

# Monetary Policy and Racial Unemployment Rates

**M A D E L I N E   Z A V O D N Y   A N D  
T A O   Z H A**

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**D**URING THE COURSE OF THE CURRENT EXPANSION, THE UNEMPLOYMENT RATE AMONG AFRICAN AMERICANS HAS FALLEN TO THE LOWEST LEVELS SINCE THE GOVERNMENT BEGAN REPORTING THE SERIES IN 1972. WHEN THE FEDERAL OPEN MARKET COMMITTEE (FOMC) BEGAN RAISING INTEREST RATES IN JUNE 1999 TO FORESTALL INFLATIONARY PRESSURES, CONCERN

mounted that monetary policy moves might slow the pace of economic growth, undoing the employment gains minorities and other disadvantaged groups made during the 1990s. Implicit in such concern is the idea that these groups will be disproportionately affected by an economic slowdown. Although it is widely believed that tighter monetary policy leads to slower economic growth and higher unemployment rates in the short to medium run, it has not been established that the effects of monetary policy differ across racial groups or that changes in monetary policy have a larger effect on the black unemployment rate than do changes in inflation or other macroeconomic fluctuations.

Previous research suggests that monetary policy changes may have different effects on blacks than on whites. One study found that increases in the money supply during the period from 1974 to 1987 led to larger declines in the unemployment rate of white males than of black males and concluded that monetary policy actions have results that tend to favor white men (Abell 1991). However, the study

also concluded that the effects of monetary policy on black women appear similar to the effects on white men, perhaps because of educational gains by black women. Another study found that the U.S. Federal Reserve's conduct of monetary policy during the 1970s—a period when the Fed focused on slowing the growth rate of the money supply in order to reduce inflation—significantly widened the gap between the unemployment rates of blacks and whites (Hull 1983).

This article assesses whether monetary policy shifts have different effects on the black unemployment rate than on the overall unemployment rate. The focus is on the unemployment rate among African Americans because this minority group tends to have relatively high unemployment rates. Most of the analysis that follows compares the black unemployment rate to the overall unemployment rate instead of to the white unemployment rate because the overall unemployment rate captures labor market conditions for the entire labor force. In addition, because whites make up about 85 percent

of the total labor force, movements in the white and overall unemployment rates tend to mirror each other. The monetary policy shifts examined are “exogenous” monetary policy moves, or changes in the federal funds rate not accounted for by movements in other macroeconomic series. This crucial distinction between any change in monetary policy and an exogenous change is explained further below.

This article also examines the effects of exogenous changes in inflation, output, and other macroeconomic factors on the overall and black unemployment rates. Using econometric techniques, structural relationships between the black and overall unemployment rates and changes in various macroeconomic factors, including monetary policy, are estimated during the period from 1972 to 1999. The analysis then focuses on the effect of monetary policy on unemployment rates during the 1980s and 1990s.

The next section briefly explores the trends in the black and overall unemployment rates. A discussion of how the Federal Reserve conducts monetary policy and why its actions may affect unemployment rates follows. The econometric model used to estimate the relationship between unemployment rates, monetary policy, economic growth, and other variables is then detailed, and the results are discussed.

Results from the econometric model used in this analysis suggest that exogenous changes in monetary policy have different effects on the unemployment rate among blacks than on the overall unemployment rate. The black unemployment rate tends to be more sensitive to cyclical fluctuations and slightly more responsive to exogenous monetary policy moves than the overall unemployment rate is. However, the examination of the effect of exogenous monetary policy shifts during the 1980s and 1990s indicates that exogenous monetary policy moves caused the black unemployment rate to increase by no more than the same percentage as the overall unemployment rate during the recessions in the early part of the two decades and caused black unemployment to fall relatively more than the overall unemployment during the late 1990s. In other words, the results do not indicate that the unpredictable component of monetary policy had significantly more adverse effects on blacks during the 1980s and 1990s than on the total population and may even have had positive net effects on blacks.

### Trends in Unemployment Rates

It is well known that the unemployment rate, or the ratio of unemployed, active job seekers to employed plus unemployed persons, is higher

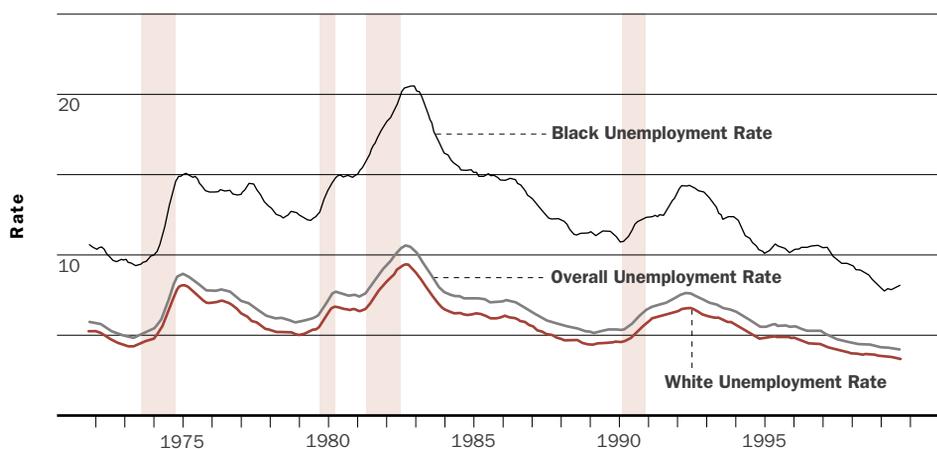
for blacks than for whites. Chart 1 shows the unemployment rates for blacks, whites, and the total labor force aged sixteen and older during the period from 1972 to 1999. The ratio of blacks actively seeking jobs to the black labor force is clearly well above the comparable ratios for whites and the overall labor force during the entire period. The declines in the black unemployment rate during the 1980s and 1990s expansions appear steeper than the drops in the other unemployment rates, suggesting that the racial unemployment gap may have narrowed during those periods.

Another stylized fact is that the unemployment rate of blacks is more cyclical than the unemployment rate of whites. During the 1981–82 recession, for example, the black unemployment rate rose by more than 5 percentage points, and the white unemployment rate rose by slightly less than 3 percentage points. As economist Alan Blinder (1987) put it, when the economy catches a cold, blacks get pneumonia. Chart 2 displays the difference between the black unemployment rate and the white and overall unemployment rates in percentage points. As the chart indicates, the difference between the black and white or overall unemployment rates tends to expand during recessions and narrow during expansions. This cyclical pattern is particularly clear during the recessions in the early 1980s, when the differences between the black and other unemployment rates rose sharply.

Potential reasons for these differences in unemployment rates across racial groups include differences in average educational attainment and experience as well as discrimination against minorities. Blacks tend to have fewer years of completed education, on average, than whites, and less-educated workers tend to have higher and more cyclical unemployment rates than more-educated workers do (Hoynes 2000; Stratton 1993; Thurow 1965). Similarly, the number of average total years of work experience and tenure at a given employer is lower among blacks than among whites, and unemployment rates are higher and vary more over the business cycle for less-experienced workers.

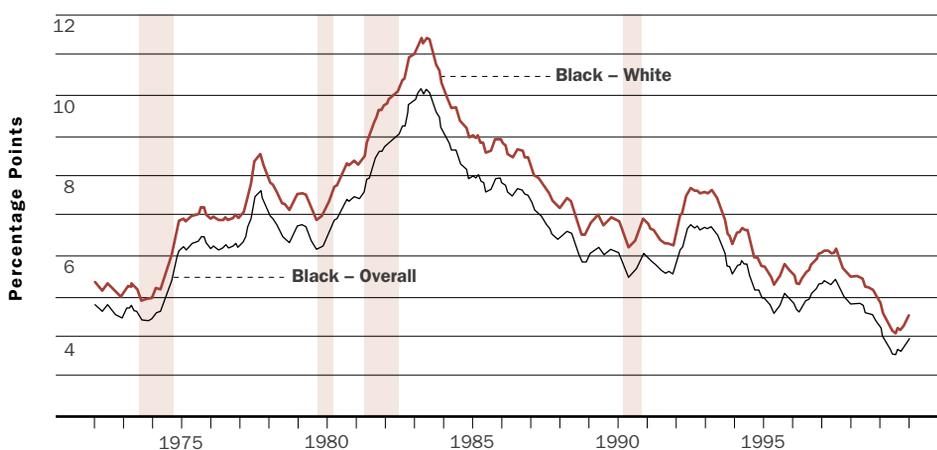
Blacks are both more likely to be laid off and to experience longer periods of joblessness after being laid off than whites (Kletzer 1991; Moore 1992). These differences tend to hold at all points in the business cycle but become exacerbated during recessions. An analysis of employment data from large corporations by the *Wall Street Journal* concluded that employment of blacks fell during the 1990–91 recession while whites, Asians, and Hispanics made employment gains at large companies during the same period (Sharpe 1993). The U.S. General Accounting

**CHART 1 Unemployment Rates by Race, 1972-99**



Note: Shown are six-month moving averages of unemployment rates for ages sixteen and older. Shaded areas indicate recessions.  
Source: Authors' calculations based on data from the U.S. Bureau of Labor Statistics

**CHART 2 Difference between Black and Overall or White Unemployment Rates, 1972-99**



Note: Shown are six-month moving averages of the difference in the unemployment rates for ages sixteen and older. Shaded areas indicate recessions.  
Source: Authors' calculations based on data from the U.S. Bureau of Labor Statistics

Office (1994) similarly found that blacks were significantly more likely than whites to lose their jobs during the last recession, and blacks also were unemployed longer, on average, than workers in other racial and ethnic groups. These two studies suggested that such differences are not entirely explained by observable characteristics, such as education, but may be partially attributable to discrimination. Analyses of racial differences in male unemployment rates have found similar results (Abowd and Killingsworth 1984; Stratton 1993).

The greater cyclical responsiveness of black unemployment rates prompts concern that monetary

policy actions aimed at quelling inflationary pressures may have more adverse short-run effects among blacks than among other racial and ethnic groups. This analysis therefore examines whether the black unemployment rate responds differently than the overall unemployment rate does when output, inflation, or other macroeconomic factors, including monetary policy, change. The discussion does not focus on reasons for the racial unemployment gap but rather investigates whether the gap fluctuates over the business cycle and the contribution of monetary policy to any such fluctuations.

## Conduct of Monetary Policy

The Federal Open Market Committee (FOMC) has several tools it can use to influence general economic conditions that may affect unemployment rates. These tools include the discount rate (the interest rate at which banks can borrow funds from the Federal Reserve), reserve requirements (which specify what proportion of deposits banks can loan out), and the federal funds target rate. Banks can loan out excess reserves (reserves in excess of reserve requirements) to other banks in the federal funds market. The federal funds target is the equilibrium interest rate in this market desired by the Federal Reserve, and the Federal Reserve Bank of New York conducts open market operations (the buying and selling of securities) to help ensure that this target is met.

Changes in any of these tools have myriad effects on the economy, but the effects are diffuse and can occur with a substantial lag. Changes in the discount rate, the federal funds target, or reserve requirements are believed to first affect short-term and long-term interest rates and then affect the amount of money in circulation, measured by M1 and M2. Effects on aggregate output, as measured by the value of gross domestic product (GDP), usually become observable within about six months of a policy change, and the impact on inflation is generally believed to begin appearing about one year after a policy move. Effects on unemployment rates occur at about the same time as effects on GDP but tend to be more muted than GDP responses. Many economists believe that any effects of monetary policy on output and unemployment are transitory, whereas effects on inflation may persist. Some industries will be affected fairly quickly by policy moves, such as the interest rate-sensitive construction and manufacturing industries, while the service and government sectors may remain relatively unaffected until the general level of economic activity changes.

The unemployment rates of blacks and whites may be affected differently by changes in monetary policy for several reasons. First, differences in the industry mix of employment may lead to a differential impact. Blacks are less likely to be employed in goods-producing industries than whites and are more likely to work in the government sector, potentially making blacks less exposed to interest rates changes.<sup>1</sup> However, the lower average level of tenure among blacks makes them more vulnerable to losing their jobs when the economy slows if employers follow a “last hired, first fired” policy.<sup>2</sup> As discussed above, the lower average educational

attainment of blacks may also make them more vulnerable to economic downturns if employers lay off less-skilled workers before more-skilled workers.<sup>3</sup>

A primary goal of the FOMC is price stability, which is generally believed to be necessary for maximum sustainable economic growth. The FOMC does not use monetary policy to attempt to influence race-specific unemployment rates. As FOMC Vice Chairman Roger Ferguson (2000) said, monetary policy is a blunt tool that cannot be calibrated to exempt a particular segment of the economy, such as the minority labor force.

## Methods

This analysis uses Bayesian vector autoregressions (VARs) to examine the relationships between race-specific unemployment rates, monetary policy, and other economic variables. VARs are an econometric technique useful for estimating how variables respond to changes in other variables. The results of a VAR can be used to predict how a given variable, such as the unemployment rate, will change over time in response to a change in another variable, such as the federal funds rate target. In a typical VAR model that includes several variables, the value of each variable is regressed on previous values of that variable and several other variables. The econometrician must decide which variables to include in each equation and how many lags of each variable to incorporate.

Identifying the relationship between variables in a VAR requires assuming that some variables do not help predict future values of other variables. For example, the unemployment rate of blacks might reasonably be believed to not affect the federal funds rate target set by the FOMC because the FOMC does not determine monetary policy based on race-specific unemployment rates. Granger causality tests are an econometric technique that can be used to test whether a particular variable helps forecast, or “Granger causes,” another variable. If a variable does not help predict another variable, the latter variable is said to be exogenous with respect to the first variable. In the model developed here, the federal funds rate and the other macroeconomic variables are exogenous with respect to the black unemployment rate.

The VAR model estimated here involves seven equations and is based on the dynamic multivariate framework developed by Leeper and Zha (1999). The model includes six variables that are frequently included in VAR systems used to model macroeconomic fluctuations: a commodity price index ( $P_{com}$ ), M2 ( $M$ ), the federal funds rate ( $R$ ), real (inflation-adjusted) GDP ( $y$ ), the consumer price index ( $P$ ),

and the overall unemployment rate ( $U$ ).<sup>4</sup> Because this analysis also focuses on racial differences in unemployment rates, the model also includes the black unemployment rate ( $U_b$ ). The model can be represented by the following equations, which are explained below:

$$P_{com} = \alpha_1 M + \alpha_2 R + \alpha_3 y + \alpha_4 P + \alpha_5 U + \alpha_6 \mathbf{X} + e_1, \quad (1)$$

$$M = \beta_1 R + \beta_2 y + \beta_3 P + \beta_4 \mathbf{X} + \varepsilon_2, \quad (2)$$

$$R = \gamma_1 M + \gamma_2 \mathbf{X} + \varepsilon_3, \quad (3)$$

$$y = \delta_1 P + \delta_2 U + \delta_3 \mathbf{X} + \varepsilon_4, \quad (4)$$

$$P = \phi_1 U + \phi_2 \mathbf{X} + \varepsilon_5, \quad (5)$$

$$U = \chi_1 \mathbf{X} + \varepsilon_6, \quad (6)$$

and

$$U_b = \varphi_1 y + \varphi_2 P + \varphi_3 U + \varphi_4 \mathbf{X} + \varphi_5 \mathbf{Z} + \varepsilon_7, \quad (7)$$

where the vector  $\mathbf{X}$  is a set of lagged variables of  $P_{com}$ ,  $M$ ,  $R$ ,  $y$ ,  $P$ , and  $U$ , and the vector  $\mathbf{Z}$  includes lags of  $U_b$ . The variable  $\varepsilon_i$  represents exogenous disturbances in equation ( $i$ ), where  $i = 1, \dots, 7$ ; these disturbances are random noise.

Estimating this system of equations yields the vectors of coefficients  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\phi$ ,  $\chi$ , and  $\varphi$ , which describe how the variables respond when another variable changes. Many of these coefficients have economic interpretations. For example,  $\beta_1$  in equation (2) represents the interest elasticity of money demand, and  $\gamma_1$  is the money elasticity of monetary policy as set via the federal funds rate.<sup>5</sup>

Each equation in the system is based on fundamental economic relationships, which Leeper and Zha (forthcoming) explore in greater detail. These fundamental relationships determine which variables

are included and which are excluded in each equation. Equation (1) posits that the commodity price index is a function of M2, the federal funds rate, real GDP, the consumer price index (CPI), the overall unemployment rate, and lagged values of all of the variables except the black unemployment rate. Equation (2) is a standard money demand equation in which the demand for money depends on output and the interest rate; the equation is estimated in nominal rather than real terms, as represented by the inclusion of the CPI on the right-hand side. Equation (3) describes monetary policy as conducted using the federal funds rate; the contemporaneous CPI and real GDP are excluded from this equation because the FOMC learns the values of these variables with a lag.

Equations (4) through (6) describe the production sector, which is composed of real output, prices, and the overall unemployment rate. Because firms need time to change production and investment, the production sector responds sluggishly to changes in financial factors, represented here by  $M$ ,  $P_{com}$ , and  $R$ . Contemporaneous values of money, commodities prices, and the federal funds rate are therefore excluded from equations (4) through (6). These three equations are also ordered recursively, with contemporaneous values of  $P$  and  $U$  affecting  $y$ , contemporaneous values of  $U$  affecting  $P$ , and only lagged values of variables affecting  $U$ .

Equation (7) models the black unemployment rate,  $U_b$ . The black unemployment rate is a function of its own previous values ( $\mathbf{Z}$ ) and also depends on current real output, prices, and the overall unemployment rate as well as lagged values of all other variables. One of the exclusion restrictions imposed on the system is that the black unemployment rate does not affect the other variables in the model; note that the variables  $U_b$  and  $\mathbf{Z}$  do not appear in equations (1) through (6). The black unemployment rate is mechanically related to the overall unemployment rate, but changes in the black unemployment

1. In 1999, about 32 percent of whites were employed in mining, construction, manufacturing, transportation, or public utilities, compared with 28 percent of blacks. Almost 7 percent of blacks were employed in government, compared with 4 percent of whites (U.S. Bureau of Labor Statistics 2000).
2. In February 1998, 57.4 percent of blacks had worked for their current employer for less than five years, compared with 56 percent of whites (U.S. Bureau of Labor Statistics 1998).
3. As of March 1998, about 16 percent of whites aged twenty-five and older had not completed high school, compared to 24 percent of blacks. About 25 percent of whites had a bachelor's degree, compared with about 15 percent of blacks (U.S. Bureau of the Census 1998a). An increase in average educational attainment of blacks over the past few decades has narrowed the racial gap; in 1962, more than 75 percent of blacks had not completed high school and only 4 percent had finished college, compared with 51 percent and 10 percent of whites, respectively (U.S. Bureau of the Census 1998b).
4. All variables except the federal funds rate and the unemployment rates are in logs.
5. The relationship between the interest rate and money in equation (3) is a quasi elasticity, instead of an elasticity, because the federal funds rate is in levels, not logs. The coefficient on the M2 variable captures the elasticity as a percentage point change instead of the traditional percentage change.

rate should not cause changes in the overall unemployment rate. These assumptions were strongly supported by Granger causality tests.

The Bayesian econometric method detailed by Sims and Zha (1998) was used to estimate the system of equations with monthly data from January 1972 to December 1999 (The box on page 15 gives the data sources). The Bayesian method imposes two types of priors (or initial assumptions). The first prior is designed to dampen the influence of distant lags; using this prior means that more recent data effectively “matter more” than older data. The second prior is used to induce similar long-run trends in the variables. Using these priors does not influence the nature of the results, as demonstrated by Robertson and Tallman (2000). Rather, the purpose of the prior is to improve the forecast performance of the model. These issues are discussed further by Sims and Zha (1998) and Robertson and Tallman (1999).

### Structural Relationships

The Bayesian VAR model explained above is used to address how exogenous changes in monetary policy and in the other variables in the model affect the black and overall unemployment rates. These exogenous changes are movements in each of the variables not explained by movements in the other variables in the model. For example, the FOMC may change the federal funds rate in response to a change in commodity prices; such a movement is not exogenous but is an endogenous response to a fluctuation in another variable. An exogenous movement in the federal funds rate occurs when the FOMC decides to tighten or loosen policy more or less than the change predicted by movement in the other variables, based on average comovements between variables during the period from 1972 to 1999. Exogenous movements in variables are “shocks” or unpredictable movements. The  $\epsilon$  terms in equations (1) through (7) represent these shocks, which are the focus of this analysis. This analysis considers the error term in equation (3), the federal funds rate equation, to be exogenous monetary policy shifts. These shifts cannot be predicted by movements in the variables in the model.

This analysis examines shocks that are one standard deviation of the average unpredictable monthly change from 1972 to 1999 for each series. These shocks illustrate the effect of the “typical” adverse shock experienced in each series during this period. The magnitudes of the shocks in this analysis are as follows: a 2.0 percent increase in the commodity prices index; a 43 basis point increase in the federal funds rate; a 0.13 percent increase in money demand as measured by M2; a 0.41 percent decrease in real GDP; a

0.20 percentage point increase in the CPI; and a 0.15 percentage point increase in the overall unemployment rate. The effects are symmetric, so the effect of a favorable shock in each series is the exact opposite of the unfavorable shocks discussed next.<sup>6</sup>

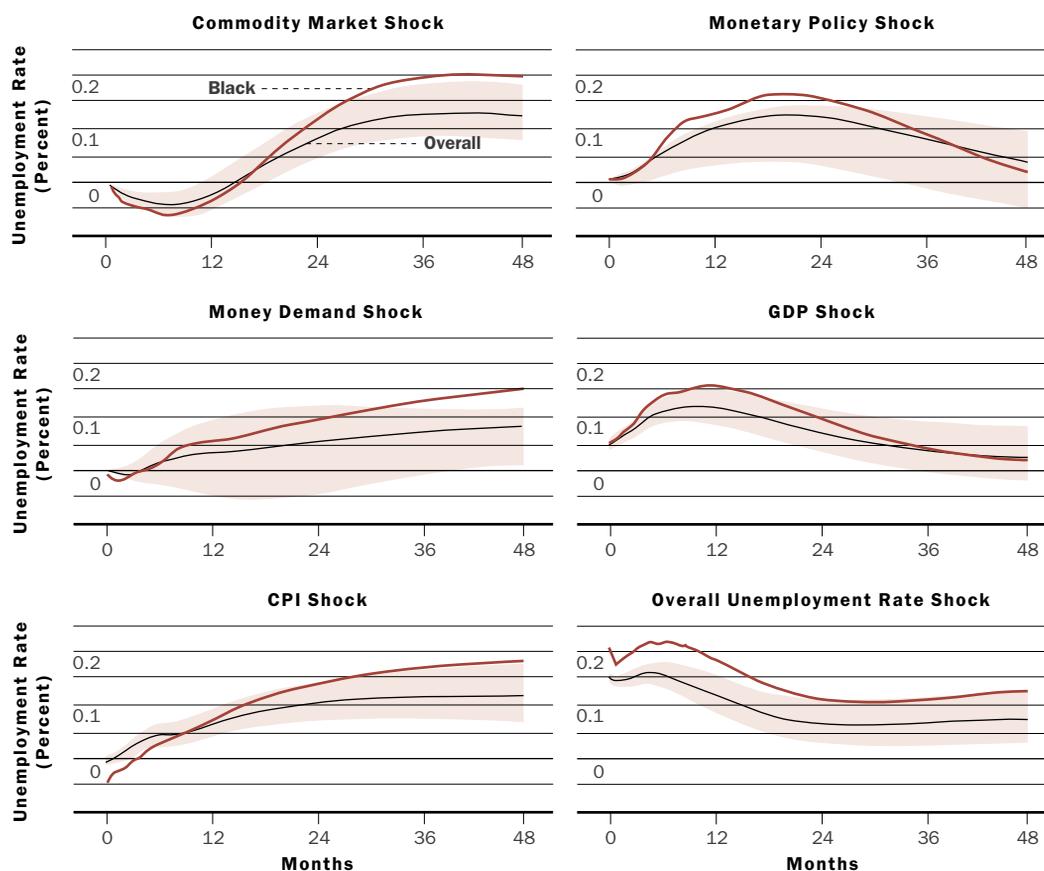
Chart 3 plots the dynamic responses of the overall unemployment rate and the black unemployment rate to various macroeconomic shocks over a forty-eight-month forecast horizon. The figures describe the underlying structural relationships in the data, as estimated by the model. Two-thirds probability bands (shaded) are attached to the overall unemployment rate. These error bands suggest whether movements in the overall and black unemployment rates are significantly different; if the black unemployment rate falls within the error bands on the overall unemployment rate, the probability that the movement in the black unemployment rate is not different from the movement in the overall unemployment rate is about 68 percent.<sup>7</sup> The vertical scale in the figures in Chart 3 is the percentage point change in the unemployment rates.

The black and overall unemployment rates generally have similar dynamic responses, but the movements in the black unemployment rate tend to be larger in absolute terms. For example, both the black and overall unemployment rates first fall and then rise when an exogenous upward movement in commodity prices occurs. The black unemployment rate appears to have a significantly larger response than the overall unemployment rate to shocks in commodity prices after about thirty months, and the difference between the changes in the two series plateaus at about 0.75 percentage points.

The responses of the overall and black unemployment rates to shocks in monetary policy and output differ slightly in the middle of the forecast horizon. In the first few months after a monetary policy or output shock, the black unemployment rate is virtually unaffected both relative to its initial level and relative to the overall unemployment rate. The black unemployment rate begins to rise significantly more than the overall rate about six months after an exogenous upward movement in the federal funds rate or an exogenous downward movement in GDP growth, and the differences in the changes remain significant for several months.

Although these differences are statistically significant, they are not large in magnitude. The peak difference between the changes in the black and overall unemployment rates in response to a monetary policy shock is less than 0.05 percentage points, and the difference is similar with regard to shocks to GDP growth. Given that the black unemployment rate is about twice the overall unemploy-

### CHART 3 Dynamic Responses of Unemployment Rates across Racial Groups to Different Structural Shocks



Note: The shaded areas are the two-thirds probability bands associated with the response of the overall unemployment rate.

Source: Authors' calculations

ment rate during much of the period from 1972 to 1999, the movement in the black unemployment rate is actually smaller relative to the underlying values of the series than the movement in the overall unemployment rate is.

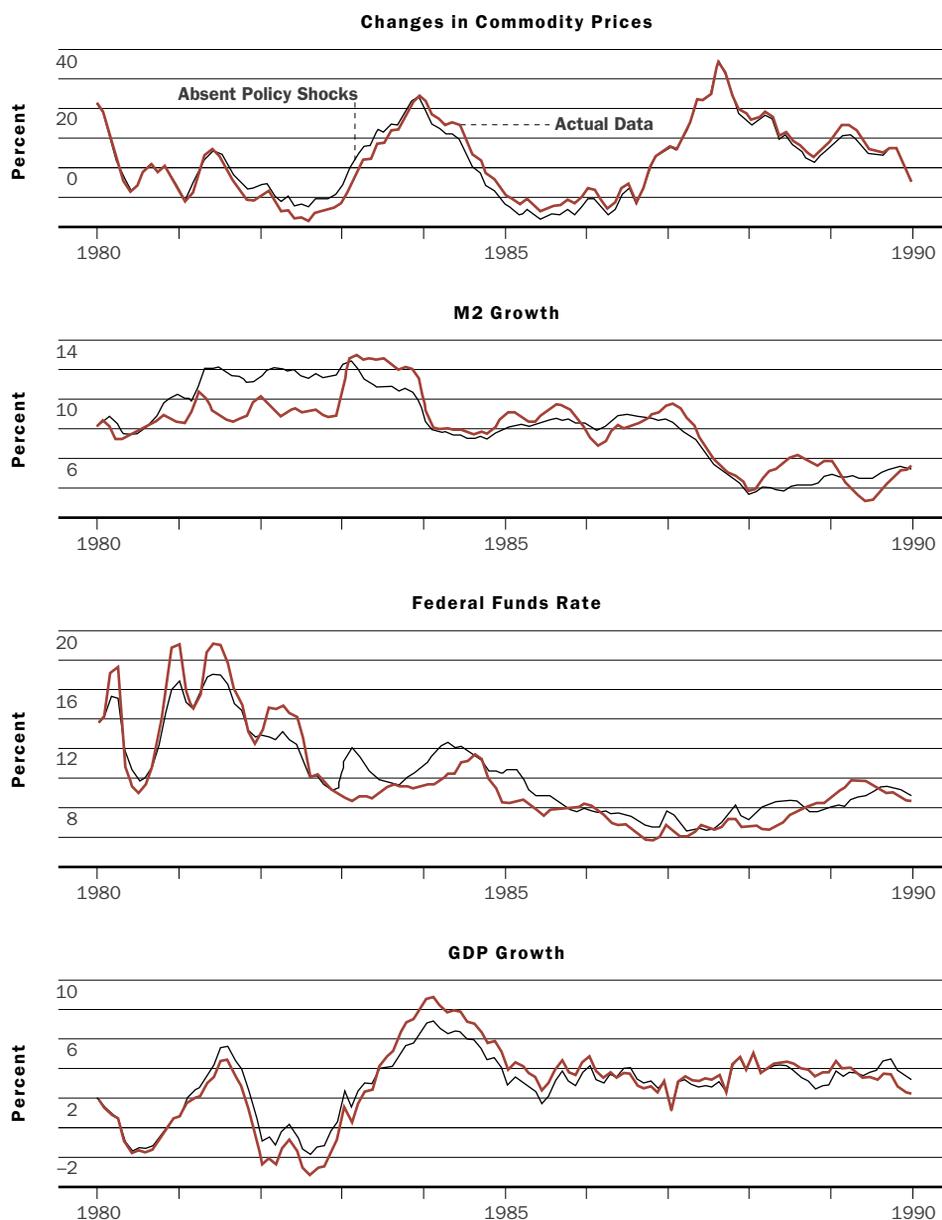
The responses of the overall and black unemployment rates to shocks in the overall unemployment rate are also statistically different at the beginning of the forecast horizon. The results shown in Chart 3 indicate that the black unemployment rate will increase by about 0.2 percentage points if there is a 0.15 percentage point exogenous increase in the overall unemployment rate, and the difference per-

sists for about two years. Combined with the slightly larger responsiveness of black unemployment rate to fluctuations in GDP output, this result supports the perception that the black unemployment rate is more cyclically sensitive than the overall unemployment rate. Shocks in the overall unemployment rate clearly lead to larger responses by both the black and overall unemployment rates than do the other variables, particularly in the near term.

The black unemployment rate also responds differently than the overall unemployment rate to shocks in money demand and inflation, but the differences do not become significant until about thirty months

6. The effects of favorable shocks would be a mirror image around 0 on the vertical axis in each plot in Chart 3.
7. This analysis implicitly views the response of the black unemployment rate given and compares it with the uncertain response of the overall unemployment rate. Alternatively, one could attach error bands to the movement in the black unemployment rate and compare the movement in the overall unemployment rate with those error bands, or one could take into account the uncertainty associated with both series. Because the forecast errors for the black unemployment rate are larger than those for the overall unemployment rate, the comparable error bands on the black unemployment rate are larger than those shown here for the overall unemployment rate.

## CHART 4 Macroeconomic Movements in the 1980s versus Movements Absent Exogenous Monetary Policy Shifts

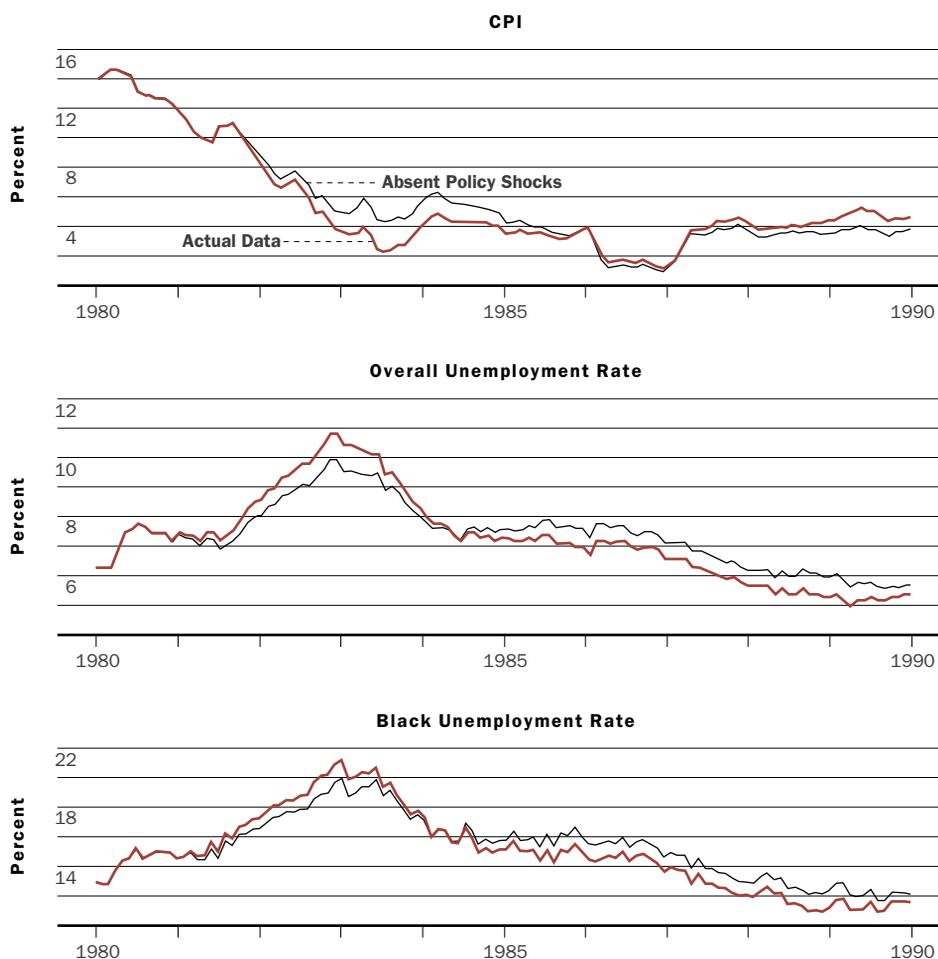


after the shocks have occurred. The differential effects of shocks in money demand and inflation appear to persist in the long run but are again fairly small in magnitude relative to the underlying values of the series; for example, the difference between the responses of the black and overall unemployment rates to a money demand shock after three years is only about 0.75 percentage points.

These structural relationships indicate some differences in the responses of black and overall unemployment rates to exogenous monetary policy and

other macroeconomic fluctuations. The timing and persistence of the differences vary across the shocks, but all of the differences are quite trivial when compared with the underlying values of the series. Using the structural relationships between the unemployment rates and shocks in monetary policy and other macroeconomic variables during the period from 1972 to 1999 generated by the model, the next sections examine the net effect of the implementation of monetary policy during the 1980s and 1990s on the overall and black unemployment rates.

## CHART 4 (Continued)



Source: Authors' calculations

### Monetary Policy during the 1980s

At the beginning of the 1980s, the FOMC was engaged in a battle against inflation that resulted in a double-digit federal funds rate. At the same time, output growth was sluggish as the economy struggled out of the 1979–80 recession before entering the 1981–82 recession. In the early 1980s, both the black and overall unemployment rates were high relative to the 1970s. However, it is not clear whether exogenous movements in monetary policy—movements that were not in response to movements in inflation, output growth, or other macroeconomic factors—caused these movements in the black and overall unemployment rates.

The structural relationships from the VAR model are used to examine what the black and overall

unemployment rates and the other variables in the model would have been during the 1980s absent exogenous movements in monetary policy. In Chart 4, the thinner lines give the forecast generated by the model for each variable if there had been no exogenous monetary policy changes, and the thicker lines are the realized values of the series, including any effects of monetary policy shocks.<sup>8</sup> The difference between the two lines represents the effects of exogenous policy shifts during the 1980s.

The figure for the federal funds rate in Chart 4 indicates that monetary policy was relatively tight during the period from 1980 to 1983 and then was loose for most of the remainder of the decade. When the actual federal funds rate was above the value predicted by the model, as in 1980–83, monetary

8. It should be noted that Charts 4–9 use the maximum likelihood estimates of the parameters; error bands for the “absent policy shocks” series in the charts are not shown. Small differences between the two lines in each figure in Chart 4 and Chart 7 (and small differences between the lines and 0 in Charts 5, 6, 8, and 9) should not be regarded as statistically significant differences.

policy was tight. Although the FOMC raised the funds rate target several times during the period from 1983 to 1985 in response to macroeconomic trends, the increases were smaller than those predicted by the model, indicating that policy was relatively loose, and policy remained slightly below the forecast for most of the period from 1985 to 1990.

The relatively tight monetary policy during the first part of the 1980s manifested itself in lower money growth, slower output growth, and lower inflation than would otherwise have been the case. As the panel for GDP growth in Chart 4 indicates, for example, the increases in the federal funds rate caused the 1982–83 recession to have been deeper than it otherwise would have been. Correspondingly, inflation in the early 1980s was lower than the forecast generated by the model.

The efforts of the FOMC to deal during the early 1980s with the high inflation of the late 1970s caused the overall and black unemployment rates to be higher than they otherwise would have been. The unemployment rates still would have been high absent exogenous monetary policy moves designed to reduce inflation, but the actions of the FOMC led to further increases in unemployment rates. Chart 5 shows the difference between the forecast and actual data for the two unemployment series; this chart displays the difference between the lines in Chart 4. In 1983, for example, the overall unemployment rate would have been almost 1 percentage point lower absent exogenous changes in monetary policy, and the black unemployment rate would have been slightly more than 1 percentage point lower. During the second half

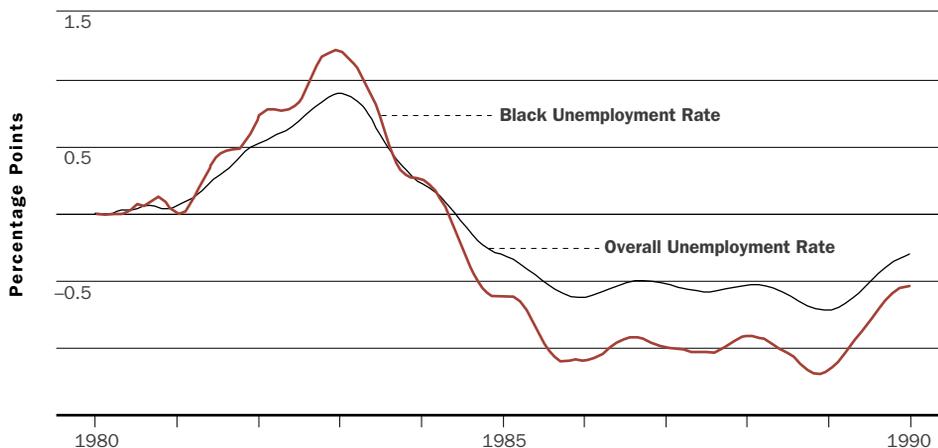
of the 1980s, however, exogenous monetary policy shocks caused the unemployment rates to be considerably lower than they otherwise would have been. In 1989, for example, monetary policy resulted in the overall unemployment rate's being almost 0.7 percentage points below its forecast value, and more than 1 percentage point lower for the black unemployment rate.

Comparing the lines in Chart 5 suggests that exogenous changes in monetary policy had slightly more adverse effects among blacks than among the total labor force during the early part of the 1980s and substantially more beneficial effects later in the decade. The increases in the black unemployment rate are slightly larger in magnitude than the increases in the overall unemployment rate, and the declines are also larger.

Another way to view these effects, however, is relative to the actual values of the series. Because the black unemployment rate is always substantially higher than the overall unemployment rate for reasons unrelated to monetary policy, a larger percentage point movement in the black unemployment rate than in the overall unemployment may not be larger as a fraction of the underlying values of the series. Chart 6 therefore shows the percentage difference between the actual unemployment rates and the forecast values absent monetary policy shocks relative to the actual values of the series.

Chart 6 suggests that the adverse effects of monetary policy shocks during the 1980s were slightly smaller for blacks than for the total labor force. The magnitude of the relative movement of the black unemployment rate is dampened compared with the

**CHART 5**  
**Changes in Unemployment Rates Attributable to Exogenous Monetary Policy Shifts in the 1980s**



Note: Data show the difference between actual and forecast paths.

Source: Authors' calculations

movement of the overall unemployment rate during the period from 1980 to 1985. In the second half of the decade, the beneficial effects of exogenous shifts in monetary policy were slightly smaller for blacks than for the total labor force. Comparing the two figures, the overall unemployment rate was over 12 percent lower than it otherwise would have been in 1989, compared with a 10 percent decline in the black unemployment rate. Monetary policy shocks therefore do not appear to have had more adverse effects among blacks than among the labor force as a whole during the 1980s and were perhaps slightly less advantageous for blacks during the expansion.

### Monetary Policy during the 1990s

The U.S. economy entered a recession in August 1990 that prompted the FOMC to lower the federal funds rate by more than 500 basis points between 1990 and 1993. The economy emerged from the recession in March 1991 and began a period of sluggish growth that slowly accelerated, leading to increases in the federal funds rate in 1994. As the expansion continued through the decade, both the overall and black unemployment rates fell dramatically, as noted earlier.

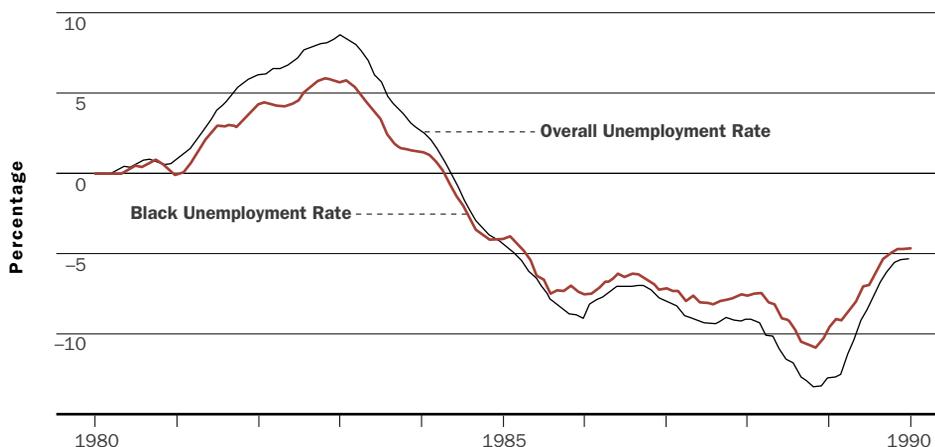
Monetary policy was relatively tight from 1990 to 1993 and then was loose for the remainder of the decade. As the monetary policy panel in Chart 7 indicates, the actual federal funds rate target was above the value predicted by the model early in the decade and then well below the forecast later in the 1990s. Tight monetary policy led to lower rates of money growth than otherwise would have occurred from 1990 to 1995, as the M2 figure in Chart 7 indicates.

The shocks in monetary policy affected GDP growth and inflation in the expected manner. Real output growth was below the forecast during the early 1990s, reflecting the impact of tight monetary policy. GDP growth tended to be slightly above the forecast after 1996, reflecting the relatively loose stance of monetary policy during this period. The effect of tight monetary policy on inflation early in the decade is apparent during 1992–98, when CPI inflation was considerably lower than forecast absent exogenous policy moves. In other words, exogenous monetary policy moves in the early 1990s led to inflation that was lower than it otherwise would have been during most of the 1990s, but the effect gradually peters out.

Exogenous movements in monetary policy also affected unemployment rates. The contractionary effect of the tight monetary policy during the beginning of the 1990s manifested itself in higher overall and black unemployment rates for much of the first half of the decade. However, the looser policy enabled by the early tightening led to a decline in the unemployment rate series in the late 1990s relative to the predicted values.

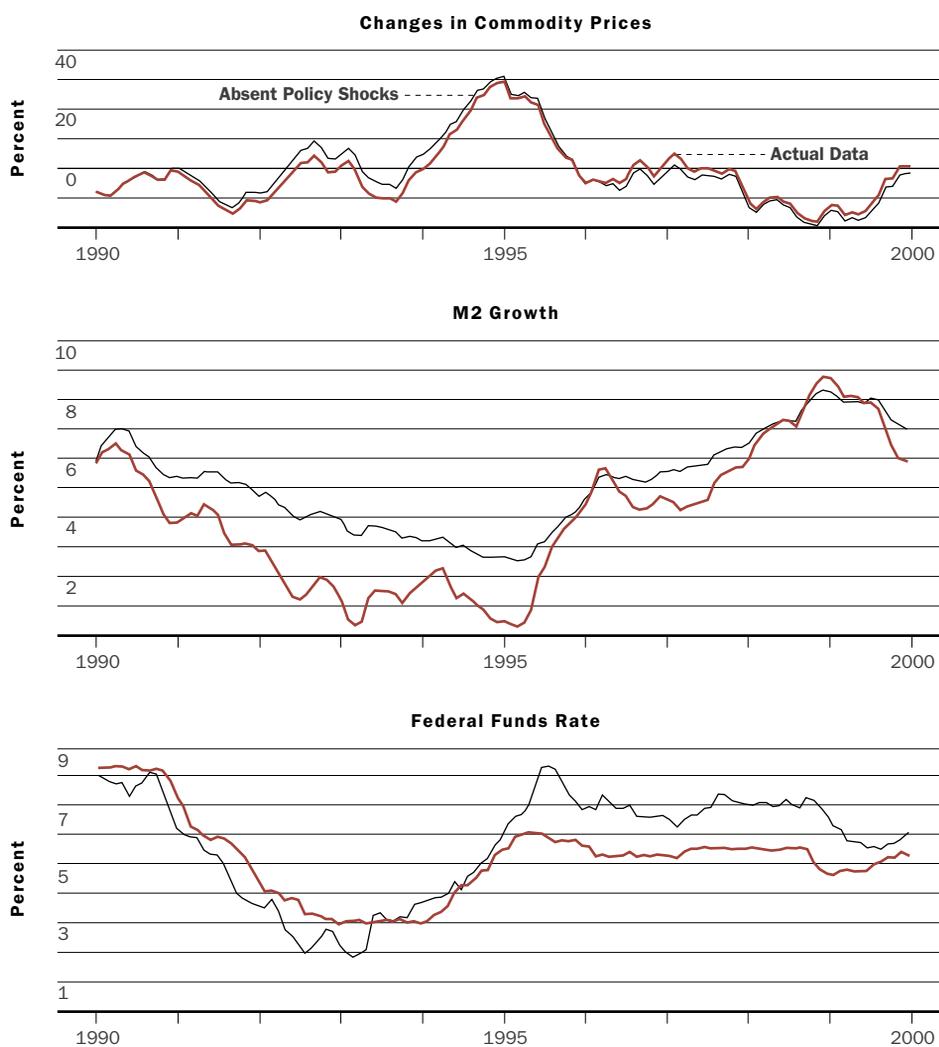
Chart 8 shows the difference between the actual and forecast paths for the two unemployment rates in levels. During the 1990s, the effect of exogenous monetary policy moves was larger on the black unemployment rate than on the overall unemployment rate, and the difference was particularly large during the expansion. As in the 1980s, the adverse effects of the tight monetary policy during the early part of the 1990s were slightly larger for the black unemployment rate than for the overall unemployment

**CHART 6**  
**Percentage Changes in Unemployment Rates**  
**Attributable to Exogenous Monetary Policy Shifts in the 1980s**



Source: Authors' calculations

**CHART 7**  
**Macroeconomic Movements in the 1990s versus**  
**Movements absent Exogenous Monetary Policy Shifts**



rate. During the later part of the 1990s, exogenous monetary policy had notably more beneficial effects on black unemployment than on total unemployment. This chart again suggests that black unemployment rates are more responsive to monetary policy. Again, however, larger fluctuations in the level do not necessarily translate into higher percentage changes.

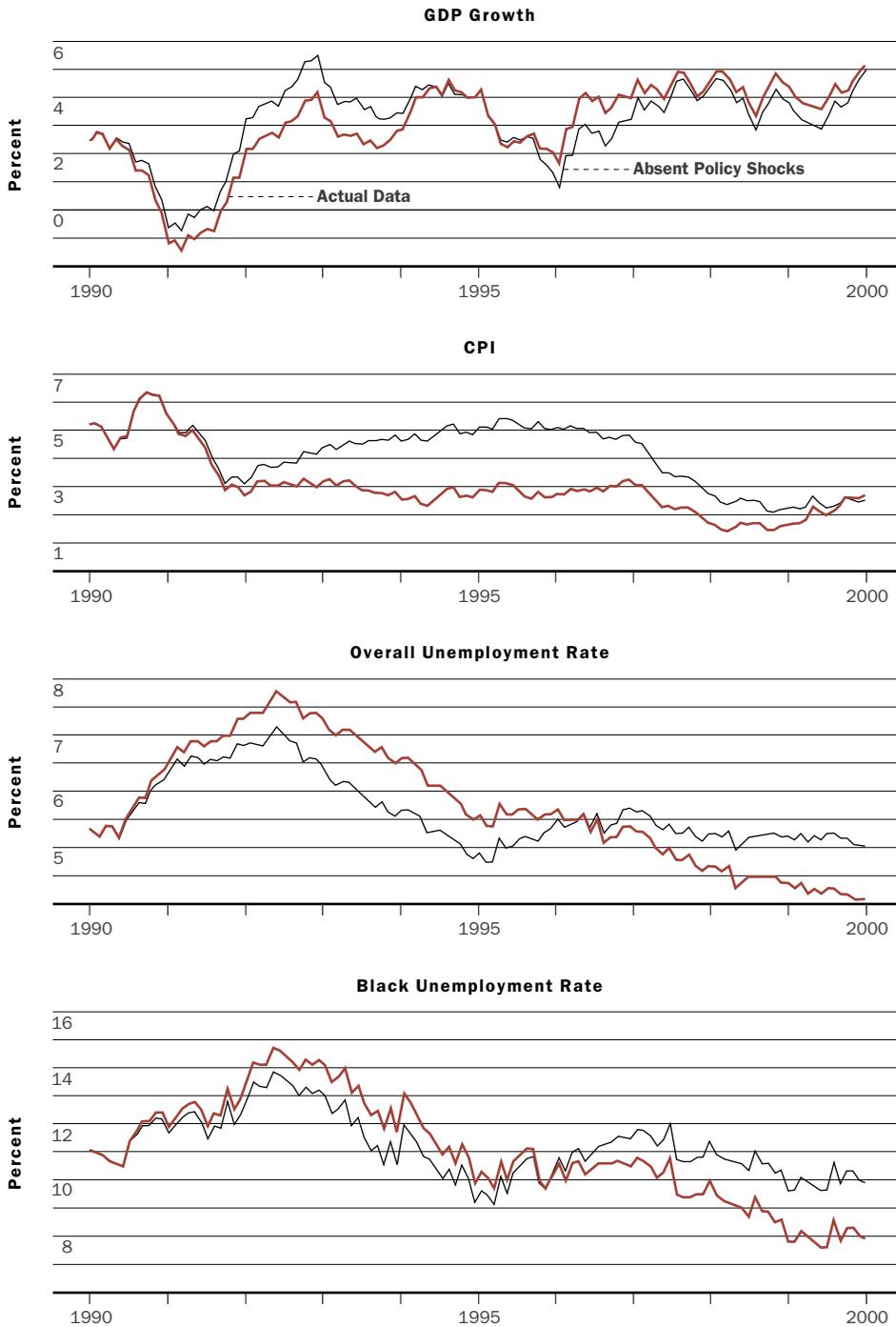
Chart 9 shows the difference between the actual and forecast paths relative to the actual value each month. The chart indicates that the tight monetary policy in the early 1990s had a smaller adverse effect on the black unemployment rate than on the overall unemployment rate relative to the values of the series. In addition, the effects of exogenous monetary policy were slightly more beneficial for blacks than for the population as a whole during the

later part of the 1990s. Monetary policy appears to have slightly mitigated the effects of the early 1990s recession on blacks. In addition, monetary policy appears to have boosted black employment during the second half of the 1990s.

**Conclusion**

**T**his analysis examines whether exogenous shifts in monetary policy have different effects on blacks than on the total labor force. The model used indicates that the black unemployment rate does respond slightly differently than the overall unemployment rate to exogenous changes in the federal funds rate and in other macroeconomic variables. Although the timing and persistence of the differences vary across variables, few of these differences are large in magnitude,

## CHART 7 (Continued)



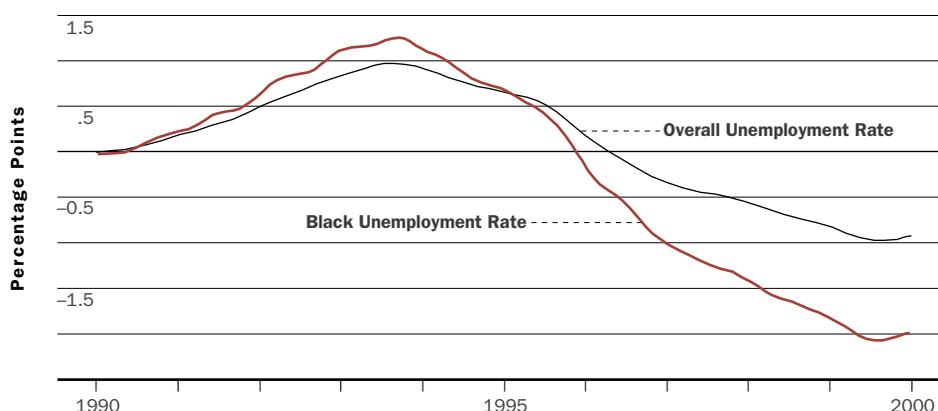
Source: Authors' calculations

particularly when viewed relative to the actual values of the two series.

The examination of the conduct of monetary policy during the 1980s and 1990s suggests that movements in monetary policy not explained by the movement of other variables in the model had larger effects on the black unemployment rate than on the

overall unemployment rate. When scaled by the actual unemployment rates, however, adverse effects on the black unemployment rate appear the same size as or smaller than those on the overall unemployment rate, and beneficial effects appear larger during the 1990s. The model used here thus suggests that the unpredictable component of monetary

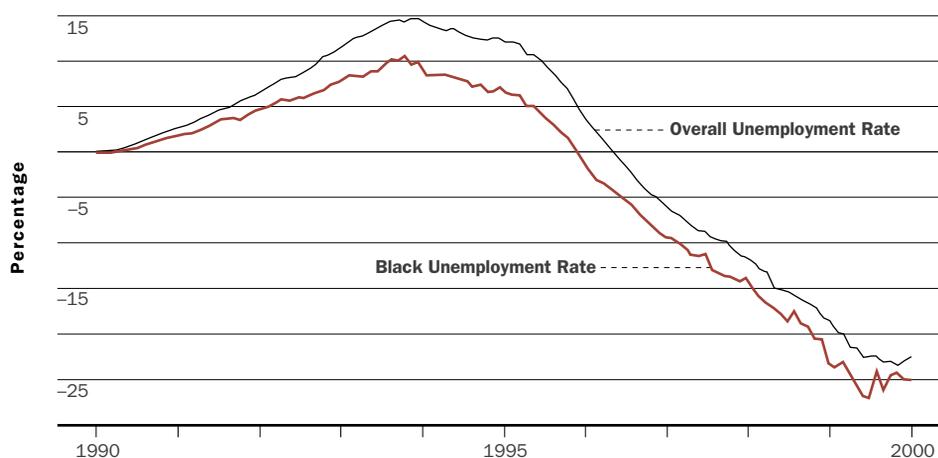
**CHART 8**  
**Changes in Unemployment Rates Attributable to**  
**Exogenous Monetary Policy Shifts in the 1990s (in Levels)**



Note: Data show the difference between actual and forecast paths.

Source: Authors' calculations

**CHART 9**  
**Percentage Changes in Unemployment Rates Attributable to**  
**Exogenous Monetary Policy Shifts in the 1990s (Relative to Actual Data)**



Note: Data show the difference between actual and forecast paths.

Source: Authors' calculations

policy in the recent past may have mitigated the effect of recessions on blacks while enlarging the effect of expansions. In addition, the pattern of responses to exogenous policy moves suggests that short-run movements in volatile unemployment rates series should not necessarily be regarded as the result of policy moves because the effects of monetary policy do not become evident for several months, during which time other events may occur.

This study does not examine why the black and overall unemployment rates respond differently to exogenous monetary policy shifts and other macroeconomic fluctuations. Any effects of monetary policy

shocks on unemployment rates are likely to be transitory, not permanent. It should also be kept in mind that exogenous monetary policy is not a primary cause of the persistent difference between black and overall unemployment rates, which is due to structural factors. The literature that compares unemployment patterns among blacks to the rest of the labor force suggests that differences in educational attainment, experience, and racial discrimination may play a role in the differences in the two series. Future research should examine further why black unemployment rates appear to show different cyclical responses than the overall unemployment rate.

## Data Description

The model uses monthly data from January 1972 to December 1999 for the following variables:

**CPI:** consumer price index for urban consumers (CPI-U), seasonally adjusted.

Source: Bureau of Labor Statistics, U.S. Department of Labor.

**Commodity prices:** spot commodity price index of raw industrials.

Source: Commodity Research Bureau.

**Federal funds rate:** effective rate, monthly average.

Source: Board of Governors of the Federal Reserve System.

**GDP:** real GDP, seasonally adjusted, billions of chained 1996 dollars. Monthly real GDP is interpolated from

quarterly data using the procedure described by Leeper, Sims, and Zha (1996).

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

**M2:** M2 money stock, seasonally adjusted, billions of dollars.

Source: Board of Governors of the Federal Reserve System.

**Overall and black unemployment rates:** Civilian unemployment rates (ages sixteen and older), seasonally adjusted.

Source: Bureau of Labor Statistics, U.S. Department of Labor.

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