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THE "INABILITY TO BE SELF-RELIANT" AS AN INDICATOR OF POVERTY: TRENDS FOR THE U.S., 1975–97

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In this paper we present a new concept of poverty, Self-Reliant poverty, which is based on the ability of a family, using its own resources, to support a level of consumption in excess of needs. This concept closely parallels the "capability poverty" measure that has been proposed by Amartya Sen. We use this measure to examine the trend and composition of the Self-Reliant poor population from 1975 to 1997. We find that Self-Reliant poverty has increased more rapidly over this period than has official poverty. Families considered to be the most vulnerable—those headed by minorities, single women with children, and individuals with low levels of education—have the highest levels of Self-Reliant poverty. However, these groups have also experienced the smallest increases in poverty. Conversely, families largely thought to be economically secure—those headed by whites, married men with children, and highly educated individuals—have the lowest levels of Self-Reliant poverty, but have experienced the largest increases in poverty. We also find that the Self-Reliant poor is increasingly composed of vulnerable groups relative to the composition of the official poor. The labor market, demographic, and policy sources of the divergent trends in Self-Reliant and official poverty, and of the gender, race and family structure changes in poverty rates are explored.

I. INTRODUCTION

Reducing poverty is a goal of nearly all societies. Yet, no standard measure of poverty exists among either nations or scholars. Some adopt a sociological perspective and suggest a multidimensional poverty concept that reflects the many aspects of well-being. In this context, people deprived of social contacts are described as being socially isolated, and hence poor in this dimension. Similarly, people living in squalid housing are viewed as "housing poor," and people with health deficits as "health poor." Individuals who fail "to reach 'minimally acceptable' levels of different monetary and nonmonetary attributes necessary for a subsistence standard of living" are defined as being poor.[1]

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[1]Bourguinon and Chakravarty (1998). Others who have advocated such a multidimensional view of poverty include Kolm (1977), Atkinson and Bourguinon (1982), and Tsui (1995). Federman *et al.* (1996) empirically explore a variety of dimensions of hardship for those in the U.S. who are income poor.

Economists tend to prefer a concept of hardship that reflects "economic position," or economic resources. However, there are widely varying perspectives on which economic variables best identify those people whose economic position lies below some minimally acceptable level. Some rely on the income of a family, and compare this to some minimum income standard or "poverty line." This economic concept underlies the official United States poverty measure (referred to below as "official poverty"), and the proposed revision of it based on the National Research Council (NRC) Panel Report (1995).[2] Others look to the level of consumption as an indicator of the level of living.[3] Still others rely on families' own assessment of their economic well-being, and move from this assessment to a judgement regarding who is poor and how many of them there are.[4]

Within each of these perspectives, there is a wide range of definitions and concepts for measuring economic resources. For example, if income is taken to be the best indicator of economic status, is the appropriate measure annual, multi-year, or lifetime income? Should we examine pre-tax, pre-transfer income or income after accounting for taxes and/or transfers? Should in-kind transfers be counted or excluded?

Statistical indicators of poverty derived from these concepts identify some aspect of "hardship" that reflects a particular social objective. Use of them as a test of policy, therefore, requires the general acceptance of this objective. The many concepts of economic resources that can serve as the basis for poverty measures complicate policy design, as each concept implies both a different target poverty population and a different set of policies.

In this paper, we set forth a concept of poverty that rests on individual "capabilities." Like other poverty measures, this measure seeks to identify those in the population who experience the most severe hardship, those who are the most deprived. In this case, those who are at the bottom of the distribution of "capabilities-to-generate-minimum-necessary-income" are taken to be the most needy. We call this measure *Self-Reliant poverty*, indicating that individuals who are Self-Reliant poor are unable to be economically independent. The income they are capable of generating lies below a socially-defined minimum standard of living.

We then describe an empirical procedure for identifying this population that rests on statistical estimates of individual labor market capabilities, defined as the ability to generate an income stream through the use of one's own capabilities.

[2]The official definition of poverty has played a very special role in the development of United States social policy. Tobin (1970) has argued that one of the most important contributions of the War on Poverty era was the establishment of an official, national poverty line. Indeed, because of the official adoption of this measure, the nation made a commitment to annually chart the nation's progress toward poverty reduction by publishing and publicizing a statistical poverty index. Because of this measure, Tobin argued that "no politician will be able to ... ignore the repeated solemn acknowledgments of society's obligation to its poorer members."

[3]See Mayer and Jencks (1992, 1995), Slesnick (1993), and Cutler and Katz (1991).

[4]This has been called the "Leyden School" approach to poverty measurement. Bernard van Praag is the central figure in this area; see Hagenaars (1986), and van Praag, Hagenaars, and van Weeren (1982). This approach involves construction of an indicator of well-being that is comparable across people, based on income levels that individuals subjectively state to be "excellent," "good," etc. Comparison of subjective poverty prevalence and composition between the U.S. and the Netherlands is found in de Vos and Garner (1991).

We call this estimate of labor market capability *Earnings Capacity* (EC), apply it to the U.S. population, and describe a variety of trends and compositional patterns for the "capability poor" population. Our results indicate that the prevalence of Self-Reliant poverty in the U.S. has grown more rapidly than official poverty, and that the intertemporal patterns of Self-Reliant poverty for various groups in the population are somewhat surprising. Some speculations regarding the reasons for these "twists" are offered.

II. Why Another Definition and Measure of Poverty?

Before presenting the Self-Reliant poverty concept and measure, we discuss the conceptual and policy rationales for this view of the poverty problem. The *conceptual reason* is the more basic. In particular, we seek a measure of poverty that reflects the long-term status of people, their "permanent" capabilities. While having insufficient annual income to cover basic needs for this period is a matter worthy of public concern and action, being income poor is often transitory. For many families, annual income fluctuates substantially over time because of unemployment, layoffs, the decision to undertake mid-career training or to change jobs, health considerations, and especially income flows from farming and self-employment; a family that is short of cash income one year is quite likely to have sufficient income in the next year.

We argue that a social indicator identifying people who are incapable of generating sufficient annual income to meet basic needs for a year provides a meaningful measure of economic hardship in a nation. Such a measure can serve as a complement to existing income poverty measures, enhancing insights regarding the nature of hardship that may be obtained from these more transitory indicators of resources relative to needs.[5]

This position has its foundations in the writings of Amartya Sen, among others.[6] In his words, "[T]he basic failure that poverty implies is one of having minimally adequate capabilities," (p. 111) and, hence, that "poverty is better seen in terms of capability failure than in terms of the failure to meet the 'basic needs' of specified commodities" (p. 109). He calls for "reorienting poverty analysis from *low incomes* to *insufficient basic capabilities*," arguing that "the reorientation from an income-centered to a capability-centered view gives us a better understanding of what is involved in the challenge of poverty" (p. 151). In essence, being incapable of independently securing sufficient income to meet basic needs may reflect a more debilitating and vulnerable situation than being short of cash income in a particular year, living currently in substandard housing, or even living temporarily at a consumption level below a minimum acceptable standard.

[5]If insufficient current annual income and insufficient income-generating capabilities are both hardships worthy of public concern, policy analysis should seek to identify individuals who are poor by both standards. We thank a referee for emphasizing this point. See also section VI and note 29.

[6]Sen's position is most clearly articulated in his 1992 book, *Inequality Reexamined* (page references in text are to this volume). Development of the philosophical and value basis for this viewpoint is found throughout his many writings on inequality and poverty, especially his 1979 Tanner Lecture at Stanford University (Sen, 1980), his Hennipman Lectures at the University of Amsterdam in 1982, and Sen (1997).

There is also a *policy-related reason* for developing a measure of poverty that focuses on the inability of an individual or family to be self-reliant. In recent years, there has been renewed civic discussion and debate regarding appropriate norms and standards for individual responsibility and behavior, and hence the appropriate role of the state. A prominent viewpoint in this debate emphasizes the merits of individual independence (relative to reliance on government programs), the possible negative effects of government programs on individual behavior, and the desirability of a smaller economic and social policy role for government.[7] Through its emphasis on individual responsibility, this point of view implicitly rejects the proposition that the sum of "own" plus public transfer income (the income concept on which the official poverty measure[8] rests) should be sufficient to cover basic needs.

Advocates of the "self-reliance" viewpoint argue that the substitution of welfare and other public transfers for income generated by people's own efforts is a cause of the nation's poverty problem. Public transfers are viewed as inducing inefficient behaviors, generating dependence on public support, and fostering the creation of a dysfunctional social class that is at the core of many of the nation's problems.[9] To those that emphasize self-reliance, then, income-based measures have little relevance as indicators of the nation's poverty problem.

It is in this context, then, that a poverty concept based on the inability to be self-reliant becomes relevant. If policy is to reflect the view that people must employ their own capabilities to secure economic independence, it becomes important to identify the size and composition of the group of citizens who do not possess the required skills and resources. Given such a social goal, a Self-Reliant poverty measure could enable the nation to gauge its progress in attaining this objective.

[7]Evidence that being "self-reliant" or "economically independent" has taken on increased weight in U.S. social policy is the Temporary Assistance for Needy Families (TANF) provision in the 1996 welfare reform legislation, that eliminated entitlement to public transfer benefits by single-parent households, and imposed firm limits on the period that eligible families could receive support. The message to single parents, irrespective of their skills, training or home demands, was that they had to learn to "get by on their own." Similarly, advocates of the privatization of the Social Security retirement program envision that some portion of the contributions made on behalf of working-age individuals will be assigned directly to them, with the requirement that they manage these financial resources themselves (with constraints), and then rely on the accumulated assets in these private accounts in their retirement years. Proposals for medical savings accounts as a replacement for Medicare benefits, tighter eligibility criteria for disabled children's receipt of Supplemental Security Income benefits, the shift from defined benefit to defined contribution pension plans, and the emphasis on loans rather than grants to cover the rising costs of higher education are other manifestations of this emphasis on "self-reliance" as a substitute for public support.

[8]The official poverty measure is based on a survey report of the annual cash income of a living unit (defined as the sum of own earnings and other income plus public cash transers), which is compared with a family-size specific poverty threshold (designed to indicate the amount of annual income necessary to attain a minimum acceptable level of living). If the annual income of the family fails to exceed its poverty line, the family is defined as "poor." The nation's poverty rate is the percentage of its citizens who live in poor families so defined. Ruggles (1990) discusses a wide variety of concerns with the current measure, and explores alternative concepts for the measurement of poverty. See also Haveman (1987), Citro and Michael (1995), and Haveman and Mullikin (2001). This measure has been the official U.S. poverty standard since the early 1960s (see Fisher, 1992), and poverty rates are published annually in U.S. Bureau of the Census, *Poverty in the United States*, Series P60.

[9]One of the earliest proponents of this view was Charles Murray. His influential book, *Losing Ground* (1984) was the first in a large stream of writings, speeches and political candidacies that argued that government policy—especially welfare and other income support measures—was causal to the problem of income poverty. A corollary is that government should require self-reliance, rather than provide assistance to the poor.

Indeed, having a Self-Reliant poverty measure forces the question of collective responsibility toward those incapable of being economically independent. At one extreme, one could take the position that the public sector's only responsibility is to make clear that self-reliance *is* the norm. In this world, voluntary private charity may or may not provide for families that are unable to be self-reliant, and the problem of poverty would vanish as a public issue. An alternative position would be to consider how best to increase the ability of people who are not now economically independent to become self-reliant. Here, public concern with poverty becomes recast; it does not vanish. Rather, we must ask: How can public policy efficiently reduce the population unable to be self-reliant; what instruments are available, and which are the most cost-effective?

III. A Measure of Self-Reliant Poverty

All economic poverty measures rest on some concept of economic position that allows individuals or families to be ordered. When a cut-off line is drawn in this ranked population, those below the cut-off are designated as poor; the remainder are non-poor. For the Self-Reliant poverty measure, we order the economic position of families by the capability of the adults in the unit to generate income. We then compare this capability or capacity to a socially-accepted minimum income standard.

A. *The Definition of Earnings Capacity as an Indicator of Economic Capability*

To obtain our measure of family economic position, we first assess the capability of each prime aged adult in the family to generate annual earned income.[10] We label this capability *Earnings Capacity* (EC_i)[11] and define it as the earnings that the person would receive if he or she were to work full-time, full-year (FTFY)[12] at a wage rate consistent with his or her human capital attributes.[13]

While EC_i takes FTFY work as a norm, some individuals are constrained from working at this level owing to health limitations or disabling conditions. To take into account such exogenous limitations on attaining EC_i, we adjust the

[10]As a result, our poverty measure is relevant only for people who live in families that are headed by a working-age person, those people who could be expected to be independent through their own work and efforts.

[11]Prior studies that have employed measures of earnings capacity are Garfinkel and Haveman (1977), Haveman and Buron (1992), and Haveman and Bershadker (1998).

[12]We define FTFY labor force participation as 2000 or more hours of work in a year. This FTFY work norm rests on the common presumption that being "fully employed" involves full-time, full-year work. This norm is only used to obtain a measure of capabilities or potential, and carries no presumption that everyone aged 18–64 *should* work full-time, full-year. While one could argue that separate capacity norms should be chosen for various categories of families (such as single mothers with children), we have chosen to set the same capability norm for all working-age adults, adjusting this value for constraints on attaining capacity work, such as health and disability problems or required work-related expenses such as child care costs. See the following discussion and Section III.D.

[13]A related indicator of family capability is Gary Becker's concept of "full income," which values the aggregate time resources available to a person for allocation to market work, nonmarket production, or leisure activities (Becker, 1965). The expected market wage serves as the unit value of time; hence, full income equals potential consumption, inclusive of nonmarket production and leisure hours.

individual values by a factor (Γ_i) that reflects the time that each individual loses in a year because of these health and disability constraints. This modified value, $\Gamma_i EC_i$, reflects the amount that each individual can be expected to earn in a particular year, given both his or her human capital attributes and the constraints imposed by disability and illness.

Given an estimate of $\Gamma_i EC_i$ for each working-age adult in a family, we define the *Gross Earnings Capacity* (*GEC*) of the family to be:

$$GEC = \Gamma_H EC_H + \Gamma_S EC_S + \Gamma_A EC_A + \mu, \tag{1}$$

where *H*, *S*, and *A* refer to head, spouse (if present) and other adults, respectively, and μ is the property income accruing to the family.

Notice that *GEC* fails to reflect the costs that a family would have to incur if all of its adult members were to work at this FTFY norm. While some of these costs may be specific to particular jobs, and therefore reflected in the market wage rate, others result from the obstacles to FTFY work that are inherent in the structure or location of families. The most prominent component of these is the required child care expense associated with the presence of young children.[14] We assume that families in which all adults are working at full capacity are required to arrange and pay for socially acceptable child care for young children, and subtract this required cost of full-capacity market work from each family's *GEC* value. Hence, for each family, *Net Earnings Capacity* (*NEC*) is defined as:

$$NEC = (\Gamma_H EC_H + \Gamma_S EC_S + \Gamma_A EC_A + \mu) - \Omega, \tag{2}$$

where Ω is the family's required child care expense.

The level of *NEC* for each family is then compared to the relevant family-size specific needs standard reflected in the official U.S. poverty thresholds. In the context of the official measure, these poverty lines indicate the income required to secure a socially-accepted minimum level of living.[15] The ratio of *NEC* to the relevant poverty line is taken as an indicator of the economic position of the family, and serves as the basis for rank ordering families. Families with an NEC-to-needs ratio below unity are viewed as unable to be self-reliant, even if all adult members fully use their human capital, and are designated as Self-Reliant poor.

B. *The Measurement of Individual Earnings Capacity*[16]

We estimate EC_i for each working-age adult in a large representative sample of individuals using a two-stage Heckman selection model.[17] We then adjust these

[14]There are a variety of barriers to work that we do not adequately incorporate in our estimates, primarily because of data limitations in the CPS. These factors would include the need to care for ill or disabled children or other family members, mental health or substance abuse problems, or required transportation or clothing costs associated with working. See Danziger *et al*. (2000) for an analysis of barriers to work for low-skill single mothers.

[15]Despite the flaws associated with the official U.S. poverty thresholds, we accept them as society's measures of the family size-specific minimum needs levels.

[16]A complete description of data and methods is found in a Technical Appendix that is available from the authors. (Haveman can be contacted at Department of Economics, University of Wisconsin–Madison, Madison, WI 53706; Bershadker can be contacted at the U.S. Treasury Department, Washington, DC 20220.)

[17]See Heckman (1979).

estimates to account for the exogenous health and disability factors that constrain the capabilities of individuals, Γ_i. Call the modified EC_i value $EC_i^* = \Gamma_i EC_i$.

As a first step, we fit the model to four race and gender (white–nonwhite, male–female) specific samples of civilian, non-institutionalized, non-self-employed, non-student adults aged 18–64, drawn from the March Current Population Surveys (CPS).[18] This model is estimated for each sample, for each of the 23 years from 1976 through 1998.

In the first equation, the annual correlates of the full-time, full-year labor force participation status of adults of each race–gender category are estimated using a probit specification. The independent variables include factors that affect the expected market wage (e.g. health status, education and age), the incentive to work (e.g. nonlabor income, marital status, and presence and number of children), labor market conditions (e.g. the state unemployment rate), and exogenous regional variation in prices and wages (e.g. region of the country, rural–suburban–urban location).[19]

Estimates from the first-stage probit equations are used to construct a selectivity correction term (λ) for each individual in each year. These individual- and year-specific terms are used in annual, group-specific, second-stage earnings equations fit over those individuals who are FTFY workers. This additional regressor corrects for the omitted variable bias that would otherwise result from fitting an earnings equation over individuals who self-select into the FTFY labor force.

The second-stage earnings equation takes the form

$$Y_i = X_i\beta + c\lambda_i + \varepsilon_i \tag{3}$$

where Y_i is defined as the logarithm of observed FTFY earnings, X_i is composed of the independent variables that affect earnings, λ_i is the selectivity correction term, and ε_i is an unobserved residual term, which we assume to be randomly distributed $N(0, \sigma^2)$. The elements of the X vector were chosen using the human capital model as a guide, and include education, age, region of the country, rural–suburban–urban location, marital status, number of children and their ages, and health status indicators. The annual estimates conform to the predictions from the human capital model. Changes in the estimated coefficients over the years reflect intertemporal changes in labor supply, labor demand, and the structure of the labor market.

To obtain the EC_i estimate for each adult in each year, we employ coefficients from the appropriate year-specific earnings equation and the person's human capital and other market relevant characteristics. Hence, individuals with

[18]The data from the annual CPS surveys serve as the basis for the official measure of poverty.

[19]Appendix Table A.1 lists the variables used in the model, gives a description of each, and indicates (*) which variables form *exclusion restrictions*. Such variables are assumed to affect the FTFY labor force participation decision, but not the earnings of the individual. We assume that nonlabor income, participation in a health-related income support program, the state unemployment rate, veteran status (for men) and the maximum AFDC benefit for a family of four (for women) affect the labor force participation decision, but conditional on FTFY work, do not affect earnings. The regression results, with corrected standard errors, for the four race/gender groups in the 23 years of our study, along with sample sizes, *R*-squared statistics and the corrected standard error of the regression, are available from the authors upon request (see note 16 for contact details).

identical characteristics in any year are assigned the same earnings capacity.[20]

Because this procedure neglects the role of unobserved human capital and labor demand characteristics and "luck" in the earnings determination process, the resulting EC_i distribution for each race–gender group and for the entire population is artificially compressed. Hence, we return the unexplained earnings variation within each year-specific race–gender group to these distributions by applying a random shock (reflecting the unexplained variation in each annual regression) to the estimated value for each observation within a year–race–gender cell.[21]

Hence, for each working age adult in a specific year:

$$EC_i = \exp(X_i\beta + \sigma^* m_i) \tag{4}$$

where m_i is a randomly generated variable distributed $N(0, 1)$. We then multiply each EC_i term by its appropriate illness/disability adjustment factor, Γ_i,[22] giving the modified EC_i value, EC_i^*.

[20]Since we desire estimates of EC for each individual, *unconditional* on self-selecting into the FTFY labor force, we make unconditional predictions. That is, in making our predictions of EC, we set each individual's inverse Mills's ratio equal to the mean inverse Mill's ratio for workers. This ensures that the mean of the predicted log earnings distribution (among FTFY workers) equals the mean of the actual log earnings distribution (among FTFY workers), while assigning the same earnings capacity value to individuals with identical characteristics, regardless of their selection into the FTFY labor force. Alternatively, we could have used the actual earnings of FTFY workers as estimates of their EC, and assigned predicted values to non-FTFY workers only. In order to ensure consistency, we chose to predict EC for all working age adults. This procedure yields our best prediction of individual EC regardless of the individual's FTFY status, while actual values are conditional on selecting into the FTFY labor force. Moreover, the distribution of our adjusted predicted values (see note 21) reflects a distribution of unexplained variance that is known, while the distribution resulting from the alternate procedure would not have this property.

[21]We assume that the distribution of FTFY earnings within a year-specific race–gender cell is normal, with a standard deviation equal to the standard error of the estimated annual race–gender earnings equation fit over the FTFY workers. We use the standard error (σ) from the annual estimated FTFY equations assuming that, even if everyone worked to capacity, the variance of earnings would be the same as the estimated variance of earnings among actual FTFY workers. In fact, the earnings residual (ε) contains both earnings due to unmeasured individual-specific human capital (δ) and random fluctuations in earnings (ν). That is: $\varepsilon_{it} = \delta_i + \nu_{it}$ where i is a subscript for the individual and t is a time subscript. We assume that δ and ν are independently and normally distributed with a zero expected value and constant variance; they are also assumed to be independent of each other. With cross-sectional data, it is not possible to distinguish between δ_i and ν_{it}. If we do not make an adjustment to add back variance, we are implicitly assuming that the entire residual is made up of transitory shocks to earnings (i.e. $\varepsilon_{it} = \nu_{it}$). In effect, our method assumes that the entire residual represents permanent differences in individual-specific human capital stock (i.e. $\varepsilon_{it} = \delta_i$). See Lillard and Willis (1978) for discussion of the error component structure and some empirical estimates of the transitory and permanent components of the residual term.

[22]The adjustment factor, Γ, is calculated as $(50 - \mathrm{WC})/50$, where WC is the number of weeks the individual does not work attributed to health problems or disabling conditions. If, in addition, the individual reports receiving income from a health-related income support program [i.e. if the individual (1) receives Social Security income, is between 19 and 22, is not a single parent and is not a student; or (2) receives Social Security income, is between 23 and 59, and is not a single parent; or (3) receives Supplemental Security income; or (4) receives workers compensation] or working part-time because of illness or disability, we multiply WC by 0.5, implying that these exogenous factors constrained capacity work to 20 hours per week. This individual, case-by-case adjustment is made for each year. Hence, for any given year, aggregate EC for the entire working-age population will reflect the overall magnitude of these year-specific constraints. If the incidence of these constraints is constant over time, the intertemporal pattern of aggregate modified earnings capacity will parallel that of the unmodified aggregate, but be a smaller value. If the incidence of these constraints across population groups is constant over time, our modified value enables reliable comparisons of trends in earnings capacities among population groups.

C. *From Individual EC_i^* to Family NEC to Self-Reliant Poverty*

Having EC_i^* for each individual allows us to calculate the Gross Earnings Capacity of each family unit (GEC_F) in the population by aggregating these values over the adults in the family, and then adding the family's observed income flow from property to this sum.[23] In a final step, we subtract from each family's GEC_F, the annual costs of acceptable child care[24] (required to enable all adults in the family to work FTFY), obtaining NEC_F, our estimate of the Net Earnings Capacity of the family,

$$NEC_F = EC_H^* + EC_S^* + EC_A^* + \mu - \Omega. \tag{5}$$

We identify Self-Reliant poor families by comparing each family's NEC_F to its family-size specific poverty line. Families who do not have the capacity to generate a net income stream in excess of their poverty line are interpreted as unable to be self-reliant.

D. *Some Norms and Assumptions*

In designing and empirically implementing this capability-based, Self-Reliant poverty indicator, we presume that the EC concept reliably captures the capability of a person to generate an earnings stream.[25] This argument rests on a number of conventions, norms and assumptions.

First, in creating our indicator of capability, we take the "norm" of full-time, full-year work (employed a minimum of 2,000 hours) as a socially accepted standard for the working time of all people who are fully using their human capital. Clearly, other norms could have been chosen, including individual-specific norms reflecting people's endurance and energy or group-specific norms that reflect social judgements regarding expected market work for individuals with specific characteristics, such as single mothers with children.[26] Moreover, we have assumed that individuals under age 18 and over age 64 are not subject to this FTFY work norm.

We made an effort to adjust for the unavoidable costs associated with the full utilization of family capabilities in the labor market, concentrating on

[23]Property income includes net interest, dividends, rent, alimony, and child support income. Observed property income is used because we assume that people are using their financial and tangible capital to full capacity. To the extent that these flows are under-reported in the data, our estimates of GEC_F will be biased downward.

[24]We draw upon U.S. Census Bureau (1995) and the U.S. General Accounting Office (GAO) (1997) studies as the basis for our child care estimates. GAO surveyed child care providers in four sites across the U.S. (two urban and two rural) in 1996. We use estimates from the middle of the GAO's range of weekly child care costs: $90 per child per week for children aged 0 to 5 and $50 per child per week for children aged 6 to 11. We then used information on regional and SMSA differences in child care costs obtained from the Census Bureau (Current Population Reports) to create adjustment factors to apply to the GAO estimates. We also use information contained in the Current Population Report to adjust the child care cost estimates over time. We assume that child care costs are incurred 50 weeks per year. These per child per year costs are multiplied by the number of children in the family aged 0 to 5 and 6 to 11 as appropriate, and subtracted from GEC_F to obtain NEC_F. Further information is in a Technical Appendix available from the authors (see note 16 for contact details).

[25]Sen (1992) envisions a concept of "capability" that is broader than that used here.

[26]See note 12.

required child care costs. Some may argue that at least one parent in families with young children (or the only parent in the case of single parents) should remain out of the labor force to care for these young children. Under this norm, the EC of such parents would be set at zero. While this alternative norm would undoubtably change the NEC of families with children, the family's Self-Reliant poverty status would be affected only to the extent that the *difference* between the estimated EC for the stay-at-home parent and the estimated child care expense is large enough to move the family from a position above its poverty line to one below it. To the extent that the percentage of families so affected is constant over time, such an alternative would affect only the level and not the trend of Self-Reliant poverty. Furthermore, note that our method of child care accounting in no way presumes that parents with young children *should* work; it only predicts a NEC_F value for that family *if* they work full-time, full-year.

Our adjustments for child care costs fail to account for within-region variations in quality-constant expenses, and the ability of some families to engage relatives in child care at costs below our estimates. Moreover, we have ignored a variety of other required expenses such as transportation and clothing costs associated with full-capacity work. We believe that our methods reasonably capture the bulk of expenses incurred should all adults in a family engage in full-time, full-year work.

We have abstracted from labor demand constraints on market earnings in two ways. First, we ignore general equilibrium considerations. We make no adjustments for changes in the structure of wages if all prime-aged adults were to work full-time, full-year. We simply ask, given the *observed* structure of full-time, full-year earnings, how much would each individual expect to earn if he or she independently moved to full-time, full-year work. As such, EC is a statistical indicator reflecting this value.

Notice, however, that our measure does account for changes in the structure of full-time, full-year earnings arising from recessions and expansions. Our EC indicator measures the annual rental value of an individual's human capital, as reflected in the individual-specific regressors in the annual earnings equations. If, for a given set of regressors, full-time, full-year earnings, and hence Earnings Capacities, are depressed in a recession (inflated in an expansion), our Self-Reliant Poverty measure will register an increase (decrease) in that dimension of poverty.

Second, our measure abstracts from the effects of cyclical labor demand conditions on the *ability to find* employment. Again, we measure each individual's full-time, full-year earnings, assuming each individual finds that full-time, full-year job. As such, adjusting for changes in the distribution of wages, but not for changes in relative employment, is appropriate.[27]

[27]Results published in Haveman and Bershadker (1998) adjust EC for the ability to find a job by incorporating each individual's report of hours unemployed into the health and disability adjustment factor. One referee suggested further accounting for unemployment by imputing an estimate of hours unemployed to individuals not in the labor force. Such an estimate would be relatively higher during recessions and lower during expansions. We believe such an adjustment would move our measure further from a true measure of Earnings Capacity based on intrinsic individual characteristics. The point is to "tag" each adult with an Earnings Capacity value equal to what that individual would earn if he or she did, in fact, find a full-time, full-year job.

To the extent possible, we account for long-term exogenous constraints on earnings potential imposed by health and disability problems by taking individuals' statements that annual hours not working because of these conditions accurately reflect the impact of these constraints. We acknowledge that these adjustments are imperfect proxies of the true values of the health/disability effects on the annual rental value of individual human capital stocks.

Finally, we note the data limitations that restrict our ability to reflect a variety of relevant determinants of labor market capability from being fully reflected in our NEC estimates, including some aspects of physical and mental health, basic intelligence, schooling quality, work experience, motivation, physical appearance, and the structure of the labor market.

By focusing on the measurement of poverty, we accept the economic status of a family as the appropriate unit of observation. This convention implicitly assumes that family structure is exogenous to the level of available economic resources, and underlies all efforts to track the level of poverty in a society over time. An alternative approach would adopt the individual adult as the unit of observation, and inquire regarding the ability of the person to be independent (e.g. able to generate income sufficient to maintain a specified level of income). This approach, using actual income as the indicator of economic resources rather than individual EC, is adopted in Duncan, Boisjoly, and Smeeding (1996) and Haveman and Knight (2000). In this approach, family structure can be treated as endogenous to the level of economic resources or capabilities.

IV. The Prevalence of Self-Reliant Poverty from 1975 to 1997

In this section, we present estimates of the trend in Self-Reliant poverty in the U.S. over the past two and one-half decades as an illustration of the norms and procedures outlined above. A comparison of the Self-Reliant poverty trend with that of official poverty provides evidence of the nation's progress in reducing "capability poverty," relative to income poverty.

A. *The Overall Trends in Self-Reliant and Official Poverty*

Figure 1 presents the trends in Self-Reliant and official Poverty from 1975 to 1997.[28] The figure shows that both measures of poverty have trended upward over the period, but Self-Reliant poverty has done so in a much more monotonic fashion. The Self-Reliant measure exhibits much less cyclicality than the official measure, and the absolute and percentage increases in the Self-Reliant measure are greater than those for the official measure.[29] In fact, Table 1 shows that the

[28]Note that the official poverty rates shown apply only to individuals from families headed by prime-aged adults, and hence differ from official U.S. Census publications which include head count poverty rates for all families.

[29]Given that the official poverty rate rests on the flow of cyclically sensitive actual current income, this greater cyclicality is not surprising. The primary factors that account for the difference in levels between the Non-Self-Reliant and official poverty measures are: (1) the counting of transfer income in the official measure but not in the Non-Self-Reliant measure, (2) the prevalence of less than full-time, full-year work among families, which is reflected in the official measure, and (3) the adjustment for child care costs in the Self-Reliant poverty measure, but not the official poverty measure. One could argue that policy makers and analysts should be concerned with the population who is poor by either the official income-based measure or the earnings capacity measure. This is discussed in section VI. See also note 5.

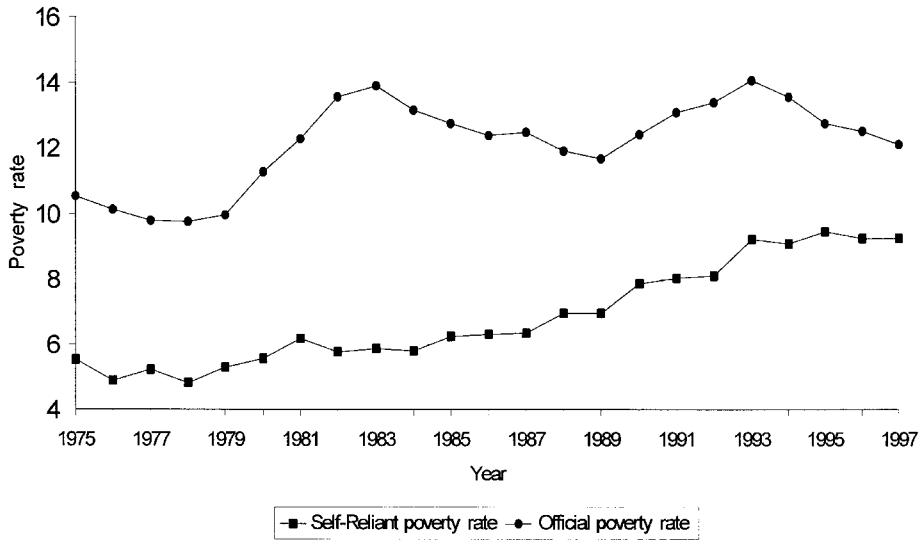

Figure 1. Self-Reliant and Official Poverty Rates for Individuals in Prime-Age Headed Families, 1975–1997

prevalence[30] of Self-Reliant poverty almost doubled from 5.2 percent to 9.3 percent (or almost +3 percent annually), while official poverty rose from 10.1 percent to 12.5 percent (only +1 percent annually).[31] Another way of stating the increase in Self-Reliant poverty is to note that over 11.6 million more Americans lived in families that were incapable of generating sufficient income to meet the socially-accepted minimum level of living in the mid-1990s than in the mid-1970s.[32]

The primary reason for these different patterns is clear. While the Self-Reliant poverty rate reflects the *potential* of a family to generate income, the official poverty rate reveals income *realizations*. The rapid increase in the Self-Reliant poverty rate indicates a decline in the potential of families with the least

[30]We define "prevalence" as the percentage of individuals who live in families that are designated as poor. As such, it is also known as the "head-count" poverty measure. See Sen (1992) for a discussion of this and other poverty indicators.

[31]The growth in these poverty indicators runs counter to the findings of Slesnick (1993), who compares consumption expenditures on goods and services (taken to be the indicator of a household's economic position) to a set of alternative poverty thresholds. He finds that his consumption poverty measure falls from about 12 percent in the early 1970s to 8.4 percent by 1989, while the official rate rose by about 2 percentage points. [Slesnick's estimate relies on set of equivalence scales that lie well outside of the range of "elasticities" of family size found in other studies, which may account for these results. See Johnson (1996), U.S. General Accounting Office (1996), and Triest (1998).] Jencks and Mayer (1996) calculate a children's poverty rate that rests on an alternative implicit equivalence scale, a family income measure that includes both the income of nonrelatives in the living unit and the value of public in-kind benefits, and an alternative price index. While the official children's poverty rate rose by about 4 percentage points from 1969 to 1989, their recalculated children's poverty rate fell by 1.3 percentage points.

[32]Detailed estimates on which this and subsequent tables are based are available from the authors upon request. The Self-Reliant poverty rates and growth patterns shown here differ somewhat from preliminary estimates in Haveman and Bershadker (1998), due to revisions in the health/disability and child care adjustments, and elimination of the unemployment adjustment that was included in those estimates. See also notes 24 and 27.

TABLE 1

PERCENT OF INDIVIDUALS IN POVERTY, BY CHARACTERISTIC OF HOUSEHOLD HEAD

	Average Poverty Rate (%)				Growth Rate (%)	
	1975–77		1995–97			
	Self-Reliant	Official	Self-Reliant	Official	Self-Reliant	Official
All	5.20	10.14	9.31	12.46	2.95	1.03
Race of head						
Whites	3.07	6.74	5.60	7.65	3.06	0.63
Blacks	16.83	27.83	21.66	25.43	1.27	–0.45
Hispanics	12.53	21.67	18.44	25.88	1.95	0.89
Other	3.94	14.14	8.37	15.69	3.83	0.52
Sex of head						
Males	2.41	5.97	4.99	7.17	3.71	0.92
Females	20.92	33.60	17.08	21.96	–1.01	–2.10
Education of head						
Less than high school	11.85	20.06	25.95	33.79	4.00	2.64
High school graduate	3.58	7.66	10.54	13.26	5.54	2.78
Some college	1.79	5.75	6.68	8.70	6.81	2.09
College graduate	0.29	2.31	0.81	2.99	5.35	1.28
Families with no children						
All	3.24	7.08	5.00	8.90	2.19	1.15
Couples	1.06	2.73	1.32	2.85	1.06	0.22
Single men	6.78	13.02	8.99	13.99	1.42	0.36
Single women	7.95	17.46	9.43	17.74	0.86	0.08
Families with children						
All	6.05	11.46	11.85	14.55	3.42	1.20
Couples	2.36	6.39	4.59	7.33	3.37	0.69
Single fathers	11.07	11.49	22.19	16.57	3.54	1.85
Single mothers	28.37	42.87	37.15	41.42	1.36	–0.17
White	19.33	31.27	27.91	30.61	1.85	–0.11
Black	37.98	56.70	44.21	48.88	0.76	–0.74
Hispanic	42.51	55.06	47.77	55.23	0.58	0.02
Other	28.12	41.44	36.18	42.13	1.27	0.08
Single mothers on welfare	43.53	68.87	59.24	75.31	1.55	0.45
Single mothers not on welfare	17.28	23.91	27.91	27.24	2.42	0.65

Note: The growth rates are calculated using the average 1975 to 1977 and 1995 to 1997 poverty rates, and assume 20 years of growth.

human capital to generate income. The much slower upward drift of the official poverty rate indicates a less rapid decline in family-realized income among those at the bottom of the income distribution. The differential trends in the two rates indicate that the *potential* earnings of families at the bottom of the distribution are declining at a more rapid rate than is the *realization* of that potential, suggesting an increase in the utilization of NEC by these working-age families.[33]

B. *Trends in Self-Reliant Poverty Rates Among Groups*

The overall poverty trends described in Figure 1 hide a variety patterns of change in the prevalence of Self-Reliant poverty among subgroups of the U.S.

[33]Haveman, Bershadker, and Schwabish (forthcoming) document an increasing human capital utilization rate.

population; these patterns are indicated in Table 1 for groups distinguished by various characteristics of the head of the family, including race, gender, education, and family structure. Across the groups indicated in the table, the annual growth in Self-Reliant poverty ranged from −1 percent per year (for those living in families headed by a female) to +6.8 percent per year (for those with some college), as compared to the overall growth rate of +3 percent.

While the rate of Self-Reliant poverty grew by over +3 percent annually over the 1975–97 period for whites, annual growth was much lower for Blacks (+1.3 percent per year) and Hispanics (+2 percent per year). Similarly, while the growth of Self-Reliant poverty was nearly +4 percent per year for families headed by males, the Self-Reliant poverty rate for families headed by women actually fell by 1 percent per year. Self-Reliant poverty growth was also faster for families headed by more educated people, than for those with little schooling.

TABLE 2

PRIMARY SUBGROUPS IN TABLE 1

Characteristic of Family Head	Average Annual Growth (%)	Self-Reliant Poverty Rate in 1995–97 (%)
Male headed families	+3.7	4.6
Married couples with children	+3.4	4.6
Single fathers	+3.5	22.2
White	+3.1	5.6
College graduates	+5.4	0.8
Some college	+6.8	6.7
High school graduates	+5.5	10.5
High school dropouts	+4.0	26.0

Table 2 lists the primary subgroups in Table 1 with the highest Self-Reliant poverty growth rates over the 1975–97 period.[34] From these comparisons, it is clear that many of the population subgroups experiencing the most rapid growth in Self-Reliant poverty since 1975 are groups generally viewed as possessing substantial human capital, and hence economically secure—families headed by men, whites, individuals with schooling beyond high school, and married couple families. Indeed, all of the groups with high growth rates (except high school dropouts/graduates and single fathers) have Self-Reliant poverty rates below the 1995–97 national average of 9.3 percent.[35]

A more surprising pattern concerns the groups that have experienced the lowest growth in Self-Reliant poverty over the period. The growth rates for these

[34]Those categories with annual Self-Reliant poverty growth rates in excess of the overall national growth rate (3 percent per year) are shown. The "Other" racial group has been omitted due to small sample size. We note that the tabulations shown present growth rate comparisons, rather than changes in the number of individuals in poverty. A low annual growth rate for a large group or a group with a high poverty rate (e.g. single mothers) may represent a larger increase in the number of poor individuals than a larger annual growth rate for a small group or a group with a low poverty rate.

[35]Notice that Self-Reliant poverty has increased within each education group. We believe this is due to changing demographics and increased within-group wage inequality. In particular, if education is correlated with EC, then as the size of the population of individuals with higher levels of education rises, the percent of individuals with a given education level below a particular EC threshold will also rise. See also section VII.

TABLE 3

GROWTH RATE FOR GROUPS EXPERIENCING LOWEST GROWTH IN SELF-RELIANT POVERTY

Characteristic of Family Head	Average Annual Growth (%)	Self-Reliant Poverty Rate in 1995–97 (%)
Female family head	–1.0	17.1
Hispanic single mother	+0.6	47.8
Black single mother	+0.8	44.2
Families without children	+2.2	5.0
White single mother	+1.9	27.9
Black	+1.3	21.7
Hispanic	+2.0	18.4

groups (shown in Table 3) ranged from –1.0 percent per year to +2.2 percent per year—well below the overall rate of +3 percent per year. Although nearly all of these groups have relatively little human capital and the highest poverty rates,[36] they have recorded the lowest annual percentage increases in Self-Reliant poverty over the past 25 years.

In sum, family types with the greatest human capital (lowest levels of Self-Reliant poverty) have experienced the largest *relative* increases in Self-Reliant poverty over the past two and one-half decades. The groups with less human capital and earnings capacity have experienced relatively low rates of Self-Reliant poverty growth.[37]

V. THE COMPOSITION OF THE SELF-RELIANT POOR POPULATION

This evidence on levels and trends in aggregate poverty rates has implications for the characteristics of those who are Self-Reliant poor. In this section, we briefly describe the characteristics of the Self-Reliant poor, and the changes in these characteristics over time. We compare these patterns with those of the official poor population.

Table 4 shows the composition of the Self-Reliant poor population, and changes in this composition over the 23-year period. That is, it shows the share of the Self-Reliant poor population having a particular demographic characteristic. It also indicates the proportion of each group in Self-Reliant poverty relative to that group's proportion in official poverty.[38]

A. *Racial Composition of the Self-Reliant Poor*

Consider first the racial composition of the Self-Reliant poor. In the mid-1970s, individuals living in minority headed families comprised about 52 percent

[36]Indeed, Hispanic and Black single mothers have Self-Reliant (and official) poverty rates over four times the national average.

[37]A similar, though less pronounced inverse relationship between the growth rate and the level of poverty is also found for the official poverty measure.

[38]For example, in 1975–77, the white share of Self-Reliant poverty was 89 percent of that group's share of official poverty. A ratio of 1.00 would indicate a particular group's share of Self-Reliant poverty equaled its share of official poverty.

TABLE 4

Composition of the Self-Reliant Poor Population with Comparisons to Official Poor, by Characteristic of Household Head

	Composition of Self-Reliant Poor Population (%)				
	1975–77		1995–97		
	Share of Population	Relative to Official Share	Share of Population	Relative to Official Share	Growth Rate of Share (%)
Race of head					
Whites	47.82	0.89	42.56	0.98	–0.58
Blacks	37.54	1.18	29.76	1.14	–1.15
Hispanics	13.35	1.13	23.57	0.95	2.89
Other	1.29	0.54	4.11	0.71	5.94
Sex of head					
Males	39.19	0.79	34.39	0.93	–0.65
Females	60.81	1.21	65.61	1.04	0.38
Education of head					
Less than high school	68.67	1.15	40.83	1.03	–2.57
High school graduate	25.13	0.91	37.69	1.06	2.05
Some college	5.18	0.60	19.28	1.03	6.80
College graduate	1.02	0.25	2.20	0.36	3.89
Families with no children					
All	18.77	0.89	19.89	0.75	0.29
Couples	21.53	0.85	14.04	0.82	–2.11
Single men	33.36	1.13	42.66	1.15	1.24
Single women	45.11	1.00	43.29	0.95	–0.20
Families with children					
All	81.23	1.03	80.11	1.09	–0.07
Couples	33.10	0.70	29.34	0.77	–0.60
Single fathers	2.46	1.82	7.80	1.65	5.94
Single mothers	64.44	1.25	62.87	1.10	–0.12
White	36.09	0.94	34.00	1.02	–0.30
Black	49.33	1.01	41.56	1.01	–0.85
Hispanic	13.24	1.17	21.11	0.96	2.36
Other	1.33	1.03	3.33	0.97	4.69
Single mothers on welfare	64.74	0.95	47.00	0.88	–1.59
Single mothers not on welfare	35.26	1.10	53.00	1.14	2.06

Notes: "Share of Population" indicates the percent of the Self-Reliant poor population in a family whose head has the given characteristic. Conditional shares are given for sub-categories, thus "Couples" comprise 21.5 of the 18.7 of the Self-Reliant poor population in families with no children. "Relative to Official Share" is the ratio of the group's Self-Reliant share to its Official Share. The growth rate is calculated using the average 1975 to 1977 and 1995 to 1997 composition shares and assumes 20 years of growth.

of the Self-Reliant poor, and their share of the Self-Reliant poor population grew over time; by the end of the period, minorities accounted for more than 57 percent of the Self-Reliant poor. Among the minority groups, the share attributed to Blacks fell from 38 to 30 percent—an annual rate of change of over –1.1 percent. The share of Hispanics among the Self-Reliant poor grew by nearly +3 percent per year over the period, increasing from 13 to 24 percent from 1975–77 to 1995–97.

The ratios of the Self-Reliant poverty rate to the official rates indicate that the shares of Self-Reliant poverty comprised by the racial groups have converged with their respective shares of the official poor population. At the beginning of

the period, whites' share of the Self-Reliant poor population stood at 90 percent of their share of the official poor population. Similarly, Blacks' share stood at 118 percent. By the end of the period, the comparative share for whites was nearly 100 percent (indicating equal percentages of the two populations), while the ratio of Blacks' Self-Reliant share to official share had fallen to 114 percent. Most interesting is the change in the ratio for Hispanics, which fell from 1.13 (indicating a 13 percent larger share of the Self-Reliant poor than the official poor population) to 0.95 (indicating a 5 percent smaller share).

B. *Gender Composition of the Self-Reliant Poor*

In the mid-1970s, the Self-Reliant poor population was more heavily "female headed" than was the official poor population. About 61 percent of the Self-Reliant poor lived in "female headed" families at the beginning of the period, over 20 percent more than the percentage of official poor families (about 50 percent). By the end of the period, nearly two-thirds of the Self-Reliant poor lived in female headed families. From the beginning to the end of the period, however, the share of those living in female headed families in the two poverty indicators converged; by 1995–97, the female share of the Self-Reliant poor was only 4 percent greater than their share of the official poor.

C. *Educational Composition of the Self-Reliant Poor*

The share of the Self-Reliant poor population with less than a high school degree was very high at the beginning of the period—nearly 70 percent. However, as the number of working-age family heads without a high school degree decreased over time, their share of the Self-Reliant poor population fell to about 41 percent. Conversely, as the average level of education in the U.S. rose, the composition of the Self-Reliant poor population with higher levels of schooling rose. By the end of the period, nearly 22 percent of the Self-Reliant poor population lived in families headed by individuals with more than a high school degree, up from about 6 percent in 1975–77 (the growth rates of the Self-Reliant poverty population shares for the two highest schooling groups were +6.8 and +3.9 percent, while those for the two lowest schooling groups were –2.6 and +2 percent.

D. *Family Structure Composition of the Self-Reliant Poor*

At the beginning of the period, families with children accounted for 81 percent of the Self-Reliant poor, compared with about 79 percent of the official poor. While this high proportion declined slightly for the Self-Reliant measure, it fell more rapidly for the official poverty measure. By 1995–97, the percentage of Self-Reliant poor population that lived in families with children was nearly 10 percent greater than the percentage in the official poor population (80 percent compared to 74 percent).

Among Self-Reliant poor families with children, single mother families comprised between 63 and 64 percent of the population at both the beginning and the end of the period, compared to between 51 and 57 percent of the comparable official poor population. Over the period, this percentage share increased by

about 0.5 percent per year for the official measure, while it eroded slightly among the Self-Reliant poor. Despite this convergence, by the end of the period, the share of Self-Reliant poor individuals living in single mother families was still 10 percent higher than the share for the official poverty measure.

Among Self-Reliant poor single mothers, the composition of the population shifted from families headed by white or Black single mothers to families headed by Hispanic or Other single mothers. At the beginning of the period, individuals living in Self-Reliant poor families headed by a Black single mother comprised about half of these poor single mothers. Over time, this percentage decreased to about 42 percent. Correspondingly, the share of individuals in Hispanic-headed Self-Reliant poor single mother families rose from 13 percent to 21 percent.[39]

In sum, the share of the Self-Reliant poor population comprised of individuals living in families headed by the most economically vulnerable individuals decreased over time. For example, the shares of the Self-Reliant poor population living in Black families decreased from 38 to 30 percent, in families headed by a high school dropout from 69 to 41 percent, and in single mother families from 64 to 63 percent.[40] Despite these declines, the composition of Self-Reliant poor population is more heavily concentrated in these groups than is the official poor population—the ratios of Self-Reliant to official poverty shares for these groups are 1.14, 1.03, and 1.10, respectively.

VI. Who is Getting Measured?

In addition to simply asking about Self-Reliant poverty rates and composition relative to official rates and shares, we can determine the extent to which our Self-Reliant measure captures the same families as the official measure. For seven major subgroups of the population, Table 5 shows the Self-Reliant poverty rate, the official poverty rate, the percent of individuals considered poor by both measures, and the percent considered poor by the Self-Reliant measure, but not the official measure.

Turning first to the entire U.S. population, the table shows that from 1975 to 1977, 5 percent of the population would be considered poor by Self-Reliance standards, 10 percent would be considered poor by the official measure, and 3 percent would be considered poor by both measures. Thus 2 percent of the U.S. population would not have been considered poor by official U.S. standards, yet would have lacked the means to be self-sufficient in the absence of some other outside assistance. By 1995–97, this population had doubled. Nine percent of the U.S. population was Self-Reliant poor, while only 5 percent would be considered poor by both the Self-Reliant and Official measures, leaving 4 percent Self-Reliant poor, but ''missed'' by the official measure.

[39]Among Self-Reliant poor single mother families, nearly two-thirds were receiving welfare payments in 1975–77; by 1995–97 this percentage fell to less than one-half of this group. This is largely due to changes in welfare law.

[40]Those living in families headed by an Hispanic person are an exception to this pattern. Consistent with the rapid growth in the population of this group since the mid-1970s, the share of the Self-Reliant poor population comprised of persons living in such families increased by nearly 3 percent per year.

TABLE 5
PERCENT OF INDIVIDUALS CONSIDERED SELF-RELIANT POOR, OFFICIAL POOR, POOR BY BOTH MEASURES AND POOR BY EITHER MEASURE, BY CHARACTERISTIC OF HOUSEHOLD HEAD

	Average Poverty Rate (%)		Growth Rate (%)
	1975–77	1995–97	
All			
Self-Reliant poverty	5.20	9.31	2.95
Official poverty	10.14	12.46	1.03
Both poverty measures	2.95	4.98	2.65
Self-Reliant only	2.25	4.33	3.32
Whites			
Self-Reliant poverty	3.07	5.60	3.06
Official poverty	6.74	7.65	0.63
Both poverty measures	1.37	2.45	2.95
Self-Reliant only	1.70	3.15	3.15
Blacks			
Self-Reliant poverty	16.83	21.66	1.27
Official poverty	27.83	25.43	–0.45
Both poverty measures	11.87	13.39	0.61
Self-Reliant only	4.97	8.27	2.58
Hispanics			
Self-Reliant poverty	12.53	18.44	1.95
Official poverty	21.67	25.88	0.89
Both poverty measures	7.68	11.01	1.82
Self-Reliant only	4.85	7.43	2.16
Other			
Self-Reliant poverty	3.94	8.37	3.83
Official poverty	14.14	15.69	0.52
Both poverty measures	2.05	4.83	4.38
Self-Reliant only	1.89	3.54	3.17
Males			
Self-Reliant poverty	2.41	4.99	3.71
Official poverty	5.97	7.17	0.92
Both poverty measures	0.91	1.85	3.60
Self-Reliant only	1.50	3.14	3.77
Females			
Self-Reliant poverty	20.92	17.08	–1.01
Official poverty	33.60	21.96	–2.10
Both poverty measures	14.43	10.62	–1.52
Self-Reliant only	6.49	6.46	–0.02

Note: The growth rate is calculated using the average 1975 to 1977 and 1995 to 1997 poverty rates and assumes 20 years of growth.

Turning to the population group in families headed by Blacks, our results show 5 percent of the population would have been "missed" by the official measure at the beginning of the period. Seventeen percent of individuals in families headed by Blacks would be considered Self-Reliant poor, while only 12 percent would be considered poor by both measures. By the end of the period, 9 percent of individual in families headed by Blacks would have been missed by the official measure. The percentage of individuals in families headed by Hispanics that would be missed by the official poverty rate has also been rising, from 5 percent in 1975–77 to 7 percent in 1995–97.

VII. What has Accounted for these Patterns?

An interesting question concerns the economic, demographic, and cultural factors that have accounted for these Self-Reliant poverty prevalence and composition trends. For example, what might account for the more rapid growth of Self-Reliant poverty than official poverty over this period? Or, how can we explain the slow growth (or decrease) in the Self-Reliant poverty rate for groups commonly thought of as being the most vulnerable—racial minorities, female-headed families (both those with children and single females), or families headed by a person with low schooling—relative to the high growth rates recorded for less vulnerable groups (whites, married couples with children, and those with relatively high levels of schooling)?

Clearly, the underlying determinants of these patterns are numerous, and interact in complex and difficult-to-understand ways. Indeed, any change that affects: (a) the structure of work opportunities available in the economy (the demand side of the labor market); (b) people's choices in response to these opportunities (the supply side of the labor market); (c) the demographic structure of the population; or (d) public policy measures, is likely to have a differential effect on trends in the levels of Self-Reliant and official poverty.

In the following paragraphs, we indicate the likely effects of some of the more prominent economic and demographic changes that have occurred over the 1975–97 period on the patterns of Self-Reliant and official poverty that we have presented.[41] These changes include:

- decline in the real value of public cash income transfers;
- increase in labor force participation of women;
- increase in male joblessness[42];
- increase in female wage rates;
- decrease in male wage rates;
- decrease in racial wage disparities;
- increase in wage inequality within age–race–schooling groups;
- increases in the Black and Hispanic population shares (relative to whites);
- increase in prevalence of divorce and out-of-wedlock childbearing, and the "atomization" of the family unit.[43]

We examine the trends in overall Self-Reliant and official poverty, the relative trends in male- and female-headed poverty, and the relative trends in white- and Black/Hispanic-headed poverty.

A. *Increasing Overall Poverty Rates, Especially for Self-Reliant Poverty*

Turning first to the overall patterns of growth over time for the Self-Reliant and official poverty measures, we examine which of the above economic and

[41]See Haveman (2000) for a discussion of several of these trends, and references to studies that have documented them.

[42]See Juhn (1992).

[43]Over the 1975–97 period, average family size has decreased substantially as families have had fewer children and as family members who could only live with others in prior years have established their own living units.

demographic trends might have contributed to the large increase in Self-Reliant poverty (+3 percent per year) relative to official poverty (+1 percent per year).

Consider first the decline in public transfer income. Such income is included in the concept of economic resources used to define official poverty, but not Self-Reliant poverty. Hence, the decreasing value of cash transfers (primarily, welfare benefits) has directly contributed to the increase in the official poverty rate, while having no effect on the prevalence of Self-Reliant poverty. Because the latter poverty rate has risen more rapidly than the former, other factors must have been sufficient to override this effect.

Second, we note the trends in labor force participation and employment, particularly among women. The large rise in female employment over the past quarter century has contributed to sustaining the incomes of families containing women, hence constraining the growth of official poverty. In contrast, employment rates do not affect Earnings Capacity since EC is a function of innate human capital, not its utilization. Hence, growing female employment has contributed to the relatively slower growth of official poverty, relative to that of Self-Reliant poverty. In contrast, male employment rates have been declining. This trend tends to raise official poverty, but have no effect on Self-Reliant poverty.

Third, while real female wage rates have tended to increase over time, male wage rates have eroded. Wage rates, as opposed to the utilization of capacity, affect both Self-Reliant and official poverty; hence, changes in wage rates (either male or female) tend to have the same directional effect on poverty, irrespective of measure. The net effect of this relative wage rate change on the differential trends in the growth of poverty is, therefore, unclear.[44]

Fourth, the substantial increase in "within-group" wage inequality over the period has pulled those at the bottom of the subgroup wage distribution further from their respective group-mean wage. Because wage rates are reflected in the definition of economic resources for both poverty definitions this development has served to increase both the official and the Self-Reliant poverty rates. However, the Self-Reliant measure "weights" all of the potential work hours of the adults in a family, while the official measure reflects the wage rate paid only for actual hours worked. The weighting of all potential work hours by an implicit wage rate that reflects the increase in FTFY within-group inequality has contributed to a more rapid rise in the rate of Self-Reliant poverty relative to official poverty. This accounts for some, although certainly not all, of the divergency in trends between the two measures.[45]

[44]Because average male work hours exceed average female work hours, the decrease in male wages is likely to have increased official poverty over the period by more than the increase in female wages has reduced it. Other factors must have been sufficient to override this effect in explaining the more rapid growth in Self-Reliant poverty.

[45]The standard errors of our annual earnings regressions reveal an increase in within-group earnings (and, hence, the FTFY wage rate) inequality over the 1975 to 1997 period. In 1975, within-group inequality ranged from 34.5 percent for white women to 39.2 percent for white men. Within-group inequality increased for each race–gender group, ranging from 44.8 percent for white women to 54.3 percent for white men by 1997. This increase is undoubtedly less than the increase in total (namely, FTFY plus non-FTFY) wage inequality over the period. Because the increase in FTFY within-group wage inequality is reflected in our estimates of Self-Reliant poverty, while the larger increase in total within-group wage inequality is reflected in the official measure, this factor is likely to be a (although not the only) determinant of the relative increase in Self-Reliant poverty over the period.

Finally, irrespective of whether economic position is measured by income or the capability to earn income, families headed by racial minorities or single mothers are concentrated at the bottom of the distribution. Since the mid-1970s, the prevalence of families with both characteristics have increased substantially. Although demographic changes have contributed to the growth in both Self-Reliant and official poverty measures over this period, the differential effect of these changes on the two poverty rates is unclear.

B. *Decreasing Female Poverty, Increasing Male Poverty*

Although both Self-Reliant and official poverty rates for those living in female-headed families exceed those living in families headed by a male, the poverty rates of male-headed families have risen while those of female families have decreased.[46] What could have caused these relative movements in poverty rates?

Clearly, the decline in the real value of income transfers has increased the poverty rates of families headed by women to a much greater extent than those of male-headed families. As a result, this factor cannot explain relative growth in poverty for male-headed families observed over this period.

Other factors have worked to explain the disparate growth patterns in poverty rates between male-headed and female-headed families, however. These include the rapid increase in the *labor force participation and employment rate of women* (which has lowered the official poverty rate for those living in female-headed families, but has had no effect on the rate of Self-Reliant poverty for such families), the *increase in female wage rates and the decrease in male wage rates* (resulting in a decrease in both Self-Reliant and official female-headed poverty rates, and an increase in male-headed poverty rates), and the *increase in male joblessness* (increasing official poverty for those living in male-headed families, but having no effect on the rate of Self-Reliant poverty for these families. It seems likely that the relative (and absolute) declines in both male wage rates and male labor supply have accounted for this ''gender twist'' in poverty rates, irrespective of the poverty measure used.

C. *Rising White, Relative to Black and Hispanic, Poverty*

The steady reduction in racial wage and earnings gaps has been a persistent trend in the U.S. economy since the mid-1970s. This pattern accounts for the low relative growth in poverty rates among Blacks and Hispanics relative to whites, irrespective of the definition of poverty used. Joblessness among low-skilled workers has also increased somewhat more for whites than minority groups. This has contributed to the relative movements in official poverty trends for these groups.

VIII. Conclusion

We have addressed the concept and measurement of poverty, and have suggested a capability-based concept and measure of this social indicator. We then applied this Self-Reliant poverty measure to the U.S. working-age population over the 1975–97 period, and compared it to the official measure of poverty. How

[46]Female headed families includes single females and families headed by a single mother. Male headed families includes families headed by single men, with and without children, and married couples, with and without children.

many Americans live in families that are unable to earn enough to escape poverty? Has the prevalence of such Self-Reliant poverty changed over time? Who are these people living in such low-capability families? How do these patterns for Self-Reliant poor compare with those for the official poor?

Several conclusions stand out. First, while both the official and Self-Reliant poverty rates have increased over the period from 1975 to 1997, Self-Reliant poverty has grown more rapidly, and more steadily. While the official poverty rate grew by +1 percent per year over this period, the Self-Reliant poverty rate rose by nearly +3 percent per year.

Second, the highest Self-Reliant poverty rates are concentrated among the population groups that are generally recognized as among the nation's most vulnerable: Blacks, Hispanics, single parent families with children, and those with low levels of schooling. Over most of the period since the mid-1970s, the concentration of these groups in Self-Reliant poverty exceeds their concentration in official poverty.

Third, in spite of the rapid growth of Self-Reliant poverty, groups commonly thought of as being the most vulnerable—families headed by a racial minority, a female, or a person with low education—have recorded decreases or relatively low increases in poverty relative to those recorded for less vulnerable groups. The converse of this pattern is also true: since the mid-1970s, groups that are generally viewed as relatively secure economically—families headed by whites and those with relatively high levels of schooling, and married-couple families with children—experienced above-average growth in Self-Reliant poverty rates, and growth rates substantially greater than those for groups with low earnings capacity.

The large and rapidly growing number of people who are unable to be self-reliant is discouraging for a society that prides itself on providing the opportunity for individuals to prosper and thrive by working hard, and playing by the rules. A growing population of Americans would remain below the minimum-acceptable level of living defined by the nation's official poverty line, even if they were to fully use their capabilities, their human capital. The message advocated by some that it is necessary for workers and families to rely on their own resources seems to have come at the same time that increases in wage and earnings inequalities have made this goal less attainable for those with few skills and little human capital.

This dilemma faced by those who advocate the self-reliance objective raises the following question regarding the role of the public sector: If income support measures are ruled out as eroding work effort, encouraging dependence, and fostering the growth of income poverty, what policy measures are available to reduce Self-Reliant poverty? Essentially, two general policy strategies are available:

- Increasing the level of education, training, skills, and other human capital characteristics of those at the bottom of the capability distribution.
- Increasing the ''return'' that the least capable members of society receive on the use of their human capital.

The first approach suggests targeting programs designed to improve schools and to provide education and training services on those with few skills and little human capital, and to increase the resources devoted to such targeted measures. This, of course, leaves unanswered the question of how best to design and implement such programs, and to ensure that they are cost-effective.

The second approach is the more controversial, as it directly calls into question the productivity returns reflected in market-determined wages. Policy measures capable of reducing Self-Reliant poverty through increasing the returns to market work of those with little human capital—for example, raising the national minimum wage, providing subsidized wage rates to those at the bottom of the wage distribution, or directly subsidizing the earnings of low-wage workers (such as the Earned Income Tax Credit in the U.S.)—often carry with them their own distortions and inefficiencies.[47] All of these measures have both advantages and disadvantages; again, the question is how best to design and implement such programs, and to ensure that they are cost-effective.

However, if self-reliance and economic independence are to be the standards by which a nation gauges its success, the question of how best to provide those with the least human capital with the skills or returns on their efforts required for them to be self-reliant remains. In the face of underlying economic and demographic trends that appear to generate increases in the level of Self-Reliant poverty, finding an answer to this question assumes increased urgency.

Appendix 1

TABLE A.1

Variable Definitions

Variable	Definitions
Age	Age of the individual
Age squared	Age of the individual, squared
Education	Years of schooling completed by the individual
Education squared	Years of schooling completed by the individual, squared
Age * Education	Age of the individual times years of schooling
Northeast, South, West	Region specific dummy variables. North Central is omitted
City, suburb	SMSA Status dummies. Rural is omitted
Married, spouse present[a]	Dummy variable indicating the presence of a legal spouse in the household.
Have children under 18[a]	Dummy variable indicating the presence of unmarried children under the age of 18 in the family
Number of children under 18	Number of unmarried children under the age of 18 in the family
Have children under 6	Dummy variable indicating the presence of children under the age of 6 in the family
Number of children under 6	Number of unmarried children under the age of 6 in the family
Non-labor income (000s)*	Total family income from sources exogenous to the labor market decisions of the individual (in thousands of dollars)
Health program*	Dummy variable indicating the individual's participation in a health-related income support program
Unemployment rate*	Unemployment rate in the individual's state of residence.
Veteran*	Dummy variable indicating veteran status (men only)
Maximum welfare benefit*	Maximum welfare benefit for a family of four in the individual's state of residence (women only).
Hispanic	Dummy variable indicating Hispanic ethnicity (non-whites only)

Notes: Starred variables indicate exclusion restrictions. These variables are included only in the first stage FTFY labor force participation equation. All other variables are included in both stages. [a]For women, Have children under 18 and Married, spouse present are interacted, obtaining an

[47]Given our approach in measuring Self-Reliant poverty, increased subsidisation of child care costs for working mothers would also reduce poverty in that it would decrease required child care costs, increase the NEC of families with children, and hence decrease the number of them classified as Self-Reliant poor.

expanded set of dummy variables: Single, no children; Single, with children; Married, no children; and Married, with children. Non-labor income is the family's non-wage income, less total family social security, supplemental security, public assistance, alimony and child support, less individual unemployment compensation, worker's compensation, veteran's payments and retirement income.

References

Atkinson, A. and F. Bourguinon, The Comparison of Multidimensional Distributions of Economic Status, *Review of Economic Studies*, 49, 183–201, 1982.

Becker, G. S., A Theory of the Allocation of Time, *The Economic Journal*, 75, 493–517, 1965.

Bourguinon, F. and S. R. Chakravarty, *The Measurement of Multidimensional Poverty*, Document 98-12, DELTA, Ecole Normale Superieure, Paris, France, 1998.

Citro, C. F., and R. T. Michael (eds), *Measuring Poverty: A New Approach*, National Academy Press, Washington, DC, 1995.

Cutler, D. M. and L. F. Katz, Macroeconomic Performance and the Disadvantaged, *Brookings Papers on Economic Activity*, no. 2, The Brookings Institution, Washington, D.C., 1991.

Danziger, S., M. Corcoran, S. Danziger, C. Heflin, A. Kalil, J. Levine, D. Rosen, K. Seefeldt, K. Siefert, and R. Tolman, Barriers to the Employment of Welfare Recipients, University of Michigan Program on Poverty and Social Welfare Policy, Ann Arbor, MI, 2000.

de Vos, K. and T. I. Garner, An Evaluation of Subjective Poverty Definitions: Comparing Results from the U.S. and the Netherlands, *Review of Income and Wealth*, 37(3), 267–85, 1991.

Duncan, G. J., J. Boisjoly, and T. Smeeding, Economic Mobility of Young Workers in the 1970s and 1980s, *Demography* 33(4), 497–509, 1996.

Federman, M., T. I. Garner, K. Short, W. B. Cutter IV, J. Kiely, D. Levine, D. McGough, and M. McMillen, What Does it Mean to be Poor in America?, *Monthly Labor Review*, December, 1–17, 1996.

Fisher, G. M., The Development and History of the Poverty Thresholds, *Social Security Bulletin*, 55(4), 3–14, 1992.

Garfinkel, I. and R. Haveman (with the assistance of David Betson), *Earnings Capacity*, *Poverty and Inequality*, Academic Press, New York, 1977.

Haagenaars, A. J. M., *The Perception of Poverty*, North-Holland, Amsterdam, 1986.

Haveman, R. *Poverty Policy and Poverty Research*, University of Wisconsin Press, Madison, WI, 1987.

———, Poverty and the Distribution of Economic Well-Being since the 1960s, in G. L. Perry and J. Tobin (eds), *Economic Events*, *Ideas*, *and Policies*, The Brookings Institution, Washington, DC, 2000.

Haveman, R. and A. Bershadker, Self-Reliance as a Poverty Criterion: Trends in Earnings-Capacity Poverty, 1975–1992, *American Economic Review*, 88(2), 342–7, 1998.

Haveman, R. and L. Buron, Who Are the Truly Poor? Patterns of Official and Net Earnings Capacity Poverty, 1973–1988, in D. Papadimitriou and E. Wolff (eds), *Poverty and Prosperity in the U.S.A. in the Late Twentieth Century*, St Martin's Press, New York, 1992.

Haveman, R. and B. Knight, Youth Labor Market Opportunities, Living Arrangements, and Economic Independence: A Cohort Analysis from the Early 1970s to the Late 1980s, Institute for Research on Poverty, University of Wisconsin–Madison. 2000.

Haveman, R. and M. Mullikin, Alternatives Measures of National Poverty: Perspectives and Assessment, in E. Schokkaert (ed.), *Ethics*, *Poverty and Inequality and Reform in Social Security*, Ashgate Publishing Ltd, London, 2001.

Haveman, R., A. Bershadker, and J. Schwabish, *U.S. Human Capital and Its Utilization*, Upjohn Institute, Kalamazoo, MI, forthcoming.

Heckman, J. A., Sample Selection Bias as a Specification Error, *Econometrica*, 47(1), 153–61, 1979.

Jencks, C. and S. E. Mayer, Do Official Poverty Rates Provide Useful Information about Trends in Children's Economic Welfare?, Harris Graduate School of Public Policy, University of Chicago, 1996.

Johnson, D., The Two-Parameter Equivalence Scale and Inequality between and within Households, Paper prepared for meeting of the International Association for Research in Income and Wealth, 1996.

Jorgenson, D. W., and D. T. Slesnick, Aggregate Consumer Behavior and Household Equivalence Scales, *Journal of Business and Economic Statistics*, 5(2), 219–32, 1987.

Juhn, C., Decline of Male Labor Market Participation: The Role of Declining Labor Market Opportunities, *Quarterly Journal of Economics*, 107(1), 79–122, 1992.

Kolm, S., Multidimensional Egalitarianisms, *Quarterly Journal of Economics*, 91(1), 1–13, 1977.

Lillard, L. A. and R. Willis, Dynamic Aspects of Earnings Mobility, *Econometrica*, 46(5), 985–1012, 1978.
Mayer, S. E. and C. Jencks, Recent Trends in Economic Inequality in the United States: Income vs. Expenditures vs. Material Well-Being, in D. Papadimitriou and E. Wolff (eds), *Poverty and Prosperity in the U.S.A. in the Late Twentieth Century*, St. Martin's Press, New York, 1992.
———, Has Poverty Really Increased Among Children Since 1970?, Working Paper 94-14, Northwestern University, Center for Urban Affairs and Policy Research, 1995.
Murray, C. *Losing Ground*: *American Social Policy*, 1950–1980, Basic Books, New York, 1984.
Ruggles, P., *Drawing the Line*: *Alternative Poverty Measures and Their Implications for Public Policy*, Urban Institute Press, Washington, DC, 1990.
Sen, A., Equality of What?, in S. M. McMurrin (ed.), *Tanner Lectures on Human Values*, Cambridge University Press, Cambridge, 1980.
———, *Inequality Reexamined*, Russell Sage Foundation and Harvard University Press, Cambridge, MA, 1992.
———, *On Economic Inequality*, Clarendon Press, Oxford, 1997.
Slesnick, D. T., Gaining Ground: Poverty in the Postwar United States, *Journal of Political Economy*, 101(1), 1–38, 1993.
Tobin, J., Raising the Incomes of the Poor, in K. Gordon (ed.), *Agenda for the Nation*, Brookings Institution, Washington, DC, 1970.
Triest, R. K., Has Poverty Gotten Worse?, *Journal of Economic Perspectives*, 12(1), 97–114, 1998.
Tsui, K. Y., Multidimensional Generalizations of the Relative and Absolute Indices: the Atkinson–Kolm–Sen Approach, *Journal of Economic Theory*, 67(1), 251–65, 1995.
U.S. Bureau of the Census, Poverty in the United States: 1992, *Current Population Reports*, *Series P*60-185, Government Printing Office, Washington, DC, 1993.
———, What Does it Cost to Mind Our Preschoolers?, *Current Population Reports*, *Series P*70-52, Government Printing Office, Washington, DC, 1995.
U.S. Congressional Budget Office, Trends in Family Income: 1970–1986, Government Printing Office, Washington, DC, 1998.
U.S. General Accounting Office, Alternative Poverty Measures, GAO/GGD-96-183R, 1996.
———, Implications of Increased Work Participation for Child Care, GAO/HHES-97-75, 1997.
van Praag, B. M. S., A. J. M. Hagenaars, and H. van Weeren, Poverty in Europe, *Review of Income and Wealth*, 28(3), 345–59, 1982.
Waite, L. J., A. Leibowitz, and C. Witsberger, What Parents Pay For: Child Care Characteristics, Quality and Costs, *Journal of Social Issues*, 47(2), 33–48, 1991.