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Macroeconomic Performance and Poverty in the 1980s and 1990s: A State-Level Analysis

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Abstract

We examine the effect of macroeconomic performance on poverty in the United States during the 1980s and 1990s. Our study advances research on this issue in a variety of ways: we utilize variation across the states rather than relying on over-time trends for the country as a whole; we analyze cross-state variation in both levels and change over time; we disentangle the impact of three different aspects of macroeconomic performance: economic output (per capita gross state product), employment, and unemployment; we investigate causal mechanisms more carefully than is often the case in poverty analyses, focusing on work hours and wages; we consider both absolute and relative poverty; we base our poverty measure on pretax-pretransfer income; we use a poverty measure that incorporates both the poverty rate and the poverty gap; and we focus on the working-age population. Our findings highlight the importance of employment for poverty reduction. Employment contributed to lower absolute and relative poverty by boosting hours worked and wages in low-income households. Per capita gross state product similarly contributed to lower absolute poverty by increasing hours worked and low-end wage levels, but it had very little impact on relative poverty because it also was associated with increased wage inequality. Unemployment had little or no effect on poverty.

Macroeconomic Performance and Poverty in the 1980s and 1990s: A State-Level Analysis

Despite rising living standards, poverty remains a seemingly intractable problem in the United States. Since 1973 the productivity of the American economy has increased by two-thirds, yet the official U.S. poverty rate has not decreased at all. Levels of poverty also vary considerably across states and localities. As of 2002, for example, the poverty rate in Arkansas was more than three times as high as in New Hampshire.

Macroeconomic performance is commonly considered to be a key—perhaps *the* key—determinant of poverty. The notion that a healthy economy benefits those at the low end of the income distribution has been studied extensively (Blank 1997a, 1997b; Blank and Card 1993; Blank and Blinder 1986; Brady 2003b; DeFina 2002, 2004; Freeman 2001; Gundersen and Ziliak 2004; Iceland 2003a, 2003b; Mishel, Bernstein, and Allegretto 2005; Sawhill 1988; Tobin 1994). In this paper we explore the impact of macroeconomic performance on poverty among working-age American households. We use data from the Current Population Survey (CPS) to examine variation across the states in poverty levels as of 2000–2002 and poverty trends during the 1980s and 1990s. Our analysis is guided by the following questions: Does macroeconomic success in fact reduce poverty? If so, which aspect of macroeconomic performance has been most important: economic output, employment, or unemployment? What are the causal mechanisms? How, if at all, does our understanding of the effect of macroeconomic performance change when using alternative measures of poverty?

THEORY

Macroeconomic Performance and Absolute Poverty

Macroeconomic performance refers to aggregate, or average, levels of income and employment. The most commonly used indicator, gross domestic product (GDP) per capita, refers to economic output—the value of goods and services produced in a country in a given year divided by the country's

population. It is a measure, albeit an indirect one, of average income. "Economic growth" refers to increases in per capita GDP. A second indicator of macroeconomic performance is the employment rate, which is measured as the share of the working-age population that is employed. A third is the unemployment rate, which refers to the share of people actively seeking a job who are unable to find one.

It has traditionally been assumed that a healthy economy contributes to lower poverty. The notion that "a rising tide lifts all boats" implies that as the economy as a whole improves, so too do the fortunes of those at the bottom of the income distribution. An examination of over-time trends for the U.S. economy as a whole suggests some support for this notion. Figure 1 plots GDP per capita, the employment rate, the unemployment rate, and the U.S. government's poverty measure from 1960 to 2003. The poverty rate is calculated as the percentage of persons living in households that have incomes below the poverty line (see below). Generally speaking, in periods of economic growth—in which per capita GDP and the employment rate rise and the unemployment rate falls—the poverty rate has declined. And during economic recessions, such as those of 1973–75, 1982–83, 1990–91, and 2001, the poverty rate has increased (Blank 1997b; Blank and Binder 1986; Freeman 2001).[1]

Why does a healthy macroeconomy matter? Those most vulnerable to poverty usually have no investment income and receive little or no income in the form of interpersonal transfers from family or friends (Atkinson, Rainwater, and Smeeding 1995; Kenworthy 2004). Along with government benefits, earnings from paid work are thus likely to be the chief income source. Annual earnings are a function of two things: hours worked and wage levels. As GDP per capita rises, employment increases, or unemployment declines, work hours and/or wage levels for those at the bottom of the distribution may increase, thereby reducing poverty.

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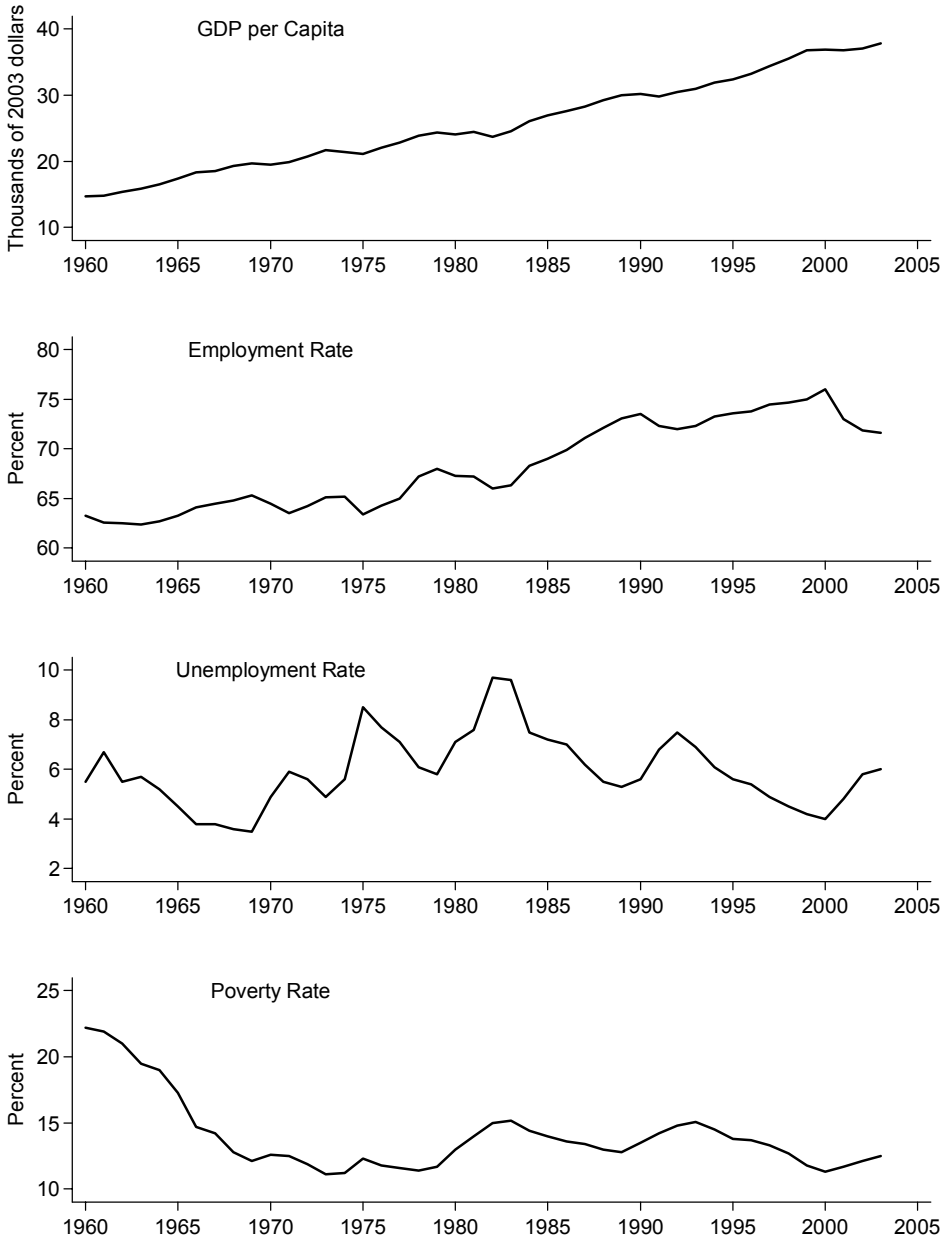
[1]Recessions are commonly defined as periods in which GDP declines for two or more consecutive quarters (three-month periods), though alternative definitions take other factors into account, such as changes in employment, personal income, and industrial production (National Bureau of Economic Research 2003).

Figure 1
Trends in GDP per Capita, Employment, Unemployment, and Poverty, 1960–2003



Note: Employment rate is measured as employed persons as a share of the population age 16 to 64. Poverty rate is the official U.S. government measure.

Sources: U.S. Bureau of Economic Analysis; Organization for Economic Cooperation and Development; U.S. Bureau of Labor Statistics; U.S. Bureau of the Census.

The potential link between the employment and unemployment rates, work hours, and poverty is easy to see. To the extent that some formerly nonemployed individuals at the low end become employed, their household income will increase. This will reduce poverty. The level of unemployment is likely to be similarly related to work hours among those at the low end of the income distribution, particularly since less-skilled workers and job seekers tend to be among the first laid off and the last hired. Economic output can have an independent effect on work hours: employers in a growing economy may increase work hours among those they already employ rather than hire new employees. For employees with low wages, these additional hours will reduce poverty.

Growth, high employment, and low unemployment may also reduce poverty by boosting wage levels at the low end of the distribution. Rapid growth can lead to worker demands to share in the benefits in the form of wage increases, and to employer willingness to acquiesce to such demands. High employment and/or low unemployment can lead to pressure on employers to bid up wages for job seekers. For example, Bernstein and Baker (2003) argue that real wage levels at the low end of the labor market were flat or declining in the United States for most of the 1980s and the first half of the 1990s due to moderate-to-high joblessness, but that the low unemployment rate of the late 1990s sparked an increase in low-end wages.

On the other hand, the connection between a healthy macroeconomy and low poverty is not automatic. If per capita GDP increases but all of the increase in income accrues to households at the top and/or middle of the income distribution, poverty will not decrease. The poverty-reducing effect of growth may be mitigated or offset, in other words, by a rise in inequality. Similarly, if the employment rate rises but all of the new jobs go to individuals in high- and/or middle-income households (e.g., spouses or children of high earners), there will be no gain for those in low-income households and hence no decline in poverty. The same is true for unemployment. If a decline in the unemployment rate results from persons in high- or middle-income households finding jobs, or from unemployed persons in low-income households giving up the search and dropping out of the labor force, there will be little or no

reduction in poverty. It is thus an empirical question whether, and to what extent, macroeconomic success contributes to low poverty.

Some researchers have noted that the correlation between economic growth and poverty weakened during the 1970s and 1980s as compared to the 1950s and 1960s. The trend lines in Figure 1 illustrate this: per capita GDP has increased since the 1970s, yet the poverty rate has not declined. This was due in part to slower economic growth (Danziger and Gottschalk 1995; Iceland 2003b). But it seems also to be a product of growing income inequality related to falling wages among less-educated workers (Blank 1997a, 1997b; Devine and Wright 1993; Freeman 2001; Haveman and Schwabish 2000). Danziger and Gottschalk (1995) and Iceland (2003b), using decomposition methods, find that declining economic inequality served to reduce poverty between 1949 and 1969, but higher levels thereafter served to increase it substantially. The decades from 1940 to 1970 were prosperous ones in which a broad range of groups experienced increases in incomes. After the early 1970s, income inequality increased (Bluestone and Harrison 2000; Danziger and Weinberg 1994; Jones and Weinberg 2000). Factors contributing to rising inequality include changes in the structure of the economy and "skills mismatches"—a decline in demand for workers at the lower end of the economic ladder vis-à-vis the supply (Bluestone and Harrison 2000; Danziger and Gottschalk 1995; Holzer and Vroman 1992). Freeman (2001), in a multivariate analysis of state-level data, finds that income inequality, as measured by the ratio of median income to twentieth-percentile income, was associated with higher poverty between 1989 and 1998. Higher earnings at the twentieth percentile were associated with lower poverty. Gundersen and Ziliak (2004), also using multivariate analysis with state-level data, find that rising inequality between 1981 and 2000 tempered the reduction in poverty produced by economic growth. In addition to inequality, demographic factors, such as an increased proportion of female-headed households, may have weakened the association between economic growth and poverty (Cancian and Reed 2001; Freeman 2001; Iceland 2003b).

To the extent that there *is* a link between a healthy economy and low poverty, it also is important to explore which of the three aspects of macroeconomic performance—economic output, employment,

and unemployment—matters most, and through what causal channels. Finding that employment or unemployment has a stronger impact than output, for example, would have significant policy implications.

Macroeconomic Performance and Relative Poverty

The poverty rate calculated by the U.S. government is an absolute one: the poverty line does not differ across states, and it is not adjusted over time for changes in economic output or incomes (only for inflation). Because the official poverty figures are familiar and are available since 1959, they are commonly used in analyses of poverty in the United States. In contrast, most cross-national poverty researchers use a relative measure of poverty (e.g., Brady 2003a, 2003b; DeFina and Thanawala 2004; Goodin et al. 1999; Kim 2000; Moller et al. 2003; OECD 2001; Rainwater and Smeeding 2003; Smeeding, Rainwater, and Burtless 2001). A relative measure implies a conceptualization of poverty as a condition of comparative disadvantage. It presumes that there is no universal income threshold that defines a minimally adequate standard of living. With a relative measure, the poverty line differs across countries and over time. Usually it is set as a certain percentage (e.g., 50 percent or 60 percent) of the median in each particular country in each particular year.

There are arguments for and against each of these two types of poverty measure. The chief advantage of an absolute measure is that, as Sen (1983) puts it, there is an "absolutist core" in the idea of poverty. For example, if there is starvation and hunger, then there clearly is poverty. Yet the notion of absolute poverty or deprivation is more ambiguous in the context of an affluent society in which there is little or no starvation.

For others, once societies reach a point at which virtually everyone has enough to sustain life, poverty can only sensibly be understood as relative to the typical income level within a particular society at a particular point in time. As Goodin et al. (1999, p. 28) note: "People feel themselves to be poor, and think others to be poor, in ways that matter both sociologically and ultimately morally, if they have

substantially less than what is commonplace among others in their society" (see also Brady 2003c; Iceland 2003a; Townsend 1992). Advocates of a relative measure argue that the relative notion underlying these measures fits with both the historical record and variable views of poverty (Citro and Michael 1995). In addition, real needs sometimes increase as living standards rise. For example, while a car may be a luxury in some poor countries, in a society in which most families own cars, and in which public transportation services are limited, a car may be needed to find a job and commute to work (Kanbur and Squire 1999). Thus, a relative measure may be better suited to accommodate change over time.

The principal objection to a relative measure is that it can result in households with the same income levels in neighboring countries having different poverty classifications if the median income level in the two countries differs. This contradicts many people's intuition about what poverty means. In addition, a relative measure can lead to seemingly perverse poverty estimates over time. If the median income falls during a recession, the poverty line for a relative measure will decrease, potentially producing a decline in measured poverty even though low-income people are faring worse in an absolute sense (Citro and Michael 1995; Sen 1983).

There is no objectively or scientifically "correct" measure of poverty. Both approaches have merits and drawbacks. Yet rarely do researchers analyze determinants of poverty using both an absolute and a relative measure (exceptions include Iceland 2003a; Kenworthy 1999; Smeeding and Rainwater 2002). We do so here.

This has potentially important consequences for understanding the impact of macroeconomic performance. Consider two states: Connecticut and West Virginia. As of 2000–2002, per capita gross state product (GSP) and employment were much higher and unemployment much lower in Connecticut than in West Virginia. Not surprisingly, there was considerably less absolute poverty in Connecticut than in West Virginia. But because the median income level was substantially higher in Connecticut, the poverty line for a relative poverty measure was also substantially higher in Connecticut. As a result, the

two states had approximately the same level of relative poverty. A similar implication holds if we think about change over time. Suppose the economy grows, and that some of the new jobs and additional income go to low-income households. This will likely reduce absolute poverty. But if the median income level rises faster than incomes at the bottom—in other words, if income inequality increases—relative poverty may increase. In short, macroeconomic performance may have a stronger poverty-reducing impact on absolute poverty than on relative poverty.

METHOD AND DATA

Studies of poverty in the United States frequently are time-series analyses of the national poverty rate (e.g., Blank 1997a; Burtless and Smeeding 2001; Cancian and Reed 2001; Danziger and Weinberg 1994; Freeman 2001; Iceland 2003a; Sawhill 1988). The major limitation of this type of analysis is that several hypothesized determinants—e.g., unemployment and family structure—may co-vary over time, making it difficult to disentangle their relative import. We utilize the variation across states in macroeconomic performance and poverty to gain insight into the causes of poverty.

Most recent quantitative cross-country and cross-state research on poverty has used pooled cross-section time-series regression analysis with annual data (e.g., DeFina 2002; Gundersen and Ziliak 2004; Moller et al. 2003). However, our interest is in long-run trends rather than year-to-year fluctuations—changes across, rather than within, business cycles. Pooled cross-section time-series analysis of annual data is problematic for assessing relatively long-term causal processes. Estimates of long-run effects that are based on single-year data risk overwhelming the signal with noise. Our approach is to rely on single-period cross-state regressions that cover two decades—the 1980s and 1990s. These decades are widely regarded as qualitatively distinct from preceding years (see Kenworthy 2004). In the United States, as in other affluent countries, the eighties and nineties were characterized by slower economic growth, heightened inequality of earnings and incomes, increased globalization and immigration, growing female

labor force participation, increases in single-adult households and single-parent families, weakened labor unions, and a rightward shift in public policy.

Pooled cross-section time-series analysis allows the researcher to combine information about variation in levels with information about variation over time, rather than having to focus on one or the other. However, cross-state variation in levels may be caused by different factors than cross-state variation in change over time. Over a long enough period, causal effects should be similar. But there is no reason to presume that the chief determinants of levels of poverty in 2000, for example, will necessarily also have been the principal determinants of changes in poverty over the preceding twenty years. Differences in the causes of variation in levels versus variation over time will often be hidden in pooled regressions (Kittel 1999). We use separate analyses to examine levels and longitudinal trends.

We measure poverty and our independent variables in 1980–1982 and 2000–2002. The data for all but a few of the variables are from the Current Population Survey (see the Appendix for variable definitions and data sources). We use three-year averages for the variables in order to minimize year-specific measurement noise.

Single-period cross-state regressions such as those on which we rely are vulnerable to bias stemming from unobserved heterogeneity. Each state has peculiarities, such as culture or geography, which may have an impact on poverty. To the extent such unmeasured state-specific differences are correlated with a particular independent variable in a regression, the estimated effect of that variable will be biased upward. In pooled regressions this is usually dealt with by including state dummy variables, though that introduces other potential problems (Beck and Katz 2001; Plümper, Troeger, and Manow 2005). In our analyses of over-time trends in poverty, we eliminate bias stemming from fixed (unchanging) state-specific factors by using difference models, in which all variables are measured as change scores—the 2000–2002 value minus the 1980–1982 value (see Firebaugh and Beck 1994; also Chevan and Stokes 2000).

The Census Bureau measure of income, on which analyses of poverty typically rely, is a pretax-posttransfer measure. That is, government benefits are included and taxes are not subtracted. We instead use CPS data to calculate pretax-pretransfer income. At the end of the day, it is posttax-posttransfer income that matters to people, but the impact of macroeconomic performance will be mainly on pretax-pretransfer poverty.

Our absolute poverty measure corresponds to the official U.S. government measure in that we use the same poverty line and the same adjustment for household size (see www.census.gov), though we use the household rather than the family as the unit of analysis. Our relative measure corresponds to the official measure used by the European Union: for each state the poverty line is set at 60 percent of the state median, and we adjust for household size by dividing household income by the square root of the number of persons in the household.

Poverty typically is measured using the poverty rate ("headcount"). This type of measure is incomplete: it ignores the depth of poverty (Brady 2003c; DeFina 2002; DeFina and Thanawala 2004; Gundersen and Ziliak 2004; Kenworthy 2004, chap. 6; Sen 1976). A useful measure of the depth of poverty is the poverty gap, which can be calculated by subtracting the average income among the poor from the poverty line and then dividing this difference by the poverty line. The poverty measure we use, which we refer to as the "poverty level," is calculated as the poverty rate multiplied by the poverty gap. If 15 percent of the population lives in households with incomes below the poverty line, the poverty rate is 15.0. If the average income among the poor is two-thirds of the poverty line, the poverty gap is .333. The poverty level is then 15.0 x .333 = 5.0.

Causal patterns are likely to be very different for the working-age population than for the elderly, as the latter tend to depend more heavily on assets, employer-provided pensions, and government benefits than on employment and earnings. We confine our analyses to working-age households—those with adults age 25 to 59.

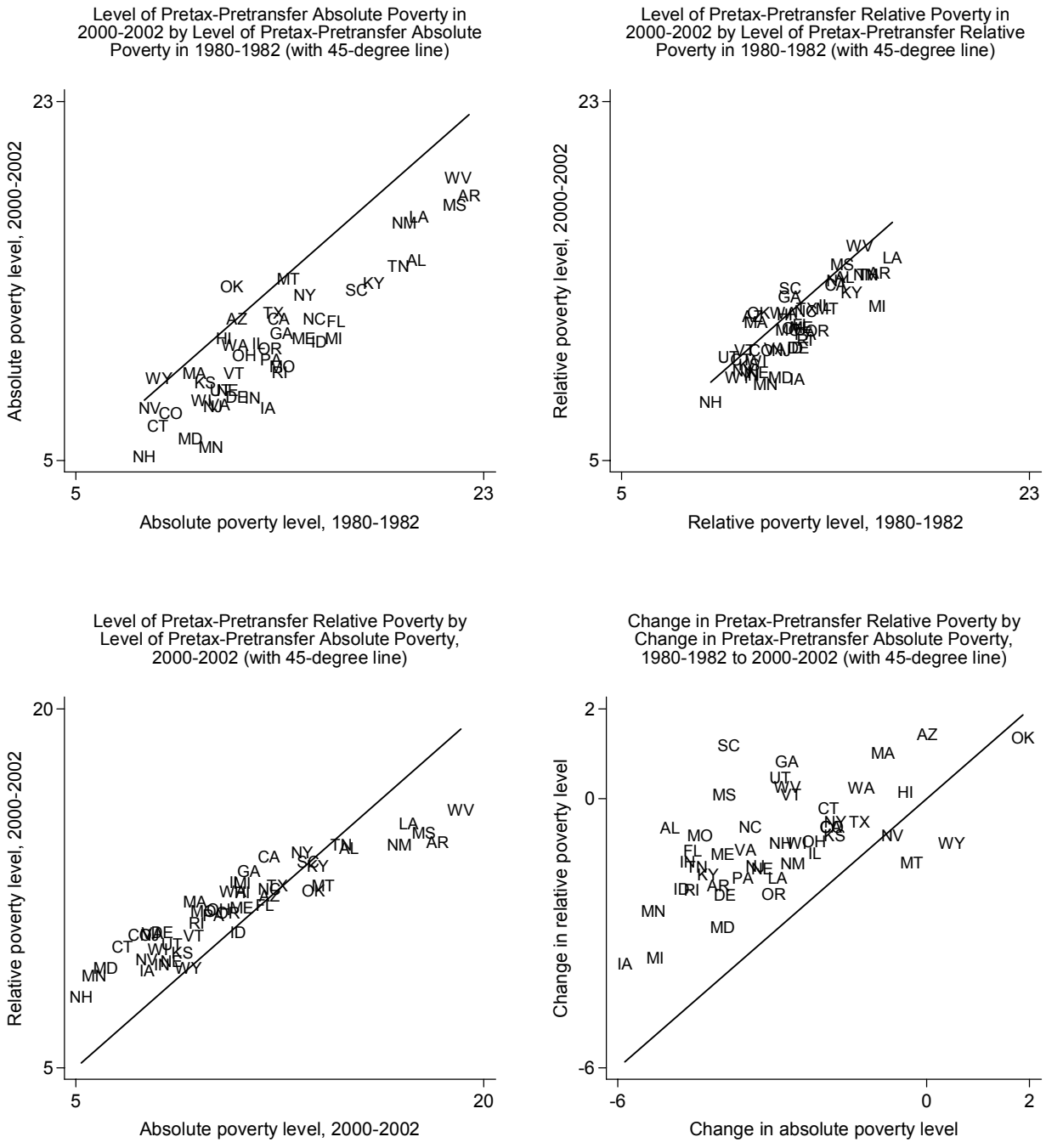
We exclude four states because they are outliers on one or more of the key variables we examine and exert undue influence on the regression results: Alaska (level and change in per capita gross state product), District of Columbia (per capita gross state product, population share in female-headed households, and relative poverty level), North Dakota (level and change in tenth-percentile wages and wage inequality), and South Dakota (level and change in tenth-percentile wages and wage inequality and change in absolute poverty).

The top-left and top-right charts in Figure 2 show levels of absolute and relative poverty among working-age households in 1980–1982 and 2000–2002. Two differences are worth noting. First, there is more variation in levels of absolute poverty than in levels of relative poverty. That is because states with high absolute poverty levels, such as Arkansas and New Mexico, tend to have low median incomes. The poverty line for the relative poverty measure is therefore fairly low in such states, so fewer households fall below it, which reduces the level of relative poverty. The converse is true for states with low absolute poverty, such as New Hampshire. Second, absolute poverty decreased in nearly every state over the two decades, whereas relative poverty decreased in fewer, and by a smaller amount. These differences suggest that the determinants of absolute and relative poverty may be quite different.

On the other hand, the bottom-left and bottom-right charts indicate strong positive correlations between levels of absolute and relative poverty ($r = .93$) and between changes in absolute and relative poverty ($r = .62$). This suggests that the determinants of absolute poverty and relative poverty may be similar.

Our measures of macroeconomic performance are as follows: We measure economic output as gross state product (GSP) per capita. Growth of output is measured as absolute change in real per capita GSP from the starting year to the ending year. We use this measure to parallel the change-score (first difference) measures we use for other variables in analyzing over-time trends. It is virtually identical ($r = .95$) to an average annual rate of change measure. We measure the employment rate as the share of the working-age population that is employed. The unemployment rate is measured as the share of the labor

Figure 2
Absolute and Relative Poverty: Levels and Change Over Time



Note: For variable definitions and data sources, see the appendix.

force that is unemployed. Across the states, these three macroeconomic performance indicators are only moderately correlated with one another. As of 2000–2002, per capita GSP correlated at .38 with employment and -.27 with unemployment. The correlation between employment and unemployment was -.54.

Many analyses examine the overall relationship between macroeconomic performance and poverty via reduced-form regressions or decomposition analyses. We are interested in knowing not merely whether macroeconomic performance affects poverty, but also the causal paths through which such effects occur. We therefore explore not only the degree to which per capita GSP, employment, and unemployment are related to poverty but also whether and to what extent their impact operates via hours worked and/or wage levels.

We measure hours worked as the average annual number of hours worked in households in the bottom quartile of the posttax-posttransfer income distribution. Our wage measure is the inflation-adjusted wage level at the tenth percentile of the distribution among those employed full-time year-round. We create this variable by dividing total annual earnings by the usual number of hours worked per week and the number of weeks worked in the previous year.

Because relative poverty is measured with the poverty line set as a certain percentage of each state's median income, it is essentially a measure of inequality. It differs from standard inequality measures such as the Gini coefficient in that it takes into account only the bottom portion of the income distribution. But it shares with other inequality measures the fact that it is based strictly on the distribution of income rather than on income levels. It seems reasonable, therefore, to presume that relative poverty's proximate determinants will be inequality, rather than levels, of hours worked and of wages. We measure hours-worked inequality as the ratio of average annual hours worked among households in the third quartile of the posttax-posttransfer income distribution to average hours worked in the bottom (first) quartile. Our wage inequality measure is the ratio of the fiftieth-percentile wage level to the tenth-percentile level (P50/P10 ratio).

In analyzing the relationship between macroeconomic performance and absolute poverty, we control for several additional factors that may influence poverty and be correlated with per capita GSP, employment, or unemployment. One is wage inequality. As noted earlier, inequality may reduce or nullify the potentially beneficial effect of economic output or low unemployment on low-end wage levels and hence on poverty (Danziger and Gottschalk 1995; Iceland 2003a; Mishel et al. 2005). A wage inequality variable also can stand in for the effects of a host of other variables (including some that cannot be effectively measured) that may have contributed to a structural shift in the wage distribution, such as technological change, globalization, the shift from manufacturing to service jobs, union decline, immigration, and minority share of the population.

A second control variable is education, which we measure as the share of the working-age population with a high school degree or more. Education may increase work hours, since the opportunity cost of not working is likely to be greater. By increasing productivity, it can also contribute to increases in low-end wage levels.

A third control variable is the statutory minimum wage. Some states impose a minimum wage that is higher than the federal minimum. To the extent that this affects wage levels further up in the distribution, states with a higher statutory minimum wage may have a higher tenth-percentile wage level. In analyzing change over time, we attempt to capture the impact of statutory minimum wages via a "minimum wage catch-up" variable. States in which the state-legislated minimum rises faster than the federal minimum should experience a faster rise in tenth-percentile wage levels. In addition, when the federal minimum wage is raised, it is likely to have more of an effect on low-end (e.g., tenth-percentile) wage levels in states where those wage levels were lowest. When the federal minimum rises, therefore, we may observe a faster increase in tenth-percentile wage levels in states where previous tenth-percentile wage levels were lower. If the federal minimum increases from $4.25 per hour to $5.15 per hour (as it did between 1995 and 1997), for example, that is likely to have more of an impact on the tenth-percentile wage level in a state in which that wage level was $4.75 prior to the increase than in a state in which it

was $6.75. The minimum wage catch-up variable aims to tap these potential over-time effects of changes in state and federal minimum wage levels. It is calculated as the 2000–2002 federal or state statutory minimum wage (whichever is higher) minus the 1980–1982 tenth-percentile wage level in the state. The variable should be positively associated with changes in tenth-percentile wage levels and thus negatively associated with changes in absolute poverty.

Female-headed households are particularly vulnerable to poverty: they have only one potential (adult) earner, and women tend to earn less than men. Our measure is the share of the working-age population in female-headed households.

A fifth factor for which we control is household size. All else being equal, a larger household is more likely to be poor. Consider a single adult with an income of $10,000. This income is above the official U.S. poverty line, which as of 2002 was approximately $9,000 for a household of this size and composition. But if the person has a spouse (no children), the poverty line rises to about $11,500, so the household is classified as poor. Similarly, if the person has two children (no spouse), the poverty line is about $14,500, so the household again is defined as poor. If the person has a spouse and two children, the poverty line is approximately $18,000. And so on. Of course, if the additional household members contribute additional earnings, a larger household may be no more likely to be poor, perhaps even less so. But when hours worked (or its determinants) are controlled for, larger average household size among those with low incomes should be associated with higher poverty. We measure household size as the average number of persons per household in the bottom quartile of the posttax-posttransfer income distribution.

When we turn to relative poverty we again control for education, statutory minimum wages, female-headed households, and household size. Wage inequality switches from being a control variable to being a proximate determinant.

FINDINGS

Absolute Poverty

Table 1 shows the results of a set of regressions that aim to gauge the impact of per capita GSP, employment, and unemployment on levels of and changes in pretax-pretransfer absolute poverty. The regressions reported in Tables 2 and 3 explore the causal paths. Table 2 examines the effect of economic output, employment, and unemployment on the proximate determinants of absolute poverty: hours worked in bottom-income-quartile households and tenth-percentile wage levels. Table 3 then estimates the effect of hours worked and tenth-percentile wage levels on absolute poverty. In each of the three tables the "levels" models are for levels of each of the variables as of 2000–2002 and the "change" models are for changes from 1980–1982 to 2000–2002. In Tables 1 and 2 we show bivariate regressions for each of three macroeconomic performance indicators and then multivariate regressions that include control variables. The bivariate relationships are also shown in scatterplots in Figures 3 and 4. At the bottom of Tables 1 and 2 we report the results of "extreme bounds" analyses: the low, median, and high coefficients for each of the three macroeconomic performance indicators in regressions that include all possible combinations of the independent variables.

High levels of per capita GSP and high employment rates are associated with lower levels of pretax-pretransfer absolute poverty (models 1, 2, and 4, in Table 1). The same is true for low unemployment rates at the bivariate level (model 3). But in the multivariate model there is no noteworthy association between unemployment and market poverty (model 4). That is also the case for changes over time (models 5 through 8). The standardized coefficients suggest that per capita GSP and employment rates were by far the main determinants of cross-state variation in levels of market poverty as of 2000–2002 and among the most important determinants of changes during the 1980s and 1990s (models 4 and 8). Wage inequality, the share of the population with a high school degree or better, and the share in female-headed households also appear to have been relevant in accounting for the cross-state variation in levels of and changes in market poverty (models 4 and 8). Increases in the minimum wage and in changes

Table 1
Regression Results: Effects of Macroeconomic Performance on Pretax-Pretransfer Absolute Poverty

	Level				Change			
	1	2	3	4	5	6	7	8
GSP per capita	-.61 (5.03)			-.39 (4.04)	-.30 (1.77)			-.46 (3.75)
Employment rate		-.87 (10.95)		-.61 (6.28)		-.67 (6.00)		-.33 (1.85)
Unemployment rate			.46 (3.32)	-.03 (.50)			.53 (4.12)	.09 (.62)
Wage inequality				.09 (1.07)				.23 (1.39)
Education				-.11 (1.06)				-.34 (3.08)
Statutory minimum wage				.02 (.31)				-.19 (1.52)
Female-headed households				.12 (1.10)				.33 (3.40)
Household size				.01 (.06)				.23 (2.17)
Adjusted R^2	.35	.75	.19	.84	.07	.44	.26	.60
Extreme bounds								
GSP per capita		[-.75, -.43, -.31]				[-.56, -.37, -.21]		
Employment rate		[-.91, -.78, -.60]				[-.70, -.55, -.33]		
Unemployment rate		[-.06, .06, .49]				[-.05, .22, .59]		

Note: Standardized coefficients, with absolute *t*-ratios (based on heteroskedasticity-robust standard errors) in parentheses. OLS regressions. In the "level" regressions, all variables are measured in 2000–2002. In the "change" regressions, all variables except statutory minimum wage (discussed in the text) are measured as change scores: 2000–2002 value minus 1980–1982 value. "Extreme bounds" results report the low, median, and high coefficients from regressions with all possible combinations of the independent variables. For variable definitions and data sources, see the Appendix. $N = 47$.

Table 2
Regression Results: Effects of Macroeconomic Performance on Hours Worked in Bottom-Income-Quartile Households and Tenth-Percentile Wage Levels

	Hours Worked								Tenth-Percentile Wage Level							
	Level				Change				Level				Change			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
GSP per capita	.49			.19	.59			.50	.60			.47	.03			.05
	(3.75)			(3.23)	(4.32)			(3.60)	(5.57)			(3.15)	(.31)			(.37)
Employment rate		.88		.66		.31		.39		.49		.32		.17		.43
		(16.11)		(9.07)		(2.05)		(2.35)		(3.30)		(1.75)		(1.03)		(1.96)
Unemployment rate			-.50	-.11			-.12	.17			-.24	.12			.09	.35
			(3.78)	(1.68)			(.77)	(.93)			(1.75)	(1.30)			(.73)	(1.82)
Education				-.01				-.04				.15				.15
				(.13)				(.35)				(.80)				(1.18)
Statutory minimum wage												.05				.47
												(.42)				(2.85)
Female-headed households				-.35				-.47				.20				.15
				(9.00)				(4.18)				(1.82)				(1.05)
Adjusted R^2	.22	.76	.23	.89	.33	.08	.00	.59	.34	.22	.04	.42	.01	.01	.02	.29
Extreme bounds																
GSP per capita		[.18, .26, .49]				[.50, .56, .59]				[.43, .51, .60]				[-.13, .04, .14]		
Employment rate		[.66, .79. .88]				[.23, .35, .56]				[.22, .44, .59]				[.11, .24, .55]		
Unemployment rate		[-.53, -.18, -.02]				[-.21, -.03, .32]				[-.26, .02, .13]				[-.03, .18, .55]		

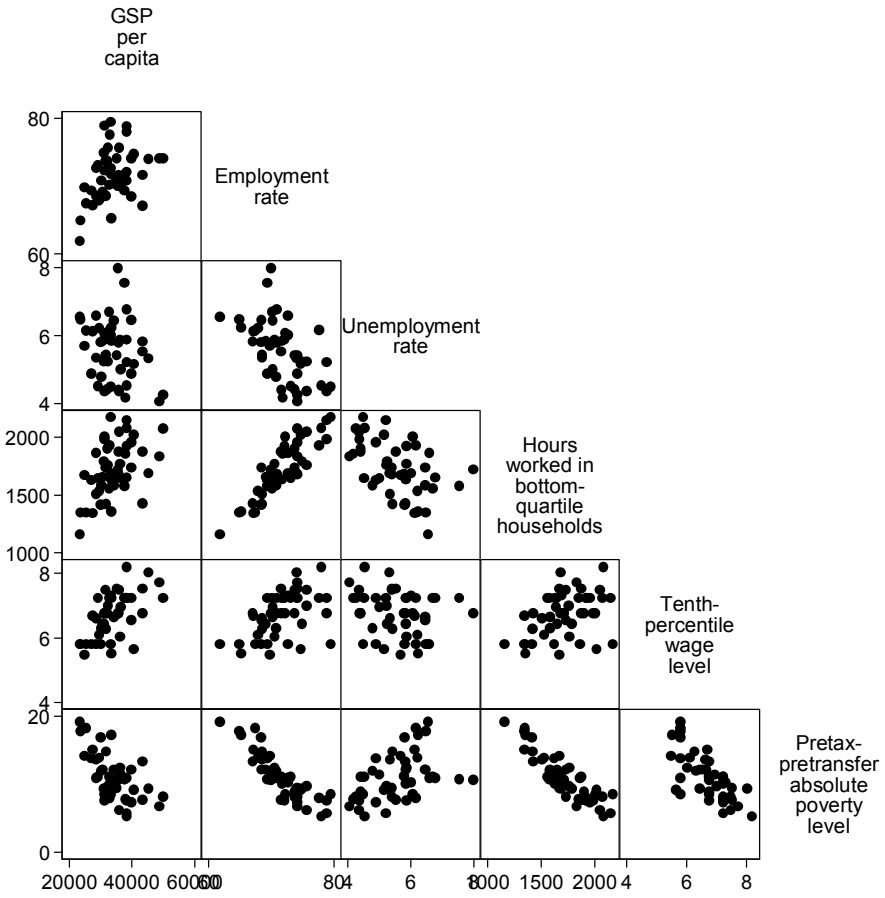
Note: See the note to Table 1.

Table 3
Regression Results: Effects of Hours Worked and Tenth-Percentile Wage Levels on Pretax-Pretransfer Absolute Poverty

	Level			Change		
	1	2	3	4	5	6
Hours worked	-.89		-.72	-.26		-.41
	(12.30)		(20.54)	(1.50)		(2.34)
Tenth-percentile wage level		-.72	-.44		-.40	-.51
		(5.86)	(12.96)		(3.37)	(4.98)
Adjusted R^2	.79	.50	.95	.05	.14	.28

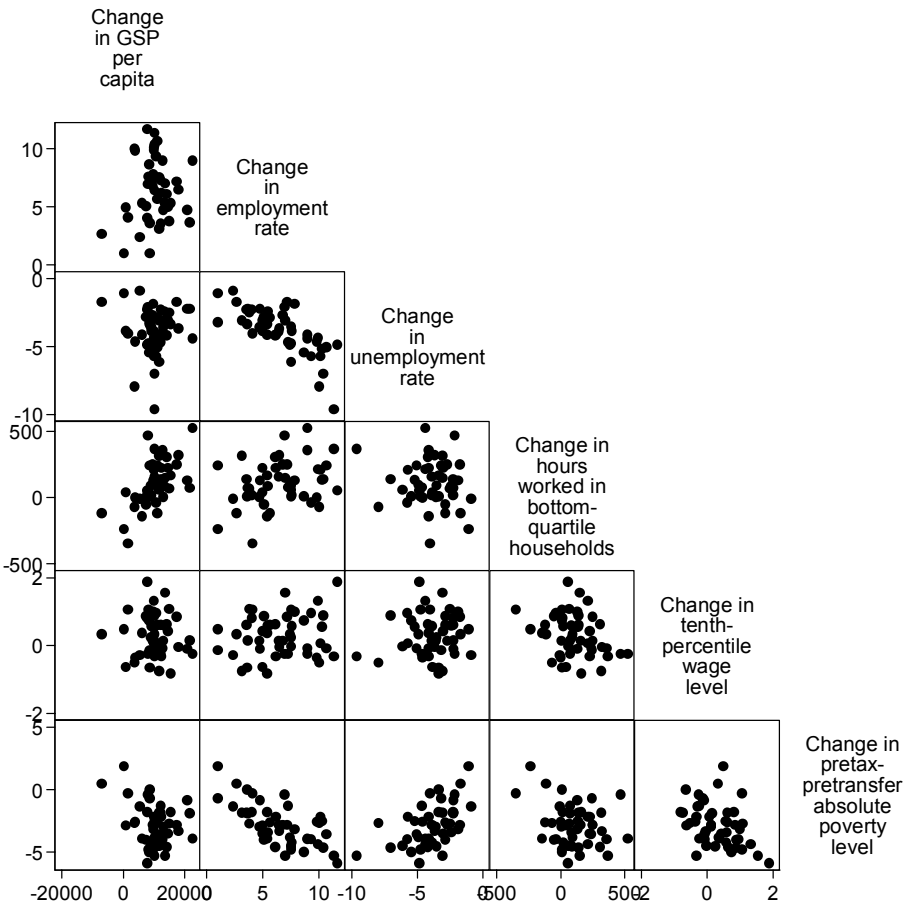
Note: See the note to Table 1.

Figure 3
Scatterplot Matrix for Levels of Absolute Pretax-Pretransfer Poverty, Proximate Determinants, and Macroeconomic Performance, 2000–2002



Note: Each variable is on the vertical axis in charts to its left and on the horizontal axis in charts below it.

Figure 4
Scatterplot Matrix for Change in Absolute Pretax-Pretransfer Poverty, Proximate Determinants, and Macroeconomic Performance, 1980–1982 to 2000–2002



Note: See the note to Figure 3.

in household size appear to have affected changes in market poverty (model 8). The regressions in models 4 and 8, which include all three macroeconomic performance indicators and the control variables, do a respectable job of accounting for the cross-state variation in both levels (adjusted R^2 = .84) and changes (adjusted R^2 = .60).

What about the causal mechanisms? The regressions in Table 2 suggest that employment levels and, to a lesser extent, per capita GSP were positively associated with hours worked in bottom-income-quartile households as of 2000–2002 (models 1 through 4). For changes during the eighties and nineties both were again relevant (models 5 through 8). Per capita GSP and employment also are positively associated with tenth-percentile wage levels, but the former is only weakly associated with changes in wages. Once again unemployment seems to have been irrelevant.

The results in Table 3 indicate that hours worked and wage levels were each strongly associated with pretax-pretransfer absolute poverty as of 2000–2002. These two variables account for virtually all of the cross-state variation in pretax-pretransfer poverty levels. As model 3 in Table 3 indicates, a regression of the level of pretax-pretransfer absolute poverty in 2000–2002 on these two variables yields an adjusted R^2 of .95 and very strong negative coefficients for both variables. Hours worked appears to be the more important of the two: its standardized coefficient is -.72, compared to -.44 for tenth-percentile wage levels. For changes during the 1980s and 1990s, hours worked and wage levels again matter, but their impact is weaker than for levels. Here the regression, shown in model 6 of Table 3, again yields negative coefficients for each variable, but the adjusted R^2 is only .28. According to the standardized coefficients, change in tenth-percentile wage levels was slightly more important than change in hours worked in accounting for cross-state variation in over-time trends.

The story suggested by these state-level analyses, then, is one in which employment and economic output are key determinants of absolute poverty. Higher employment rates and higher levels of per capita gross state product are strongly associated with higher levels of hours worked in bottom-income-quartile households and with higher tenth-percentile wage levels, which in turn are strongly

associated with lower pretax-pretransfer absolute poverty. The states with the lowest levels of market absolute poverty as of 2000–2002 were New Hampshire, Minnesota, Maryland, Connecticut, Colorado, Iowa, Nevada, New Jersey, Virginia, and Wisconsin (see Figure 2 above). All of these states had both high levels of hours worked among low-income households and high tenth-percentile wage levels, with the possible exception of Iowa on the latter. States that did well on one of these dimensions but not on the other tended to have somewhat higher levels of poverty. Massachusetts, for example, had the second-highest level of tenth-percentile wages but ranked much lower on hours worked. Nebraska had the highest level of hours worked in low-income households but one of the lowest tenth-percentile wage levels. These two states were only slightly better than average in their levels of pretax-pretransfer absolute poverty.

Unemployment, by contrast, seems to have played little or no role. The expectation is that lower, or decreasing, unemployment rates lead to pressure on employers to increase wage levels—even at the bottom of the labor market where job seekers are likely to have very limited education and skills. In examining trends for the country as a whole, it is difficult to disentangle the impact of unemployment from that of economic output, because the two tend to move in unison. Over the 28 years from 1973 to 2000, for instance, the unemployment rate and the level of per capita GDP correlate at -.61. Across states, however, the two are only weakly associated. As of 2000–2002, the correlation between the unemployment rate and the level of per capita GSP across the states is -.27. And for changes between 1980–1982 and 2000–2002, the two correlate at just .02.

One possibility is that the effect of unemployment is suppressed in the "full" models in Table 1—models 4 and 8—because it is correlated with employment. We estimated these models with the employment variable omitted (not shown). In both equations the unemployment variable has the expected positive coefficient, which could be interpreted to suggest that low levels of unemployment contributed to lower poverty. However, in those regressions the unemployment variable is very likely picking up some of the effect of the omitted employment variable.

If unemployment had an impact on poverty, we should find evidence that low unemployment rates are associated with higher tenth-percentile wage levels, but that is not the case. Per capita GSP and employment are much more strongly associated with tenth-percentile wage levels (models 9–12 in Table 2 and the charts in row 4 of Figure 3). There was little or no association between economic growth and changes in tenth-percentile wage levels during the 1980s and 1990s (models 13 and 16 of Table 2). Changes in employment and in the federal and/or state minimum wages had a stronger influence on developments in low-end wages during those two decades (model 16). The unemployment variable here has an unexpected positive sign.

One other possibility worth considering is that unemployment affected absolute poverty in an interactive fashion. That is, economic output or employment may have a stronger poverty-reducing impact in a context of low unemployment. We tested this possibility but found no support for it (not shown here).

Included at the bottom of Tables 1 and 2 are the results of "extreme bounds" analyses. In some model specifications the unemployment coefficient is positive and moderate in size, implying that low unemployment may have helped to reduce poverty. But the coefficient drops to near zero whenever per capita GSP or employment is included in the regression. With respect to employment this may be due in part to multicollinearity, but that is not the case for per capita GSP: as just noted, the two variables correlate at -.27 for levels and .02 for changes. Instead, it seems to be due to the fact that economic output is a more important determinant than unemployment of low-end wage levels and therefore of absolute poverty. There are states—such as Washington, Illinois, Michigan, and Oregon—that had high unemployment as of 2000–2002 but also fairly high tenth-percentile wage levels. There also are states—Nebraska, Oklahoma, and Florida—that had low unemployment but comparatively low tenth-percentile wage levels. Apart from Michigan, each of these exceptions can be accounted for by their level of per capita GSP.

It bears emphasizing that this finding does not imply that lower unemployment did not contribute to greater work hours and/or higher wages and therefore lower absolute poverty in any particular state. It indicates simply that unemployment does not help us understand the cross-state pattern—that is, why some states experienced faster low-end wage growth or ended up with higher low-end wage levels and thus lower absolute poverty.

Relative Poverty

Table 4 shows regression results that explore the impact of macroeconomic performance on pretax-pretransfer relative poverty. Table 5 reports results with the proximate determinants, inequality in hours worked and wage inequality, as the dependent variables. Table 6 shows results from regressions of pretax-pretransfer relative poverty on hours worked inequality and wage inequality. Figures 5 and 6 show the bivariate associations in scatterplot form.

Employment again appears to have had a strong poverty-reducing effect. Models 2 and 4 in Table 4 (and the scatterplot in Figure 5) show a very strong negative association between employment rates and pretax-pretransfer relative poverty levels as of 2000–2002. This is due to the fact that employment rates are strongly associated with lower inequality in hours worked and lower wage inequality and the latter are associated with lower relative poverty (models 2, 4, 10, and 12 in Table 5 and models 1–3 in Table 6). These associations also hold for changes during the 1980s and 1990s, though they are not as strong (models 6, 8, 14, and 16 in Table 5 and models 4–6 in Table 6).

Economic output appears to have had only a small poverty-reducing effect on relative poverty. We noted one reason for this earlier: if a higher level of per capita GSP produces a higher median income, then the poverty line for a relative poverty measure is raised. A second reason is that higher levels and faster growth of per capita GSP are associated with higher and more rapidly rising wage inequality, as indicated in models 9, 12, 13, and 16 of Table 5. The results in Table 2 suggest that output and growth were good for tenth-percentile wage levels. But the results in Table 5 suggest that they were even better

Table 4
Regression Results: Effects of Macroeconomic Performance on Pretax-Pretransfer Relative Poverty

	Level				Change			
	1	2	3	4	5	6	7	8
GSP per capita	-.39 (3.11)			-.11 (1.56)	-.04 (.29)			-.05 (.30)
Employment rate		-.90 (15.45)		-.73 (7.38)		-.46 (3.36)		-.38 (1.85)
Unemployment rate			.48 (3.59)	.00 (.05)			.37 (2.35)	.07 (.30)
Education				-.13 (1.18)				.16 (.79)
Statutory minimum wage				.06 (.89)				-.12 (.77)
Female-headed households				.13 (1.20)				.22 (1.07)
Household size				.01 (.07)				.20 (.94)
Adjusted R^2	.14	.81	.22	.82	.02	.20	.11	.14
Extreme bounds								
GSP per capita		[-.53, -.15, -.04]				[-.13, -.03, .04]		
Employment rate		[-.92, -.80, -.74]				[-.52, -.45, -.40]		
Unemployment rate		[-.03, .10, .51]				[.01, .18, .44]		

Note: See the note to Table 1.

Table 5
Regression Results: Effects of Macroeconomic Performance on Hours Worked Inequality and Wage Inequality

	Hours Worked								Tenth-Percentile Wage Level							
	Level				Change				Level				Change			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
GSP per capita	-.51			-.29	-.53			-.49	.30			.42	.53			.48
	(3.38)			(3.00)	(4.07)			(3.31)	(2.08)			(2.34)	(4.32)			(4.91)
Employment rate		-.75		-.48		-.01		-.09		-.20		-.47	-.09			-.33
		(8.44)		(3.30)		(.08)		(.48)		(1.23)		(2.13)	(.49)			(1.53)
Unemployment rate			.39	.05			-.11	-.19			.16	.06			.02	-.03
			(2.53)	(.49)			(.53)	(.70)			(1.16)	(.37)			(.22)	(.17)
Education				-.05				-.01				.13				.37
				(.34)				(.06)				(.68)				(2.70)
Statutory minimum wage												.07				-.29
												(.43)				(2.15)
Female-headed households				.38				.37				-.22				-.13
				(5.98)				(2.87)				(1.36)				(.83)
Adjusted R^2	.22	.55	.13	.72	.27	.00	.00	.36	.07	.01	.01	.14	.26	.00	.02	.43
Extreme bounds																
GSP per capita		[-.51, -.34, -.27]				[-.54, -.52, -.49]				[.24, .39, .46]				[.41, .50, .59]		
Employment rate		[-.76, -.63, -.48]				[-.26, -.05, .06]				[-.51, -.29, -.13]				[-.39, -.20, -.08]		
Unemployment rate		[-.05, .09, .41]				[-.32, -.13, -.05]				[-.01, .13, .26]				[-.24, .04, .26]		

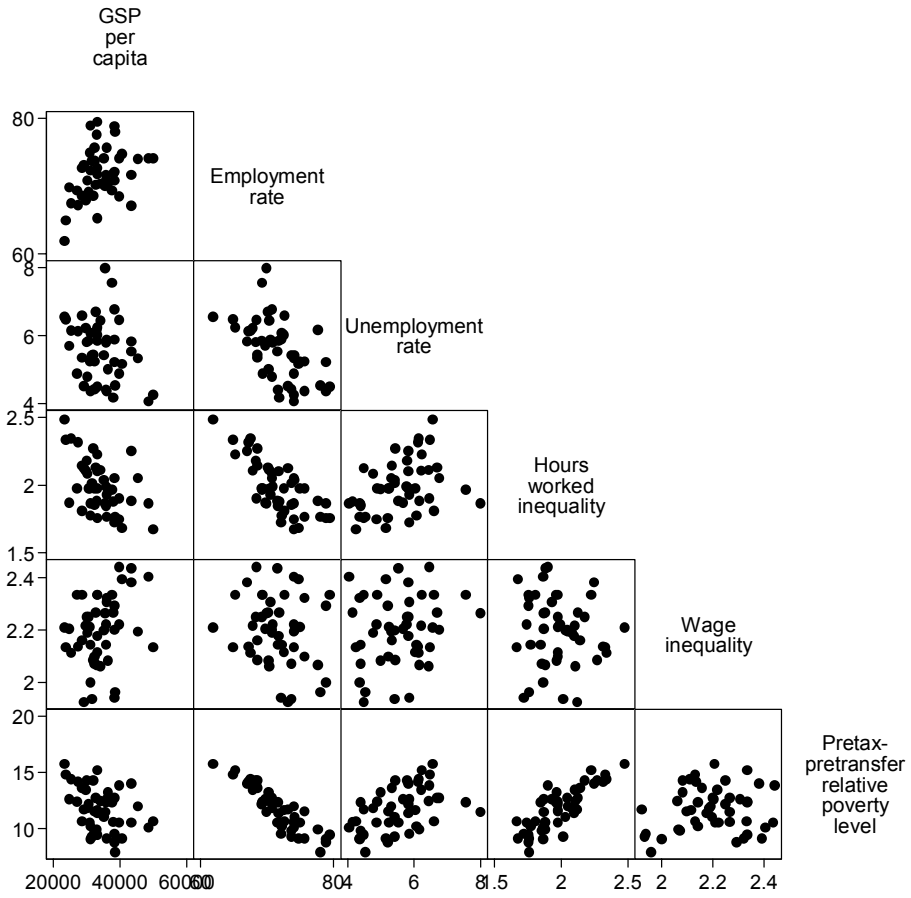
Note: See the note to Table 1.

Table 6
Regression Results: Effects of Hours Worked Inequality and Wage Inequality on Pretax-Pretransfer Relative Poverty

	Level			Change		
	1	2	3	4	5	6
Hours worked inequality	.83 (13.50)		.85 (13.17)	.16 (1.00)		.37 (2.09)
Wage inequality		.15 (.93)	.23 (2.60)		.33 (2.26)	.49 (3.49)
Adjusted R^2	.68	.00	.73	.00	.09	.19

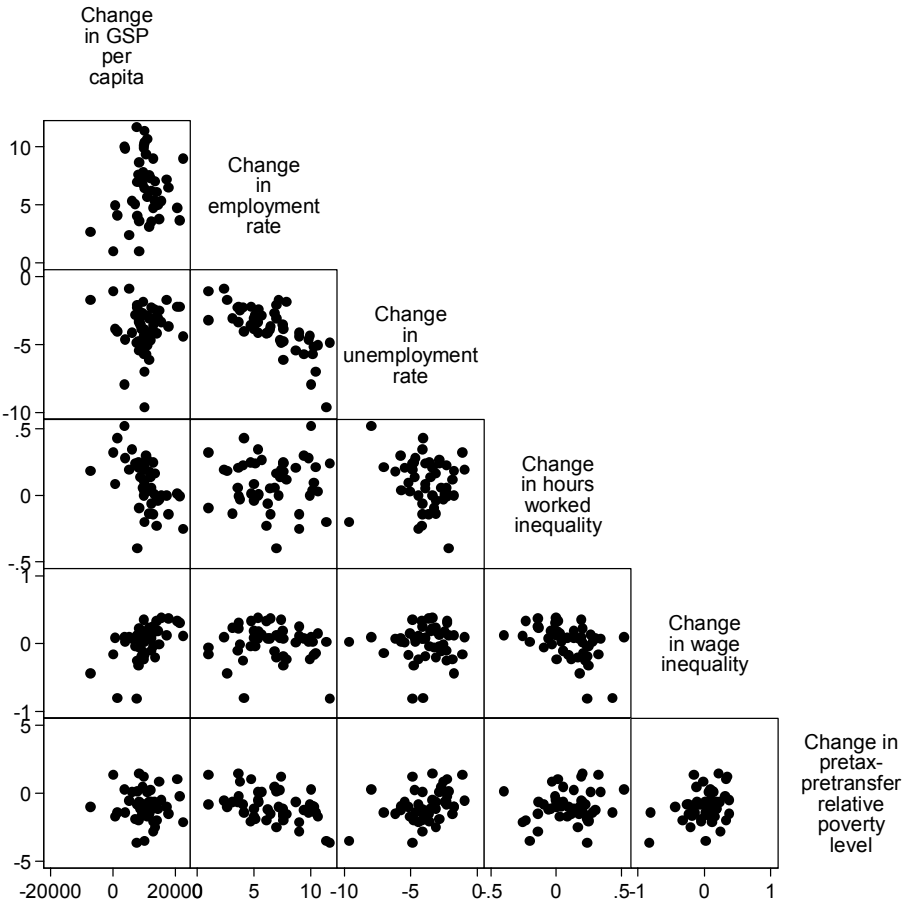
Note: See the note to Table 1.

Figure 5
Scatterplot Matrix for Levels of Relative Pretax-Pretransfer Poverty, Proximate Determinants, and Macroeconomic Performance, 2000–2002



Note: See the note to Figure 3.

Figure 6
Scatterplot Matrix for Change in Relative Pretax-Pretransfer Poverty, Proximate Determinants, and Macroeconomic Performance, 1980–1982 to 2000–2002



Note: See the note to Figure 3.

for fiftieth-percentile (median) wage levels, producing higher and faster-rising P50/P10 wage inequality. The results in Table 6, in turn, indicate that wage inequality is associated with higher relative poverty (models 3 and 6). Economic output is negatively associated with inequality in hours worked, which contributes strongly to low relative poverty (models 1, 4, 5, and 8 in Table 5). These effects on inequality in hours worked and inequality in wages seem to largely offset each other, yielding an overall relationship between output and relative poverty that is weakly negative (models 4 and 8 in Table 4, and the "extreme bounds" results shown at the bottom of the table)—certainly much weaker than for absolute poverty.

Again, there is little indication that unemployment had an effect. The bivariate associations for both levels and changes have the expected positive sign (models 3 and 7 in Table 4), and the same is true in multivariate regressions when the employment variable is omitted (not shown). Again, however, this seems likely to be because the unemployment variable is picking up what is actually the effect of the employment rate. When the employment variable is included in the regressions (models 4 and 8, and extreme bounds results reported at the bottom of the table), there is no indication of an impact of unemployment.

CONCLUSION

Our aim has been to utilize variation across the U.S. states to examine the impact of macroeconomic performance on poverty in the United States in the 1980s and 1990s. We have tried to provide a more careful investigation of the causal paths than many previous poverty analyses, we have examined pretax-pretransfer incomes, we have used a poverty measure that incorporates not only the poverty rate but also the poverty gap, and we have considered both absolute and relative measures of poverty. Our findings suggest three principal conclusions.

First, our analysis highlights the importance of distinguishing between absolute and relative poverty. Most notably, levels and growth of per capita gross state product have contributed to lower absolute poverty but had little or no impact on relative poverty. Although growth tended to boost low-end

(tenth-percentile) wages and thereby reduce absolute poverty, it tended to boost median wages even more, thereby increasing wage inequality. States with faster growth experienced declines (or smaller increases) in inequality of hours worked, but this was largely offset by the rise in wage inequality, yielding little or no net impact of growth on relative poverty.

Second, while prior studies of the effects of macroeconomic performance have focused on economic growth and unemployment, our findings suggest that the employment rate may be the most important aspect of macroeconomic performance for reducing poverty. Across the states, higher employment rates are associated with greater hours worked in bottom-income-quartile households and with higher low-end wage levels, which in turn are strongly associated with low absolute poverty. Although the same is true for per capita GSP, the standardized coefficients in Table 1 (extreme bounds regressions) are larger for employment, suggesting that it may have a larger impact. High employment rates also are associated with less inequality in work hours and less wage inequality, and have thus contributed to lower relative poverty.

Third, our results are consistent with research indicating a modest association between economic growth and poverty after the 1970s (Blank 1997a, 1997b; Freeman 2001). Our findings that employment has mattered more than per capita GSP and that growth had little or no effect on relative poverty provide further insight into this association.

Our conclusion that employment is particularly important for reducing poverty has implications not only for patterns across the states but also for recent developments in the country as a whole. In both 2002 and 2003 per capita GDP in the United States increased, yet so too did the official national poverty rate. This is only the second time since the government began measuring poverty in 1959 that per capita GDP and poverty have both increased in two successive years (the other was 1992 and 1993). It seems very likely that the steep decline in the nation's employment rate, from 76 percent in 2000 to 71.5 percent in 2003, has contributed to the failure of GDP growth to reduce poverty since the 2001 recession. When

economic growth is coupled with employment decline, it is much less likely to lift the boats of those at the bottom.

Appendix: Variable Definitions and Data Sources

Absolute poverty level. Poverty rate multiplied by poverty gap. Poverty line and adjustment for household size are those used by the Census Bureau (www.census.gov). Source: Authors' calculations from Current Population Survey (CPS) data.

Education. Share of the population with a high school degree or more. Source: Authors' calculations from CPS data.

Female-headed households. Population share in households with a single female adult. Source: Our calculations from CPS data.

Gross state product (GSP) per capita. In 2001 dollars. Source: Authors' calculations from U.S. Bureau of Economic Analysis data.

Hours worked. Average annual hours worked in households in the bottom quartile of the posttax-posttransfer income distribution. Source: Authors' calculations from CPS data.

Hours worked inequality. Ratio of average annual hours worked in households in the third quartile of the posttax-posttransfer income distribution to hours worked in the bottom (first) quartile. Source: Authors' calculations from CPS data.

Household size. Average number of persons in households in the bottom quartile of the posttax-posttransfer income distribution. Source: Authors' calculations from CPS data.

Minimum wage catch-up. 2000–2002 federal or state statutory minimum wage (whichever is higher) minus 1980–1982 tenth-percentile wage level. Source: Authors' calculations from CPS and U.S. Department of Labor data.

Redistribution. Pretax-pretransfer poverty level minus posttax-posttransfer poverty level. Source: Authors' calculations from CPS data.

Relative poverty level. Poverty rate multiplied by poverty gap. Poverty line is set at 60 percent of the posttax-posttransfer median household income within each state. Equivalence scale is the square root of household size. Source: Authors' calculations from CPS data.

Statutory minimum wage. Federal or state statutory minimum wage level (whichever is higher). Source: U.S. Department of Labor, www.dol.gov/esa/whd/ flsa.

Tenth-percentile wage level. Hourly wage at the tenth percentile of the distribution. In 2001 dollars. Hourly wages calculated as total annual earnings divided by the usual number of hours worked per week and by the number of weeks worked in the previous year. Source: Authors' calculations from CPS data.

Wage inequality. Ratio of hourly wage at the fiftieth percentile to hourly wage at the tenth percentile. Source: Authors' calculations from CPS data.

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