70,941	22,263	20,989	58,084
	ratio	87.6	87.5	71.1	99.3	101.7	109.0
Aged 59 to 64	women	15,875	16,887	58,824	20,601	20,362	70,211
	men	20,346	19,699	72,353	23,151	22,069	95,771
	ratio	78.0	85.7	81.3	89.0	92.3	73.3
Aged 65 and over	women	11,373	12,347	55,172	17,824	17,572	14,500
	men	13,638	14,539	66,081	19,078	19,385	41,167
	ratio	83.4	84.9	83.5	93.4	90.7	35.2

Source: The 1989 Response–Nonresponse File of the Panel Study of Income Dynamics, the 1994 Syracuse University English Language Public Use File of the German Socio-Economic Panel, and the 1994 Syracuse University PSID–GSOEP Equivalent Data File.

Note: The population includes only those individuals living in families with positive income in all years 1983 through 1988. All values are adjusted for family size using OECD family equivalence scales.

[a] Income year 1987.

[b] Income years 1983 through 1988.

[c] Income year 1988.

TABLE 5

PERCENTAGE OF INDIVIDUALS BY AGE AND GENDER WHO LIVE IN THEIR OWN HOME IN THE UNITED STATES AND GERMANY

	United States[a]			Germany[b]		
Age	Men	Women	Total	Men	Women	Total
All	69.1	66.2	67.6	51.6	47.4	49.4
0 to 49	64.0	62.0	63.0	49.2	47.9	48.6
50 to 58	86.5	83.0	84.5	59.9	56.0	58.0
59 to 64	91.4	80.5	85.6	65.7	51.2	57.7
65 and over	84.5	71.6	76.5	47.6	39.9	42.7

Source: The 1989 Response–Nonresponse File of the Panel Study of Income Dynamics, the 1994 Syracuse University English Language Public Use File of the German Socio-Economic Panel, and the 1994 Syracuse University PSID–GSOEP Equivalent Data File.

[a]In 1988.

[b]In 1987.

As can be seen in Table 5, differences in home ownership provide one explanation for this difference in the relative wealth holdings of women and men in the two countries. Over two-thirds of people in the United States live in their own family home while less than one-half of Germans do so. This difference in home ownership rates between the two countries is most stark at older ages. While 84.5 percent of older men and 71.6 percent of older women live in their own home in the United States, only 47.6 percent of older men and 39.9 percent of older women live in their own home in Germany. Home ownership is a major source of wealth in the United States that usually survives the death of a spouse, and it is most likely responsible for the relatively even distribution of wealth held by older men and women in the United States. Older German widows are much less likely to hold housing wealth.

3. DECOMPOSING DIFFERENCES IN WEALTH

As discussed above, the Theil (I_1) inequality measure is additively decomposable. Hence, we are able to look more systematically at the distribution of income and wealth in the United States and Germany and to show the relative importance of between-age-group inequality and within-age-group inequality within our overall inequality measures.

In Table 6 we first repeat from previous tables the overall Theil (I_1) measure of inequality for net-of-tax yearly income in 1987 for the United States and Germany. We then disaggregate our population into ten-year age groups and report each age group's Theil (I_1) inequality measure. We repeat the process in Table 7 for net-of-tax permanent income and in Table 8 for wealth.

Results in Tables 6 and 7 are similar. Inequality is greater in every age category in the United States than it is in Germany. Between-group inequality rises in both the United States and Germany as we move from single year income inequality to permanent income inequality.

Table 8, which displays wealth inequality, has a different pattern. Table 8 confirms what was suggested in Table 4, that even though overall wealth inequality is substantially less in Germany than in the United States (compare columns 1 and 3 of Table 8), inequality within some older age groups (aged 61 to 70 and

TABLE 6

SOURCES OF NET-OF-TAX YEARLY INCOME INEQUALITY IN 1987 IN THE UNITED STATES AND GERMANY

Age	United States		Germany	
	Theil Inequality	Percentage Share of Overall Inequality	Theil Inequality	Percentage Share of Overall Inequality
All ages	0.298	100.0	0.114	100.0
Aged 10 and under	0.221	6.2	0.112	5.2
Aged 11 to 20	0.391	16.2	0.096	8.5
Aged 21 to 30	0.194	8.6	0.087	11.9
Aged 31 to 40	0.219	14.1	0.115	15.2
Aged 41 to 50	0.255	12.9	0.112	16.1
Aged 51 to 60	0.308	15.4	0.099	13.1
Aged 61 to 70	0.335	11.1	0.138	14.3
Aged 71 to 80	0.288	4.7	0.110	7.2
Aged 81 and over	0.502	3.3	0.123	3.3
Between-group inequality	—	7.3	—	4.8

Source: The 1989 Response–Nonresponse File of the Panel Study of Income Dynamics, the 1994 Syracuse University English Language Public Use File of the German Socio-Economic Panel, and the 1994 Syracuse University PSID–GSOEP Equivalent Data File.

aged 71 to 80) is nonetheless higher in Germany than in the United States. This is never the case at younger ages. As can be seen in columns 2 and 4, inequality within the two groups aged 61 to 70 and 71 to 80 accounts for more than 25 percent of inequality in Germany and less than 15 percent of inequality in the United States.

Columns 2 and 4 of Table 8 provide an additional perspective on the sources of wealth inequality in the two countries. Between-age group inequality is a much more important share of inequality in the United States than in Germany. Between-group wealth inequality is nearly three times (12.0 percent vs. 4.2 percent) as important in the United States as it is in Germany. When between-group wealth inequality in Table 8 is compared to between-group net-of-tax permanent income inequality in Table 7, between-group wealth inequality rises in the United States and falls in Germany.

4. CONCLUSIONS

Our measure of single year income inequality shows greater inequality than does our measure of permanent inequality using several years of income. This is true both in the United States and in Germany. Regression toward the mean resulting from transitory income is the likely explanation for the difference. An alternative measure of economic well-being, which is also more permanent than single year income—wealth—is more unevenly distributed in both the United States and Germany than is single year income. However, we find inequality to be greater in the United States than in Germany regardless of the income or wealth measure used.

The one exception to our general finding of greater inequality in the United States relative to Germany comes at older ages. While net-of-tax yearly income and net-of-tax permanent income inequality is greater within all age groups in the United States than within those same age groups in Germany, this is not the

TABLE 7

SOURCES OF NET-OF-TAX PERMANENT INCOME INEQUALITY IN THE UNITED STATES AND GERMANY

Age	United States		Germany	
	Theil Inequality	Percentage Share of Overall Inequality	Theil Inequality	Percentage Share of Overall Inequality
All ages	0.227	100.0	0.098	100.0
Aged 10 and under	0.197	7.4	0.077	4.2
Aged 11 to 20	0.238	12.3	0.083	8.4
Aged 21 to 30	0.150	8.8	0.067	10.5
Aged 31 to 40	0.175	14.8	0.124	19.9
Aged 41 to 50	0.189	12.2	0.094	15.1
Aged 51 to 60	0.231	14.9	0.083	13.0
Aged 61 to 70	0.259	11.9	0.109	13.4
Aged 71 to 80	0.219	5.1	0.095	7.4
Aged 81 and over	0.347	3.1	0.088	2.8
Between-group inequality	—	9.1	—	5.1

Source: The 1989 Response–Nonresponse File of the Panel Study of Income Dynamics, the 1994 Syracuse University English Language Public Use File of the German Socio-Economic Panel, and the 1994 Syracuse University PSID–GSOEP Equivalent Data File.

case for wealth inequality. Wealth is more unevenly distributed among older Germans than among older Americans. Greater homeownership by older Americans, especially by relatively low-income older widows, is likely to be the reason for this result. The median German woman aged 65 or over holds only 35 percent of the wealth of the median German man that age. In contrast, the median American woman aged 65 or over holds 83 percent of the wealth of the median American man that age. While the income of older American women relative to older men is lower than is the case in Germany, it is much more likely that an older American woman will own her home following the death of her husband than will an older German woman following the death of her husband. This may explain the surprisingly large wealth inequality found among older Germans.

TABLE 8

SOURCES OF WEALTH INEQUALITY IN THE UNITED STATES AND GERMANY

Age	United States		Germany	
	Theil Inequality	Percentage Share of Overall Inequality	Theil Inequality	Percentage Share of Overall Inequality
All ages	1.360	100.0	0.941	100.0
Aged 10 and under	1.227	4.8	0.978	4.5
Aged 11 to 20	1.887	15.8	0.917	11.2
Aged 21 to 30	1.803	7.3	1.086	11.1
Aged 31 to 40	1.286	11.4	1.051	12.4
Aged 41 to 50	1.356	17.4	0.725	12.3
Aged 51 to 60	0.888	13.3	0.762	13.5
Aged 61 to 70	0.802	8.7	0.879	16.7
Aged 71 to 80	0.908	5.6	1.043	9.6
Aged 81 and over	1.055	3.2	0.982	3.4
Between-group inequality	—	12.0	—	4.2

Source: The 1989 Response–Nonresponse File of the Panel Study of Income Dynamics, the 1994 Syracuse University English Language Public Use File of the German Socio-Economic Panel, and the 1994 Syracuse University PSID–GSOEP Equivalent Data File.

APPENDIX

TABLE A1

THE SHARE OF HOUSEHOLDS HOLDING POSITIVE WEALTH BY COMPONENT IN THE GSOEP AND EVS

Type of Wealth	Percent of Households Holding Type of Wealth	
	GSOEP	EVS
Savings accounts	82.0	87.9
Savings accounts with savings and loan associations	38.3	38.6
Stocks and bonds	27.2	32.4

Source: German Socio-Economic Panel 1988 and German Consumer Expenditure Survey 1988.

TABLE A2

THE AMOUNT OF, THE RELATIVE IMPORTANCE OF, AND THE SHARE OF FAMILIES HOLDING POSITIVE WEALTH BY COMPONENT IN THE UNITED STATES AND GERMANY

Components	United States[a]			Germany[b]		
	Mean Wealth[c] (in dollars)	Share of Total Wealth (percentage)	Households with Positive Wealth (percentage)	Mean Wealth (in deutsche marks)	Share of Total Wealth (percentage)	Households with Positive Wealth (percentage)
Housing	21,680	33.0	64.5	53,999	58.5	45.4
Other real estate	12,120	18.4	19.5	17,175	18.6	13.9
Business	12,857	19.6	13.8	12,957	14.0	9.1
Savings	12,259	18.6	76.1	5,768	6.3	80.3
Stocks and bonds	6,826	10.4	28.1	2,401	2.6	26.0
Total net wealth	65,744	100.0	—	93,302	100.0	—

Source: German Socio-Economic Panel 1988 and Panel Study of Income Dynamics 1989.
[a]In 1988.
[b]In 1987.
[c]All values are adjusted for family size using OECD family equivalence scales.

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