This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Modeling the Distribution and Intergenerational Transmission of Wealth

Volume Author/Editor: James D. Smith, ed.

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-76454-0

Volume URL: http://www.nber.org/books/smit80-1

Publication Date: 1980

Chapter Title: The Importance of Material Inheritance: The Financial Link between Generations

Chapter Author: Paul Menchik

Chapter URL: http://www.nber.org/chapters/c7446

Chapter pages in book: (p. 159 - 186)

4 The Importance of Material Inheritance: The Financial Link between Generations

Paul L. Menchik

There seems to have been a recent revival of scholarly interest in the distribution of privately held material wealth and in the transmission of wealth inequality across generations. Impressive analytical and simulation models have been devised to study these issues and predict the outcomes of various social policy changes. (Blinder 1973, 1976a, 1976b; Oulton 1976; Atkinson 1971; Stiglitz 1969; Smith, Franklin, and Orcutt 1978). Empirical evidence, however, is necessary to provide the building blocks of simulation models, and to test the validity of the predictions of analytical models. In this field, as in so many other areas of the social sciences, empirical advances have unfortunately failed to keep pace with nonempirical developments.

I examine two questions in this paper. First, a specific one: To what extent does the material inheritance received by the children of wealthy parents "account" for their own wealth? Second, a more general one: What is the relationship between the lifetime resources (both inheritance and earnings) of individuals and the amount they fail to consume themselves—that is, the amount they leave to others—in a life cycle sense?[1]

4.1 Does Material Inheritance Matter?

There is ample evidence that privately held wealth is more concentrated than earnings in the United States. The pioneering work done by

Paul L. Menchik is assistant professor of economics, Michigan State University.

The research reported here was supported by funds granted to the Institute for Research on Poverty of the University of Wisconsin-Madison by the Department of Health, Education, and Welfare pursuant to the provisions of the Economic Opportunity Act of 1964. Particularly helpful suggestions were received from A. Blinder, A. Goldberger, J. Heckman, F. Modigliani, M. David, and J. Williamson.

Colin Harbury (1962) showed a strong positive relationship, at least for the U.K., between the wealth of wealthy individuals and that of their parents. Though Harbury was not able to obtain information on the bequests from specific parents to their children, the implication of his study is that material inheritance does indeed transmit inequality across generations. This paper relates inheritance and gifts received by a sample of children to their wealth at death, using probate record data.

There has been previous empirical research into a question somewhat similar, though not identical, to the first question I have posed. In a survey of 957 high-income people, having an income of $10,000 or more in 1964, Barlow et al. (1966) asked each individual if he had received an inheritance. Three-fifths of the group responded in the negative. After making assumptions about the growth of the value of assets, the authors concluded that more than four-fifths of the total wealth of this high-income group was derived from saving out of income (not earnings), and less than one-fifth from inheritances and gifts plus their appreciation.

In a Federal Reserve study by Projector and Weiss (1966), respondents were asked what portion of total assets was inherited. The choice of answers was: none, small, and substantial. The percent answering "none" falls as wealth class rises, and the percent answering "substantial" rises from zero in the $1 to $999 wealth class to 34 percent in the $500,000 and over wealth class in the cross-section. The percent responding "substantial" was, overall, 5 percent, rising with age from 1 percent for those under 34 to 9 percent for those 65 and over.

One problem with these surveys, if the focus of concern is intergenerational transfers, is that they do not take account of the effects of the death of both parents. One would expect reported inherited wealth to be small as long as one's parents were living. I shall present evidence on the ratio of the real present value of inheritance from parents and the real value of wealth for individuals both of whose parents are dead.

4.1.1 The Relationship between Lifetime Resources and Transfers

The unknown relationship between lifetime resources and the amount transferred to others is quite important in inter and intragenerational models, and its character has important policy implications.

Macroeconomic Theory and Policy

Does aggregate consumption vary with the degree of income inequality in an economy? Does the marginal propensity to consume out of *lifetime* resources vary with one's resources? While it was first thought that equalizing the income distribution would increase consumption, the models of Friedman (1957) and Modigliani and Brumberg (1954) indicate no such distributional effect. A recent paper by Blinder (1975) reconsiders the effect of resource inequality on consumption in a life cycle framework.

In Blinder's model, the consumer chooses his time path of consumption $c(t)$ in order to maximize lifetime utility and is subject to the constraint that the present discounted value of both consumption and terminal wealth or bequests (if any) equals lifetime resources, W. Formally, the budget constraint is

$$\int_0^T c(t)e^{-rt}dt + K_T e^{-rt} = W$$

with r the rate of interest, t the consumer's age, K_T the bequest, and W the sum of the present value of earnings and bequests received (*inter vivos* gifts are treated as discounted bequests in the model). T is the certain length of life.[2] A lifetime utility function, the isoelastic function, is specified. The isoelastic function has the following property: when lifetime resources increase, $c(t)$ increases in the same proportion for all t. Yaari (1964) has demonstrated that if this property is preserved and the consumption plan does not dictate equal consumption at each instant, then the utility function must be isoelastic. The lifetime utility function is,

$$U = \int_0^T \frac{c(t)^{1-\delta}}{1-\delta} e^{-\rho t}dt + \frac{bK^{1-\beta}{}_T}{1-\beta}$$

where $\delta, \beta > 0$

and $b \geq 0$

and ρ is the subjective rate of time preference for consumption. Strict proportionality between consumption and resources follows from this model if one of two parameter relations holds. If $b = 0$, individuals derive no utility from bequests and proportional consumption holds.[3] If $b > 0$ but $\delta = \beta$, proportionality holds. (This result is mentioned by Modigliani and Ando [1957].)

Blinder shows that if $b > 0$ the lifetime marginal propensity to consume (MPC) is less than unity; it decreases with W if $\delta > \beta$ and increases with W if $\beta > \delta$. Hence, the notion that the lifetime MPC is constant over the income distribution is a special case (when $\delta = \beta$) of a general model in which the MPC can either rise or fall with one's resources: the answer hinges on the relative magnitude of β and δ. Furthermore, Blinder shows that the effect of permanent inequality (though mean preserving) changes in the income distribution will alter aggregate consumption, and consequently aggregate saving, depending on the relative magnitude of β and δ. A reduction in inequality will increase, leave unchanged, or decrease aggregate consumption according to whether δ is greater than, equal to, or less than β. Though the relative magnitude of β and δ is unknown, the ratio δ/β is approximately the resource elasticity of bequests. This elasticity has never been estimated; in this paper I will offer an estimate of its magnitude, using data from two sources.

The relationship between lifetime resources and transfers is important in models of income and wealth distribution. If the elasticity of transfers with respect to resources exceeds unity, higher income parents will leave a greater proportion of their income to their children than lower income parents. Assuming that the correlation between parent and child earnings is not negative,[4] this effect would be a force for greater inequality in wealth and nonearned income across generations. The disequalizing effect of nonproportional transfers is shown formally in the intergenerational model presented by Meade (1964) and discussed in detail in Atkinson and Harrison (1978, chap. 8).

Pryor (1973) simulates the distribution of income in a multigenerational context. He specifies an "intergenerational saving function" which relates bequests to lifetime resources. Two forms of the function are used, one function assuming that the elasticity of bequests with respect to resources is unity, the other that bequests are luxury goods, implying an elasticity in excess of unity. His results show that the second function will yield a substantially greater degree of income inequality than the first function.

The magnitude of the resource elasticity of transfers has implications concerning aggregate factor shares and earnings inequality. If the elasticity exceeds unity, a growing economy will experience a rising capital-output ratio, since the aggregate saving rate will rise. If the aggregate elasticity of substitution between capital and labor is less than one, labor's share in the national income will increase over time. However, if capital intensity increases, the degree of inequality of labor income may also increase. A model by Michael Sattinger (1977) generates earnings inequality as an increasing function of capital intensity—a result that depends upon capital-skill complementarity. If Sattinger's analysis is correct (he presents supporting empirical evidence), the distributive consequences of a resource elasticity in excess of unity, in a growing economy, will be an increasing share of national income to labor *and* increasing inequality in the division of that share among earners.

Economic mobility across generations should be influenced by the relationship between lifetime resources and transfers to children. If economic immobility is defined as the degree of similarity in economic position of parents and children, mobility would be the lack of similarity across generations. Material inheritance affords parents the opportunity to influence their children's economic positions. Since higher wealth parents can be expected to make a larger financial bequest to their children than lower wealth parents, this bequest effect would reinforce the positive correlation between parent-child earnings (Sewell and Hauser, 1975) and reduce intergenerational economic mobility.

The Burden of a Consumption Tax

The U.S. Treasury (1977) has recently been considering the imposition of a consumption tax to replace the income tax. An annual tax on consumption, with a lifetime averaging scheme in which each year's tax is based on the average of present and past years, is tantamount to a a lifetime consumption tax. If transfers are an untaxed good, as I understand them to be in the proposal, the relationship between lifetime resources and transfers is critical in determining the burden of the tax. If, for example, transfers were a luxury good having a resource elasticity in excess of unity, a proportional consumption tax would be regressive with respect to lifetime economic resources. In fact, without knowledge of the elasticity of transfers with respect to total resources, we cannot say *a priori* what the rate schedule would have to be to ensure progressivity or even proportionality.

Some Prior Expectations

Though the elasticity of transfers or of bequests with respect to lifetime resources is still unknown, some rather strong *a priori* arguments have been made about its magnitude. Gary Becker (1974) presents a a model of intergenerational transfers in which the elasticity of bequests with respect to lifetime resources must exceed unity. His model assumes that family heads act as if they were maximizing a utility function as composed of the wealths of the present and *all* future generations descending from the family head. An assumption of homothetic preferences for all generations, present and future, is sufficient to guarantee that only a small fraction of an increment in the head's resources will be consumed by him, the rest going to his heirs. However, if the head's utility function is not homothetic with respect to the present and all future generations, and if the head does not act as if he is allocating his dynasty's income but only his own, Becker's conclusions need not follow.

Taking quite a different tack, Lester Thurow's (1975) model implies conclusions similar to Becker's concerning the resource elasticity of bequests. In Thurow's model, individuals do not hold or accumulate wealth with the bequest motive or an interdependent utility function motive in mind. In fact, Thurow dismisses the latter reason, citing the "mysterious" fact that large wealthholders do not fully utilize the opportunities to transfer property by making gifts, which are subject to lower rates of taxation than are bequests. A possible explanation for this apparent mystery is that the transfer of appreciated assets by gift is subject to capital gains taxation that uses original cost as the basis while transfer by bequest allows the basis to be stepped up to the value at death of the testator.

In Thurow's formulation, the motive for accumulating and holding wealth is economic power. Individuals enjoy the power that accrues from wealthholding until their death, at which time the wealth passes to heirs. since consumption of market goods and services is subject to diminishing marginal utility, while power, he asserts, is not, wealth and consequently bequests will rise disproportionately with lifetime resources.

However, the elasticity of bequests with respect to lifetime resources will exceed unity under much weaker conditions than those invoked by Thurow. Blinder (1974) points out that the bequest elasticity will exceed unity as long as the marginal utility of consumption declines at a faster rate than the marginal utility of bequests—a condition that I find quite reasonable.

Some Problems in Estimation

The absence of knowledge about the relationship between lifetime resources and transfers in general, or even bequests alone, is due to the lack of appropriate data. As Blinder states (1976b, p. 92): "To date, lack of either time series or cross-section data on lifetime income and bequests has precluded direct measurement of the wealth elasticity of bequests. . . . it must be admitted that we know relatively little about the wealth elasticity of bequests." It should be pointed out that the data base required to answer the questions posed above would match individual earnings histories and inheritances received with *actual* bequests, not notional or planned bequests (unless plans are perfectly realized, an unlikely occurrence when the time and costs of death are not known with certainty and capital markets are less than perfect). Furthermore, efforts to estimate the relationship between earnings histories and net worth held by living individuals as reported in a survey might be quite imprecise because of nonresponse and response error. There is evidence that high income and high wealth individuals are more likely not to respond than others (Projector and Weiss 1966, p. 58; Ferber 1965, 1969). It has also been found that response bias has the effect of overstating small asset holdings and understating large holdings. (Ferber 1905, 1969). If these factors are operating, the bias would be predictable. The regression coefficient of reported earnings on reported net worth would be *biased downward* if the data base was not adjusted for nonresponse and response error.[5]

4.2 Two Simple Models

I formulated two simple models for my analysis, a linear form and a nonlinear form. Each will be described in turn.

4.2.1 The Linear Form

Let us say that net worth A is a linear function of "full wealth" W, such that,

$$A = \alpha_0 + \alpha_1 W + \epsilon$$

with ϵ the stochastic error term. Full wealth, W, is the sum of two components: the present value of potential lifetime earnings, E, and the present value of inherited wealth, I.

Since $W = E + I$, we get

$$A = \alpha_0 + \alpha_1 E + \alpha_1 I + \epsilon$$

as the basic linear specification.[6] Net worth in this paper is measured at a very specific point, death, when its magnitude is revealed in the probate records. Hence, we are analyzing a particular net asset holding function. It is the function relating full wealth—potential earnings and inheritance—to terminal wealth or bequests. The present value of *inter vivos* transfers made and received should, of course, be included in both A and I. Gifts, to the extent that they were revealed in the probate records, were therefore included in my empirical work.

It is important to note that potential rather than actual earnings are specified in the model. Since potential earnings (average wage rate multiplied by a "standard" number of hours) are independent of variations in leisure time consumed, this formulation avoids a possible source of endogeneity between inheritance received and labor supply, and consequently actual earnings.

In the primary data base used in this study only two of the three variables are observable, A and I. Earnings (both potential and actual) are unobservable. If E and I are positively correlated, that is, if inheritors of large amounts are able to earn more than inheritors of small amounts, the estimate of α_1 (as well as the intercept α_0) from the regression equation is biased upward. There are many possible reasons to think earnings and inheritance are positively correlated: more schooling, which is a result of wealth and leads to high wage rates; genetic endowments that influence earnings (this hypothesis is controversial); family background effects on tastes; and, quite simply, either family or "class" nepotism. If E and I are positively correlated, for whatever reason, the estimated coefficient α_1 must be adjusted downward. The unbiased estimate, α_1, is related to the biased observed estimate, α_1, by the equation

$$\alpha_1 = \alpha_1/1 + \frac{\text{COV}(E,I)}{\text{VAR}(I)}$$

In this paper, I try to correct for this omitted variable bias in two ways: first, by using occupational groupings as proxies for earnings, and second, by using extraneous information (data from another sample) to estimate the covariance-variance ratio.

One definition of α_1 is the marginal propensity to bequeath. The elasticity of the dependent variable with respect to the independent variables depends, of course, on where along the function the elasticity is evaluated. Standard procedure is to evaluate the elasticity at the mean, since we know that the function goes through that point. Since we do not know mean full wealth in this sample, this specification cannot reveal the full wealth elasticity of bequests.

4.2.2 The Double Log Form

Let us now assume that terminal wealth is related to full wealth as follows:

$$A = e^{\gamma_0} W^{\gamma_1} e^{\epsilon}$$

where $W = E + I$, with ϵ the stochastic error term. We may decompose W to get

$$A = e^{\gamma_0} \left[I \left(1 + \frac{E}{I} \right) \right]^{\gamma_1} e^{\epsilon}$$

Taking natural logs we get,

$$\ln A = \gamma_0 + \gamma_1 \ln I + \gamma_1 \ln \left(1 + \frac{E}{I} \right) + \epsilon$$

In this constant elasticity specification, γ_1 is the full wealth elasticity of bequests. In this model the omitted variable is ln $[(1 + E/I)]$ and the unbiased estimate of γ_1 is related to the biased estimate by

$$\hat{\gamma}_1 = \tilde{\gamma}_1 / 1 + \frac{\text{COV} \left[\ln I, \ln \left(1 + \frac{E}{I} \right) \right]}{\text{VAR} \ln I}$$

with $\hat{\gamma}_1$ the unbiased and $\tilde{\gamma}_1$ the observed coefficient. One would expect a negative correlation between ln I and ln $[1 + (E/I)]$ since the inheritance term appears in the numerator of one variable and in the denominator of the other. Consequently, it is expected that to correct for the bias, the estimated coefficient γ_1 would have to be adjusted upward in magnitude. Data from another sample (as already mentioned) will be used to correct for omitted variable bias.

At this stage it is appropriate to consider the implication of these alternative functional forms. The linear form assumes that given increments in full wealth evoke constant incremental changes in bequests (and in lifetime consumption), without regard to the preincremental full wealth position.

The double log form assumes constant proportional responses, with the constant of proportionality being the parameter of interest. The assumption of proportional effects embodied in the double log model seems more plausible to me on *a priori* grounds. Individuals with low full wealth are restricted by their budget constraint in their ability to bequeath; hence variations around the mean would tend to be restricted. Higher full wealth individuals would be less constrained by their budget and the variation in their bequests would tend to be higher. This question is analogous to the issue of error structure in cross-section budget studies. Findings by Prais and Houthakker (1955) support the view that the error variance rises with income in the cross-section studies of expenditure patterns. Furthermore, if the interest rate used to compute the value of full wealth had an error component in it, we would expect the size of the discrepancy between actual and predicted bequest to vary directly with full wealth. In the linear model, simple additivity of the error term, combined with an assumption of a constant error variance, would not yield a discrepancy that increases with full wealth. However, since the error enters the double log specification in a multiplicative fashion, discrepancies that increase in size with full wealth are allowed. In any case, this paper uses two statistical procedures in an effort to determine which form is more appropriate.

4.3 The Data

The starting point for my study was a master file of 1,050 Connecticut residents who died in the 1930s and '40s leaving estates of $40,000 or more in current dollars—obviously a very wealthy group.[7] In approximately half the cases, obituary column data was also available. There were 614 cases in which children were indicated by the death records. These 614 parents had 1,458 children, for an average of 2.37 children per family.

The number of children whose probate records were actively searched for was reduced to 1,182, for two reasons: (a) in certain cases, names were illegible or were not given; (b) it was assumed that daughters who were unmarried at the time of the parent's death would eventually marry and change names. (I eventually searched for some of the unmarried daughters and found a small subsample.)

4.3.1 Bequests

In order to find the probate records of the children, I first searched the index of deaths in the Connecticut Department of Vital Records. If a name from my active list turned up, I checked the actual death certificate, which listed the name of the child's parents (information I also had from the parent's probate records) and allowed me to make a positive match between parent and child. I then tracked down the estate of the children in the probate files, and using similar methods, I tracked down the estate of the spouse of the parent in the original sample. Connecticut does not have an annual index of deaths before 1948, and I located only 191 cases in which both parents' estates are known; I have used this subsample here.

The 1,182 cases searched are accounted for as follows:

Cases found	300
Women listed by husband's first name and therefore lost to the sample	12
Search error (estimate)	100
Individuals still alive (estimate)	150–200
Individuals who died out of state (estimate)	570–620

The estimate that 150–200 individuals were alive in 1976 (the last year that was searched) is based on the age distribution of the children. The considerable search error came in making matches based on death data. In order to approximate the magnitude of this error, I ran through my entire list of 1,182 at a designated probate district, and found a number of children in the probate files that I had overlooked in the death index. The proportion of my sample that fell within this district gave me an estimate of 100 cases lost by search error.

If the heirs of a child in my sample did not file because the child in my sample had no wealth or negative wealth, truncation of the dependent variable might bias my results. According to Connecticut statutes, however, records for estates of *any* positive size must be filed, even if only a small estates affidavit is made. The Connecticut Probate Administration has recently begun to tabulate the number of estates in which records are filed on a yearly basis. In 1975, the first year of tabulation, they reported 19,939 cases filed. The total number of deaths of adult Connecticut residents in 1975 is 24,466; we thus can estimate a filing ratio of 81.5 percent (State of Connecticut 1977).

How likely is it that one of the children in my sample fell in the bottom 18.5 percent (those who did not file because there was no estate), after having been born to parents in roughly the upper 2 percent of the wealth distribution? Projector and Weiss (1966) report, by wealth class, the proportion of consumer units for whom inherited assets constitute a "substantial" proportion of total assets. The bottom wealth class (less than $1,000) constitute 26 percent of the consumer units. Since my sample was drawn from inheritors, the inherited portion of total wealth for any low wealth member of that sample should be substantial. The number of the group that reported the answer "substantial" is zero. This does not, of course, prove lack of truncation bias, but it does suggest that the problem is minimal in this particular sample.

A potentially more serious problem is the lack of data for those who moved out of state. If the movers earn more than the stayers, the measured ratio of inheritance to terminal wealth will be biased upward. (The danger of bias is much less for the coefficient estimates, since the market for capital is a national market.) If it is true that movers earn more than stayers, the measured ratio of inheritance to terminal wealth will be biased upward in this study. However, I do not think we can say on *a priori* grounds that movers will earn more than stayers; we can only argue that those who move do so because they think their earnings opportunities will be greater after moving than they would have been if they had chosen to stay.[8] Furthermore, the decision to move from an area can be expected to depend on prospects at both the destination and the origin. Connecticut is the richest state in per capita income in the continental United States.[9] Prosperous or soon-to-be-prosperous people are more likely to move from relatively poor states, for instance, Mississippi, to wealthy areas. The mover/stayer issue might, therefore, cause biases in intergenerational studies centering on these states. Since Connecticut is a wealthy state the danger of bias is not nearly so great as it would be for other states.

An additional argument for assuming that the mover-stayer issue is not a problem in my sample is that the people I studied tended to own businesses or were corporate executives and successful professionals. Individuals operating their parents' businesses would tend to be stayers. Corporate executives outside Connecticut are unlikely to be more successful than Connecticut corporate executives, given the agglomeration of high corporate executives residing in Fairfield County. The same argument would hold for successful professionals. Wealthy lawyers, for instance, who work in the New York metropolitan area are likely to live outside it, and Connecticut has never had an income tax (New York has one). Finally, the median estate for the sixteen out-of-state decedents that I was able to find was only 1 percent higher than that of the instate decedents.

4.3.2 Inter Vivos Transfers

If a gift is made "in contemplation of death," it is treated as a bequest for Connecticut death tax purposes. However, whether or not a particular gift is made in contemplation of death is a matter for the probate authorities to decide, and all gifts are supposed to be revealed to the authorities, whether they will ultimately be considered taxable or not. I incorporated the information on gifts revealed in the probate records, using rates of return discussed below, in my definitions of inheritance received and terminal wealth.

4.3.3 Contingent Bequests

When a testator bequeaths the life interest of an asset to an heir, with the asset itself passing to a subsequent heir (the remainderman) after the initial heir dies, the present value of the contingent bequest is allocated to the remainderman. The present value is calculated using the age and life expectancy of the initial heir and an appropriate discount rate (4% was used by the Connecticut authorities). The difference between the current value of the asset and the present value of the contingent interest is allocated to the life tenant.

4.4 Empirical Results

What is the proportion of material wealth attributable to inheritance among the people in this sample of inheritors? A simple answer to this question, following in the tradition of the two previous studies cited, would be to compute the ratio of the present value of inheritances received to wealth held when the data are revealed to us, i.e., upon the death of the inheritor.

Inheritance is defined in this paper as including only bequests and gifts (as revealed in the probate records) from both parents. It excludes inheritances received from others (grandparents, spouse, siblings, and so on) and is, therefore, a lower bound estimate of total inheritances received by the child. We should use the present value, at death, of inheritance received, since a dollar of wealth received in the past would potentially grow at the market rate of return over time; its present value would, therefore, indicate its current command over resources. If the ratio of the present value of inheritance received and terminal wealth is less than unity for an individual, we can say that in a life cycle sense he was a net saver out of his own earnings. Conversely, if the ratio exceeds unity, he was a net "depleter."

There are several possible complications in this approach. If individual net worth reaches a peak and then declines with age, the denominator of the ratio (net worth at death) would be understated relative to the lifetime peak. Moreover, if the rate of return was positive in the period after the individual's peak wealth position, the ratio of inheritance and wealth would tend to be overstated (relative to the peak) for both of these reasons. There is, however, an increasing body of evidence that suggests that wealthholding rises monotonically with age, and that individuals die at or near their lifetime peak (Mirer 1979; Smith 1975; Shorrocks 1975). Within my sample I found no significant effect of age at death or age at death squared on terminal wealth or the log of terminal wealth. Since, as Shorrocks points out, a flat age-wealth relation in the cross-section implies an increasing individual profile over time if real productivity is growing, these data imply that wealth is at a lifetime peak at death.

Another possible complication would occur if there were changes over time in the share of full wealth that parents expend on human capital investments in their children. For example, suppose the parents in the sample purchased only a high school education for the children, while the children purchased a college education for their own children. In such a case, children who were identical to their parents in every respect, except for a difference in the composition (not total amount) of their intergenerational transfer, would more likely be classified as "depleters" than their parents, since human-capital-augmenting expenditures are not measured in this study.

The real value (in 1967 dollars) of the terminal wealth of the 191 children in my sample is highly skewed, with a mean of $1,086,000, a median of $156,520, and a standard deviation of $3,811,848.[10] The value of inheritance received from parents in *real* (not present-value) units has a mean of $205,077, a median of $57,846, and a standard deviation of $386,098. The ratio of real inheritance received and terminal wealth for each child is distributed as follows:

Percentile	
5th	.030
25th	.125
50th (median)	.293
75th	.810
95th	7.548

These ratios, generally less than unity, indicate the proportion of terminal wealth attributed to inheritance *only* from parents in a world in which the real rate of return is zero. Using this method, we see that at the median the ratio of inheritance to terminal wealth is approximately .30, implying that inheritance accounts for 30 percent of terminal wealth. A more realistic technique is to compute these ratios with positive real rates of return.

In order to compute present values it is necessary to choose appropriate measures of the market rate of return, i.e., that rate at which wealth would grow from the time the bequest was received to the time of death of the child. I used four different rates: an interest rate (the rate on prime commercial 4–6 months paper),[11] and three stock market rates. The stock market rates were constructed from the Fisher and Lorie (1977) stock index, using three alternative tax treatments of the dividends yielded.[12] (Since I want the total rate of return I use the rates that assume all dividends are reinvested.) The first assumption is that no tax was paid, the second that tax was paid at a medium rate (the rate on an individual with taxable income of $10,000 in 1960), and the third that tax was paid at a high rate (the rate at the $50,000 level in 1960).

The interest rate on prime commercial 4–6 months paper kept only slightly ahead of inflation. Over the period 1926 to 1960, for example, an asset growing at this interest rate would have increased in market value by 197 percent. But during the same period prices rose by 167 percent. The value of stocks using the high tax rate index grew 1,737 percent between 1926 and 1960, and the growth rates of the other two series were even greater. We may thus think of the interest rate return as a conservative return that only modestly augments the real value of the portfolio.

Table 4.1 presents the size distribution of the ratio of present value of inheritance received and terminal wealth, using four asset price indexes. There is substantial variation in the ratio for each index used. The interest rate index implies that at the median, about 50 percent of the child's terminal wealth can be attributed to parental inheritance. If this index is the appropriate rate of return, we can say that most of the children were net savers out of own earnings. The results using the three stock price indexes are quite different. Index 2, for example, assumes a value of 4.40 at the median. This implies that the median child not only consumed all his own earnings, but most of the yield from his inheritance (dividends as well as capital appreciation), and still left an estate more than three times that left to him by his parents, in constant dollars (since the median ratio of the real value of inheritance to terminal wealth is about .3). Let me add as qualifications, that the stock price indexes do not take capital gains taxation into account and that the typical portfolio may have included less productive but perhaps less risky assets than shares on the New York Stock Exchange. In any case, the results in column 1 indicate that if the median child's inheritance grew only as fast as the interest rate index, parental inheritance alone would amount to one-half of the child's terminal wealth. If higher rates of return are used, parental inheritance would amount to a much greater share of terminal wealth and, in fact, exceed unity.

4.4.1 The Demand to Bequeath: Uncorrected Estimates

In this section regression results relating terminal wealth to inheritance received are presented. Recall that these estimates are biased due to the

Table 4.1 Ratio of Real Present Value of Inheritance Received from Parents and Real Terminal Wealth

	Asset Price Indexes			
Distribution (percentile)	Index 1 Interest Rate	Index 2 Stocks–High Tax	Index 3 Stocks–Med. Tax	Index 4 Stocks–No Tax
5	.05	.36	.42	.46
25	.25	1.40	1.74	2.01
50	.51	4.40	6.15	7.86
75	1.48	12.50	16.50	21.30
95	11.26	154.00	180.00	260.00

omission of lifetime earnings from the regression. First, the results from the linear model are presented, then the double log results.

The dependent variable in these regression equations is the value of terminal wealth (in constant 1967 dollars) of the children. If a child made a gift, its value is added to terminal wealth after it has been inflated with one of the four indexes mentioned above. Four versions of the major independent variable, present value (also in 1967 dollars) of inheritance received from mother and father, were constructed using the four indexes. The bivariate regression results appear in table 4.2. As can be seen, the coefficient estimates are quite sensitive to the asset price index used.

The wide range in coefficient estimates is a consequence of the scaling of the independent variable. The higher the rate of return used the greater the real present value of the inheritance received, and the lower the value of its coefficient estimate. In a case like this, the $\bar{R}^2$ tells us something about the appropriate results to rely upon. The independent variable is constructed from three components, nominal inheritance received, the time between the child's death and that of his parents, and the rate of return. Only the third factor varies across regressions, and the $\bar{R}^2$ tells us that the first index provides the least information in explaining the variation of the dependent variable. The $\bar{R}^2$ for the last three regressions implies that for this group nearly 60 percent of the variation in terminal wealth is explained by variation in inheritance received.

In table 4.3 the loglinear regression results are presented; they indicate that the uncorrected full wealth elasticities cluster between .32 and .38.

Table 4.2 Regression Results: Real Terminal Wealth (RWLTH) as a Linear Function of Real Present Value of Inheritance Received (RPVNHER)

	Independent Variable					
Dependent Variable	RPVNHER #1	RPVNHER #2	RPVNHER #3	RPVNHER #4	Constant	$\bar{R}^2$
RWLTH #1	2.801 (10.5)				−74,234.6	.358
RWLTH #2		.1860 (16.7)			60,649.0	.595
RWLTH #3			.1253 (16.6)		95,800.1	.591
RWLTH #4				.0939 (16.3)	120,828.5	.582

Note: "*t*" ratio in parentheses; $n = 191$.

Table 4.3 **Regression Results: Log of Terminal Wealth (LWLTH) on Log of Inheritance (LPVNHER)**

	Independent Variable					
Dependent Variable	LPVNHER #1	LPVNHER #2	LPVNHER #3	LPVNHER #4	Constant	$\bar{R}^2$
LWLTH #1	.3833 (6.63)				7.642	.185
LWLTH #2		.3388 (7.28)			7.502	.215
LWLTH #3			.3346 (7.37)		7.466	.219
LWLTH #4				.3287 (7.36)	7.482	.219

Note: "t" ratio in parentheses, $n = 191$.

Additional explanatory variables were added to the regression equations. SEX is a dummy variable assuming a value of unity for males, zero for females. Three marital status dummies were added, MAR, WIDOW, and NEV MAR. These assume a value of unity if the subject was married (at time of death), widowed, or never married. Divorced persons constitute the excluded basis. SIBSHIP is the number of the child's siblings plus one. Birth cohort dummies were added to the regression to link the subject's wealth accumulation behavior to history, since people born at different times faced different economic environments during their lives. BC1, BC2, BC3, BC4, and BC5 assume values of unity if the subject was born before 1876, from 1876 to 1885, from 1886 to 1895, from 1896 to 1905, and from 1906 to 1915 respectively. The excluded basis consists of those born after 1915. UBC consists of those whose birth cohort could not be determined with the available data (there are eight such cases). Occupational dummies were added as well: OCC_1 has a value of unity for those owning a business; OCC_2 for business executives, OCC_3 for those engaged in domestic duties, OCC_5 for those whose occupations could not be determined from the available data, OCC_6 for those who were independent professionals. (OCC_4, the excluded basis, assumes a value of unity for those in all other occupations.) The regression results are presented in tables 4.4 and 4.5. This battery of demographic and occupational variables adds little in terms of $\bar{R}^2$ or statistical significance (with the possible exception of OCC_1 in table 4.5, implying that business owners save at higher rates than others).[13] Inclusion of these variables has a negligible effect on the coefficient estimates of the inheritance variable. I also experimented with additional variables: age (at death), age squared, and the number of children of the inheriting child. These added nothing in terms of statistical sig-

Table 4.4 **Regression Results: Effect of Explanatory Variables on Terminal Wealth**

Independent Variable	Dependent Variable: RWLTH #1		RWLTH #2		RWLTH #3		RWLTH #4	
RPVNHER #1	2.747	(9.49)						
RPVNHER #2			.187	(11.14)				
RPVNHER #3					.126	(15.86)		
RPVNHER #4							.095	(15.57)
	In 000s							
SEX	−382.3	(−.518)	178.3	(.305)	190.9	(.324)	208.1	(.349)
MAR	469.0	(.423)	485.2	(.556)	463.2	(.526)	458.1	(.513)
WIDOW	−81.5	(.068)	−397.1	(−.419)	−405.7	(−.424)	−422.4	(−.435)
NEV MAR	−25.4	(.020)	−172.4	(−.173)	−194.3	(.193)	−191.1	(−.187)
SIBSHIP	−34.4	(−.234)	22.3	(.194)	16.6	(.143)	12.4	(.105)
BC_1	−810.6	(−.325)	100.5	(.051)	210.9	(.107)	267.7	(.133)
BC_2	−486.0	(−.207)	−283.5	(−.154)	−214.4	(−.115)	−177.2	(−.094)
BC_3	−434.9	(−.185)	−374.2	(−.202)	−345.3	(−.185)	−316.7	(−.167)
BC_4	−235.4	(−.099)	8.49	(.005)	30.0	(.016)	50.7	(.027)
BC_5	16.2	(.007)	748.0	(.394)	719.6	(.375)	708.3	(.364)
UBC	444.7	(.271)	−1,390.2	(−1.07)	−1,471.3	(1.13)	−1,479.5	(−1.16)
OCC_1	981.7	(1.25)	462.0	(.744)	467.5	(.746)	488.0	(.768)
OCC_2	−104.2	(.114)	−202.8	(−.283)	−226.3	(.313)	−246.4	(−.336)
OCC_3	−428.4	(.499)	−81.2	(−.120)	72.4	(.106)	60.4	(−.087)
OCC_5	−318.1	(.364)	34.9	(.051)	63.4	(.091)	54.8	(.078)
OCC_6	1,342.2	(.364)	780.6	(.980)	851.1	(1.06)	888.2	(1.09)
CONSTANT	275.6		−227.1		−209.0		−208.2	
$\bar{R}^2$ (adj.)	.325		.606		.599		.588	

Note: "*t*" ratio in parentheses.

Table 4.5 **Regression Results: Effect of Explanatory Variables on Log of Terminal Wealth**

Independent Variable	Dependent Variable							
	LWLTH #1		LWLTH #2		LWLTH #3		LWLTH #4	
LPVNHER #1	.358	(5.85)						
LPVNHER #2			.321	(6.61)				
LPVNHER #3					.318	(6.74)		
LPVNHER #4							.313	(6.75)
				In 000s				
SEX	−.326	(−.751)	−.271	(−.635)	−.285	(.668)	−.284	(−.665)
MAR	.387	(.586)	.375	(.579)	.363	(.561)	.362	(.559)
WIDOW	.250	(.351)	.212	(.303)	.198	(.283)	.188	(.268)
NEV MAR	.137	(.182)	.147	(.199)	.108	(.147)	.104	(.141)
SIBSHIP	−.076	(−.873)	−.112	(−1.34)	−.114	(−1.35)	−.116	(−1.38)
BC_1	−1.33	(−.908)	−1.50	(−1.04)	−1.47	(−1.02)	−1.46	(−1.01)
BC_2	−1.04	(−.749)	−1.26	(−.926)	−1.26	(−.930)	−1.26	(−.932)
BC_3	−1.18	(−.849)	−1.34	(−.983)	−1.38	(−1.01)	−1.39	(−1.02)
BC_4	−1.61	(−1.15)	−1.67	(−1.22)	−1.70	(−1.24)	−1.71	(−1.24)
BC_5	−.978	(−.688)	−.958	(−.684)	−1.01	(−.721)	−1.03	(−.739)
UBC	.275	(.285)	.496	(.522)	.431	(.455)	.409	(.432)
OCC_1	.972	(1.99)	.953	(2.10)	.968	(2.14)	.976	(2.16)
OCC_2	.547	(1.02)	.549	(1.04)	.563	(1.07)	.564	(1.07)
OCC_3	−.177	(−.351)	−.148	(−.298)	−.168	(−.339)	−.172	(−.347)
OCC_5	.347	(.676)	.392	(.776)	.439	(.870)	.446	(.883)
OCC_6	.551	(.929)	.509	(.871)	.529	(.908)	.539	(.924)
CONSTANT	8.94		8.98		8.96		8.98	
$\bar{R}^2$ (adj.)	.162		.199		.205		.205	

Note: "*t*" ratio in parentheses, $n = 191$.

nificance, did not increase $\bar{R}^2$, and did not alter the coefficient of inheritance or log of inheritance received.[14]

4.4.2 Correcting for Omitted Variable Bias

I used information from another data base, that in Morgan et al. (1962), to estimate the covariance/variance ratio between the excluded and included variables. This survey asked if the respondent received an inheritance. If the answer was yes, it asked how much, and when. There were also questions about earnings and hours worked. I used a subsample of respondents aged 55 to 64. Since my interest was in matching results from my sample with those having the same attributes in the Morgan study, I used only those 124 families reporting that they had received positive inheritances. Annual earnings were divided by annual hours to generate wage rates. Positive wage rates were assigned to those with zero wages (both husband and wife), using a potential earnings code based on age, sex, and education. Since the year of inheritance was reported, I was able to calculate the present value of inheritance received, assuming a 5 percent discount rate. The observed correlation between wage and inheritance received for this group of inheritors was positive, .17.

To estimate a value for E, potential lifetime earnings, I used the lifetime age-earnings profile presented by Mincer (1974), and discounted lifetime earnings to age 59.5 at a 5 percent rate. I assumed a working life beginning at 18 years of age and ending at 65. The correction factor in the linear model is the covariance of E and I, divided by the variance of I, plus one. The estimated covariance/variance ratio came to 1.139, implying a correction factor of 2.139. Hence, the unbiased coefficient estimates of inheritance on terminal wealth are less than one-half the biased estimates. The unbiased coefficient estimate, α_1 in the linear model (using the results from table 4.1), is 1.31 when the interest rate of return is used. When the stock price indexes are used to compute present value of inheritance received, the α_1 estimates are .087, .059, and .044 for the high tax, medium tax, and low tax rates of return respectively. If we select the rates of return that maximize the proportion of explained to total variance of the dependent variable in the regression equations, the coefficients that we obtained when using the stock price rates are chosen. The coefficient .087, corresponding to the high tax rate index, is consequently the most preferred estimate of the marginal propensity to bequeath out of full wealth when the model is constrained to be linear.

I found the correlation between the omitted and excluded variables in the loglinear model—recall that these were $\ln I$ and $\ln [(1 + E/I)]$—to be sharply negative: —.883. The covariance was —2.225 and the variance of $\ln I$, 2.586. Hence, the covariance/variance ratio is computed to be —.86. The correction factor is therefore .14, implying that the true full wealth elasticity is more than seven times the biased estimates obtained in the loglinear models. The unbiased elasticity estimates γ_1, using the interest and stock price rates of return, were computed to be 2.75, 2.42, 2.40, and 2.36 respectively. Hence, regardless of the choice of discount rate, the estimates of the elasticity of bequests are in the elastic range when the double log form is used.

4.4.3 Determination of Functional Form

Maximum likelihood methods have been devised by Box and Cox (1964) for choosing among alternative function forms. Heckman and Polachek (1974) have utilized this technique to choose among alternative forms of the earnings/schooling relationship.[15] Using a transformation of the sum of squared residuals, I selected the double log form over its alternative, the linear specification. As an additional test, the parametric test developed by Goldfeld and Quandt (1965) was used to select between the linear and double log form. Applying this procedure, I find that the linear specification fails to yield homoscedastic residuals. The residuals from the double log form do indeed exhibit homoscedasticity. Thus, the assumption of constant proportional effects assumed in the double log form is supported by these two tests.

4.4.4 Computing Confidence Intervals

As I mentioned in section 4.1, the magnitude of the elasticity of bequests with respect to lifetime resources has theoretical and policy implications. It is most important to know if this elasticity exceeds unity. On the basis of the Goldfeld-Quandt test, it was determined that the disturbances in the double log model are homoscedastic and that therefore the estimated variance of $\hat{\gamma}_1$, the full wealth elasticity, is unbiased. Consequently we can construct confidence intervals around $\hat{\gamma}_1$, and test hypotheses using standard procedure.

The unbiased estimate of the full wealth elasticity is a function of two components, the biased estimate of γ_1 and the correction factor (call this factor β). Hence $\hat{\gamma}_1 = f(\tilde{\gamma}_1, \beta)$. Using the Taylor expansion for f the variance of $\hat{\gamma}_1$ can be approximated as

$$VAR(\hat{\gamma}_1) \approx \left(\frac{\partial f}{\partial \tilde{\gamma}_1}\right)^2 VAR(\tilde{\gamma}_1) + \left(\frac{\partial f}{\partial \beta}\right)^2 VAR(\beta) + 2\left(\frac{\partial f}{\partial \tilde{\gamma}_1}\right)\left(\frac{\partial f}{\partial \beta}\right) COV(\tilde{\gamma}_1, \beta)$$

The covariance term is zero since the estimates were taken from independent samples. In this case $f(\tilde{\gamma}_1, \beta) = \tilde{\gamma}_1/\beta^2$, so $(\partial f/\partial \tilde{\gamma}_1)^2 = 1/\beta^2$ and $(\partial f/\partial \beta)^2 = \tilde{\gamma}_1{}^2/\beta^4$.

Using the estimated variances, the standard errors of $\hat{\gamma}_1$ are easily computed and are presented in table 4.6. Given the size of the standard errors we can reject the null hypothesis that our elasticity is unity at the .025 level for each of the four estimates. These data support the hypothesis that bequests are luxury goods.

4.4.5 Are the Results Believable?

Though 2.5 may at first seem like a high elasticity of bequests with respect to lifetime resources, it is plausible if we keep the Engels aggregation property in mind. This property states that, for a consumer, the weighted sum of income elasticities for each good is unity, with the weights being the share of one's budget expended on each good. In the lifetime context of my model there are two goods, lifetime consumption and bequests, and lifetime resources (full wealth) constitute the income measure. Hence,

$$\alpha_C E_C + \alpha_B E_B = 1$$

with E_C and E_B the elasticities of lifetime consumption and bequests with respect to lifetime resources, and α_C and α_B the respective budget shares. Since, for the overwhelming majority of people, bequests constitute a small portion of lifetime resources, α_C would tend to dominate α_B in magnitude; hence the weighted sum of E_C and E_B would be unity even with seemingly high values of E_B. For example, if as estimated in this paper $E_B = 2.5$, we get

$$\alpha_C = \frac{1.5}{2.5 - E_C}$$

Though an estimate of the elasticity of consumption with respect to lifetime resources has not appeared in the literature, a measure that is conceptually very similar to it has been estimated: the permanent income elasticity of consumption. Permanent income has been defined as the perpetual flow yield of an asset equal in value to lifetime resources. Since the annual yields of perpetual and life annuities of equal present value

Table 4.6 **Estimates of the Full Wealth Elasticity of Bequests**

Asset Price Index	Unbiased Elasticity	Standard Error
Interest rate	2.75	.840
Stock price high tax	2.42	.645
Stock price medium tax	2.40	.593
Stock price low tax	2.36	.633

are quite similar, the permanent and lifetime income elasticities of consumption should be quite similar.[16] Estimated permanent income elasticities of consumption fall in the range of .85 to .95.[17] Using the above relationship, elasticities of .85, .90, and .95 predict lifetime consumption budget shares of .9090, .9375, and .9677 respectively. Hence my bequest elasticity of 2.5 is quite consistent with existing estimates of the permanent income elasticities of consumption as long as budget shares for bequests are less than 10 percent—a requirement that is plausible for the overwhelming majority of consumers.

4.5 Conclusion

This paper estimates the ratio of inherited to total wealth at death for a sample of children of wealthy parents. This ratio is quite sensitive to the choice of discount rate used. If the interest rate or prime commercial paper 4-6 months is used, the median ratio is .5. If the rate of return on stocks is used, the ratio is substantially greater, exceeding unity.

Two models, a linear and a double log model, were estimated for the relationship of net worth at death to "full wealth," the sum of potential lifetime earnings and inheritance received (both expressed in present value units). Statistical methods determined that the double log model was more appropriate to this set of data. The implication of this functional form is that lifetime saving is generated by constant proportional, not absolute, responses. Since the constant of proportionality, the full wealth elasticity, clusters around 2.5 we can say that a 1 percent increase in full wealth will result in a 2.5 percent increase in lifetime saving. Consequently a more egalitarian state will have a lower savings rate (in a life cycle sense) than a less egalitarian state, other things being the same. One must, however, be careful about concluding that a consequence of equalizing income redistribution will necessarily be to reduce the rate of total capital formation. If income is redistributed in ways that augment people's productive abilities, the rate of increase of total capital, both physical and human, need not be diminished. For example, if as a consequence of income inequality children born to low income parents are less likely to achieve their earning potential than other children, then income redistribution in cash or in kind may augment human capital, and offset the reduction in the growth of nonhuman capital.[18]

There is a further reason for caution in concluding that an equity–capital formation tradeoff exists. Equalizing the income distribution need not reduce macro capital formation if other policy adjustments are made as well. Use of monetary or fiscal policy, i.e., increased government saving or expanded use of investment incentives, can prevent the rate of capital formation from falling.

If it is true that the elasticity of bequests with respect to life resources is 2.5, the lifetime marginal and average propensities to consume fall with life income in the cross-section; this implies that a lifetime consumption tax having a proportional rate structure will be regressive with respect to life resources. Furthermore, as long as the intercorrelation between the earnings of parents and children is positive, intergenerational transfers will reduce economic equality within a generation and reduce economic mobility across generations.

Closing on a note of caution, I must add that the parameter estimates presented in this paper depend on the correction factors used, correction factors that used only one year of earnings information to construct a lifetime earnings estimate. To obtain results resting on firmer ground we need new data sources that link multiyear earnings histories with either inheritance received, terminal wealth, or both.

Impressive analytical and simulation models have been devised to study the distribution of wealth and the intergenerational transmission of wealth inequality. It is now up to empirical research to keep pace with these impressive advances.

Notes

1. John Brittain (1978) is attempting to answer a question similar to the first question, using an indirect approach.

2. Levhari and Mirman (1977) have analyzed the saving-consumption decision when length of life is uncertain. Uncertainty can either increase or decrease lifetime consumption; the net effect is not known *a priori*.

3. If $b = 0$, people would not bother to change wills as a consequence of changes in death taxation in which the level of death taxation varies with the form of estate devolution. In fact, one could argue that if $b = 0$, people would not write wills at all since the legal fees associated with will writing can be a costly expenditure diverting resources from consumption.

4. In fact, evidence presented by Sewell and Hauser (1975) reveals a positive correlation of about .2 between the earnings of parent and child. This would tend to strengthen the disequalizing effect of transfers that proportionately increase with increasing resources.

5. An example of an unadjusted data base is the Retirement History Survey of the Social Security Administration (Ireland et al. 1976).

6. Present values are calculated to the point in time when A is measured.

7. I am indebted to William McKinstry for making this data base available to me.

8. To check the probable magnitude of this problem, we estimated the ratio of the earnings of Wisconsin high school graduates who moved out of state to the earnings of the stayers, 17 years after graduation. It revealed that movers earned 26 percent more than stayers. However, for those whose parents were in the top 10 percent of the income distribution, the ratio was only 9.6 percent, which sug-

gests that the differential falls as we move up the parental income distribution. This tabulation was done for me by Robert Hauser using the Sewell and Hauser (1975) sample.

9. In fact, it could be argued that mover/stayer bias could run in the opposite direction, if lower earners move to less expensive or affluent areas outside Connecticut.

10. The price deflator used is the Consumer Price Index compiled by the Bureau of Labor Statistics.

11. The annual index was computed using the series presented in the U.S. Bureau of the Census (1975) and updated in the annual series, *Statistical Abstract of the United States.*

12. Fisher and Lorie's rates of return are based on the behavior of all stocks listed on the New York Stock Exchange and constitute the most comprehensive stock index ever constructed. I constructed an asset price time series from their annual rates. Since their annual rates include only one digit past the decimal, the cumulative effects of rounding can be substantial. The procedure inflates the value of an inheritance received at a time t_o, N_{t_o}, to a value at time T, PV_T, in the following way:

$$\frac{PV_T}{N_{t_o}} = \prod_{i=t_o}^{T} (1 + r_i) \text{ with } r_i \text{ the rate of return in year } i.$$

For the rates used see Fisher and Lorie (1977, pp. 24–25, 28–29, and 32–33).

13. I was suprised that WIDOW, a dummy assuming a value of unity if the person was a widow or widower, was not positive and significant. Since I do not have the interspousal transfers of children in the data base, I though that surviving spouses, having an opportunity to inherit from their mates, would possess more terminal wealth than others in the sample.

14. Could it be that for this group, only inheritance matters?

15. Discussions of this technique are presented in econometrics textbooks by Zarembka (1974) and Rao and Miller (1971).

16: For example, with a 10 percent interest rate the annual yield of a 50-year annuity is less than 1 percent greater per annum than the yield of a perpetual annuity of equal present value.

17. See Mayer (1972) for income elasticities estimated by Friedman and others.

18. Examples of such policies would include expenditures on health and education as well as general redistributive policies that strengthen (not weaken) the family and provide work incentives and opportunities.

References

Atkinson, A. 1971. "The Distribution of Wealth and the Individual Life Cycle." *Oxford Economic Papers,* n.s., vol. 23.

Atkinson, A., and A. Harrison. 1978. *The Distribution of Personal Wealth in Britain.* Cambridge: Cambridge University Press.

Barlow, R., H. Brazer, and J. Morgan. 1966. *Economic Behavior of the Affluent.* Washington, D.C.: Brookings.

Becker, G. 1974. "A Theory of Social Interactions." *Journal of Political Economy* 82:1063–94.

Blinder, A. 1973. "A Model of Inherited Wealth." *Quarterly Journal of Economics* 87:608–26.

———. 1974. *Toward an Economic Theory of Income Distribution.* Cambridge, Mass.: M.I.T. Press.

———. 1975. "Distribution Effects and the Aggregate Consumption Function." *Journal of Political Economy* 83:447–76.

———. 1976a. "Inequality and Mobility in the Distribution of Wealth." *Kyklos* 29–Fasc. 4:607–38.

———. 1976b. "Intergenerational Transfers and Life Cycle Consumption. Papers and Proceedings of the American Economic Association 66, no. 2, pp. 87–93.

Box, G., and D. Cox. 1964. "An Analysis of Transformations." *Journal of the Royal Statistical Society* Ser. B 26, no. 2, pp. 211–52.

Brittain, J. 1978. *Inheritance and the Inequality of Material Wealth.* Washington, D.C.: Brookings.

Ferber, R. 1965. "The Reliability of Consumer Surveys of Financial Holdings: Time Deposits." *Journal of the American Statistical Association* 60:148–63.

———, et al. 1969. "Validation of Consumer Financial Characteristics: Common Stock." *Journal of the American Statistical Association* 64: 415–32.

Fisher, L., and J. Lorie. 1977. *A Half Century of Returns on Stocks and Bonds.* Chicago: University of Chicago Press.

Friedman, M. 1957. *A Theory of the Consumption Function.* Princeton: Princeton University Press.

Goldfeld, S., and R. Quandt. 1965. "Some Tests for Homoscedasticity." *Journal of the American Statistical Association* 60:539–47.

Harbury, C. 1962. "Inheritance and the Distribution of Personal Wealth in Britain." *Economic Journal* 72:845–68.

Heckman, J., and S. Polachek. 1974. "Empirical Evidence on the Functional Form of the Earnings-Schooling Relationship." *Journal of the American Statistical Association* 69:350–54.

Ireland, L., et al. 1976. *Almost 65: Baseline Data from the Retirement History Study.* U.S. Department of Health, Education, and Welfare. Washington, D.C.: Government Printing Office.

Levhari, D., and J. Mirman. 1977. "Savings and Consumption with an Uncertain Horizon." *Journal of Political Economy* 85:265–82.

Mayer, T. 1972. *Permanent Income, Wealth and Consumption.* Cambridge, Mass.: Harvard University Press.

Meade, J. 1964. *Efficiency, Equality and the Ownership of Property.* Cambridge, Mass.: Harvard University Press.

Mincer, J. 1974. *Schooling, Experience and Earnings.* New York: National Bureau of Economic Research.

Mirer, T. 1979. "The Wealth-Age Relationship among the Aged." *American Economic Review* 69:435–43.

Modigliani, F., and Ando, A. 1957. "Tests of the Life Cycle Hypothesis of Saving." *Bulletin of the Oxford Institute of Statistics* 19:99–124.

Modigliani, F., and R. Brumberg. 1954. "Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data." In K. K. Kurihara, ed., *Post-Keynesian Economics.* New Brunswick, N.J.: Rutgers University Press.

Morgan, J.; M. David; W. Cohen; and H. Brazer. 1962. *Income and Welfare in the United States.* New York: McGraw-Hill.

Oulton, N. 1976. "Inheritance and the Distribution of Wealth." *Oxford Economic Papers,* n. s. 28:86–101.

Prais, S. and H. Houthakker. 1955. *The Analysis of Family Budgets.* Cambridge: Cambridge University Press.

Projector, D., and G. Weiss. 1966. *Survey of Financial Characteristics of Consumers.* Washington, D.C.: Federal Reserve Board.

Pryor, F. 1973. Simulation of the Impact of Social and Economic Institutions on the Size Distribution of Income and Wealth." *American Economic Review* 63:50-72.

Rao, P. and R. Miller. 1971. *Applied Econometrics.* Belmont, California: Wadsworth.

Sattinger, M. 1977. "Capital Intensity and Labor Earnings Inequality." Paper presented at the American Economics Association meetings.

Sewell, W., and R. Hauser. 1975. *Education, Occupation, and Earnings.* New York: Academic Press.

Shorrocks, A. 1975. "The Age-Wealth Relationship: A Cross-Section and Cohort Analysis." *Review of Economics and Statistics* 57:155–63.

Smith, J. 1975. "White Wealth and Black People: The Distribution of Personal Wealth in Washington, D.C., in 1967." In J. Smith, ed., *The Personal Distribution of Wealth.* New York: National Bureau of Economic Research.

Smith, J., S. Franklin; and G. Orcutt. 1978. "The Intergenerational Transmission of Wealth: A Simulation Experiment." In F. Thomas Juster, ed., *The Distribution of Economic Well-being.* Cambridge, Mass.: National Bureau of Economic Research.

State of Connecticut. 1977. *Registration Report of Births, Marriages, Divorces and Deaths for the Year Ended December 31, 1975.* State Department of Health, Hartford.

Stiglitz, J. 1969. "Distribution of Income and Wealth Among Individuals." *Econometrica* 37:382–97.

Thurow, L. 1975. *Generating Inequality.* New York: Basic Books.

U.S. Bureau of the Census. 1975. *Historical Statistics of the United States, Colonial Times to 1970. Bicentennial Edition.* Washington, D.C.: Government Printing Office.
U.S. Bureau of the Census, Annual Series. *Statistical Abstract of the United States.* Washington, D.C.: Government Printing Office.
U.S. Treasury. 1977. *Blueprints for Basic Tax Reform.* Washington, D.C.: Government Printing Office.
Yaari, M. 1964. "On the Consumer's Lifetime Allocation Process." *International Economic Review* 5:304–17.
Zarembka, P. 1974. *Frontiers in Econometrics.* New York: Academic Press.

This Page Intentionally Left Blank