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Author(s): Gary A. Hoover, Walter Enders and Donald G. Freeman

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Non-White Poverty and Macroeconomy: The Impact of Growth

By GARY A. HOOVER, WALTER ENDERS, AND DONALD G. FREEMAN*

Although poverty research has a very long history in the social sciences, serious debate on the sufficiency of economic growth to eliminate poverty was rekindled by the inception of the “War on Poverty” by the Kennedy and Johnson Administrations during the early 1960s. Forty years later, the measurement of growth’s effect on poverty remains an important input to the policy question of whether, how much, and how government efforts should address poverty reduction.

Early work by Henry J. Aaron (1967) found that poverty among certain groups seemed highly sensitive to economic growth, while other groups were barely affected. Subsequent researchers have realized that poverty has a spatial as well as a demographic dimension, and more recent work has examined poverty by “race and region” using disaggregated time series. The present study further refines the examination of poverty by racial/ethnic group and region by investigating the impact of economic progress on poverty across black, Hispanic, and white populations measured over 35 years at the level of the census region.

To our knowledge, this is the first research to study all three of these groups using regional data. A regional analysis is important because the North, Midwest, South, and West have had different industrial structures and different economic histories over the last three decades. As shown in Figure 1, regional poverty rates of blacks and Hispanics relative to whites are quite different. Moreover, regional differences exist in the levels and growth rates of real per capital GDP, in the secular decline in manufacturing, and in the pattern of the unemployment rate. In addition to economic events, we control

for demographic differences and for structural economic change so as to capture some of the heterogeneity remaining after disaggregating by racial/ethnic group and region.

Given the small number of usable observations and the large number of potential determinants of poverty, we use two empirical approaches. In the first, the data are pooled by racial/ethnic group across regions. The central idea is that the poverty/growth nexus is common to groups, and the desirable aspects of pooling—greater degrees of freedom and more precise estimates—justify the assumed slope homogeneity. By using fixed effects, mean heterogeneity across group/region/time can be controlled.

The second approach uses Seemingly Unrelated Regressions (SUR) to relax the assumption that the coefficients are equal across racial/ethnic groups and/or regions by estimating different regression equations for each group and region. Efficiency gains can be made since SUR is a system-wide estimation strategy allowing us to capture the information contained in the contemporaneous correlations of the individual regression errors. Using both approaches allows us to test the internal validity of our findings.

The general results confirm that per capita GDP growth and declines in unemployment reduce poverty. The measured effects of GDP growth across groups are uneven, however, and most but not all of our models suggest that black poverty is more sensitive to economic growth than white or Hispanic poverty. Unemployment is a more important determinant of poverty for whites in the pooled time series estimates than for blacks or Hispanics. The pooled time-series approach finds that single parenthood, transfer payments, and wage inequality have significant effects on poverty, while the SUR approach finds economic variables to be often significant but demographic variables to be insignificant.

I. Data and Pooled Estimation

This paper uses official head-count poverty rates for families, computed from the March

* Hoover: Department of Economics, Finance, and Legal Studies, University of Alabama, Box 870224, Tuscaloosa, AL 35487 (e-mail: ghoover@bama.ua.edu); Enders: Department of Economics, Finance, and Legal Studies, University of Alabama, Box 870224, Tuscaloosa, AL 35487 (e-mail: wenders@cba.ua.edu); Freeman: Department of Economics and International Business, P.O. Box 2118, Sam Houston State University, Huntsville, TX 77341 (e-mail: freeman@shsu.edu).

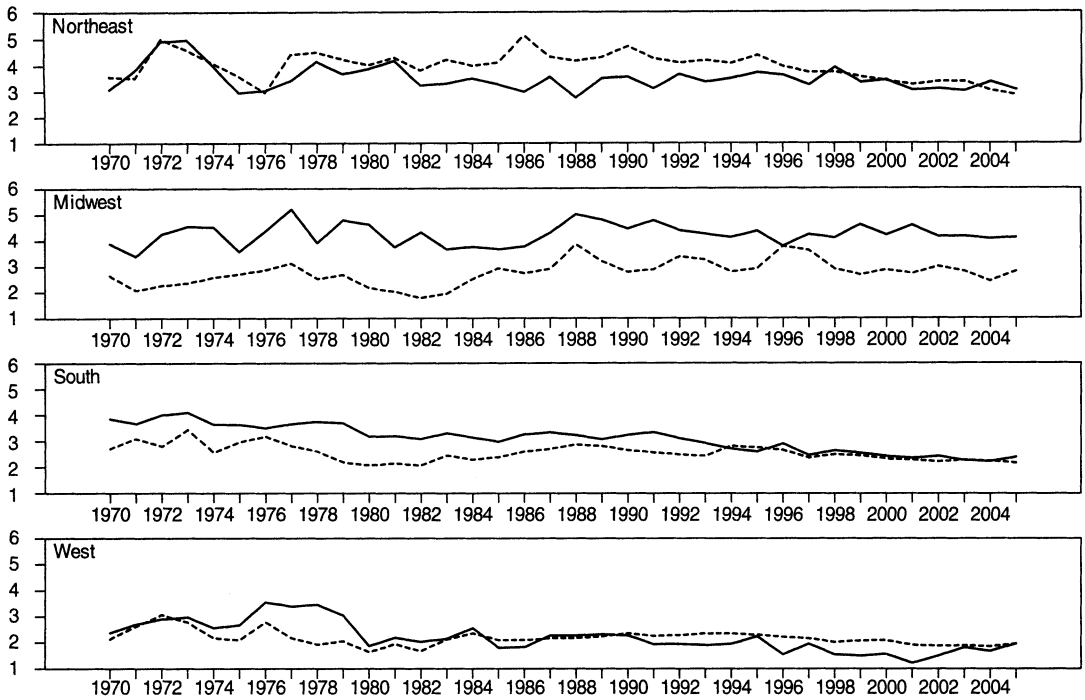


FIGURE 1. BLACK/WHITE AND HISPANIC/WHITE POVERTY RATES BY REGION

Note: The solid line is the black/white ratio and the dashed line is the Hispanic/white ratio.

Current Population Survey (CPS). Family units are grouped by census regions—Northeast, Midwest, South, and West—and according to racial/ethnic groups—black, white, and Hispanic origin—for a total of 12 annual time series spanning the years 1970 to 2005.

Poverty rates for whites are far lower than those of blacks and Hispanics in every region and in every time period, and are mostly trendless throughout. Poverty rates for blacks and Hispanics for all regions, except blacks in the Midwest, experienced a sharp and long-lasting drop in the mid-1990s; nevertheless, the black and Hispanic poverty rates are still more than double the rate for whites.

We use two measures of regional economic activity to control for the specific economic circumstances of each racial/ethnic group in each of the four regions in explaining poverty rates: real per capita gross domestic product (GDP), and the unemployment rate. Real GDP is available for each region, whereas the unemployment rate can be obtained for each racial/ethnic group in each region. The unemployment rate focuses

on the state of the labor market and measures those who have recently lost their jobs, as well as recent entrants into the labor market.

Also used as economic controls are transfers as a percent of personal income and wage inequality, specifically the ratio of third-to-first quartile wage income. As controls for the so-called “root causes” of poverty, we include the percentage of adults over 25 years old who have not completed high school and the percentage of single female-headed households, acknowledging that determining causality between these variables and poverty may be problematic.

The basic equation for estimation is

$$(1) \quad P_{GR} = \mu_{GR} + X'_{GR}\beta_{GR} + \varepsilon_{GR},$$

where P is the poverty rate, suitably transformed; μ is a constant term; X is a vector of economic and demographic variables, possibly including a lagged dependent variable; and β is a vector of coefficients. For the pooled estimates, $\mu_{GR} = \mu_R$ and $\beta_{GR} = \beta_R$ within groups. All variables are expressed as percentages of the population.

TABLE 1—POOLED SAMPLE, 1970–2005

Variable	White	Black	Hispanic
GDP	-0.615* (-2.03)	-1.644* (-4.31)	-0.596 (-0.84)
Unemployment	0.424* (-3.93)	0.166 (-1.65)	0.186 (-1.11)
Single mothers	0.701* (-3.24)	0.666* (-1.77)	0.394 (-1.33)
Transfers	-1.344* (-3.23)	-0.609* (-1.89)	-0.334 (-0.68)
Wage inequality	0.619 (-1.42)	1.668* (-1.88)	0.865 (-1.63)
Adjusted R ²	0.662	0.697	0.195

Notes: The estimations are conducted using nonoverlapping differences of five-year averages of log variables. *t*-statistics computed from robust standard errors in parentheses. Asterisk (*) indicates statistical significance at 0.10 or less.

The error term is assumed to be i.i.d., except for possible contemporaneous correlation across groups and regions.

Because of the uncertain timing for the effects of the regressors, and because of the short-term volatility of the black and Hispanic poverty rates, we convert the data to nonoverlapping differences of five-year averages of log variables. The choice of a five-year window is based solely on the apparent goodness-of-fit between poverty rates and the main economic variables in our analysis. Because of the very uneven representation of blacks and Hispanics across regions, we use population weighted least squares to insure that the influence of each observation is proportional to the population that it represents.

The results of estimating equation (1) for our preferred model are displayed in Table 1. The data are pooled by racial/ethnic group; other tests, not reported here, failed to reject slope homogeneity across regions and between blacks and whites. There are, however, meaningful differences in response rates of black and white poverty rates to economic variables, statistical tests notwithstanding. Education proved to be insignificant in any specification.

Black poverty rates are more than twice as sensitive to economic growth as white or Hispanic poverty rates, but much less so to unemployment rates. Transfer payments have a much larger effect on whites, but wage inequality affects only blacks. The effect of the rate of single motherhood on the poverty of blacks and whites is about the same.

The goodness of fit for blacks and whites are about the same, but the Hispanic model explains much less of the variation in Hispanic poverty, and while the signs of the coefficients are consistent with blacks and whites, the precision is much lower. Because of the exceedingly dynamic character of the Hispanic population, measurement error is a likely suspect in this case.

The results of the pooled regressions confirm that economic growth is the single most important factor in reducing poverty, especially for blacks, but changes in demographics and wage inequality have offset many of the gains from growth.

II. SUR Analysis

Another way to facilitate the comparison by race and region is to estimate the system in ratio form. Specifically, we use the eight relative poverty rates shown in Figure 1 as the dependent variables, and modify equation (1) such that:¹

$$\begin{aligned}
 (2) \quad \ln(Pov_{G,R}/Pov_{W,R}) &= \alpha_{0,G,R} \\
 &+ \alpha_{1,G,R} \ln(Unemp_{G,R}/Unemp_{W,R}) \\
 &+ \alpha_{2,G,R} \% \Delta GDP_R + \alpha_{3,G,R} \% \Delta Manuf_R \\
 &+ \dots + \varepsilon_{G,R},
 \end{aligned}$$

where the $\alpha_{i,G,R}$ are regression coefficients, the subscript W refers to whites, and the group subscript G can refer to either blacks or Hispanics.

Note that all coefficients in equation (2) would be zero if the poverty rates in a region were equal across the racial/ethnic groups. However, if GDP growth in a region—say, the South—has a more pronounced effect on reducing white poverty than black poverty, $\alpha_{2,B,SO}$ would be negative (since the poverty rate of blacks would not fall by as much as the rate for whites). Similarly, $\alpha_{1,B,R}$ would be positive if increases in the black/white unemployment rate acted to increase the relative poverty rate of blacks. The point is that equation (2) captures any asymmetric effects of the variables on poverty rates.

In accord with Enders and Hoover (2003), we construct a measure of robust growth,

¹ Note that the dependent variables in equation (1) are the growth rates of poverty, while the dependent variables in equation (2) are the proportionate levels of poverty.

TABLE 2—SUR ESTIMATES OF THE MODEL IN RATIOS

Variable	Reform2	Unemployment	Percent change in GDP	Robust
B, NE	-0.179 (-2.482)	0.285 (2.614)	2.793 (3.395)	-3.806 (-4.713)
B, MW				
B, SO	-0.153 (-3.078)			
B, WE			1.696 (1.656)	
H, NE				
H, MW		0.381 (2.834)		3.186 (2.927)
H, SO		0.502 (2.888)	1.128 (1.743)	
H, WE				

Note: *t*-statistics are in parentheses.

called Robust, by interacting % Δ GDP with a dummy variable that has a value of one for the years 1983–1989 and a value of zero in the other years in our sample. Robust is designed to follow NBER dates of expansion. We also construct a dummy variable representing the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) passed in August 1996. We alternatively use a dummy variable, called Reform₁, equal to one beginning in 1997 and another dummy, called Reform₂, equal to the first difference of Reform₁ (hence, Reform₂ is equal to one in 1997 only). We allow each variable (in ratio form) to have a potential affect on the relative poverty rate.

In order to reduce the overparameterization of the model and to pare down the system, we use a simple search procedure. Specifically, for each of the eight values of $\ln(Pov_{G,R}/Pov_{W,R})$, we use a standard single-equation stepwise regression procedure to select which regressors to include in the regression. We force each regression to contain an intercept, and at each step a regressor is allowed to enter the regression if the *t*-statistic for that regressor has a *p*-value of no more than 0.10. Once a variable is entered, the other included variables (if any) are checked to ensure that they also have *t*-statistics with a *p*-value of no more than 0.10. If the *t*-statistic for any variable exceeds the 0.10 threshold, it is excluded from the regression.

Once we have the specifications for the eight separately estimated regression equations, we

then estimate the entire set of equations using SUR. All variables included in the single-equation estimates are retained in the SUR estimates even if the *p*-values for their *t*-statistics rise above 0.10 when estimated as a system. The results, excluding the intercept and demographic variables, are shown in Table 2. We obtain similar results when we combine only the same-region equations or only the same-group equations.

We note that PRWORA acted to reduce the relative poverty rates of blacks in the Northeast and in the South. In addition, increases in the relative unemployment of blacks in the Northeast and of Hispanics in the Midwest and South acted to increase the poverty rate of both groups relative to that of whites.

When significant, increases in GDP growth increase the relative poverty rate of blacks and Hispanics. Even though GDP growth reduces poverty, the benefits of GDP growth act to improve the relative fortune of whites.

There is no simple way to categorize the effects of robust growth in that it reduced the relative fortunes of blacks in the NE but improved the relative fortunes of Hispanics in the Midwest. More interesting, perhaps, are some of the variables that are not significant. None of the standard economic variables (GDP growth, robust growth, manufacturing and unemployment) explains black/white poverty rates in the Midwest and South, and one of the coefficients is marginally significant for the West. Similarly,

Hispanic/white poverty rates are not affected by any of the traditional economic variables in the Northeast or in the West.

III. Conclusions: The Long and the Short of Poverty

The pooled estimates using five-year averages better capture the long-term influences of poverty and are more likely to find significant factors such as family structure and wage inequality. The SUR estimates are better suited to capture the short-run effects of economic events on poverty such as cyclical changes in GDP growth and unemployment rates.

Both approaches reinforce the point that Aaron made over 40 years ago: measuring economic growth's effect on poverty is not one-size-fits-all; growth affects different groups differently. By examining poverty in "race and region," we find black poverty about two and one-half times more sensitive to GDP growth than white or Hispanic poverty. The panel estimates of Table 1 indicate that white poverty reacts more strongly

to changes in unemployment than either black or Hispanic poverty. However, when disaggregated by region and group, we find a different result. In particular, black poverty in the Northeast and Hispanic poverty in the Midwest and South rise relative to white poverty.

Otherwise, the SUR analysis is broadly consistent with the pooled results, at least insofar as the signs of the economic variables are concerned, but the short length of the time series and the overparameterization of the models make it difficult to estimate the effects precisely in all cases.

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