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Irwin Garfinkel and Robert Haveman

UNIVERSITY OF WISCONSIN-MADISON

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ABSTRACT

Whether or not a household is counted among the poor depends upon
its annual money income. As a measure of economic status, however,
annual money income has serious limitations. In this paper an alterna-
tive indicator of economic status, called earnings capacity, is developed.
Earnings capacity is designed to measure the ability of a living unit to
generate an income stream if it were to use its physical and human
capital at capacity. Using this measure, the composition of the poverty
population is estimated and compared to the composition of the poverty
population according to the official definition. In addition, the
socioeconomic and demographic determinants of poverty as measured by
earnings capacity and by annual money income are compared and contrasted.

EARNINGS CAPACITY, ECONOMIC STATUS, AND POVERTY

The problem of accurately measuring the economic status of family units and individuals is of long standing in both poverty research and analyses of horizontal and vertical inequality. The standard indicator of economic status—annual money income—is the basis both for the official definition of poverty in the United States and for nearly all studies of economic inequality. Yet, the limitations of the money income measure as an indicator of both the command over goods and services and relative economic status are often noted. Annual money income fails to incorporate the value of human and nonhuman capital into the measure of economic status; it neglects the benefits of in-kind public transfers and public services and the tax costs required to finance them; it does not account for intrafamily flows of income and services or for differences in leisure time; and, for many units, it is dominated, in any given year, by transitory influences. In short, annual money income is a seriously inadequate indicator of the potential real consumption of a living unit, yet it is the indicator most widely used.

In this paper, an alternative indicator of economic status is suggested and empirically estimated for the national population. This indicator—earnings capacity—is designed to measure the ability of a living unit to generate an income stream if it were to use its physical and human capital at capacity. Using this measure, the composition of the poverty population is estimated and compared to the composition of the poverty population according to the official definition. Because of the characteristics of the concept, the poverty population defined by earnings capacity will be relatively more heavily populated by those

with low permanent income than will the poverty population based on
the intertemporally unstable concept of annual money income.[1] More-
over, living units will not be included in the poverty population
simply because of relatively strong preferences for leisure as opposed
to money income.

I.

Earnings capacity reflects the ability of a family—given its
current endowment of physical and human capital—to generate a net
income flow if it uses that endowment at capacity. In this study,
an estimate of family earnings capacity was developed for each of
50,000 families in a weighted national sample of families.[2]

In order to derive an indicator of a family's relative economic
status that reflects neither the family's tastes for income nor
temporary fluctuations in income, we first developed estimates for the
annual earnings capacity of each family head (EC_H) and spouse (EC_S) at
50-52 weeks of full-time work. The earnings capacities of the head and
spouse were imputed on the basis of their demographic characteristics
from four regression equations in which annual earned income was the
dependent variable. Separate regression equations were estimated for
black and white men and for black and white women. Through coefficients
estimated in these regressions, average full-time, full-year earnings
of men and women with different sets of demographic characteristics
were estimated. The independent variables were chosen to conform to
conventional human capital models. They include age, years of schooling,
race, marital status, and location. Only those individuals with positive

earnings were included in the sample from which the earnings equations were estimated.

Reliance on the human capital model leads to a large number of a priori expectations regarding the size and direction of the relationship between the independent variables and earnings. Consistent with that model, earnings in the early and middle adult years are expected to increase with age due to job experience and on-the-job training. In the later adult years, earnings are expected to decrease as skills become obsolescent and physical and mental capacities deteriorate. Earnings are also expected to increase with the human capital stock measured by years of schooling. Presuming the existence of labor market discrimination, earnings are expected to be smaller for blacks than for whites with otherwise identical characteristics. Similarly, differences in earnings should reflect both cost of living differentials and some real differences in productivity among locations that are not captured by our other variables. It is anticipated that married men will earn more than single men with otherwise identical characteristics. This is so for two primary reasons: The percentage of single men with physical and mental disabilities is likely to be higher than the percentage of married men with such disabilities, and married men typically have more dependents than single men and are, hence, subjected to greater pressure to earn money. While the percentage of single women with disabilities is also likely to be higher than the percentage of married women with such disabilities, these differences are likely to be swamped by differences in work experience that are associated with marital and parental status. Single women without children are more likely than

married women to have work experience, and married women without children are more likely than married women with children to have recent job experience. Similarly, single women with children are likely to have less work experience than single women without children but more work experience than married women with children. Because earnings of women are likely to be positively related to experience and on-the-job training, differences by marital and parental status are anticipated.

Because previous studies have shown that the effect of several of these variables on earnings varies by age, the regression equations were specified to permit these interactions. The regressions also include a set of dummy variables for weeks worked and for whether or not the individual normally worked part or full time during the weeks worked.

Although experimentation was undertaken with both a linear and a log-linear model, only the estimates derived from the log-linear model are reported, for several reasons. First, contrasts between current income and earnings capacity measures of economic status were quite insensitive to the functional form used in the development of the estimates of earnings capacity. Second, there are a number of a priori reasons for preferring the log-linear model. The most important consideration is the required nonnegativity of predicted earnings from a log-linear model. In addition, it is likely that the variance in earnings is smaller the smaller is the level of human capital. The linear model neither requires nonnegative predicted values nor positively relates the variance in earned income to the level of human capital. Finally, the log-linear model yields a somewhat better fit.

The estimated earnings functions are presented in the Appendix. The R^2 in the regressions ranges from .52 for white males to .63 for black females.

Two further adjustments were made to the estimates of EC_H and EC_S before they were aggregated into an estimate of family earnings capacity. The procedure described above leads to estimates of individual capacity in which all individuals with the same age, sex, race, years of schooling, location, and work status are assigned an earnings capacity equal to the mean of the cell within which they are included. In other words, all within-cell variance is artificially eliminated by this technique. To the extent that this within-cell variance is attributable to unobserved human capital differences or to chance, such suppression is inappropriate for many purposes. Assigning of the cell mean tends to exaggerate the effect on earnings of the independent variables included in the regression and leads to underestimates of inequality in the distribution of earnings capacity.

To avoid this artificial compression of the distribution, individual observations within a cell were distributed randomly about the mean of that cell. This distribution was accomplished through a random number generator technique that incorporated the assumption that the distribution of observations within cells was normal, with a standard deviation equal to the standard deviation of the regression equation.[3] From this procedure, the mean value of earnings capacity for each cell was retained, but a normal distribution of observations within cells was achieved.

Second, some individuals do not work full time for the full year because of either health disabilities or insufficient aggregate demand. In order to take account of such exogenous limitations on economic

capacity, the earnings capacity estimates of the head and spouse were
multiplied by the following fraction: $\frac{50-W_{SU}}{50}$, where W_{SU} = weeks sick
or unemployed.

Adjusting for illness and unemployment builds some temporary reduc-
tions in income into the earnings capacity measure for an individual
family. Nevertheless, there are several strong arguments for such
adjustments. While many disabilities are permanent, in this study data
limitations made it impossible to ascertain whether a reduction in
employment was due to a permanent disability or a temporary illness.
Moreover, while all unemployment may be viewed as a temporary reduction
in a particular individual's earnings capacity, from the point of view
of the overall economy both temporary illnesses and unemployment are
permanent phenomena. Finally, because our major focus is on designing
a measure of economic status that does not depend on differences in a
family's tastes for income, it is appropriate to adjust earnings
capacity for unemployment and health, two factors that conceptually
do not reflect taste differences.[4]

By summing the randomized adjusted estimates of EC_H and EC_S within
a household, we obtain a measure of family gross earnings capacity (GEC).
This measure of earnings capacity, however, does not fully reflect
a family's economic position, for three reasons. First, it does not
include any measure of returns to assets. Second, it does not include
transfer income to which an individual in effect holds title. Finally,
it does not take account of the costs of working.

In order to take account of returns to assets and those cash
transfers to which the family is entitled, we add to our measure of

family gross earnings capacity the following: income from interest, dividends, rents, alimony, and miscellaneous other sources other than government transfers (Y_1); and income from Social Security payments, government pensions, and private pensions (Y_2).

Because income from interest, dividends, and rents is a measure (albeit a crude one[5]) of a family's ability to generate income from its assets, such income should be counted in ascertaining the family's economic status. In adding actual income flows to human capital earnings capacity, it is implicitly assumed that a family's nonhuman capital assets are being used at capacity. On the other hand, because income from transfer payments does not constitute a measure of the family's ability to generate income, most transfer payments are excluded from our earnings capacity measures.[6] However, because Social Security payments and pensions may be viewed as substitutes for savings for the aged, they are included. An additional reason for including Social Security transfers is to insure that the difference between our measure of earnings capacity and current income will not be attributable to these transfers. For similar reasons, alimony and the miscellaneous category of other income are included. A final rationale for the inclusion of these transfers is that they can be viewed as a flow of income from an asset, that is, an entitlement to retirement benefits or alimony, that the individual possesses. Thus, our measure of a family's gross earnings capacity is equal to:

$$GEC = EC_H \left(\frac{50 - W_{SU}}{50} \right) + EC_S \left(\frac{50 - W_{SU}}{50} \right) + Y_1 + Y_2 . \quad (1)$$

While there are many costs to working, the largest source of variance across families in the costs of working arises from differences

in child care costs. Consequently, the gross earnings capacity measure was adjusted by subtracting an estimate of the costs of a minimally acceptable level of child care in order to obtain a measure of <u>net</u> earnings capacity.[7] Net earnings capacity (NEC) is, therefore, defined as follows:

$$\text{NEC} = \text{GEC} - (\$1510 \text{ per child aged 5 years or younger} \quad (2)$$
$$+ \$376 \text{ per child aged 6-14 years)} .$$

Despite all of these adjustments, NEC is still likely to deviate from the pure earnings capacity concept, for several reasons. First, the estimating procedure fails to capture all of the determinants of earned income (for example, motivation, IQ, detailed physical characteristics, and chance). Second, the estimation of the capacity return from physical assets is incomplete. Third, only a portion (albeit the largest portion) of required work-related expenses is deducted from capacity work effort. While these deficiencies may lead to a nontrivial misestimation of pure earnings capacity for any individual or family, NEC is likely to be a good estimate of the true net earnings capacity for demographically homogeneous groups. Moreover, it is independent of relative preferences for money income.

II.

By placing both the earnings capacity and the current income measures of family economic status over the 1973 poverty line for a family, both a current income and an earnings capacity "welfare ratio" are obtained for each family.[8] Employing these welfare ratios, the composition of the current income and earnings capacity poverty populations can be determined

and compared. According to the official definition of poverty, an individual is poor if he lives in a family in which the current income welfare ratio is less than unity. In 1973, about 11 percent of the total U.S. population were poor by this conventional definition. If this percentage figure is accepted as a benchmark, an equivalent number of individuals in families with the lowest earnings capacity welfare ratios can be isolated and the composition of the two groups compared. If earnings capacity is superior to current income as an indicator of economic status, we can gain more accurate information about the characteristics of the poor by examining the composition of families with low earnings capacity welfare ratios than by examining the composition of families that are designated poor by the official statistics.

Although households are the typical units of measurement in analyses of the composition of the poor, this analysis focuses on individuals. Households are of inherent value not in themselves but only because they are aggregates of individuals. Clearly, if all households were of equal size, the household and the individual would be interchangeable units of measurement. However, if all individuals are to be treated equally, a household with 10 poor individuals in it must be of more concern than a household with but 1 poor individual. Similarly, eliminating poverty in a household with 10 individuals is more of an accomplishment than eliminating poverty in a household with a single individual. As we will see, data on the composition of the poor in terms of households can present a quite different--and misleading-- picture compared to that presented by data on poor individuals.

In Table 1, data on the composition of current income and earnings capacity poor <u>individuals</u> are presented, as well as data on the composition

TABLE 1

Percentage Distribution of Earnings Capacity and Current Income
Poor Individuals and Current Income Poor Households,
by Selected Socioeconomic Characteristics,
Total Population, 1973

Characteristics	NEC Individuals	GEC Individuals	Current Income Individuals	Current Income Households
Race of head				
White	59.96	60.90	67.70	76.37
Black	38.34	37.28	30.82	22.56
Other	1.70	1.81	1.33	1.33
Sex of head				
Male	49.88	40.57	45.60	45.95
Female	50.12	59.43	54.40	54.05
Age of head				
16-21	2.38	2.35	4.69	6.75
22-30	21.53	14.35	17.07	13.60
31-40	29.47	21.76	22.62	12.06
41-50	19.93	20.01	17.37	11.27
51-60	10.92	14.68	12.66	12.46
61-64	2.80	4.45	4.70	6.61
65+	12.96	22.41	20.87	37.26
Family size				
1	6.25	13.99	19.29	48.67
2	6.26	11.40	14.64	18.47
3-4	22.94	23.30	22.06	16.04
5-6	28.35	23.51	20.54	9.57
7-8	21.16	17.10	15.25	5.23
9+	15.24	10.17	8.22	2.02
Education of head				
0-8	46.71	51.23	48.94	49.53
9-12	47.76	42.37	41.65	38.19
13-16	5.23	5.46	8.36	10.81
17+	.31	.44	1.06	1.47
Occupation of head				
Professional	3.60	3.96	3.44	5.27
Farmer	2.95	2.65	12.84	11.13
Manager	5.12	4.97	8.15	8.14
Clerical	9.53	12.77	5.13	8.36
Sales	2.59	2.87	2.96	3.81
Craftsman	13.70	11.33	9.60	7.96
Operative	26.57	24.26	16.97	13.47

TABLE 1 (cont.)

	NEC Individuals	GEC Individuals	Current Income Individuals	Current Income Households
Occupation of head (cont.)				
Private household	5.13	6.50	8.66	6.46
Service	15.68	18.00	17.34	15.55
Farm laborer	5.21	4.84	6.53	7.93
Laborer	9.90	7.84	9.33	10.96
Region				
Northeast	17.41	18.44	15.72	18.29
North Central	21.49	21.12	22.61	24.57
South	46.44	46.12	46.24	40.78
West	14.66	14.20	15.42	16.36
Urban-rural				
Town	15.92	16.63	13.99	15.12
Rural	74.47	35.07	40.58	34.25
Suburb	15.84	15.10	14.44	16.73
Central city	33.77	33.20	30.99	33.90
Number of earners				
0	27.28	33.70	42.18	54.94
1	52.63	50.33	45.02	37.69
2	20.09	15.97	12.81	7.37
Weeks worked by head				
0	28.34	35.27	43.65	55.91
1-13	7.43	8.00	9.58	9.7
14-26	7.68	7.84	7.99	7.69
27-39	7.82	7.58	6.58	4.95
40-47	6.40	5.42	4.58	3.00
48-49	2.87	1.90	1.70	1.12
50-52	39.45	34.00	25.92	17.63
Full or part time				
Full time	83.44	79.86	73.44	65.84
Part time	16.56	20.14	26.56	34.16

of current income poor <u>households</u>. This table includes all individuals in the population. Two measures of earnings capacity are used—NEC and GEC. The latter is included so that differences between the earnings capacity measures that are due to the child care deductions can be readily isolated.

In comparing the composition of current income (CY) poor <u>individuals</u> to the composition of current income (CY) poor <u>households</u>, the most dramatic difference is in family size. While nearly one-half of all poor households are single-person households, only 19 percent of poor individuals live in such households. Similarly, only 2 percent of poor households have nine or more members, while 8 percent of all poor individuals live in such households.

Two other compositional differences between household and individual measures are closely related to the family size comparison. These are the differences in the age and work status distributions. Nearly 40 percent of all poor households are headed by individuals who are 65 years old or older. Yet only 21 percent of CY poor individuals live in such households. This difference is due, of course, to the fact that aged households are almost exclusively one- or two-person households. It is also worth noting that the 6.75 percent of poor households that have heads aged 16-21 contain only 4.69 percent of all CY poor individuals. Heads of households in this age range are also likely to live alone or only with a spouse.

As compared to poor households, a much smaller percentage of poor individuals live in families that contain no earners. Stated alternatively, the prevalence of the working poor is artificially suppressed when the

percentage of households with one or more earners, rather than the percentage of individuals who live in a family with one or more earners in which the head works a substantial part of the year or the full year, is used as the basis for measurement. Again the difference is attributable to the fact that households headed by aged individuals are, on average, much smaller and much less likely to contain an earner than households headed by non-aged individuals.

Thus, examining the composition of CY poor households rather than that of CY poor individuals seriously overstates the proportion of the poor who live in small households and, as a consequence, the proportion of the poor who are aged and who live in families with no earners. Although the differences are somewhat less dramatic, the proportions of CY poor individuals who are black and who live in the South are also understated when poverty is measured in terms of households.

Differences between the composition of CY poor individuals and the composition of earnings capacity (EC) poor individuals are equally striking. Moreover, they reinforce the compositional differences we found in moving from current income poverty measured by households to that measured by individuals.

Perhaps the most striking difference in composition between EC and CY poverty is in work status. While over 42 percent of all CY poor individuals live in households with no earners, only 34 percent of the GEC poor and 27 percent of the NEC poor live in such households. Similarly, while only 13 percent of the CY poor live in households with two workers, 16 percent of the GEC poor and 20 percent of the NEC poor live in such households. Perhaps even more striking is the contrast

between the 26 percent of the CY poor and the 40 percent of the NEC poor living in households in which the head worked 50-52 weeks.

This work status difference between the CY and EC poor is easily explained. CY is closely related to how many workers there are in a household and to how much each of them works. EC is not directly related to either of these variables.[9] Consequently, while families with two earners are unlikely to have sufficiently low CY to place them below the poverty thresholds, they may well have CY welfare ratios that place them at the very bottom of the distribution of earnings capacity. Similarly, individuals who live in households without earners are likely to rank at the bottom of the CY distribution (especially if there are no other major income sources). However, if there are healthy adults in such a family (who did not report that they could not find a job the entire year), individuals in the family are not likely to fall at the bottom of the EC distribution.

It should also be noted that the proportion of poor individuals who live in families with workers is higher among the NEC poor than among the GEC poor. This is largely due to the child care adjustment, which reduces the NEC of the non-aged population relative to that of the aged population. The former are much more likely to have children. The latter are much less likely to live in households with workers.

A second striking difference between the compositions of the CY poor and the EC poor is in racial composition. Whereas 31 percent of CY poor individuals are black (and less than a quarter of CY poor households are black), about 38 percent of the EC poor are black.[10] The CY measure of economic status understates the low economic status

of blacks relative to whites. This result is, in large part, due to
the higher labor force participation rate and more hours worked of
black spouses.

The differences by sex of head are not nearly so dramatic; in
fact, the difference in composition between the two EC measures (GEC and
NEC) is larger than the difference between either of them and the compo-
sition of the CY poor. The proportion of individuals in families headed
by males increases in moving from GEC to NEC, largely because intact
(male-headed) families have more children on average than do single-
parent families.

More striking is the effect of the child care deduction on the age
composition of poor individuals. While 21 percent of the CY poor and
22 percent of the GEC poor live in households whose heads are aged 65
or older, only 13 percent of the NEC poor live in such households.
(Again note that the difference between the proportion of CY poor house-
holds headed by persons aged 65 or older and the proportion of NEC poor
individuals living in such households is even more dramatic—37 percent
as opposed to 13 percent.) Since NEC is the preferred measure of
economic status, the standard poverty measures appear to overstate the
number of older people in the poverty population. On the other hand,
it should be noted that since unhealthy aged individuals are much less
likely than younger individuals to give health as their reason for not
working, the estimates of GEC and NEC for the aged may be somewhat
biased upwards.

Even without the child care deduction, the difference in family
size composition between the EC and the CY poor is notable. There are
far fewer single EC poor persons and many more with large families.

Whereas almost 20 percent of CY poor individuals (48 percent of CY poor households) live alone, only 14 percent of the GEC poor and but 6 percent of the NEC poor live alone. Indeed, over 15 percent of the NEC poor live in families with nine or more children (10 percent without the child care adjustment), while only 8 percent of the CY poor live in such large families. Thus, to the extent that EC is superior to CY as a measure of economic status, the use of the CY definition of poverty seriously underestimates the degree to which poverty is associated with very large families.

Another interesting difference is between the proportions of the EC and the CY poor who are farmers: 13 percent of the CY poor, but only 3 percent of the EC poor. This difference suggests that most farmers who are poor by the CY measure have sufficient human capital to do better economically if they were willing to leave their farms. Our measure of human capital, however, is imperfect. In particular, the earnings of individuals if they were to switch occupations and locations late in life may not be accurately measured. Because of this, the EC of at least some older farmers may be overstated. In any case, the small proportion of the EC poor who are farmers is primarily compensated for by the larger proportion who are operatives (26 percent versus 17 percent of the CY poor), craftsmen (14 percent versus 10 percent), and clerical workers (10 percent versus 5 percent).

Some other differences are worth noting. The figures in Table 1 also indicate that a greater proportion of the EC poor than of the CY poor have fewer than 12 years of schooling, a greater proportion live in the South, and a somewhat greater proportion live in the central cities of larger SMSAs and in small towns.

To summarize, if our estimate of EC is a superior indicator of economic status, the use of a CY measure of economic status <u>understates</u> the proportion of the poor who are black, who live in very large families, who live in households with one or more full-time workers, who are younger than age 65 and older than age 22, who do not live alone, and who are not farmers. Moreover, analyzing the composition of CY poverty using households rather than individuals exacerbates these biases.[11]

III.

While the comparisons in Table 1 are helpful in discerning how the composition of the poor population changes in moving from a CY definition of economic status to a definition based on EC, they can lead to faulty inferences regarding those variables that are the most important determinants of poverty status under each definition. For example, to observe that both families with low education and those in low-status, low-skill occupations are heavily represented in the poverty population gives no indication of the independent contribution of either education or occupation to poverty status. These independent effects can be captured only by answering the question, "How does the probability of being in poverty change in moving from, say, one level of educational attainment to another, holding constant other family characteristics related to poverty status?"

Through the use of multiple regression analysis, estimates of the independent contributions of various socioeconomic characteristics to the probability of poverty status can be obtained. By specifying a regression equation with a 0-1 dependent variable representing the

poverty-nonpoverty status of individual families and with family characteristics as independent variables, the relationship to the probability of poverty status of changes in any one family characteristic—holding other characteristics constant—can be obtained.

To summarize the independent effect of various variables on poverty status, regressions of this form were estimated for both the standard CY poverty definition and the NEC earnings capacity definition for the total population. The independent variables used in both regressions include the variables presented in Table 1 expressed in dummy variable form. In Table 2 the contribution of each of the variables to the probability of poverty status is shown for both the CY and the NEC definitions. In addition, the t-value of each of the variables is indicated.

The constant term in such a regression equation expresses the probability that a family with the characteristics shown in column C of the table will be included in the poverty group. For the NEC regression, the constant term is effectively zero; for the current income regression, the constant term is 22. The explanation for this discrepancy lies primarily with the "weeks worked" variable, for which the "zero weeks worked" category was omitted. Because the number of weeks worked has very important direct effects on CY poverty status— whereas it has no direct effect on EC—omission of the "zero weeks worked" category yields a substantially higher estimate of the probability of CY poverty status (relative to the probability of poverty as defined by EC) for the family with the characteristics listed in column C. Hence a family with the characteristics detailed in column C is estimated

TABLE 2

Effect of Family Characteristics on the Probability of
Poverty Status, by NEC and CY Poverty Definitions

The probability of being in poverty if the family is A is B percentage points higher (lower) than if the family is C.	Current Income		NEC		
A	B	t	B	t	C
Black	11.0	25.5	13.95	33.2	White
Other	4.01	3.34	1.84	1.6	White
Female	12.79	29.17	30.42	71.2	Male
Age 16–21	13.94	13.95	10.96	11.3	35–45
22–25	3.91	6.59	12.15	21.1	35–45
25–35	2.97	8.3	7.82	22.6	35–45
45–55	-1.44	3.96	.2	.6	35–45
55–64	-2.97	4.82	2.64	5.7	35–45
65+	-11.81	20.3	1.74	3.1	35–45
Education 0–8	9.5	21.6	10.33	24.2	13–16
9–12	2.72	7.6	3.44	9.9	13–16
17+	-.45	.8	-.46	.8	13–16
Family size 1	5.57	9.3	-19.71	33.7	4
2	-2.3	5.3	-8.06	19.0	4
3	-1.89	4.5	-4.21	10.4	4
5	1.4	3.4	3.44	8.7	4
6	2.82	5.98	7.48	16.3	4
7	8.99	15.5	13.98	24.7	4
8	10.04	13.4	21.91	30.0	4
9+	6.6	9.65	26.61	40.0	4
Northeast	-.93	2.7	-.26	.8	NC
South	3.76	11.6	3.66	11.5	NC
West	.25	.67	.82	2.2	NC
Town	1.6	3.8	2.54	6.4	Suburb
Rural	3.31	9.8	2.26	6.9	Suburb
Central city	.26	.8	.19	.6	Suburb
Weeks worked (head)					
1–13	10.57	10.3	8.21	8.23	Nonworker
14–26	-2.73	.3	2.51	2.6	Nonworker
27–39	-9.93	10.6	.52	.6	Nonworker
40–47	-12.58	13.3	-5.34	5.8	Nonworker
48–49	-15.33	14.26	-5.21	4.9	Nonworker
50+	-16.16	20.2	-7.23	9.3	Nonworker

TABLE 2 (cont.)

The probability of being in poverty if the family is _A_ is _B_ percentage points higher (lower) than if the family is _C_. A	Current Income B	t	NEC B	t	C
Weeks worked (spouse)					
1–13	−.44	.8	−1.38	2.5	Nonworker
14–26	−2.88	4.8	−1.65	2.8	Nonworker
27–39	−3.29	5.1	−2.77	4.4	Nonworker
40–47	−2.81	3.6	−2.56	3.4	Nonworker
48–49	−2.94	2.6	−3.28	3.0	Nonworker
50+	−2.2	4.8	−3.13	6.98	Nonworker
Farmer	20.39	24.2	−.86	1.1	Professional
Manager	2.68	5.2	1.13	2.2	Professional
Clerical	−4.38	6.8	−.18	.3	Professional
Sales	.81	1.2	1.18	1.8	Professional
Craftsman	−1.53	2.87	.01	.024	Professional
Operative	−2.16	3.94	1.34	2.5	Professional
Private household	15.57	9.96	11.95	7.8	Professional
Service	1.06	1.64	1.3	2.1	Professional
Farm laborer	20.29	16.4	9.18	7.6	Professional
Laborer	2.24	3.1	.58	.8	Professional
Head full time	−9.15	14.8	.58	.97	Part time
Spouse full time	−2.9	6.9	.97	2.38	Part time
Constant	21.72	31.4	−.40	.6	
R^2	.276		.3155		
F	368.9		445.4		

to have a zero probability of being defined as poor by the EC measure,
but a 22 percent probability of being poor by the CY measure.

Interpretation of the numbers in the two B columns is straight-
forward: Column B shows the change in the probability of a family's
being in poverty due to a hypothetical change of a characteristic in
the C column to the characteristic in the A column, holding all other
characteristics in the C column constant. For example, if the head of
the family were black rather than white--all other characteristics
remaining fixed--the probability of the family being in poverty would
be increased by 11 percentage points according to the CY definition (to
33 percent) and by 13.95 percentage points according to the NEC defini-
tion (to 14 percent). Similarly, the probability of poverty status for
a family with a number of characteristics different than those shown
in column C is obtained by adding the percentage points shown in column
B for the set of altered characteristics to the constant term of the
regression. Thus, the probability of being in CY poverty for a family
whose head is black (instead of white, as in column C) and aged 16-21
(instead of 35-45, as in column C), but with all other characteristics
the same as in column C, is equal to 22 percent (the constant) plus
11.0 percent (the pertinent number for black in column B) plus 13.94
percent (the pertinent number for age 16-21 in column B)--a total
probability of 47 percent.

Several interesting contrasts between the two regressions are
observable from the table. First, as suggested above, the relation-
ship of work status to poverty status is much weaker under the EC than
under the CY measure of economic status. In both formulations, individuals

who live in households where the head and spouse work full time, full year are not likely to be classified as poor. But whereas the probability of an individual being counted among the EC poor is reduced by 7 percent if he lives in a family where the head works 50-52 rather than 0 weeks, the probability of his being included among the CY poor is reduced by 16 percent. Similarly, while the probability of being poor by the CY definition is reduced if the spouse works at all and also if she works full rather than part time during the weeks that she works, the probability of being poor by the EC definition is also reduced if the spouse works, but is actually increased if she works full rather than part time during the weeks that she works. While the explanation for the positive relationship between spouse's full-time work status and earnings capacity poverty status is not clear, the reason for the weaker relationship between work and EC poverty status as opposed to CY poverty status is clear. The EC measure of economic status does not depend directly on work status--aside from the adjustment for reported weeks not working due to health limitations and/or unemployment--while the CY measure of economic status is directly dependent on the amount of work.

For a closely related point, note that female-head status--while an important determinant of poverty status for both definitions--has a much more powerful effect under the EC definition than it does under the CY definition. This is not surprising, given the fact that female-headed families typically have but a single adult who contributes to total family earnings capacity. On the basis of this alone, one would expect to find a substantially higher proportion of female-headed families in EC poverty than in CY poverty. But as indicated in Table

1, the proportion of female heads is approximately the same for the standard (CY) and EC definitions. A large number of female-headed families with children are counted as CY poor because the family head does not work. In contrast, such families form a high proportion of the EC poor not because they do not work, but because, relative to the rest of the population, they would earn so little even if they worked at capacity.

Perhaps one of the most striking findings is the effect of age—particularly old age—on the probability of being poor according to the two definitions. The pattern of the age coefficients in the NEC regression can be explained primarily by an underlying age-wage rate profile that is common in the human capital literature. Wage rates rise gradually until late middle age, then gradually decline. An opposite result is present in the current income regression, which shows that the probability of CY poverty decreases with age—particularly after age 65. This result is due to old age insurance and disability insurance payments; an aged nonworker is less likely to be poor than a non-aged nonworker. Also, the large positive value on family size 1 to some extent offsets the negative value on old age in the current income definition.

While the effect of family size is large for both poverty definitions, it is very powerful for large families under the EC definition. This effect is reflected in Table 1, which shows a substantially larger incidence of EC poverty than of CY poverty for large families.

Finally, the impact of occupation on poverty status in the two definitions should also be noted. As suggested in Table 2, being a

farmer, a farm laborer, and to a lesser extent, a household worker--holding other characteristics constant--substantially increases the incidence of CY poverty relative to EC poverty. This is also suggested in Table 1.

IV.

The data in Table 2 can be readily adapted to provide an estimate of the probability of CY and EC poverty status for various family types. In Table 3 several types of family units are characterized and the probability of each family type being in CY and EC poverty is indicated.

These probability estimates suggest some substantial differences between the EC and CY poverty definitions in terms of which sorts of families are classified as poor. Some similarities are also suggested.

Members of female-headed black families, large southern rural families, and migrant worker families have the highest probabilities of being poor by both definitions--about .71, .45, and .50, respectively. Moreover, the probabilities of members of each of these family types being poor are very similar for the two definitions. The similar probabilities for female heads are consistent with the previous observation that female headship per se has a bigger effect on EC poverty status than on CY poverty status that just about offsets the small effect of work status on EC poverty status. Similarly, the greater effects on EC poverty status of educational attainment and family size tend to offset the smaller effects of being a farm worker for members of the large southern rural and the migrant worker families. Perhaps even more interesting than these similarities, however, are the

TABLE 3

The Probability of Poverty Classification of Several Family Types,
by Earnings Capacity and Current Income Definitions

Family Characterization	NEC	Current Income
1. Black female head with children-- "AFDC stereotype"[a]	70.94	72.1
2. Large southern rural family[b]	42.18	46.89
3. Migrant worker family[c]	50.54	49.75
4. Single, youth-- "independent student"[d]	.15	41.46
5. Middle-aged midwestern farm family[e]	1.53	20.93
6. Elderly couple[f]	3.81	15.08
7. Large male-headed low-education family-- "working poor family"[g]	21.08	9.3

[a]The characteristics are: black, female head, age 35-45, education 9-12, family size 5, northeast, central city, head worked 1-13 weeks part time, no spouse, private household.

[b]The characteristics are: black, male head, age 35-45, education 0-8, family size 8, south, rural, head worked 40-47 weeks full time, spouse a nonworker, farm worker.

[c]The characteristics are: black, male head, age 35-45, education 0-8, family size 7, west, rural, head worked 27-39 weeks full time, spouse worked 14-26 weeks full time, farm laborer.

[d]The characteristics are: white, male head, age 16-21, education 12-16, family size 1, northeast, central city, head worked 1-13 weeks full time, no spouse, laborer.

[e]The characteristics are: white, male head, age 45-55, education 9-12, family size 6, north central, rural, head worked 50+ weeks full time, spouse worked 48-49 weeks part time, farmer.

TABLE 3 (cont.)

[f]The characteristics are: white, male head, age 65+, education
< 8, family size 2, north central, central city, head worked 0 weeks,
spouse nonworker, craftsman.

[g]The characteristics are: white, male head, age 35-45, education
9-12, family size 8, south, central city, head worked 50-52 weeks full
time, spouse worked 14-26 weeks full time, laborer.

differences between the EC and CY measures in the probabilities of
being poor for members of the other four family types.

The most striking difference is in the probabilities of a single
young student being poor by the two definitions. Whereas the prob-
ability is approximately .40 that such a person will be poor by the CY
measure, it is virtually zero by the EC measure. Low income for members
of this group is clearly a temporary phenomenon. Moreover, it reflects
a voluntary choice to postpone consumption now in order to enhance
future consumption. Hence, the EC measure seems to reflect the generally
accepted judgment that the low income of these individuals is not nearly
as pressing a social problem as the low incomes of other members of
society.

The case of the middle-aged midwestern farm family is similar in
some respects to that of the student. First, the probability that
members of this family type will be poor is much lower--.02 versus .21--
for the EC than for the CY measure. Second, the relatively low income
of some members of this group is attributable, at least in part, to
their preferences for farm life vis-a-vis town or city life. That is,
many members of this group have estimated earnings capacities that
exceed their actual incomes. How many of them could actually earn more
if they left the farm now and searched for jobs in towns or cities is
less clear. Recall that our estimates of earnings capacity do not
take account of the effect of particular kinds of previous job
experience on current earnings abilities. Still, it seems clear that
at least a portion of the observed current income poverty of farmers
is voluntary.

As with the middle-aged farm family type, there is also some ambiguity in accounting for the different probabilities of being poor for the elderly couple type. On the one hand, the lower probability of the elderly being counted among the EC poor than among the CY poor—.04 versus .15—is certainly attributable, at least in part, to the greater consumption of leisure by the aged than by the rest of the population. On the other hand, as noted above, the estimates of earnings capacity do not adequately reflect health disabilities among those over age 65 and do not reflect at all labor market discrimination against the aged.

While the probability of being counted among the EC poor is much lower than the probability of being counted among the CY poor for the student, farm family, and elderly couple types, it is much higher—.21 versus .09—for the working poor type. The reason is quite clear. Whereas CY depends directly on how much heads and spouses actually work, EC does not. Thus, while a strong attachment to the labor force reduces the probability of being poor in CY terms to a very low level, the probability of being among the EC poor depends on the relative ability to generate income. Many working poor families not classified among the CY poor earn more than others because they more fully utilize their earnings capacity.

<div align="center">V.</div>

In this paper, we have compared and contrasted the composition of the EC poor with that of the CY poor. To the extent that our estimate of EC is a superior indicator of economic status, use of the CY measure

of economic status <u>understates</u> the proportion of the poorest 11 percent
of the total population who are black, who live in very large families,
and who live in households with strong attachments to the labor market.
Similarly, the CY measure <u>overstates</u> the proportion who are farmers,
who are old or very young, who live alone, and who live in families
with no workers. Analyzing the composition of CY poverty on a household
rather than an individual basis exacerbates these under- and overstate-
ments. These differences in composition between the EC and CY poor
hold for both the non-aged population and the total population.

In addition, the socioeconomic and demographic determinants of
EC and CY poverty were examined. Not surprisingly, the effect of work
status on poverty status was found to be much weaker for the EC than
for the CY measure. Similarly, holding work status constant, female
headship and old age per se were found to be much stronger determinants
of EC poverty than of CY poverty. Finally, when the determinants regres-
sion was used to predict the probability that members of certain stereo-
typical families would be poor, we found not only that AFDC female-headed
families, large southern rural families, and migrant worker families had
high probabilities of being poor by both measures of economic status,
but also that for these stereotypical families the probabilities were
virtually insensitive to the measure of economic status. In contrast,
the probability of being counted among the CY poor is much higher than
the probability of being counted among the EC poor for farm families,
elderly couples, and particularly for independent students. Signifi-
cantly, precisely the opposite is true for the working poor type
family--compared to the EC definition, the standard poverty definition
seriously understates the probability that such families will be poor.

NOTES

[1] Such transitory fluctuations can substantially influence a family's
ranking in the money income distribution. By eliminating the effects of
income instability, the earnings capacity concept is akin to, though not
identical with, the concept of permanent income. In its pure form,
permanent income reflects the present value of expected lifetime consump-
tion. Earnings capacity takes as given the stock of human and physical
capital at a point in time and estimates the return accruing to capacity
use of these assets. Conceptually, earnings capacity is more closely
related to Gary S. Becker's [1] notion of "full income."

[2] The sample was that of the 1971 Current Population Survey, "aged"
to be representative of the 1973 U.S. population. The extract tape was
developed by the Urban Institute. The observations on the survey were
also modified so as to yield a national unemployment rate of 4.9 percent.
For a more detailed discussion of the adjustment of the 1971 data, see
Nelson McClung, John Moeller, and Eduardo Siguel [5].

[3] The random number generator routine RANNB generates a sequence of
pseudo-random numbers with a normal (Gaussian) distribution with mean 0
and variance 1 by the method of Box and Muller [3]. For a description
of computation procedures, see Random Number Routines Reference Manual
1110, Academic Computing Center, the University of Wisconsin, Madison.

[4] It is possible that part of the differences in the weeks worked
of unemployed or unhealthy individuals vis-a-vis those who do not miss
work due to unemployment or ill health is due to differences in tastes for
work. This is likely to be a minor part, however. Moreover, it is prefer-
able to err on the side of understating rather than overstating differ-
ences between earnings capacity and current income measures that are
due to tastes.

Two additional problems with the unemployment adjustments are worth
noting. First, at least some of the time that individuals spend unemployed
is attributable not to the absence of any job but to the absence of a job
that the unemployed individual deems suitable. For this reason our
adjusted capacity measure will underestimate some individuals' earnings
capacity. On the other hand, some individuals who cannot find jobs
become discouraged and drop out of the labor force. Because we have no
way of identifying those individuals who are outside the labor force
because they became discouraged by their inability to find jobs, the
adjusted measure will overestimate these individuals' earnings capacity.
Despite these limitations, the adjustment made is likely to lead to a more
accurate measure of gross earnings capacity.

[5] Some assets, such as home equity, have no reported monetary return.
Hence, this measure underestimates the earnings capacity of families
receiving services from owner-occupied housing. See Burton W. Weisbrod
and W. Lee Hansen [8].

[6]The primary transfers excluded are those designed to maintain income in the face of transitory income loss, that is, AFDC, Unemployment Compensation, and Aid to the Aged, Blind, and Disabled. By excluding these transfers we can calculate their poverty effectiveness with poverty defined in terms of earnings capacity.

[7]These data on minimally acceptable child care costs are 1968 estimates adjusted for inflation. The 1968 estimates are from B. Bernstein and P. Giacchino [2]. These data are taken from Michael Krashinsky [4].

[8]The 1973 poverty lines for urban families are officially designated as follows: family size 1, $2475; family size 2, $3095; family size 3, $3720; and so on. In addition to variation by family size, the poverty line is somewhat lower for rural families. For a discussion of the poverty threshold concept, see Molly Orshansky [7]. The concept and use of the welfare ratio were originated by James N. Morgan, Martin H. David, Wilbur J. Cohen, and Harvey E. Brazer [6].

[9]It should be noted, however, that the estimation of GEC_3 and NEC_3 is adjusted for reported unemployment.

[10]Blacks form only about 11 percent of the total population.

[11]These estimates of EC are generated by the randomization procedure described in note 3. Similar estimates were made of the composition of the poor using a second random number generation process and using the expected value for a family rather than the expected value plus or minus a random shock. This was done to determine the extent to which observed differences between the EC and CY poverty compositions are due to the randomization process.

The results of this exercise indicated that the differences in composition between the two randomized EC estimates are negligible. Some small differences existed between the composition of the poor estimated from random and nonrandom procedures. In general, the randomization procedure tended to reduce the difference between the EC and the CY poor in terms of race, years of schooling, region, and family size.

Also, estimates were made of the composition of non-aged poor individuals by the EC and CY indicators of economic status. Eleven percent of the total population, but only 9.9 percent of the population aged 64 or younger, live in families classified as poor by the standard definition. In general, the compositional differences between EC and CY poverty observed in the total population are also present in the non-aged population. The primary differences occur in the proportion of individuals living in female-headed families (50 percent for NEC and 44 percent for CY, relative to 50 percent and 54 percent for the total population) in families with one or two workers (70 percent for NEC and 68 percent for CY, relative to 73 percent and 58 percent for the total population), and in families headed by blacks (41 percent for NEC and 34 percent for CY, relative to 38 percent and 31 percent for the total population).

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APPENDIX

Table A-1 presents the estimated earnings functions upon which the estimation of head, spouse, and family earnings capacity is based. The dependent variable is the log of annual earnings.

TABLE A-1

Earnings Functions for Black and White Males and Females

Independent Variables	Males		Females	
	White Coefficient (t-value)	Black Coefficient (t-value)	White Coefficient (t-value)	Black Coefficient (t-value)
Years of schooling	.0212 (3.0)	-.0088 (-.4)	-.0106 (-.7)	-.0229 (-.7)
Years of schooling^2	.0007 (3.2)	.0017 (2.8)	.0033 (6.5)	.0047 (4.3)
Age	.0711 (33.3)	.0525 (7.1)	.0479 (13.3)	.0234 (2.2)
Age^2	-.0008 (-42.6)	-.0007 (-10.0)	-.0006 (-18.1)	-.0004 (-4.0)
Age - years of schooling	.0005 (5.6)	.0004 (1.5)	.0001 (.5)	.0004 (.8)
Weeks worked 1-13	-1.9636 (-85.8)	-2.0173 (-31.1)	-2.2937 (-111.8)	-2.0924 (-39.4)
14-26	-.8201 (-44.2)	-.8324 (-17.1)	-.9790 (-48.0)	-.8835 (-16.4)
27-39	-.4103 (-27.2)	-.3742 (-8.5)	-.4851 (-22.6)	-.4215 (-7.8)
40-47	-.2067 (-13.9)	-.2563 (-5.9)	-.2395 (-9.8)	-.2097 (-3.4)
48-49	-.1434 (-7.1)	-.0970 (-1.6)	-.1446 (-4.0)	-.0124 (-.1)
50-52	---	---	---	---
Full- or part-time work during week				
Full-time	---	---	---	---
Part-time	-.9105 (-51.0)	-.9827 (-21.2)	-.9162 (-61.3)	-.8767 (-22.4)
Location				
Northeast	-.0149 (-1.6)	-.0197 (-.5)	.1292 (7.5)	.1154 (2.2)
North Central	---	---	---	---
South	-.1120 (-12.2)	-.2362 (-7.5)	-.0416 (-2.5)	-.2017 (-4.4)
West	-.0541 (-5.3)	.0132 (.3)	-.0299 (1.6)	-.0316 (-.5)
SMSA suburb	.1542 (18.7)	.2664 (7.1)	.1790 (11.7)	.2647 (4.9)
SMSA central city	.0685 (8.0)	.1609 (5.7)	.1883 (12.2)	.2133 (5.2)
Nonurban	---	---	---	---
Marital status				
Not married - no children			.1243 (6.1)	-.0113 (-.2)
Not married - with children			.0524 (2.1)	-.0378 (-.9)
Married - no children			.1261 (7.8)	-.0030 (-.1)
Constant	7.2901 (96.8)	7.6699 (32.5)	7.1515 (49.0)	7.5754 (20.3)
R^2	.5252	.6068	.6026	.6337
F	1813.7819	266.8581	1498.4130	247.2347