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The "Inability to Be Self-Reliant" as an Indicator of Poverty: Trends in the United States, 1975–1995

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Abstract

The trend in national policy over the past two decades has emphasized self-reliance and a reduced role of government in society. Given this ideological shift, the official poverty measure, which is based on the premise that all families should have sufficient income from either their own efforts or government support to boost them above a family-size-specific threshold, appears now to have less policy relevance than in prior years. In this paper we present a new concept of poverty, the inability to be self-reliant, 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 size and composition of the poor population from 1975 to 1995. We find that poverty in terms of self-reliance increased more rapidly over the 1975–95 period than did official poverty. We find that families commonly thought to be the most impoverished—those headed by minorities, single women with children, and individuals with low levels of education—have the highest levels of self-reliance poverty. However, these groups have also experienced the smallest increases in this poverty measure. Families largely thought to be economically secure, specifically those headed by whites, men, married couples, and highly educated individuals, while having the lowest levels of self-reliance poverty, have also experienced the largest increases in that measure. We speculate that the trends in self-reliance poverty stem largely from underlying trends in the U.S. economy, in particular the relative decline of wage rates among whites and men, and the rapidly expanding college-educated group.

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I. INTRODUCTION

Reducing poverty is a goal of nearly all nations. Yet among both nations and scholars there is no commonly accepted measure of poverty. 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 (with friends and families) 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."

Economists tend to prefer a concept of hardship that reflects "economic position," somehow measured. Even economists, however, hold 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." Others look to the level of consumption as an indicator of the level of living. Still others rely on families' own assessment of their economic well-being, and move from this assessment to a judgment regarding who is poor and how many of them there are.[1] Furthermore, within each of these perspectives, there is a wide range of definitions and concepts. For example, if income is taken to be the best indicator of economic status, is annual, multiyear, or lifetime income the appropriate measure? Should we examine pretax, pretransfer income or income after accounting for taxes and/or transfers? Should in-kind income be counted or not?

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[1]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 rate as "excellent," "good," etc.

Poverty measures derived from each of these concepts seek to identify some aspect of "hardship," the reduction of which becomes a social objective and test of policy. However, the many possible dimensions of hardship that can serve as the basis for poverty measures complicate policy design and discussion. Indeed, each dimension implies both a different target poverty population and a different set of antipoverty policies.

In this paper, we set forth a concept of poverty that rests on individual "capabilities." Like other poverty measures, this one seeks to identify those in the population who experience the most "hardship," who are the most deprived. In this case, those who are at the bottom of the distribution of "ability-to-generate-minimum-necessary-income" are the most deprived. We call this measure **self-reliance 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 suggest an empirical procedure for identifying this population that rests on an estimate of individual labor market capabilities—the ability to generate an income stream through the use of one's own capabilities—which we call earnings capacity (EC). We apply this concept to the U.S. population, and explore a variety of trends and compositional patterns for the "capability poor" population. We find that the prevalence of self-reliance poverty has grown more rapidly than has the official U.S. definition of poverty, and that the intertemporal patterns 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-reliance poverty concept and measure, we address the question of why another concept and measure of poverty is relevant and helpful. There are essentially two rationales for this effort: a conceptual reason, and one motivated by recent policy debates.

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 not having income this year sufficient to cover basic needs is a matter worthy of public concern and action, being income poor is often transitory (Naifeh, 1998). Annual incomes vary widely over time, and a family that is short of cash income in 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 income to meet basic needs provides a meaningful measure of economic hardship in a nation, and enhances the insights obtained from indicators recording the extent of transitory shortfalls in income or consumption.

This position has its foundations in the writings of Amartya Sen, among others. Sen (1992) has argued "that the 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).[2] 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).

The essence of this position is that 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.

By setting out this measure, however, we do not mean to suggest that other poverty measures ought to be abandoned in favor of a capability-based measure, but only that these measures capture

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[2]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 (in Sen, 1985), and Sen (1997).

different—and perhaps less fundamental—aspects of hardship. The self-reliance poverty measure may reveal important aspects of what it means to be poor that are obscured by the other measures, and hence can serve as a complement to poverty definitions based on annual income, consumption, social integration, housing, or health.

There is also a *policy-related reason* for developing a measure of poverty that focuses on people's ability 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 has emphasized the merits of individual independence (relative to reliance on government programs), the negative effects of government programs on individual behavior, and the desirability of a smaller economic and social policy role for government.[3] Through its emphasis on individual responsibility, this point of view implicitly rejects the basic income concept on which the official poverty measure rests, namely the sum of income from "own" activities and government transfers.[4] Advocates of this viewpoint argue that the

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[3]Evidence that being "self-reliant" or "economically independent" has taken on increased weight in U.S. social policy is the provision in the 1996 welfare reform legislation titled Temporary Assistance for Needy Families (TANF). TANF eliminated the receipt of public transfer benefits by single-parent households as an entitlement, 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 elimination of most legal immigrants from eligibility for public income support, 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.

[4]The official U.S. measure is based on a survey report of the annual cash income of a family, which value is then 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 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) and Citro and Michael (1995). This measure has been the official poverty standard since the early 1960s. Fisher (1992) discusses the origins of the official poverty measure.

real problem of poverty is that the nation has substituted welfare and other public transfer income for income generated by people's own efforts. Such transfers are viewed as inducing inefficient behaviors, generating more long-term poverty as recipients come to depend on government support, and fostering the creation of a dysfunctional social class that is at the core of many of the nation's problems.[5] To those that emphasize self-reliance, then, the official measure of poverty has little relevance as an indicator of the nation's success in reducing "true" poverty.

It is in this context, then, that a self-reliance poverty concept and measure becomes relevant. If a nation is to base policy on the belief that people must rely on their own energies and resources, it becomes important to identify the size, composition, and growth of the population of citizens who do not have the capability to be independent in a market economy. If a social goal is to require economic independence, such a poverty measure would also enable the nation to gauge its progress in reducing the size of the population whose ability to be self-reliant lies below this norm.

Indeed, having a self-reliance 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, the issue of poverty becomes recast; it does not vanish. The question now becomes: how can public policy efficiently reduce the population unable to be self-reliant; what instruments are available, and which are the most cost effective?

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[5]One of the earliest of the 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, and hence the nation should stop assisting the destitute and start emphasizing individual self-reliance.

III. A MEASURE OF POVERTY AS "INABILITY TO BE SELF-RELIANT"

All economic poverty measures rest on some concept of economic position that allows individuals or families to be rank ordered. When a cut-off line is drawn in this ranked population, those below the cutoff are designated as poor; the remainder are nonpoor. For the self-reliance poverty measure, we define the economic position of families by their capability to secure income, and compare this capability to a socially accepted minimum income standard. This family measure builds on an estimate of the income-generating "capability" of each adult in the family, which we call "earnings capacity."[6]

A. Earnings Capacity as an Indicator of Economic Capability

To obtain our measure of family economic position, we first assess the capability—defined as the capability to generate annual earned income, or earnings capacity—of each prime-aged adult (persons aged 18–64) in the family.[7] In particular, each adult's earning capacity ($\mathbf{EC_i}$) is defined as the earnings that the person would receive if he or she were to work full-time, full year (FTFY) (= 2000 hours per year) at a wage rate consistent with his or her capabilities, or human capital.[8]

While $\mathbf{EC_i}$ takes FTFY work as a norm, some individuals are constrained from working at this level owing to health limitations, disabling conditions, or some steady-state inability to find a job. To

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[6]Prior efforts to develop and employ measures of earnings capacity are in Garfinkel and Haveman (1977) and Haveman and Buron (1992).

[7]As a result, our poverty measure is relevant only for people who live in families headed by a working-age person, those people who could be expected to be independent through their own work and efforts. The measure is not relevant for the elderly.

[8]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. 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.

take into account such exogenous limitations on attaining $\mathbf{EC_i}$, we adjust the individual values by a factor (Γ_i) that reflects the time that each individual loses in a year because of these health, disability, or unemployment constraints. This modified value, $\mathbf{\Gamma_i\, EC_i}$, reflects the amount that individuals can be expected to earn in a particular year, if both their human capital attributes and the constraints imposed by disability, illness, or a lack of employability are taken into account.

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

$$\mathbf{GEC = \Gamma_H\, EC_H + \Gamma_S\, EC_S + \Gamma_A\, EC_A + \mu,} \qquad (1)$$

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.

However, **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 for both the head and spouse 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.[9] 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** is defined as:

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

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

[9]Others would include the required transportation or clothing costs associated with working; we neglect these costs.

The level of **NEC** for each family is then compared to the official, family-size-specific poverty line, which represents the income necessary to attain a socially accepted minimum level of living. The ratio of **NEC** to the 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 designated as "net earnings capacity—or self-reliant—poor." These families are unable to be economically independent, even if all adult members fully use their human capital.

B. The Measurement of Individual Earnings Capacity

We estimate $\mathbf{EC}_i$ for each working-age adult in a large representative sample of individuals, and then modify these estimates to account for the exogenous constraints imposed on individuals by sickness, disability, and the inability to find work, Γ_i .[10] Call the modified $\mathbf{EC}_i$ value $\mathbf{EC}_i^* = \Gamma_i \mathbf{EC}_i$.

As a first step, we fit a two-equation model to four race-gender (white-nonwhite, male-female) specific samples of civilian, non-self-employed, non-student adults aged 18–64, drawn from the March Current Population Surveys (CPS)[11] for 1976 through 1996.

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), and labor market conditions (e.g., the state unemployment rate, region of the country, rural-suburban-urban location).

Estimates from the first-stage probit equations are used to construct a selectivity correction term (λ) for each individual. These terms are used in annual, group-specific, second-stage earnings equations

[10]The following summarizes our procedure; a full description of data and methods is found in the Appendix.

[11]The data from these surveys serve as the basis for the official U.S. measure of poverty.

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.[12]

The second-stage earnings equation is of the form

$$\mathbf{Y_i} = \mathbf{X_i}\,\beta + \mathbf{c}\lambda_\mathbf{i} + \epsilon_\mathbf{i} \qquad (3)$$

where $\mathbf{Y_i}$ is defined as the logarithm of observed FTFY earnings, $\mathbf{X_i}$ is composed of the independent variables that affect earnings, $\lambda_\mathbf{i}$ is the selectivity correction term, and $\epsilon_\mathbf{i}$ 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 estimates conform to the predictions from that 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 $\mathbf{EC_i}$ estimate for each adult, we employ coefficients from the appropriate earnings equation and the person's human capital and other market-relevant characteristics. Hence, each individual with the same set of characteristics is assigned the same earnings capacity. Because this procedure neglects the role of unobserved human capital and labor demand characteristics and "luck" in the earnings determination process, the resulting $\mathbf{EC_i}$ distribution for each race-gender group and for the entire population is artificially compressed. Hence, we return the unexplained earnings variation within each race-gender group to these distributions by applying a random shock (reflecting the unexplained

[12]See Heckman (1979).

variation in the regressions) to the estimated value for each observation within a race-gender cell.[13] Hence, for each working age-adult:

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

where $\mathbf{m_i}$ is a randomly generated variable distributed N(0,1). We then multiply each $\mathbf{EC_i}$ term by its appropriate illness, disability, and unemployment adjustment factor, Γ_i, giving the modified $\mathbf{EC_i}$ value, $\mathbf{EC_i}^*$.

C. From Individual $\mathbf{EC_i}^*$ to Family **NEC** to Self-Reliance Poverty

Having $\mathbf{EC_i}^*$ for each individual allows us to calculate the gross earnings capacity (GEC) of each family unit in the population by summing this value over the adults in the family, and adding the family's observed income flow from property to this sum.[14] We then subtract from each family's $\mathbf{GEC_F}$, the annual costs of acceptable child care (required to enable all adults in the family to work FTFY), obtaining $\mathbf{NEC_F}$, our estimate of the net earnings capacity of the family,

$$\mathbf{NEC_F} = \mathbf{EC_H}^* + \mathbf{EC_S}^* + \mathbf{EC_A}^* + \mu - \Omega. \quad (5)$$

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[13]We assume that the distribution of FTFY earnings within a race-gender cell is normal, with a standard deviation equal to the standard error of the estimated race-gender earnings equation fit over the FTFY workers. We use the standard error (σ) from the 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 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:

$$\epsilon_{it} = \delta_i + \nu_{it}$$

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. $\epsilon_{it} = \nu_{it}$). In effect, our method assumes that the entire residual represents permanent differences in individual-specific human capital stock (i.e., $\epsilon_{it} = \delta_i$). 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.

[14]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 underreported in the data, our estimates of GEC will be biased downward.

In a final step, we identify the capability-poor families by comparing each family's $\mathbf{NEC_F}$ 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-reliance poverty indicator, we must argue that the **earnings capacity** concept reliably captures the capability of a person to generate an earnings stream.[15] This argument rests on a number of conventions, norms, and assumptions. Furthermore, while earnings capacity is designed to reflect the full labor market potential of a working-age adult, we recognize that we have made some simplifications in arriving at our measure. Moreover, the estimation of this value is constrained by data limitations that keep a variety of relevant determinants of labor market capability from being fully reflected, including aspects of physical and mental health, basic intelligence, schooling quality, work experience, motivation, physical appearance, and the structure of the labor market.

First, we note that in creating our indicator of capability, we accepted the "norm" of full-time, full-year work (2000 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. Moreover, we have assumed that individuals under age 18 and over age 64 are not subject to this full-time, full-year work norm.

We made an effort to adjust for the unavoidable costs associated with fully utilizing capabilities in the labor market, concentrating on 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 earnings capacity of such parents

[15]Sen (1992) presents a full examination of a concept of "capability" that is even broader than that used here.

would be set at zero. While this alternative norm would undoubtedly change the NEC of the families affected, it would change a family's NEC poverty status only to the extent that the *difference* between the estimated earnings capacity for the stay-at-home parent and the child care expense is large enough to move the family from a position below its poverty line to one above 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 in NEC 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 value for that family *if* they work full time, full year.

Our adjustments for unavoidable costs are somewhat crude. For example, our child care adjustments fail to account for within-region variations in expenses and the ability of some families to engage relatives at low cost in this activity. Moreover, we have ignored a variety of other required expenses associated with full-capacity work. We believe, however, that our methods reasonably capture the bulk of expenses incurred when all adults in a family move to full-time, full-year work.

We have abstracted from labor demand constraints on market earnings in two ways. First, we ignore the effects of business cycles on wages. To the extent that wages, and hence earnings *potential*, are depressed during recessions (or inflated during expansions), our estimates of earnings capacity will be biased upward (or downward). Second, 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 each individual would expect to earn if he or she independently moved to full-time, full-year work.

To the extent possible, we account for long-term exogenous constraints on earnings potential imposed by health problems, disability, and long-run unemployability. However, we acknowledge that the adjustments made for these constraints are but rough proxies of the adjustments required to obtain

true estimates of the value of individual human capital stocks.[16] We assume, in particular, that the annual hours not working which the respondent attributes to the inability to find work represents long-term unemployability arising from the individual's characteristics.

IV. THE TREND IN U.S. SELF-RELIANCE POVERTY FROM 1975 TO 1995

In this section, we present the overall trend in "capability poverty" (to use Sen's term) in the United States over the past two decades as an illustration of the norms and procedures outlined above. By comparing this self-reliance poverty trend with both the official U.S. poverty measure and with other studies of the trend in U.S. poverty, we obtain a picture of the country's progress in securing a nation of citizens capable of being economically independent through reliance on their own capabilities and resources.

A. The Overall Trend

Table 1 and Figure 1 present estimates of the prevalence of self-reliance (NEC) poverty[17] in the United States from 1975 to 1995 based on annual data from the March Current Population Survey.[18] The self-reliance poverty rate grew rapidly over the period. From 6 percent in the 1975–1977 period, the rate grew 3.4 percent per year, reaching 185 percent of its initial level by 1993–1995. Over 9.8 million more

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[16]In fact, we make the unemployability adjustment for all individuals who report not working full time, full year, but do not make it for individuals who are never in the labor force. Applying this adjustment to these individuals is impossible in that they do not report the reasons why they are totally out of the labor force. Some would argue that we should make a similar adjustment for the "discouraged worker" effect. Because of the difficulty of identifying discouraged workers, we have not made such an adjustment. To this extent, our **NEC** poverty indicator contains a small downward bias of the concept it is designed to measure.

[17]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.

[18]The detailed numbers on which the tables and figures in this paper are based are available from the authors on request. We note that the self-reliance poverty rates shown here are somewhat higher than the preliminary estimates reported in Haveman and Bershadker (1998), owing to revisions made in the health-disability-unemployment and child care adjustments. The Appendix discusses these differences.

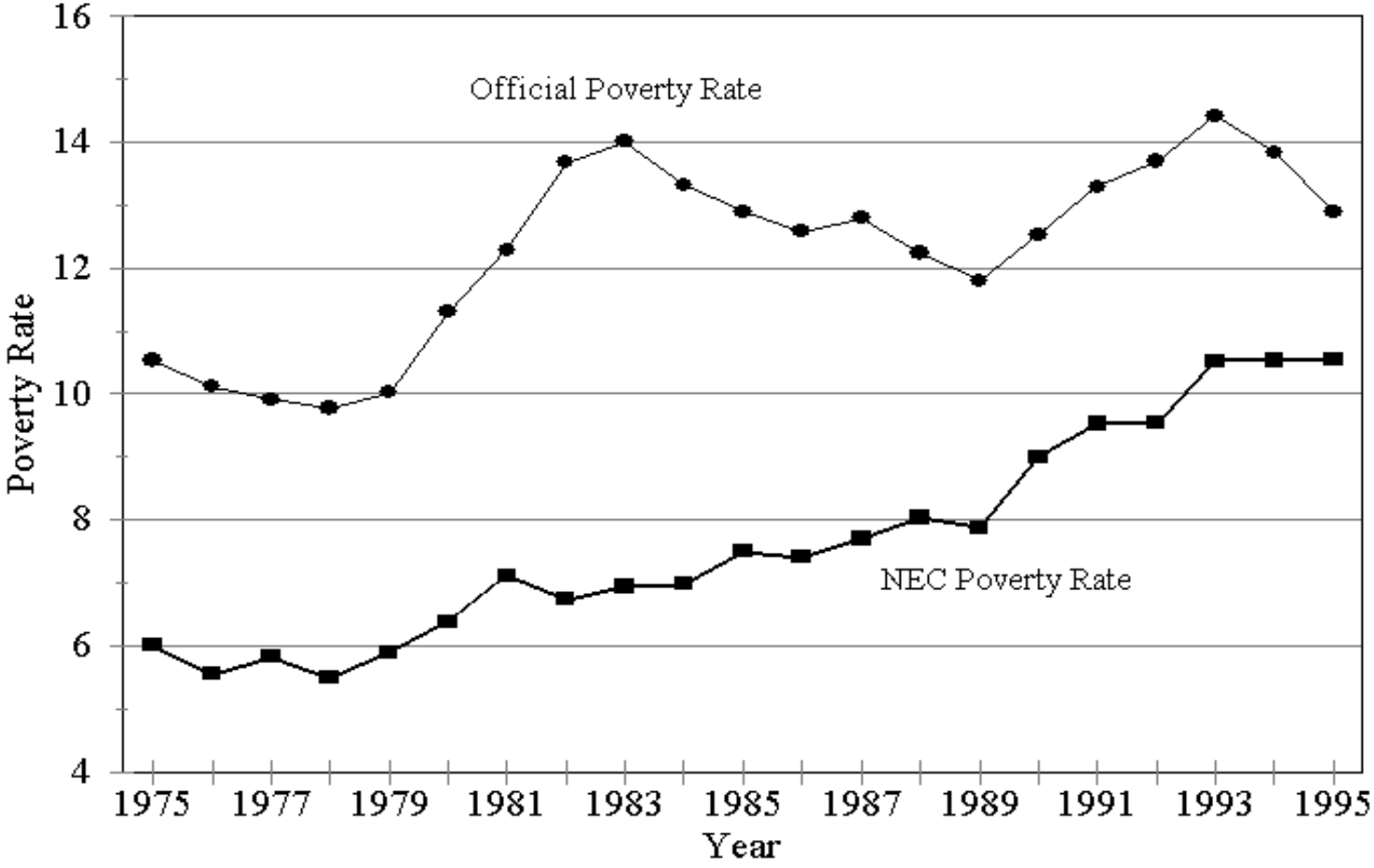
TABLE 1

Percentage of Individuals in Poverty as Defined by Self-Reliance, by Characteristic of Family Head

	Average Poverty Rate		Annual
	1975 to 1977	1993 to 1995	Growth Rate[a]
All	5.79	10.54	3.38%
Race of Head			
Whites	3.55	6.50	3.41%
Blacks	17.72	24.34	1.78%
Hispanics	12.67	19.66	2.47%
Other	4.52	9.57	4.26%
Sex of Head			
Males	2.84	5.77	4.02%
Females	22.14	20.55	-0.41%
Education of Head			
Less than high school	12.58	28.22	4.59%
High school graduate	4.20	11.87	5.94%
Some college	2.23	7.16	6.68%
College graduate	0.47	1.22	5.46%
Families with No Children			
All	4.43	7.18	2.71%
Couples	1.93	3.62	3.55%
Single men	8.76	11.08	1.31%
Single women	9.56	11.81	1.18%
Families with Children			
All	6.37	12.44	3.79%
Couples	2.53	5.06	3.93%
Single fathers	10.97	22.39	4.04%
Single mothers	29.34	38.08	1.46%
White	20.23	27.23	1.67%
Black	39.08	46.72	1.00%
Hispanic	40.86	48.10	0.91%
Other	32.63	36.26	0.59%
Single mothers on welfare	44.98	58.73	1.49%
Single mothers not on welfare	17.72	26.16	2.19%

[a]The growth rate is calculated using the average 1975–1977 and 1993–1995 poverty rates, and assumes 18 years of growth.

FIGURE 1
Self-Reliant and Official Poverty Rates for Individuals in Families Headed by Prime-Aged Adults, 1975 to 1995



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.[19]

The level and trend of self-reliance poverty can be compared with the pattern of official U.S. poverty for working-age families over this same time period. Table 2 presents the beginning and ending averages and growth rate of official poverty, while Figure 1 shows the trend for the entire period. The official poverty rate over the period lies in the 10–14 percent range.[20] Over the 1975–1995 period, the prevalence of official poverty grew by about one-third, reflecting an average annual growth rate of 1.7 percent. This is half the 3.4 per cent annual growth rate of the self-reliance poverty indicator. Figure 1 also shows the greater cyclical sensitivity of the official poverty rate. Given that the official poverty rate rests on the flow of current income, this pattern is not surprising.[21]

The growth in these poverty indicators runs counter to the findings of some other studies. Perhaps the most prominent of these is 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, whereas both the official and his own measures yield a poverty rate for

[19]We also calculated the patterns of poverty prevalence for children under age 6. The young children's self-reliance poverty rate in the 1993–95 period is 20 percent, nearly double the comparable rate for all individuals. Moreover, the young children's self-reliance poverty rate grew by 4.5 percent per year, versus the 3.4 percent rate for all individuals. These large disparities between children and all individuals also persists within race-gender-education subgroups. This pattern results from the heavier concentration of young children in families with lower earnings capacities than the average individual in the population. For example, families with children headed by a woman, hence with but one potential worker in the family, have very low NEC values relative to their needs. (These calculations are available from the authors.)

[20]The primary factors that account for the difference in levels between the two measures are (1) the counting of transfer income, (2) the prevalence of less than FTFY work, and (3) the adjustment for child care costs in the self-reliance poverty measure. Factors (1) and (2) are directly reflected in the official poverty measure, while (3) affects only the self-reliance poverty measure.

[21]The official poverty rate presented here applies only to individuals from families headed by prime-aged adults. Thus it differs slightly from official Census publications.

TABLE 2

Percentage of Individuals in Poverty as Officially Defined, by Characteristic of Family Head

	Average Poverty Rate		Annual
	1975 to 1977	1993 to 1995	Growth Rate[a]
All	10.19	13.72	1.67%
Race of Head			
Whites	6.67	8.28	1.21%
Blacks	27.94	29.45	0.29%
Hispanics	21.88	27.74	1.33%
Other	13.64	16.66	1.12%
Sex of Head			
Males	5.94	7.89	1.59%
Females	33.74	26.05	-1.43%
Education of Head			
Less than high school	20.13	35.61	3.22%
High school graduate	7.66	14.82	3.73%
Some college	5.63	9.39	2.88%
College graduate	2.29	3.09	1.67%
Families with No Children			
All	7.05	9.17	1.47%
Couples	2.70	3.12	0.80%
Single men	12.94	15.17	0.89%
Single women	17.32	17.66	0.11%
Families with Children			
All	11.55	16.31	1.94%
Couples	6.37	8.38	1.54%
Single fathers	11.00	19.42	3.21%
Single mothers	43.15	45.16	0.25%
White	31.35	32.58	0.21%
Black	56.71	55.22	-0.15%
Hispanic	55.03	57.37	0.23%
Other	40.89	40.03	-0.12%
Single mothers on welfare	68.88	77.19	0.63%
Single mothers not on welfare	24.05	26.59	0.56%

[a]The growth rate is calculated using the average 1975–1977 and 1993–1995 poverty rates, and assume 18 years of growth.

the entire U.S. population of about 12 percent in the early 1970s, the consumption-based estimate of the poverty rate fell to 8.4 percent by 1989, while the official rate rose to about 14 percent.[22]

Jencks and Mayer (1996) also find a downward trend in their alternative poverty indicator. They calculate a poverty rate for children using an alternative time-series of poverty thresholds and a definition of family income that includes both the income of nonrelatives in the living unit and the value of public in-kind benefits.[23] While the official children's poverty rate rose from 14 percent in 1969 to 19.6 percent in 1989, their recalculated poverty rate fell by 1.3 percentage points.[24]

The primary reason for these different patterns is clear. While the **NEC** poverty rate reflects the *potential* of a family to generate income, the other indicators seek to reveal income or consumption *realizations.* The rise in the NEC poverty rate indicates a decline in the potential of families to generate income. The decline in the Slesnick and Jencks-Mayer "consumption" poverty rate indicates a rise in consumption. Taken together, the two rates suggest that the *potential* earnings of families at the bottom of the distribution are declining while at the same time the *realization* of that declining potential is rising.

V. TRENDS IN SELF-RELIANCE AND OFFICIAL POVERTY RATES AMONG GROUPS

The overall poverty trends that are described in Figure 1 hide a variety of patterns of poverty growth among relevant subgroups of the U.S. population; these patterns are indicated in Tables 1 and 2. The family types with the highest growth rates are those that have experienced the largest *relative* losses

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[22]Slesnick's procedures rely on a 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). The equivalence scales are constructed using a translog estimation procedure and a large number of household demographic characteristics. See Jorgenson and Slesnick (1987).

[23]The Jencks and Mayer thresholds rely on a price index that reflects a lower inflation rate than does the official price index.

[24]Jencks and Mayer also report a separate calculation using consumption expenditures rather than income, and a poverty line calculated with alternative inflation adjustments. While the official children's poverty rate increases from 14.3 percent to 18.2 percent from the 1972–73 period to 1988–90, or by 3.9 percentage points, the consumption-based children's poverty rate calculated by Jencks and Mayer falls by 0.9 percentage points.

in the capability to escape poverty through their own work and earnings over the past two decades. For example, the growth in self-reliance poverty among the population subgroups shown in Table 1 ranged from -0.4 percent per year (for those living in families headed by a female) to over 6.6 percent per year (for those with some college education).

The following tabulation lists the primary subgroups in Table 1 with self-reliance poverty growth rates equal to, or in excess of, the overall national growth rate (3.4 percent per year):[25]

Characteristic of Family Head	Average Annual Growth Rate	Self-Reliance Poverty Rate in 1995
Some college	+6.7 percent	7.2 percent
High school graduates	+6.0 percent	11.9 percent
High school dropouts	+4.6 percent	28.2 percent
Single fathers	+4.0 percent	22.4 percent
Male	+4.0 percent	5.8 percent
Married couples without children	+3.6 percent	3.6 percent
Married couples with children	+3.9 percent	5.1 percent
White	+3.4 percent	6.5 percent

From these comparisons, it is clear that many of the population subgroups not generally considered to be lacking in capabilities are those groups experiencing the most rapid growth in self-reliance poverty. Families headed by men, whites, individuals with some college, and married-couple families are not normally thought of as coping with economic hardship, and indeed these groups all have self-reliance poverty rates below the national average of 10.5 percent, despite two decades of growth.[26] However, the fact remains that many of the groups experiencing rapid growth of self-reliance poverty are those groups considered the most economically secure.

[25]The highest education group (college graduates) has been excluded from this listing because the low base on which the growth calculation rests makes interpretation of their rate problematic. Also, the “other” category in race of head has been omitted because of its small sample size.

[26]The median mid-1990s poverty rate among all the groups in this tabulation is only 7.2 percent.

A more surprising story in Table 1 concerns the groups that have experienced the lowest growth in self-reliance poverty over the period. The growth rates for these groups, shown in the tabulation below, ranged from -0.4 percent per year to 2.5 percent per year—well below the overall 3.4 growth rate:

Characteristic of Family Head	Average Annual Growth Rate	Self-Reliance Poverty Rate in 1995
Female	-0.4 percent	20.6 percent
Hispanic Single Mother	+0.9 percent	48.1 percent
Black Single Mother	+1.0 percent	46.7 percent
Single Women	+1.2 percent	11.8 percent
Single Men	+1.3 percent	11.1 percent
White Single Mother	+1.7 percent	27.2 percent
Black	+1.8 percent	24.3 percent
Hispanic	+2.5 percent	19.7 percent

Many of the groups (families headed by single mothers, blacks, or Hispanics) in this tabulation are considered to be the most economically vulnerable. In fact, all have self-reliance poverty rates in excess of the national rate, and some (Hispanic and black single mothers) have self-reliance poverty rates over four times the national average.[27] However, according to our measure, the economic position of these groups has deteriorated the least over the past twenty years.

VI. THE COMPOSITION OF THE SELF-RELIANT-POOR POPULATION

Evidence on levels and trends in poverty rates has implications for the characteristics of the groups in society who are included in the group designated as "poor." What are the characteristics of the self-reliant poor, and how has this composition changed over time? How do these patterns compare with patterns for those designated as poor under the official measure?

[27]The official poverty rates of these groups at the end of the period ranged from 26 percent to 57 percent as compared to the overall official poverty rate of 13.7.

Table 3 shows the composition of the "capability poor" population and the changes in this composition over the twenty-year period. It also indicates the proportion of each group in self-reliant poverty relative to the proportion in official poverty. The table shows beginning and ending average population shares and average annual growth rates.

Consider first the racial composition of poverty. In the mid-1970s, individuals living in minority-headed families composed more than one-half of the self-reliant-poor group, and their share of the self-reliance poverty population grew over time; by the end of the period, minorities accounted for more than 56 percent of the self-reliant poor. Among the minority groups, the share accounted for by blacks fell, while that of Hispanics grew rapidly. By 1995, people living in Hispanic families accounted for over 22 percent of the capability-poor population.

The officially poor population has a similar racial structure to the self-reliant-poor population, as shown by the ratios of self-reliant-poor population shares to officially poor population shares. In the mid-1990s, a slightly greater share of the self-reliant- poor population lived in families headed by a black, and a slightly smaller share of that population lived in families headed by a Hispanic. This is true despite the shift in the composition of the self-reliant- poor population away from black-headed families and toward Hispanic-headed families; clearly that shift was more pronounced in the officially poor population.

In the mid-1970s, the self-reliant-poor population was more heavily "female headed" than was the officially poor population. About 58 percent of those with the lowest earnings capacity relative to needs lived in female-headed families at the beginning of the period, about 15 percent more than the percentage living in officially poor families. By the mid-1990s, almost 63 percent of the self-reliant-poor lived in female-headed families. Over the intervening years, the self-reliant poor and officially poor populations converged in terms of gender shares.

The share of the self-reliance poverty population with less than a high school degree was very high at the beginning of the period—about two-thirds of the total. However, as the number of working-

TABLE 3

Composition of Individuals in Poverty as Defined by Self-Reliance, by Characteristic of Family Head

	Average Composition[a]				Annual
	1975 to 1977		1993 to 1995		Growth Rate[b]
Race of Head					
Whites	49.57	(0.94)	43.70	(1.02)	-0.70%
Blacks	36.87	(1.12)	30.40	(1.08)	-1.07%
Hispanics	12.34	(1.02)	22.06	(0.92)	3.28%
Other	1.21	(0.58)	3.84	(0.75)	6.61%
Sex of Head					
Males	41.50	(0.84)	37.07	(0.95)	-0.63%
Females	58.50	(1.15)	62.93	(1.03)	0.41%
Education of Head					
Less than high school	66.47	(1.10)	41.85	(1.03)	-2.54%
High school graduate	26.31	(0.97)	37.32	(1.04)	1.96%
Some college	5.75	(0.70)	17.95	(0.99)	6.53%
College graduate	1.47	(0.36)	2.87	(0.51)	3.78%
Families with no Children	23.12	(1.11)	24.70	(1.00)	0.37%
Percentage composed by:					
Couples	28.51	(1.14)	27.47	(1.48)	-0.21%
Single men	31.63	(1.07)	35.50	(0.93)	0.64%
Single women	39.86	(0.88)	37.03	(0.85)	-0.41%
Families with Children	76.88	(0.97)	75.30	(0.99)	-0.12%
Percentage composed by:					
Couples	33.55	(0.72)	30.90	(0.79)	-0.46%
Single fathers	2.33	(1.82)	6.39	(1.50)	5.75%
Single mothers	64.11	(1.23)	62.71	(1.10)	-0.12%
Characteristic of single mother:					
White	35.89	(0.95)	31.47	(0.99)	-0.73%
Black	50.25	(1.01)	44.60	(1.00)	-0.66%
Hispanic	12.52	(1.09)	20.88	(0.99)	2.88%
Other	1.35	(1.19)	3.05	(1.08)	4.64%
On welfare	65.37	(0.96)	56.45	(0.90)	-0.81%
Not on welfare	34.63	(1.08)	43.55	(1.17)	1.28%

[a]The ratios of self-reliant poverty share to official poverty share are in parentheses.
[b]The growth rate is calculated using the average 1975–1977 and 1993–1995 composition rates, and assumes 18 years of growth.

age family heads without a high school degree decreased over time, their share fell to about 42 percent. Similarly, as education levels in the United States rose, the composition of the self-reliant-poor population shifted toward families headed by more educated individuals. By the end of the period, almost 18 percent of the self-reliant poor population lived in families headed by individuals with some college education. Generally, however, it remained true that the concentration of low-education families in self-reliance poverty exceeded that in official poverty. In the mid-1990s, the share of self-reliant-poor individuals living in families headed by a college graduate was still only half that group's share of the officially poor population.

Among self-reliant-poor families with children, those living in a family headed by a single mother account for about 60–65 percent of the population. Although this high proportion declined slightly under the capability poverty measure, it drifted upward under the official poverty measure. Despite this convergence, the share of self-reliant-poor individuals comprised by single mother families was 10 percent higher than the corresponding share of the officially poor population in the mid-1990s.

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 composed about half that population subgroup. Over time, this percentage decreased to about 44 percent. Correspondingly, the share of the subgroup living with Hispanic single mothers rose from 12.5 percent to 21 percent of the population.

Consistent with the group-specific poverty trends noted in Section V, the share of the self-reliant-poor population made up of individuals living in families headed by the most economically vulnerable individuals—high school dropouts, minorities, and single mothers—decreased over time.[28] Despite this

[28]The share made up of individuals living in families headed by a woman has increased, however. This is largely explained by the increase in the proportion of female-headed family units in the population.

decline, however, the self-reliance poverty measure is still more heavily composed by these groups than is the official measure. The concentration of these groups in the capability-poor population exceeds that in the officially poor population.

VII. WHAT HAS ACCOUNTED FOR THESE PATTERNS?

An interesting question concerns the economic, demographic, and cultural factors that have accounted for these self-reliance poverty prevalence and composition trends. For example, what might account for the puzzling pattern of slow growth in self-reliance poverty for groups commonly thought of as being the most vulnerable—minorities, female-headed families, or families headed by a person with low schooling—relative to the high growth rates recorded for less vulnerable groups—whites, married-couple families, 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), or (c) the demographic structure of the population will have some effect on the prevalence and the trend of poverty, irrespective of definition.

In the following paragraphs, we indicate the likely effects of some of the more prominent economic and demographic changes that have occurred over the 1975–1995 period in the patterns of self-reliance (and, to some extent, official) poverty discussed above.[29]

[29]These changes have been documented in many scholarly and media reports.

A. Decreasing Female Poverty, Increasing Male Poverty

Although both self-reliance and official poverty rates for those living in female-headed families exceed those of members of male-headed families, the male poverty rate has risen while the female poverty rate has fallen.[30] The primary factors that are likely to have accounted for this pattern include:

- the *decline in the real value of income transfers* (which trend increases the relative official poverty rate for those living in female-headed families, but has no effect on self-reliance poverty);
- *increased labor force participation of women* (which trend decreases the relative official poverty rate for those living in female-headed families, but has no effect on self-reliance poverty);
- *the increase in female wage rates; the decrease in male wage rates* (which trends decrease both official and self-reliance female poverty, and increase male poverty under both definitions);
- *the increase in male joblessness*[31] (which increases official male poverty rates, but has no effect on self-reliance poverty).

We speculate that the "gender twist" in both official and especially self-reliance poverty rates is primarily the result of the absolute decrease in low-skilled male wage rates over this period. This decrease also accounts for the steeper rise in self-reliant poverty than in official poverty for men, since the wage effectively "weights" all 2000 potential hours in the first measure, but only the hours actually worked in the second measure. The relative erosion in the quantity of labor supplied by low-skilled males (relative to females) probably also drives the trends in official poverty for men and women.

B. Rising White, Relative to Black and Hispanic, Poverty

The low relative growth in self-reliance poverty (and official poverty) rates among blacks and Hispanics appears to be primarily attributable to the rather steady *increase in the absolute and relative wage rates of minority workers* as compared to white workers. Joblessness among low-skilled workers

[30]"Male poverty" here refers to families headed by single men, with and without children, and married couples, with and without children. "Female poverty" here refers to single women, with and without children.

[31]See Juhn (1992).

has also increased somewhat more for whites than minority groups, and this has contributed to the "racial twist," at least for official poverty.

C. Rapid Increases in Poverty in Families with Headed by a Worker with Less Education

For both poverty measures (but especially the self-reliance measure), large absolute increases in poverty rates are recorded for families headed by high school dropouts and high school graduates. The *absolute fall in wage rates of those with little education and few skills* (or conversely, the increased "schooling premium") appears to account for the large increase in poverty rates for these groups, irrespective of poverty definition. Like the effect of men's wages on the male headed poverty rates, the erosion of the low-skill wage rate affects earnings capacity more than actual earnings, since the wage effectively "weights" all 2000 potential hours in the first measure, but only the hours actually worked in the second measure. Thus the negative impact of this erosion will be larger for the self-reliance poverty rate for those with low education than for the official poverty rate.[32]

Families with more highly educated heads have also seen increases in both poverty measures (albeit from very low bases). We submit that this is due to mostly to the general increase in educational levels in the United States. over the past twenty years. As more individuals enroll in, and graduate from, college, the variance of ability within each group increases. Thus a larger percentage of each group will have members who do not posses the capability to be self-reliant.

D. Increasing Overall Poverty Rates, Especially for Self-Reliance Poverty

A central finding of this analysis is the large increase in self-reliance poverty relative to official poverty. While several of the factors that we have already mentioned contribute to this disparate growth pattern, we conjecture that the substantial *increase in wage inequality "within" age-race-schooling*

[32]The relative increase in wage rates for minorities, which also tend to have relatively low levels of schooling, works to offset this effect of eroding relative low-skill, low-education wages.

groups over the period is primarily responsible for these divergent trends. This rise in wage inequality serves to increase both the official and the self-reliance poverty rates, as it pulls those at the bottom of the wage distribution further away from the constant (in real terms) poverty line. Because the relative deterioration of wages at the bottom of the distribution weights *all* of the potential work hours of the low-skilled population in the estimation of self-reliance poverty, but only the hours actually worked in the estimation of official poverty, the impact of this growth in wage inequality will be greater for self-reliance than official poverty.[33]

VIII. CONCLUSION

We have focused on a series of questions regarding the concept and measurement of poverty, and have suggested a capability-based concept and measure of this important social concern. We then applied this self-reliance poverty measure over the 1975–1995 period, and compared it to the official measure of poverty. How many Americans live in families that are unable to earn enough to escape poverty? Has the number and prevalence of such self-reliant poor changed over time? Who are these people living in such low-capability families? How do these patterns for self-reliance poverty compare with those for official poverty?

Several conclusions stand out. First, the highest self-reliance poverty rates are, as expected, 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. The concentration of these groups in self-reliance poverty is greater than their concentration in official poverty. The self-reliance poverty rates for children, especially young children, are substantially higher than for all individuals.

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[33]A second contributing factor is also the *absolute decreases in wage rates of males.*

Second, while both the official and self-reliance poverty rates increased over the period from 1975 to 1995, "capability" poverty grew more rapidly. While the official poverty rate grew by 1.7 percent per year over this period, the corresponding self-reliance poverty rate rose by 3.4 percent per year. Moreover, the growth of children's poverty is substantially greater than the overall increase in the poverty rates; for example, self-reliance poverty rate for young children grew at a 4.5 percent annual rate over this period.

Third, in spite of the rapid growth of self-reliance poverty, groups commonly thought of as being the most vulnerable—minorities, female-headed families, or families headed by a person with low schooling—recorded below-average increases, and increases that are substantially less than those recorded for less vulnerable groups.[34]

The converse of this pattern is also true: since the early 1970s, groups that are generally viewed as relatively secure economically—whites, married-couple families, and those with relatively high levels of schooling—have experienced growth in self-reliance poverty rates that are greater than average, and greater than those of the lower-earnings-capacity groups. Discouragingly, even individuals in families with both parents present and those living in a family headed by someone with some postsecondary schooling have experienced above-average rates of self-reliance poverty growth.

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 a time when underlying

[34]A similar, though far less pronounced, pattern is observed for changes in official poverty over the period.

changes in basic demographic and economic trends 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-reliance poverty? Essentially, only 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, and
- 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 program, 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-reliance 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 for those at the bottom of the wage distribution, or directly subsidizing the earnings of low-wage workers[35]—often carry with them their own distortions and inefficiencies. 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 remains 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. In the face of underlying

[35]The U.S. Earned Income Tax Credit is an example of the last of these policies.

demographic and economic trends that appear to generate increases in the level of self-reliance poverty, finding an answer to this question assumes increased urgency.

Appendix
The Estimation of Self-Reliance Poverty: Data and Empirical Procedures

As indicated in the text, predicted values of the earnings of each working-age adult were he or she to work full time, full year (FTFY) are adjusted for health, disability, and other constraints on employability and are shocked to reflect the effect of unmeasured variables. These values are aggregated into own-family units; this aggregate family earnings value plus property income yields each family's gross earnings capacity (GEC). GEC is then adjusted for required child care costs to obtain the net earnings capacity (NEC) of the family. Families with NEC below the relevant official poverty line are identified as being in self-reliance poverty.

The first step is to predict the earnings capacity for each prime-aged individual in our sample. The data used in this analysis are drawn from the repeated cross sections of the U.S. population contained in the March Current Population Surveys (CPS) for 1976 to 1996.[36] From these surveys, we select a sample of 18–64-year-old, noninstitutionalized, nonstudent, non-self-employed civilians on which to estimate the model.[37] The model which we estimate is a two-equation model of full-time, full-year labor force participation and earnings, drawing on Heckman (1979). Such a specification is appropriate, since individuals can select into the full-time, full-year labor force.

Appendix Table 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

[36]The March Current Population Survey is an annual survey of over 60,000 American families, containing detailed information on the income and labor market activities and outcomes of the adults in the family. Interviewers also obtain information on the size and composition of the family. It is a stratified random sample, so that using the appropriate weighting factors (provided by the U.S. Bureau of the Census) yields a picture of the economic status and labor market activities of the entire American population.

[37]We exclude the self-employed, since their earnings represent a return to both human and physical capital which cannot be disentangled using CPS data.

APPENDIX TABLE 1
Variable Definitions

Variable	Description
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[1]	Dummy variable indicating the presence of a legal spouse in the household.
Have Children under 18[1]	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 (nonwhites 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. For women, *Have Children under 18* and *Married, Spouse Present* are interacted, obtaining an 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, workers' compensation, veterans' payments, and retirement income.

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 first stage is a probit regression of FTFY labor force participation on the vector of explanatory variables assumed to influence such participation.[38] We fit four such probits for each year, one for each race/gender group (whites/nonwhites, males/females). The coefficient estimates, standard errors, sample sizes and log-likelihoods for each probit are available from the authors upon request.

The second stage is a set of selectivity-corrected OLS regressions of the log of earnings on those variables in Appendix Table 1 assumed to influence earnings. To correct for self-selection into the FTFY labor force, we append a term, derived from the coefficients in the first-stage estimation, to the set of regressors. This term is the inverse of Mill's ratio. The regression results, with corrected standard errors, for the four race/gender groups in the 21 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.

Using the coefficient estimates and each individual's characteristics, we predict FTFY log earnings for each prime-aged adult in our sample.[39] Note that since we desire estimates of earnings capacity for each individual, *unconditional* on self-selecting into the FTFY labor force, we make unconditional predictions of earnings capacity. That is, in making our predictions, we set each individual's inverse Mills' ratio equal to the mean inverse Mills' 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 or out of the FTFY labor force.

To account for unobserved human capital and labor demand characteristics and "luck" in the earnings determination process, we apply a random shock to each individual's earnings capacity

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[38]We define FTFY labor force participation as 2000 or more hours of work in a year.

[39]We predict FTFY earnings for students and the self-employed, even though these individuals were excluded from the estimation.

prediction. Specifically, we add to each FTFY log earnings prediction the standard error from the individual's race/gender earnings equation times a normal (0,1) random variable. In making this adjustment, we assume that the distribution of FTFY earnings within a race/gender cell is normal with a standard deviation equal to the standard error of the race/gender earnings regression.

The final adjustment to the individual EC prediction is one for constraints on work due to illness, disability and other attributes suggesting inability to find employment. We calculate an adjustment factor, Γ, equal to (50-WC)/50, where WC is the number of weeks the individual does not work attributed to these reasons. If, in addition, the individual reports receiving income from a health-related income support program[40] or working part time because of illness, disability, or unemployment, we multiply WC by 0.5, implying that these exogenous factors constrained the capacity work to 20 hours per week. This individual, case-by-case adjustment is made for each year. Hence, for any given year, aggregate earnings capacity 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 will 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.

To summarize, the predicted value of an individual's earnings capacity is described by multiplying equation (4) in the text by the individual adjustment factor:

$$\mathbf{EC_i^* = exp(X_i\beta + \sigma^* m_i) * \Gamma_i},$$

[40]An individual is considered to be in a health-related income support program if he or she (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.

where X_i are the explanatory variables from the second-stage estimation, β are the estimated coefficients, σ is the standard error of the regression corresponding to the individual's race/gender group, m_i is a randomly distributed N(0,1) variable and Γ_i is the adjustment factor noted above.

To obtain the GEC of a family, we sum the EC_i*'s for the prime-aged adults in a family, and add property income (interest, dividends, rental income, alimony and child support). To obtain NEC, we adjust for those unavoidable costs incurred in moving to FTFY work. We focus on child care expenses as the most prominent component of these costs.

We draw upon documents from the U.S. Census Bureau and the U.S. General Accounting Office (GAO)[41] as the basis for our child care estimates. The GAO surveyed child care providers in four sites across the United States (two urban and two rural) in 1996. The study presents a range of weekly child care costs of $79 to $154 for children aged 0 to 5, and $32 to $81 for children aged 6 to 11. We use estimates from the middle of the GAO's range: $90 per child per week for children aged 0 to 5 and $50 per child per week for children aged 6 to 11.

Using information on regional and SMSA status differences in child care costs obtained from the Census Bureau's Current Population Report, we created the following matrix of adjustment factors to apply to the GAO estimates:

	Northeast	Midwest	South	West
City	1.124	1.033	1.017	1.086
Suburb	1.104	1.013	0.997	1.066
Rural	0.944	0.852	0.836	0.905

We multiply the GAO child care estimates by the appropriate adjustment factor, according to each family's region and SMSA status.

[41]U.S. Bureau of the Census (1995), and U.S. General Accounting Office (1997).

We also use information contained in the Current Population Report to adjust the child care cost estimates over time. Data on average child care costs from 1986 to 1993 reveal an average annual growth rate in child care costs of approximately 3.1 percent. We use that growth rate to project our child care cost backward from 1996 through 1975, obtaining weekly per child child care costs, by region and SMSA status, for children 0 to 5 and 6 to 11. We assume that child care costs are incurred 50 weeks per year. These per-child, per-year costs are multiplied the number of children in the family aged 0 to 5 and 6 to 11 as appropriate and subtracted from the family GEC to obtain family NEC.

To obtain the self-reliance poverty population, we calculated the ratio of each family's NEC to the relevant official, family-size-specific poverty line;[42] those families with a ratio less than unity are identified as self-reliant poor.

Note that the adjustments for health, disability, unemployment and child care differ from the preliminary estimates in Haveman and Bershadker (1998). In that study, the health, disability and unemployment adjustment did not take into account participation in a health-related income support program. Additionally, child care costs were set at $1,546 per child per year for children aged 6 to 11, and $3,865 per child per year for children aged 0 to 5 (in 1995 dollars). Adjustments were made only for inflation and not for regional variation, SMSA status, or real growth over time.

Annual estimates of the prevalence of self-reliance and official poverty for various population subgroups by characteristic of the head of the family, as well as the composition of the two poverty populations, again by characteristic of the household head, are available from the authors.

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[42]The poverty thresholds were constructed by (1) deflating the year-specific versions of the poverty thresholds to 1967 using the CPI-U (which is the inflation index the Census Bureau has used to inflate the poverty line) and (2) reinflating the deflated version to the appropriate year using the CPI-U-X1. The first year available for the CPI-U-X1 index is 1967. We started with the current version of the poverty thresholds because in 1981 the Census Bureau stopped the differential treatment of female-headed households and farm residences and extended the poverty matrix to families of nine or more persons. CPI-U-X1 was used because CPI-U exaggerates the true rise in living costs in the 1970s due to the inordinate weight given to the cost of newly purchased homes (U.S. Congressional Budget Office, 1988, pp. 6–9).

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