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# Is There an American Way of Aging?: Income Dynamics of the Elderly in the U.S. and Germany

by  
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## I. INTRODUCTION

If you were to ask the person in the street the question of what happens to the economic well-being of the elderly as they age you would probably receive one of two answers. The first group would answer that the retirement years are a period of leisure as a reward for years of hard work. Retired people can enjoy their hobbies, or travel to exotic places. These people would point out that the U.S. elderly are fairly well off compared to other demographic groups such as children. For example, in 1999 the U.S. poverty rate for persons 65 years or older was 9.7 percent compared to a poverty rate of 16.9 percent for children under 18 years of age. The poverty rate for the elderly is essentially the same as that for working age persons (i.e., between the ages of 18 and 64).

The second group would claim that the retirement years are a long slide into poverty and then you die. They might point to cross-sectional data showing that the poverty rate of the elderly increases with age. For example, in 1999 the poverty rate for persons aged 65 to 74 years was 8.9 percent, was 9.8 for persons aged 75 to 84, and was 14.3 percent for persons 85 years or older.

A few studies have examined the income dynamics of the elderly. Duncan, Hill and Rodgers (1986), using longitudinal data from 1968 to 1982, found that successive cohorts of elderly are better off than previous cohorts, but that economic well-being declines as a cohort ages. They suggest that the improved well-being of each successive cohort of elderly may be due to greater accumulation of assets, pension rights and entitlement credits for Social Security. Burkhauser, Cutts and Lillard (1994) in a longitudinal study also found that income for the elderly declines between 1983 and 1989 (a time when the economy was expanding). They suggest that income may decline as the elderly age because (a) pension benefits for many are not indexed and fall in inflation-adjusted terms, and (b) some elderly simply outlive their assets. Consequently, two legs of three-legged retirement income stool may decline with age.

Ross, Danziger and Smolensky (1987) re-examined these two conclusions using decennial Censuses to create synthetic cohorts. They find support for Duncan et al.'s first conclusion but not the second. They argue that the decline in average income as an elderly cohort ages is due "to changes in income that occur at retirement and at widowhood" (p. 99). They also point out that these decreases are one-time income declines. However, they find that income increases after these events.

Menchik (1993), however, has criticized this finding. His results show that "differential mortality by economic status is strongly present in the United States to-day" (p. 436) with the poor dying at earlier ages than the rich. Menchik argues that Ross et al.'s finding of increasing income after retirement may be just an artifact of differential mortality. But this has been called into question in a more recent study by Snyder and Evans (2002) who find that elderly men in the higher income groups have higher mortality rates than lower income elderly men.

Many studies, however, focus on poverty dynamics of the elderly which only follows whether or not income is below the poverty threshold. Holden, Burkhauser and Myers (1986) found that there is substantial movement into and out of poverty by the elderly and conclude that "poverty is a much less permanent state for either married or widowed elderly persons than cross-sectional information would suggest." Shaw and Yi (1997), however, find that for unmarried elderly women poverty tends to be a long-term affair. Furthermore, several researchers have documented that many but not all poor widows were also poor or near-poor before the death of their husbands (see, for example, Choudhury and Leonesio 1997 and Hungerford 2001). Coe (1988) finds that elderly poor women were about twice as likely as elderly poor men to experience a poverty spell lasting 10 or more years (31 percent versus 16 percent) but notes that most completed elderly poverty spells last 2 years or less. Ellwood and Kane (1990) examined income dynamics and life events of the elderly. Their simulations show that most poor 80 year old widows were also poor at age 65. This research suggests that, at least for some elderly individuals, especially unmarried elderly women, poverty is a long-term affair and income does not increase with age.

This study will examine income dynamics of retired individuals over the first 12 years of retirement. The focus is on estimating the time-in-retirement trend in income controlling specific events such as retirement or widowhood and examining the impact of the retirement income system on this trend. Two countries with different philosophies and goals for social policy will be compared: the United States and Germany. These two countries differ in their retirement income systems.<sup>1</sup> Government social security benefits in the U.S. generally replace a lower proportion of pre-retirement earnings than in Germany. The expectation in the U.S. is that pensions and savings *combined* with social security income will maintain pre-retirement living standards. In Germany, the elderly rely on social security income to a much greater extent than the elderly in the U.S. do. Given the differences in the retirement systems, income dynamics in these two countries will provide an interesting contrast in the importance and effectiveness of government transfers to the elderly.

The main research questions asked in this paper are: (1) Are the economic experiences of retired U.S. elderly unique or are they similar to the experiences of the elderly in Germany? and (2) What is the role of Social Security in these economic experiences? This study differs from others in that it explicitly controls for retirement and widowhood in estimating the time-in-retirement trend in income and specifically examines the role of the retirement income system in explaining this trend. The results suggest that there are major differences between the two countries in the experiences of retired families as they age owing to differences in the social security systems. Retired Germans generally maintain their living standards as they age whereas many retired Americans experience falling living standards. This paper is divided into five sections. The next section briefly describes the retirement income systems in the two countries. The data and methods are described in section III and the results are presented in section IV. Finally, concluding remarks are offered in the last section.

## **II. RETIREMENT INCOME SYSTEMS IN U.S. AND GERMANY**

The World Bank (1994) argues that a multi-pillar system is necessary for income security in old age, and that different pillars have different functions and should have different levels of government involvement. In the United States, these pillars are often referred to as the three legs of the retirement income stool: social security, pension

income, and savings. Germany also has a similar multi-pillar system for retirement income although the relative strengths of the various pillars are different.

In the U.S., the first pillar is Old-Age and Survivors Insurance or social security which is part of the social insurance system started in 1935 when President Roosevelt signed the Social Security Act. Social security coverage is mandatory and nearly universal. Workers and their employers each pay a payroll tax on the employee's covered earnings. At retirement, the worker receives a social security benefit which is based on lifetime earnings and age. The benefit is progressive in that workers with lower lifetime earnings receive a proportionately higher benefit than workers with higher lifetime earnings, though workers with higher lifetime earnings receive higher overall benefits. The spouse of a retired worker may also receive a benefit based on the retired worker's earnings. However, if the spouse has a substantial work history he or she will receive the higher of the spouse benefit or a retired worker benefit based on his or her earnings and age. The minimum age for receipt of a retired worker benefit and spouse benefit is 62 years. After the death of the retired worker, the widow(er), if 60 years or older, receives a survivors benefit equal to the retired worker's benefit.<sup>2</sup> Social security benefit levels are annually adjusted for changes in the cost of living.

The German social security system was introduced in 1889 by Chancellor Bismarck. It too is mandatory, nearly universal, and is paid for by employees and their employers with certain government subsidies. At retirement the worker receives a benefit based on earnings and age. The benefit is progressive in much the same way as the U.S. benefit. However, the German benefit tends to be much more generous than the U.S. benefit. Börsch-Supan and Schnabel (1999) report that the German benefit replaces about 72 percent of pre-retirement net earnings of a worker with average lifetime earnings which is substantially higher than the 53 percent replacement rate of the U.S. benefit for a worker with average lifetime earnings. The German social security system does not pay a spouse benefit, but women with some attachment to the labor market (at least 15 years of work with 10 years after age 40) will receive a benefit based on their earnings and age. Börsch-Supan and Schnabel (1999) note that most wives receive their own benefit. After the death of the retired worker, the survivor, if 45 years or older, receives 100 percent of the deceased worker's benefit for 3 months, and then 60 percent thereafter. Benefits are adjusted annually to move in line with take-home earnings.

Burkhauser, Duncan and Hauser (1994) find that the German Social Security system is much more successful at providing retirement income security than the U.S. system. However, they find that neither system adequately protects older women. Hungerford (2001) also finds that women in both countries are especially vulnerable at widowhood-U.S. elderly women are twice as likely to be poor after the death of their husbands than before while German women are nearly three times more likely to be poor after the death of their husbands.

The second and third pillars of the retirement income system are employer pension income and savings. However, employer pensions in Germany are not as widespread as in the United States (Börsch-Supan 1994). O'Rand and Henretta (1999) describe occupational pensions in Germany as, at best, modest and primarily restricted to those in the highest income deciles. Of the three pillars, social security is mandatory while the other two pillars are voluntary. Consequently many people in both countries rely on the first pillar as the sole or major source of income in old age because they were unable or unwilling to save and were not covered by a pension plan while working.

Burkhauser, Cutts and Lillard (1994) examined average income of U.S. and German elderly from the trough to the peak of the 1980s business cycles. For elderly individuals alive in both the trough and peak of the business cycle, average real income declined in the U.S. and increased slightly in Germany. They speculate that the retirement income systems in the two countries explain the difference in the economic fortunes of the elderly.

### **III. DATA AND METHODOLOGY**

The data sources for this study are the Panel Study of Income Dynamics (PSID) and the German Socioeconomic Panel (GSOEP). The PSID is a nationally representative longitudinal data set of the U.S. population that has been ongoing since 1968 (Hill 1992). The PSID interviewed a national sample of 4,800 households in 1968 and the

number interviewed has grown to over 7,000 today. The replacement mechanism of the PSID for births is designed to yield a representative sample in each year. Research has concluded that while attrition in the PSID is selective, it has not seriously distorted the representativeness of the data set (Fitzgerald, Gottschalk and Moffitt 1998, and Lillard and Panis 1998).

The GSOEP is a longitudinal data set started in 1984. The data are representative of the population of the western states of the reunified Germany, including "guest workers," and currently is comprised of over 6,000 households (Wagner, Burkhauser and Behringer 1993). The PSID methodology influenced the development of the GSOEP and the methods for following households are similar in the two samples.

The Department of Policy Analysis and Management at Cornell University has prepared a 1980-1997 PSID-GSOEP cross-national equivalent file (Burkhauser, Butrica and Daly 1995). The file contains equivalently defined variables on income, employment, and demographic information from the PSID and the GSOEP. The PSID data contains information on over 7,000 households for the years 1980 to 1997. The GSOEP file contains data on over 6,000 households for the years 1984 to 1997. Both data sets contain nonrandom subsamples. In the PSID, low-income and nonwhite households are overrepresented in the Survey of Economic Opportunity (SEO) subsample (Hill 1992). In the GSOEP, foreign guest workers of Italian, Spanish, Turkish, Yugoslavian and Greek nationalities are overrepresented (Jurkat and Lillard 2000).

The unit of analysis in the study is a retired individual. Individuals were selected into the sample based on when they "retired" and were followed for up to 12 years. Only persons retiring in the 1980s were selected, giving a sample of individuals born between 1911 and 1929. The retirement process differs between the two countries. In the United States, for some, retirement is a long process starting with the receipt of retirement income (pension income and/or social security) and reduced hours of work by switching to part-time (either on the career job or in a bridge job), and finally culminating in complete labor force withdrawal (Quinn 1999). In Germany, the retirement process is quite short: usually it begins (and ends) with complete withdrawal from the labor force and receipt of retirement income (Schmähl, George and Oswald 1996, and Börsch-Supan and Schnabel 1999). Consequently, for the U.S. there is no clear cut definition of the beginning of retirement.

In this study, the definition of retirement is based on hours of work. The first year of retirement is the first year the individual is observed working less than 500 hours per year (less than 10 hours per week) and annual hours worked for the next 2 years is also less than 500 hours. Consequently, all sample individuals are observed for, at least, the first 3 years of retirement. In addition, the family also had to receive at least \$600 or DM1,395<sup>3</sup> in annual retirement income from public and private pensions. Only individuals initially over the age of 60 and less than 70 years were selected into the sample. Individuals with no labor force attachment, or who left the labor force before age 60 for whatever reason (e.g., disability or very early retirement) are not included in the sample. The focus is only on individuals who fit the "traditional" work and then retire in their 60s pattern. This group includes most elderly men and an increasingly larger share of elderly women. These individuals are expected to have better income prospects than the disabled and those with weak labor force attachment during their prime working years. Individuals were followed for 12 years or until they died or otherwise left the sample. The U.S. sample contains information on 982 retired individuals and the German sample contains information on 765 retired individuals.

The PSID and GSOEP differ in how institutionalization (e.g., in correctional facilities, retirement and nursing homes, etc.) is handled. The PSID does not interview institutionalized individuals while the GSOEP make an effort to interview these people. Both the PSID and GSOEP make an effort to identify sample members who died. After 12 years about half of each sample of retired individuals has left the sample for some reason. The few individuals in the PSID and GSOEP who had left the sample and then were reinterviewed were eliminated from the analysis samples.

Sample members entered the sample (corresponding to year 1 of retirement) in different years and at different ages. The U.S. sample members were all born between 1911 and 1929, and the German sample members were born between 1915 and 1929. The average age in year 1 for both samples is about 64 years (see table 1) with the

U.S. sample being slightly older than the German sample. Individuals in the two countries differ by educational attainment. Fewer men in Germany than in the U.S. have less than a high school education; the opposite is true for women. The proportion of each sample who are widowed or become widowed is roughly similar. The importance of bridge jobs in the U.S. is indicated in the table. About one in five people in the U.S. sample are working part-time in the first year of retirement compared to about four percent of the German sample. However, the proportion working in the second year of retirement is less than half the proportion for the first year for men and women in both countries. All sample members in year 1 were either the household head or the partner of the household head.

## **Income**

The income measure used in the study is post-transfer, post-tax family income adjusted for inflation by the relevant consumer price index.<sup>4</sup> The tax systems vary considerably between the two countries with different impacts on disposable income which, arguably, should be considered in studies of economic well-being. Pre-tax household income is the sum of labor income, social security income, income from public and private transfers, and asset income. Labor income, asset income and public transfer income are equivalently defined in the two samples. Asset income includes income from interest, dividends, trust funds, and rents. Public transfers include income from mean-tested programs such as Supplemental Security Income (SSI) and the face value of food stamps in the U.S. or assistance for the aged in Germany. For the U.S., the PSID/GSOEP equivalent data set reports old-age pension income from the Social Security Administration under social security income, and private and other public pension (e.g., state and local pensions) income under private transfer income. Income from government social security and other pensions are not separated in the German sample (GSOEP) since most Germans receive little income from private pensions. For both samples, private transfer income also includes alimony and child support payments although income from these sources is likely to be small for the elderly. Taxes in each data set are calculated based on household characteristics rather than actual taxes paid by the household. Only federal and social security taxes are used in the calculation of post-transfer, post-tax income. Jurkat and Lillard (2000) describe the various methods used to estimate taxes.

## **Equivalence Scale**

Even though the unit of analysis is the individual, household income is the measure of economic well-being used. For individuals in both countries, household income is adjusted to reflect the composition of the household (household size and ages of household members) by dividing real (inflation adjusted) household income by an equivalence scale:

$$\text{Equivalence adjusted real income} = \frac{\text{real income}}{E}$$

where  $E$  is the equivalence scale. The equivalence scale used is the one recommended in Citro and Michael (1995):

$$E = (A + 0.7 X K)^{0.75}$$

where  $A$  and  $K$  are the number of adults and children in the household, respectively. The equivalence scale adjusts income to take into account economies of scale within the household. If the equivalence scale equals one then it is assumed that economies of scale are perfect suggesting that two people can live with the same income as one person and still be as well off as the single person. At the other extreme, if the equivalence scale equals the number of persons in the household then there are no economies of scale and two people need twice the income as one person. Neither of these extremes are satisfactory for studying well-being; the equivalence scale used here falls between these two extremes. Equivalence scales others have used include the square root of the number of persons in the household, and the scale implicit in the U.S. poverty threshold. The main results in this study are not sensitive to the equivalence scale used.

## Empirical Approach

The main interest is in how equivalence adjusted real income changes with time starting at retirement. To examine the time-in-retirement trend in income, a regression model is specified with a trend variable and controls for other factors that affect income. The basic model to be estimated is:

$$y_{it} = \alpha + \delta T_{it} + \beta' X_{it} + v_i + \varepsilon_{it}$$

where  $y_{it}$  is the dependent variable of interest for individual  $i$  in year  $t$ ,  $T_{it}$  is a function of time in retirement for individual  $i$ ,  $X_{it}$  is a vector of observable time-varying independent variables,  $v_i$  is a fixed individual-specific term,  $(\delta, \beta)$  is a vector of parameters to be estimated, and  $\varepsilon_{it}$  is a random error term. The individual-specific term captures time invariant factors affecting income such as age at retirement, birth cohort, race and education, and unobserved factors such as differences in tastes for saving during the working years. A fixed effects regression model with an unbalanced panel is estimated (see Greene 2000, ch. 14 for a detailed description of this model).<sup>5</sup> Separate regressions are estimated for men and women in each country to allow all coefficient estimates to vary by country and sex.

The time-in-retirement function ( $T_{it}$ ) is modeled as a step function (i.e., a series of binary variables, one for each year in retirement). The national unemployment rate in year  $t$  ( $UR$ ) is included to capture cyclical effects. A widow(er) identifier ( $Widow$ ) is included since previous research has shown that widowhood is associated with changes in income. The binary indicator variable is a shift variable in that it will shift the time-in-retirement trend in income up or down but will not affect the trend. Several interaction terms between various binary variables (e.g., ever widowed, attrition, and cohort) and the time-in-retirement trend were tried (results not reported) and in most cases the coefficient estimates for the interaction terms were fairly small and generally not statistically significant. In all cases the main conclusions of the paper do not change.

## IV. RESULTS

The regression results are reported in appendix tables 1-3 for total income, social security income and non-social security income.<sup>6</sup> In the appendix tables the omitted time-in-retirement category is period 1. The t-tests for the other time period variables tests whether or not income in that particular period is statistically different from income in period 1, holding all else constant. Predicted average income conditional on the other factors are calculated for each year in retirement based on the regression coefficient estimates. The independent variables  $UR$  and  $Widow$  are evaluated at the sample means (7.06 and 0.17, respectively).<sup>7</sup> Since it is the trends in income that is the focus of this paper, the results are presented in charts rather than in tables for ease of interpretation.

To facilitate putting the trends for the U.S. and Germany in the same chart with different currency units the average incomes are normalized with respect to men's income in the first year of retirement. For the U.S., men's and women's average income in each year is divided by the first year income of men. The same is done for income in Germany using year one income for German men as the base. The trends in average equivalence adjusted real total income are displayed in chart 1. The solid lines denote the trends for U.S. men and women and the dotted lines are for German men and women.

Equivalence adjusted real total income remains fairly constant over the first four years of retirement for both U.S. and German men and women. After the fourth year, however, the trends in income diverge with the income of U.S. retirees declining and the income of German retirees increasing. After 12 years, real incomes for U.S. men and women has fallen by over 20 percent. The incomes for German retirees has grown by about 15 percent for men and by about 10 percent for women. The living standards for German retirees increase slightly over retirement while American retirees see declining living standards after the fourth or fifth year in retirement.

These trends are very robust to using alternative equivalence scales<sup>8</sup> and splitting the sample based on attrition. Separate regressions were estimated for those who remain in the sample for all 12 years and for those who leave before the end of 12 years (attriters). In almost all cases the trends are similar to those shown in chart 1. The only exception is for German women who attrit: their income shows no trend (i.e., remains flat) over the period.

To understand the source of the differences between the two countries and the role of the respective social insurance systems, income was divided into income from the social security systems and income from non-social security sources. Each is analyzed in turn.

The trends for equivalence adjusted real social security income is shown in chart 2. Again, income is indexed to men's first retirement year social security income. In general, the trends display upward trends. In Germany, social security income increases (in inflation adjusted terms) steadily. This is not too surprising since social security benefits are indexed to average earnings which tend to increase faster than prices. Also, over 99 percent of Germans receive social security income in every year.

The income trend for U.S. men and women displays an inverted U-shaped pattern over the first 12 years of retirement. The initial rapid increase is not due to actual inflation adjusted benefit increases for social security recipients, rather it is due to some retirees receiving their first social security benefit after their first year of retirement. The reciprocity rate for social security among the U.S. sample increases from slightly less than 90 percent to over 95 percent by the fifth year in retirement. The estimated trend for U.S. retirees who receive social security beginning in the first retirement year is fairly flat since social security benefits are indexed to price increases. Social security income either maintains its value (in the U.S.) or increases (in Germany) in retirement.

Chart 3 displays the trends in equivalence adjusted real non-social security income. First, in comparing the first retirement year to the last, there is at least a 40 percent decline in real income in both countries. Second, the actual downward trend has very different patterns between the two countries. In the U.S., the downward trend is almost linear over the 12 years. In Germany, real non-social security income declines rapidly over the first 6 years and then basically flattens out after that.

Chart 2 shows that social security income either increases or remains steady in retirement. Chart 3 shows that non-social security income declines dramatically over the first 12 years of retirement (the pattern differs between the two countries but the result is the same). Neither of these trends by themselves explains the divergent trends displayed in chart 1—a simple visual inspection of charts 2 and 3 suggests that total income would decrease in both countries.

However, total income is a *weighted* sum of social security income and non-social security income. One source of income may be a much more important source in one country than in the other. The percent of total income from social security is shown in chart 4. Gender differences are very small; the main difference is between retirees in the two countries. The percent of income from social security starts out at about 40 percent and increases to almost 60 percent in the U.S. In Germany, on the other hand, the percent of income from social security starts out at almost 80 percent (double that for the U.S.) and grows to over 90 percent after 12 years.

The divergent trends in income between U.S. and German retirees shown in chart 1 is due to the relative importance of the two source of income. German retirees' living standards improve in retirement even though non-social security income falls because social security income accounts for most of their income. In the U.S., social security income accounts for a much smaller proportion of total income. And even though real social security income increases slightly over the retirement years, it is not enough to counteract the decline in non-social security income.

## **V. DISCUSSION AND CONCLUDING REMARKS**

The results in this paper show that there are major differences between the U.S. and Germany in the experiences

of aging retired people. Retired men and women in the U.S. generally see their income and consequently their living standards deteriorate as they age. In Germany, however, retired men and women do not experience falling living standards as they age-their inflation adjusted income actually increases. These differences between the U.S. and Germany suggest that the retirement system institutions (public and private) and state policies are important factors in the economic outcomes of the elderly.

The major reason for the differences in aging experiences between the two countries is the differences in the sources of retirement income. U.S. workers are expected to bear greater responsibility for ensuring their retirement income security than are German workers. Most income that German retired families receive is social security income (80 to 90 percent). In the U.S., social security is just one of several important sources at retirement (40 to 60 percent is social security income). The real level of social security remains essentially constant as U.S. retired individuals age as other sources of income fall. Perhaps it is more correct to say that other sources of income fail to maintain living standards rather than social security is failing elderly Americans. But it is clear that the U.S. social security system does not prevent the deterioration of living standards as retired men and women age.

Perhaps the explanation for the different retirement income systems in the two countries has to do with the differences in attitudes toward poverty. Burkhauser, Butrica, and Daly (1995) note that "German economic and social policy focuses on maintaining the relative economic position of its citizens." The results suggest that social security in Germany has been fairly successful in doing just that (on average). In the U.S., the focus is more on keeping the cash income (before taxes) of retired individuals above the poverty threshold, which is fixed in real terms. Judging by the decrease in the official U.S. poverty of the elderly over that past 30 years, the U.S. social security system has been successful. But when judged against the broader standard of maintaining living standards, the U.S. social security system has been less successful. German social security appears to compensate aging retired families for the loss of other income, whereas the U.S. system does not.

This study has examined the economic well-being of retired men and women in the U.S. and Germany as they age and the results paint a consistent picture for each country. Given the differences in the retirement income systems in the two countries, it is not too surprising that there is an American way of aging, a German way of aging, and the two are very different. However, the public social security systems in the two countries face long-term financial problems due to changing demographics and will have to be modified in order to be sustainable. Germany has begun to make changes in their retirement income system by reducing social security benefits and strengthening occupational pensions. It will be interesting to see if, in several years, the two ways of aging remain different.

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## NOTES

1. See O'Rand and Henretta (1999, ch. 7) for a summary of the philosophies of the U.S. and German retirement systems.
2. Assuming the widow(er) is not eligible for a higher social security benefit based on his or her earnings record.
3. The German threshold is based on the average Purchasing Power Parity US-German exchange rate in the 1980s.
4. The implicit assumption is income is equally shared by all family members.
5. A random effects regression models yields essentially the same results as those reported in this study.
6. The coefficient estimates for the time in retirement variables and the national unemployment rate were of the same sign and significance level for all specifications using different equivalence scales to adjust real income. However, for U.S. men and women, the coefficient estimate for widowed changed sign and significance level depending on the equivalence scale used. When a spouse dies both real income and the equivalence scale change (both the numerator and denominator of equivalence adjusted income). The widow variables appears to be capturing the interaction of these two changes.
7. Average total income for U.S. men in year 3, for example, is equal to  $12884.860 - 259.196 + 1868.878 \times 0.17 - 306.805 \times 7.06 = 10777.332$ .
8. Both the square root of family size and the equivalence scale implicit in the U.S. poverty threshold were tried and the trend results are almost identical to chart 1.

Chart 1: Real Total Income (Men's year 1 income=100)

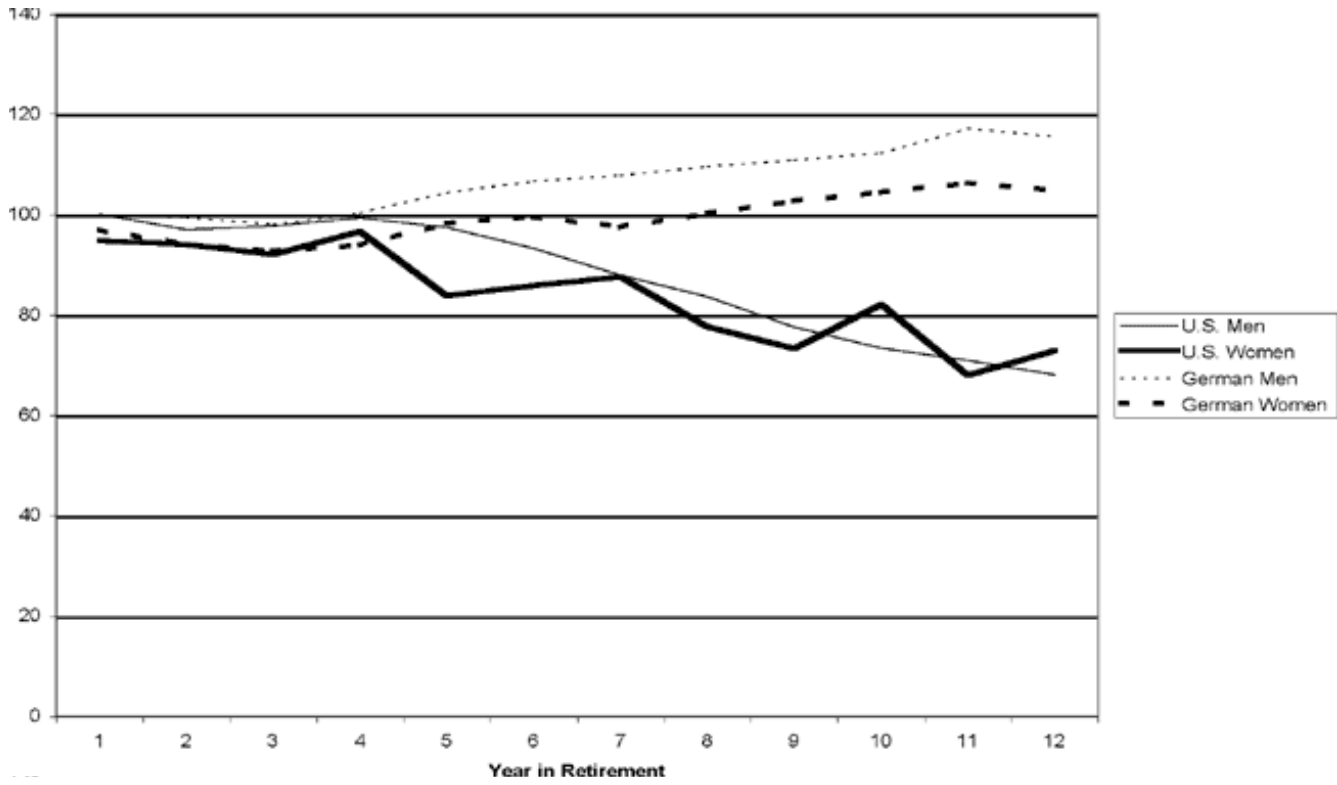


Chart 2: Real Social Security Income (Men's year 1 income=100)

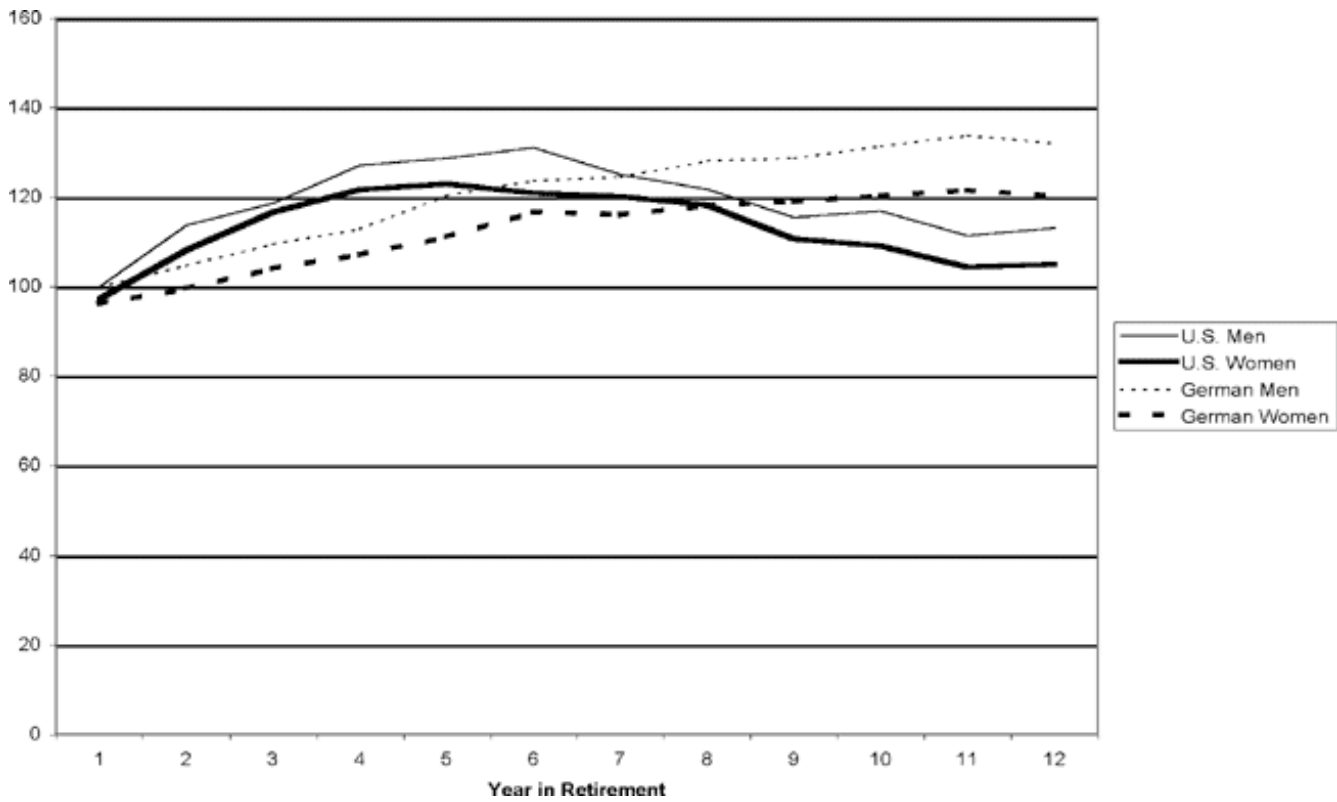


Chart 3: Real Non-Social Security Income (Men's year 1 income=100)

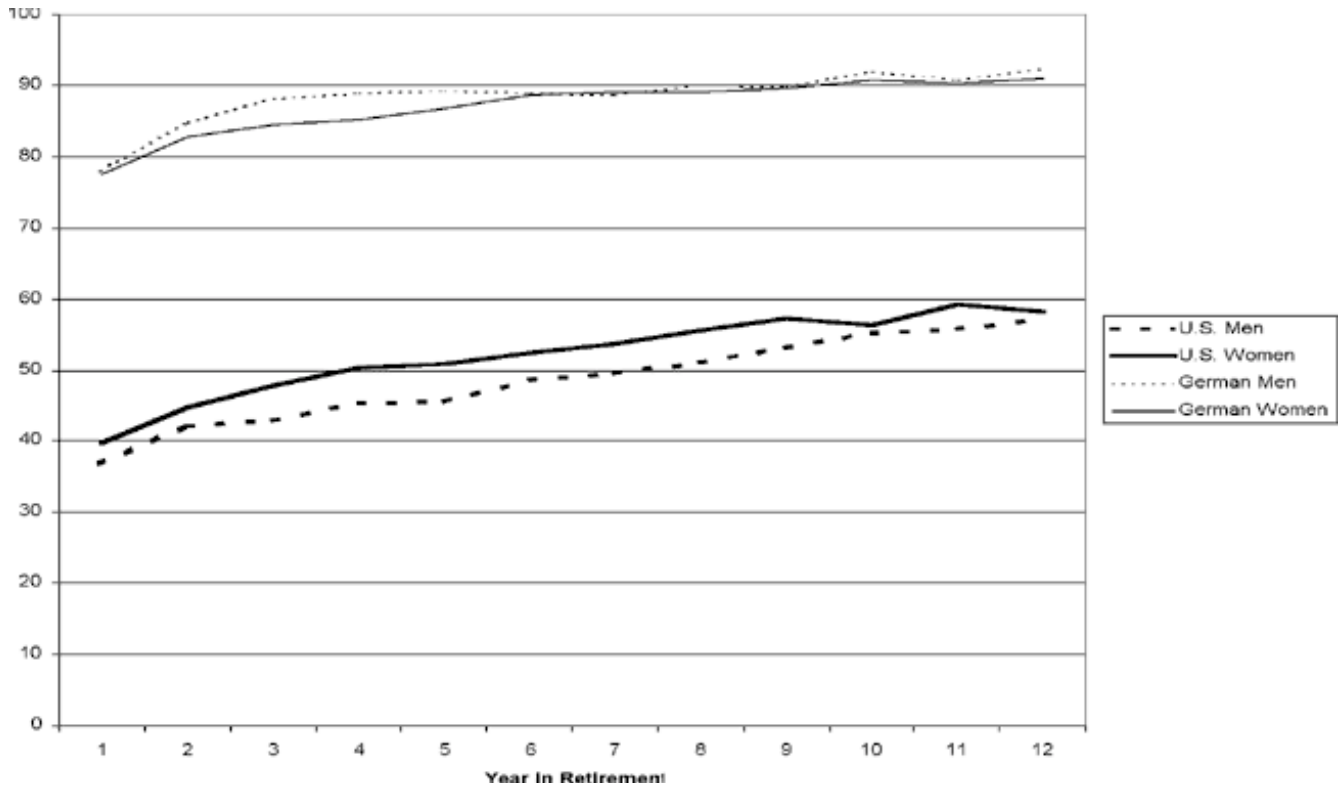
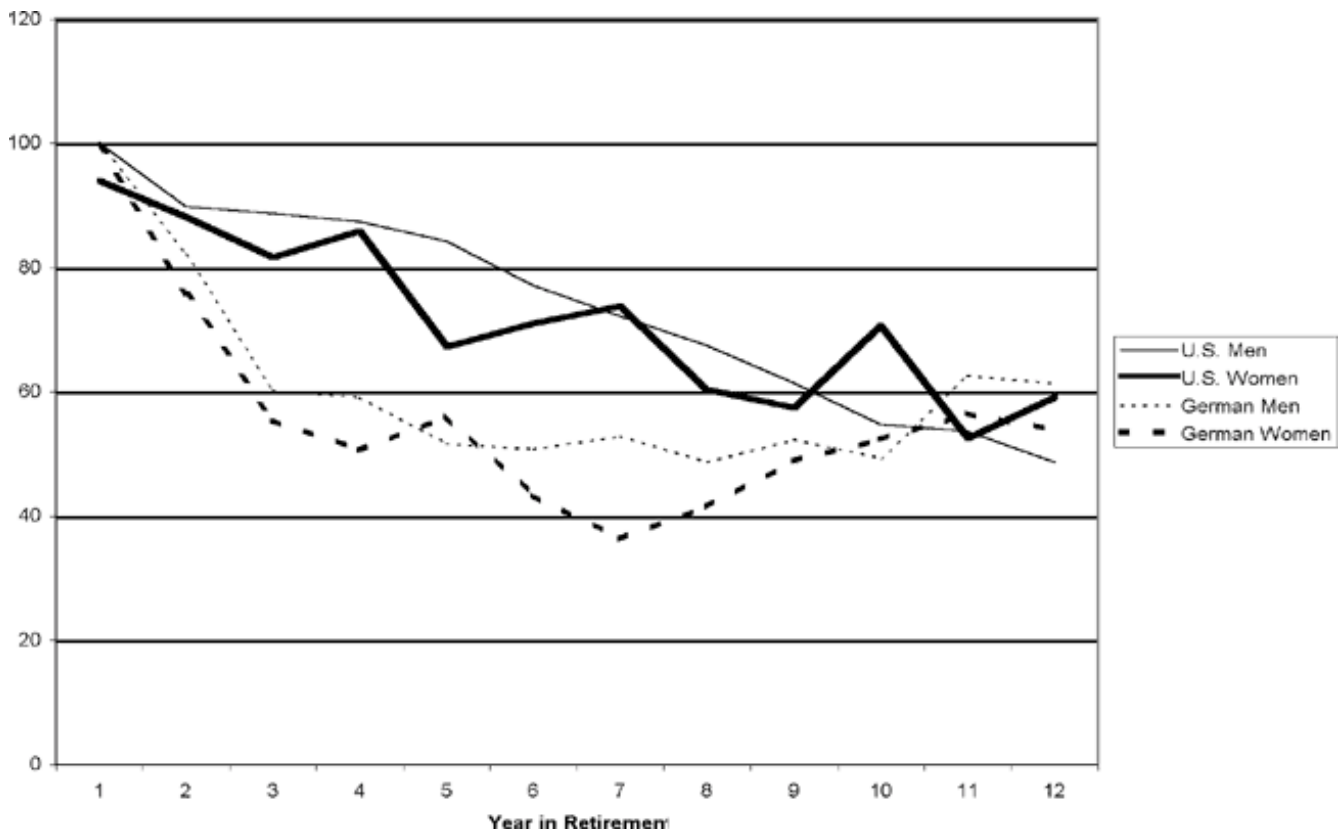


Chart 4: Percent of Income from Social Security



**Table 1: Characteristics of Sample in Period 1**

	United States		Germany	
	Men	Women	Men	Women
Age	64.6	64.4	64.1	63.9
Less than H.S. education	43.6%	41.8%	22.3%	58.2%
H.S. education	33.8%	42.8%	58.1%	36.6%
More than H.S. education	22.6%	15.5%	19.6%	5.1%
Widowed	4.6%	24.3%	7.0%	26.4%
Ever Widowed	17.5%	45.6%	14.9%	43.7%
Working	22.5%	16.1%	6.4%	2.6%
Pension income	\$7,802	\$6,465	DM14,761	DM13,951
Number of individuals	379	603	327	438

Sample weights used. Currency units are deflated by consumer price index (1982-84=100).

**Appendix Table 1: Coefficient Estimates Real Equivalence Adjusted Total Income**

	(1)	(2)	(3)	(4)
	United States		Germany	
	Men	Women	Men	Women
Constant	12884.860	12170.260	21091.080	22483.250
Period 2	-335.596 (264.963)	-85.830 (588.980)	-114.468 (374.951)	-548.843 (345.175)
Period 3	-259.196 (267.561)	-308.201 (607.012)	-389.699 (379.922)	-813.867** (350.540)
Period 4	-84.588 (271.340)	194.642 (605.110)	68.030 (390.686)	-568.831 (358.837)
Period 5	-277.446 (273.933)	-1209.995** (602.212)	847.871** (396.385)	263.873 (364.094)
Period 6	-749.291*** (280.149)	-988.199* (611.338)	1294.086*** (405.021)	519.412 (375.100)
Period 7	-1327.414*** (287.601)	-797.602 (624.266)	1517.397*** (411.531)	125.927 (389.366)
Period 8	-1802.094*** (298.410)	-1897.346*** (644.879)	1857.360*** (411.723)	644.912* (379.213)
Period 9	-2477.720*** (306.697)	-2372.197*** (668.170)	2113.930*** (429.203)	1128.929*** (386.068)
Period 10	-2942.849*** (321.303)	-1408.361** (690.029)	2376.015*** (477.991)	1467.558*** (426.123)

Period 11	-3210.640*** (330.597)	-2964.120*** (704.209)	3328.966*** (528.222)	1829.805*** (465.939)
Period 12	-3531.326*** (343.224)	-2427.100*** (721.776)	3003.907*** (563.056)	1522.184*** (476.234)
Widow	1868.878*** (364.046)	1305.692** (632.129)	5568.894*** (676.692)	-380.488 (402.660)
UR	-306.805*** (64.185)	-272.428* (145.638)	-378.152*** (113.317)	-516.887*** (112.843)
Standard errors in parentheses. * significant at 10% level; ** significant at 5% level; *** significant at 1% level.				

<b>Appendix Table 2: Coefficient Estimates Real Equivalence Adjusted Social Security Income</b>				
	(1)	(2)	(3)	(4)
	United States		Germany	
	Men	Women	Men	Women
Constant	3565.156	3707.476	14847.880	15402.490
Period 2	454.002*** (88.251)	358.958*** (77.452)	696.970* (364.198)	510.846* (312.242)
Period 3	615.427*** (89.116)	640.332*** (79.823)	1409.216*** (369.027)	1165.224*** (317.095)
Period 4	898.940*** (90.375)	811.115*** (79.573)	1911.175*** (379.482)	1625.993*** (324.600)
Period 5	946.555*** (91.238)	851.003*** (79.192)	3029.417*** (385.017)	2213.405*** (329.356)
Period 6	1023.865*** (93.309)	781.720*** (80.392)	3512.995*** (393.406)	3044.070*** (339.312)
Period 7	830.538*** (95.791)	757.164*** (82.092)	3644.306*** (399.729)	2962.790*** (352.217)
Period 8	719.006*** (99.391)	692.526*** (84.802)	4170.445*** (399.915)	3246.939*** (343.032)
Period 9	511.582*** (102.151)	441.517*** (87.865)	4264.213*** (416.894)	3399.071*** (349.234)
Period 10	558.552*** (107.016)	389.008*** (90.740)	4661.532*** (464.283)	3582.421*** (385.467)
Period 11	374.129*** (110.112)	234.261** (92.604)	5016.248*** (513.074)	3762.101*** (421.484)
Period 12	430.316*** (114.317)	253.643*** (94.915)	4748.028*** (546.899)	3572.205*** (430.796)
Widow	687.194*** (121.252)	601.793*** (83.126)	5906.846*** (657.286)	-1683.383*** (364.242)

UR	-52.172** (21.378)	-83.318*** (19.152)	-139.878 (110.067)	-116.158 (102.076)
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Standard errors in parentheses.

\* significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

**Appendix Table 3: Coefficient Estimates Real Equivalence Adjusted Non-Social Security Income**

	(1)	(2)	(3)	(4)
	United States		Germany	
	Men	Women	Men	Women
Constant	9319.699	8462.787	6243.201	7080.768
Period 2	-789.598*** (255.558)	-444.788 (586.648)	-811.438*** (307.923)	-1059.688*** (287.351)
Period 3	-874.623*** (258.064)	-948.532 (604.609)	-1798.915*** (312.006)	-1979.091*** (291.818)
Period 4	-983.528*** (261.709)	-616.473 (602.715)	-1843.145*** (320.846)	-2194.824*** (298.725)
Period 5	-1224.001*** (264.209)	-2060.998*** (599.828)	-2181.546*** (325.526)	-1949.532*** (303.101)
Period 6	-1773.156*** (270.205)	-1769.919*** (608.918)	-2218.909*** (332.618)	-2524.657*** (312.263)
Period 7	-2157.953*** (277.392)	-1554.766** (621.794)	-2126.909*** (337.964)	-2836.863*** (324.140)
Period 8	-2521.100*** (287.817)	-2589.872*** (642.326)	-2313.085*** (338.122)	-2602.026*** (315.687)
Period 9	-2989.301*** (295.810)	-2813.714*** (665.526)	-2150.283*** (352.477)	-2270.142*** (321.394)
Period 10	-3501.401*** (309.898)	-1797.368*** (687.298)	-2285.517*** (392.544)	-2114.863*** (354.739)
Period 11	-3584.768*** (318.862)	-3198.380*** (701.422)	-1687.282*** (433.795)	-1932.296*** (387.885)
Period 12	-3961.642*** (331.040)	-2680.744*** (718.919)	-1744.121*** (462.394)	-2050.021*** (396.455)
Widow	1181.684*** (351.124)	703.898 (629.627)	-337.953 (555.724)	1302.895*** (335.206)
UR	-254.632*** (61.907)	-189.110 (145.062)	-238.275** (93.060)	-400.730*** (93.939)

Standard errors in parentheses.

\* significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

