National and Regional Factors in the New York Metropolitan Economy

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This paper explores the connections between broad economic indicators in the New York metropolitan region and their national counterparts. It compares the performance of the region in recent years with that of the nation and assesses the importance of national and local developments for the area's economy.

A cursory examination of the regional economic indicators provides two contrasting views of the metropolitan economy's performance in recent years. On the one hand, employment growth over the last seven years has been very poor, both in absolute terms and relative to the nation, suggesting a region in decline. On the other hand, the region's income growth has been considerably better than its employment growth, suggesting that its goods and services remain in healthy demand.

As befits a preliminary investigation of these contradictory data, our analysis yields some equally paradoxical results. For example, some of our evidence suggests that national and regional variables are more closely connected than they have been in thirty years. Notwithstanding this, our analysis also indicates that regional factors were the initial catalysts for the New York metropolitan area's recession in the 1990s, although national developments—in particular the slow growth in employment following the 1990-91 recession—were important factors behind the persistence of the local slump.

We begin our investigation by examining the data on the metropolitan area's employment and income and documenting their contrasting performances. We then present our statistical analysis of the interactions between the region and the nation. We conclude by placing our seemingly disparate findings into context.

A Look at the Data

We examine three sets of summary data on the health of the regional and national economies: nonfarm payroll employment, personal income, and wages and salaries.

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EMPLOYMENT

Our regional payroll employment data, which cover 1958-96, reflect the sum of employment in ten metropolitan statistical areas (MSAs): in New York—New York City, Nassau-Suffolk, and Duchess County; in New Jersey—Jersey City, Bergen-Passaic, Newark, Middlesex-Somerset-Hunterdon, Monmouth-Ocean, and Trenton; and in Connecticut—New Haven-Bridgeport-Stamford-Danbury-Waterbury.[1]

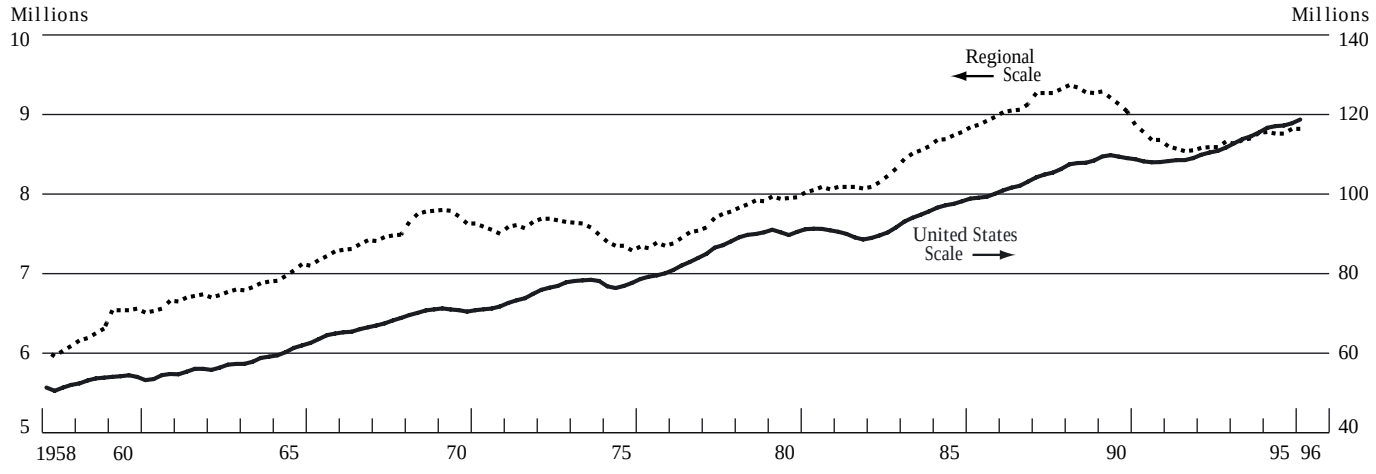
These data clearly show that the New York metropolitan region's employment has tended to grow more slowly than the nation's over the last thirty-five years (Chart 1). However, in two periods—1970-77 and 1989-96—the relative decline in the region has been most perceptible. In both periods, the number of jobs fell while employment in the nation grew. The region's employment performance since 1989 has been even worse than in 1970-77, when a severe local recession contributed to New York City's near-bankruptcy in 1975. Following the 1970-77 period, the region regained its 1969 employment peak by 1979; in the current period, however, regional job growth would have to accelerate from its recent pace of a bit less than 1 percent per year for employment to pass its 1989 peak before the year 2000.

Although the region's absolute employment performance looks worse in the recent episode, differences in the national economic situation should be taken into account before concluding that the region's recent relative performance has also been worse. Even though there were two national recessions—one of which was severe—during the 1970s, as opposed to the one mild recession since 1989, national employment growth was more vigorous in the 1970s than in the 1990s.[2]

To clarify how the national experience affects the interpretation of regional developments, we examine the employment declines in the region in the 1970s and 1990s from two different perspectives (Table 1). During the 1970-75 decline, the region lost 6.5 percent of its jobs. By this measure, the 1990s look worse than the 1970s: from the cyclical peak in 1989 to the trough in 1992, the region lost nearly 9 percent of its jobs. Job growth nationwide, however, was considerably stronger in 1970-75 than in 1989-92. If we evaluate the region's job performance relative to that of the nation, the 1970s look worse than the 1990s: in 1970-75, the region's share of the nation's jobs dropped by 1.6 percentage points. In 1989-92, the decline in the region's share was only about half as great—0.9 percentage point. Thus, employment growth in the region *relative* to the nation has been better in the 1990s than in the 1970s.

Chart 1

U.S. and Regional Employment



Sources: U.S. Department of Labor, Bureau of Labor Statistics; authors' calculations.

Table 1
EMPLOYMENT DECLINES IN THE NEW YORK REGION

	1970:1-1975:4	1989:1-1992:3
Peak level of employment (millions)	7.8	9.4
Trough level of employment (millions)	7.3	8.5
Change (percent)	-6.5	-8.9
Share of national employment at peak (percent)	10.9	8.7
Share of national employment at trough (percent)	9.4	7.9
Change (percentage points)	-1.6	-0.9

Sources: U.S. Department of Labor, Bureau of Labor Statistics; authors' calculations.

Note: The region's employment was 8.8 million in the first quarter of 1996, or 7.4 percent of the nation's employment.

PERSONAL INCOME AND WAGES AND SALARIES

On the whole, the data for personal income and wages and salaries paint a better picture of the region's performance than employment does (Charts 2 and 3).[3] Although the metropolitan area's share of the nation's personal income has fallen during the 1990s, the decline has been much less than the decline for employment, as a comparison of Tables 1 and 2 shows. This pattern is in sharp contrast to the 1970s, when the region's decline in income share was in line with that for employment.

The recent movements of the regional share of national wages and salaries, however, have more closely paralleled the movements of the region's employment share (compare Table 1 and Table 3). Nevertheless, the region's share of the nation's wages and salaries is still as high as it was in the early 1980s, even though the employment share has fallen (Chart 3).

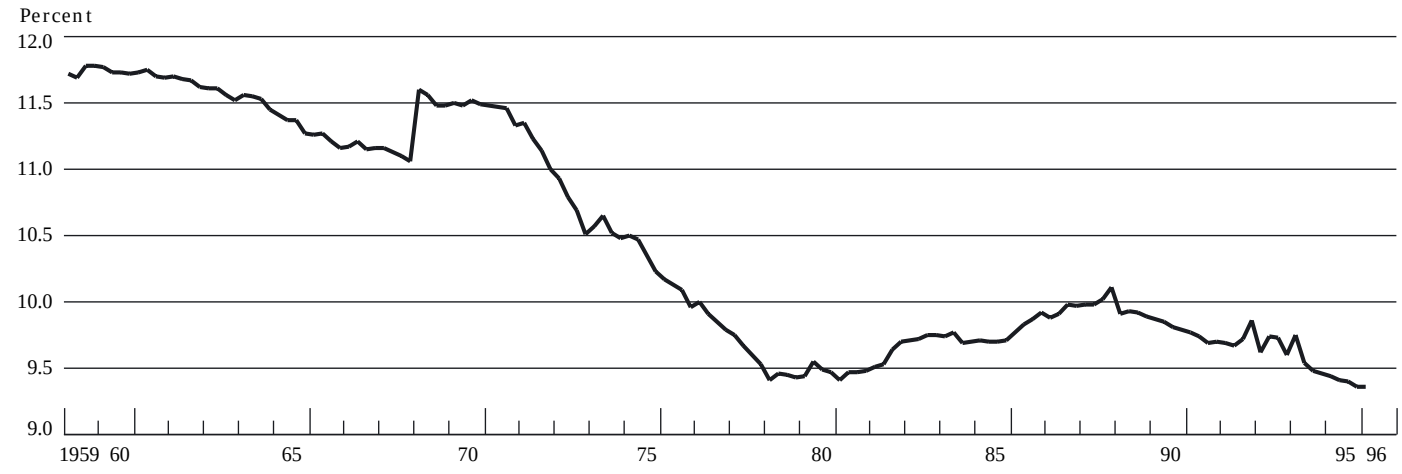
The relatively strong showing of income compared with employment suggests that concerns about the region's economic health may be overstated. Income in the region is heavily influenced by spending outside the region on regionally produced goods and services. If income is holding up fairly well, business in the region may be more robust than the employment data suggest (although business clearly has not been robust enough to erase the 1989-92 job losses).

STATISTICAL ANALYSIS

We now attempt to determine analytically how closely movements in the New York metropolitan region's employment and income indicators are associated with national movements. We also investigate how much of the recent weakness in the regional indicators—particularly employment—can be traced to movements in their national counterparts.

Chart 2

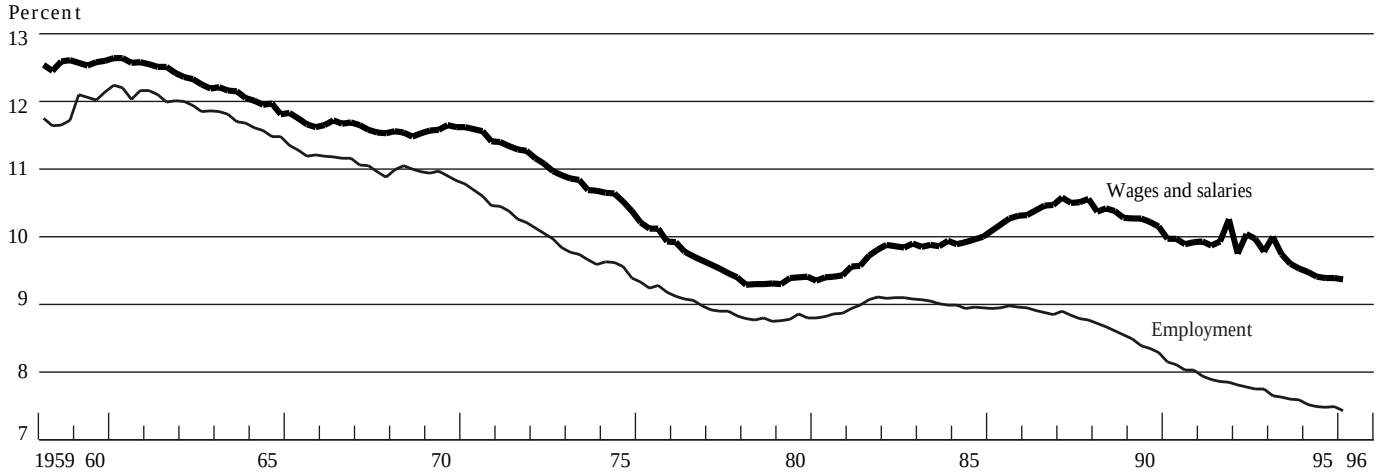
Regional Share of the Nation's Personal Income



Sources: U.S. Department of Commerce, Bureau of Economic Analysis; authors' calculations.

Chart 3

Regional Share of the Nation's Employment and Wages and Salaries



Sources: U.S. Department of Labor, Bureau of Labor Statistics; U.S. Department of Commerce, Bureau of Economic Analysis; authors' calculations.

Table 2
PERSONAL INCOME DURING EMPLOYMENT DECLINES IN THE NEW YORK REGION

	1970:1-1975:4	1989:1-1992:3
Share of national income at employment peak (percent)	11.5	9.9
Share of national income at employment trough (percent)	10.2	9.7
Change (percentage points)	-1.3	-0.2

Sources: U.S. Department of Commerce, Bureau of Economic Analysis; authors' calculations.

Table 3
WAGES AND SALARIES DURING EMPLOYMENT DECLINES IN THE NEW YORK REGION

	1970:1-1975:4	1989:1-1992:3
Share of national wages and salaries at employment peak (percent)	11.6	10.4
Share of national wages and salaries at employment trough (percent)	10.4	9.9
Change (percentage points)	-1.2	-0.5

Sources: U.S. Department of Commerce, Bureau of Economic Analysis; authors' calculations.

PREVIOUS RESEARCH

Traditionally, issues like these have been addressed using regional econometric models, such as those of Glickman (1976) or Drennan (1995, 1997). In these models, a region's performance is determined by its internal structure and by national trends. The models are very valuable because they can test hypotheses concerning, for example, the evolution of a regional economy's structure. However, they contain many assumptions (for instance, about the key aspects of the region's structure) that could easily affect the analysis. Partly in the interest of transparency, we will therefore use less structural methods in our analysis.

Our methods have their source in the literature studying the interaction of national and sectoral (regional and industry) variables. An early example is Lilien (1982), who finds evidence that the distribution of employment across industry sectors changes sharply over the course of business cycles. Others have studied the interaction of national, industry, and regional data. For example, Clark (forthcoming) finds that unexplained movements in the regional data not related to movements in the national or industry data—region-specific shocks—account for about

40 percent of the fluctuations in regional industry employment, while comparably measured national shocks account for another 40 percent and industry sectoral-specific shocks account for the remaining 20 percent.

Another prominent study in this vein, Blanchard and Katz (1992), contains two principal findings: For most states—New York being a major exception—national employment fluctuations play a major role in explaining a state's employment fluctuations (for most states, when national employment falls 1 percent, state employment falls about 1 percent). In addition, when a state's employment falls relative to that of the nation, over and above what the long-term trend suggests, the jobs are permanently lost.[4]

In contrast to the Blanchard and Katz study, other analyses do not find that New York is out of the ordinary. One prominent example is the study by Carlino and Defina (1996), which finds that the Mideast region, which includes New York, is one of the "core" regions that respond to a monetary policy shock in a way close to the average U.S. response.

The Blanchard–Katz finding that bad times in states persist seems to hold locally. The New York State Department of Economic Development (1994) contends that growth rates in New York State take a very long time (up to ten years) to recover from an adverse shock, implying substantial effects on the *level* of the state's employment from a onetime loss of jobs.

It is tempting to argue that the region's recent prolonged period of weak economic performance reflects both the documented persistence of local slumps and a "payback" for the fairly strong performance of the region in the 1980s. In the standard view, income levels across the nation should converge, with slower growth over the long haul in higher income regions. A departure from this pattern would lead to a reaction—the payback. Thus, the strong per capita income growth in New York and New Jersey in the 1980s (Sherwood-Call 1996) could be expected to trigger a period of unusually slow growth in the 1990s as convergence reasserted itself.

There are, however, several reasons to question whether this interpretation explains recent developments in the region. First, Barro and Sala-i-Martin (1991) find that the income convergence process in the United States is very slow and does not necessarily stand out in the data over decade-long periods. The employment swings in the 1980s and 1990s in the New York area are much too striking to be explained by such phenomena. In addition, because convergence arguments usually focus on income, the substantially stronger performance of income compared with employment in the New York region during the 1990s cannot be easily explained by convergence phenomena. Furthermore, Ciccone and Hall (1996), using data on states and counties from the late 1980s, find that employment density is positively related to labor productivity (and thus, by inference, to income), implying that agglomeration effects outweigh congestion effects that contribute to convergence. This finding suggests that income in high-density regions such as New York may remain relatively high indefinitely, undercutting the rationale for the payback interpretation.

In the literature on specific episodes (as opposed to that on longer term movements) in regional economies, the methodology of Coulson and Rushen (1995) is of note. They estimate a vector autoregression (VAR) model of the Boston metropolitan area to quantify national and local influences on the "Massachusetts Miracle" and the subsequent downturn. They find that the strongest factor in Boston's economic upswing was "high-technology" shocks. In contrast, they find that the national and regional shocks were the major contributors to the subsequent downturn. The authors' methodology is interesting because it allows conclusions to be drawn about specific episodes without all the assumptions that go into a large econometric model.

Our statistical analysis combines the Coulson and Rushen and Blanchard and Katz approaches. Like Coulson and Rushen, we use VARs to decompose the effect of national and regional factors in individual episodes. Like Blanchard and Katz, we examine the longer term relationships between the region and the nation, but while Blanchard and Katz focus on how these relationships may differ across states, we are interested in how these relationships may have changed over time.

EMPLOYMENT

We now examine how the sensitivity of the New York metropolitan region's employment to national employment has changed over the years.[5] We do this by estimating rolling regressions over ten-year periods of regional employment growth on the current value plus three lags of employment growth for the rest of the nation.[6]

The estimates of the elasticity of regional employment to national employment derived from these regressions have clearly changed over time (Chart 4).[7] For ten-year samples beginning in the 1960s, a 1 percent increase in national employment was associated with a 1 percent increase in regional employment. That relationship weakened for samples beginning in the 1970s and early 1980s, when the elasticity fell to less than 0.5. For samples that begin after 1982, however, the national-regional employment relationship strengthened to levels one might associate with the cyclically sensitive Midwest, with the elasticity rising to more than 1.0.[8]

The estimated stronger relationship between the region and the nation may seem surprising given the weakness in regional employment since 1989. However, as noted above, national employment growth has been slower over the last decade than in previous years (Chart 1), and the region's relative performance has not suffered as much as it did in the 1970s. This finding suggests that the relationship between regional and national employment could have strengthened.

Nevertheless, the recent weakness in the region's employment relative to the nation's suggests that regional as well as national factors have been contributing to the region's slump. To explore the contributions of these factors, we turn to a two-variable VAR model of employment growth in the region and in the rest of the nation. The VAR is estimated with four quarterly lags over the period from the first quarter of 1961 to the first quarter of 1996.

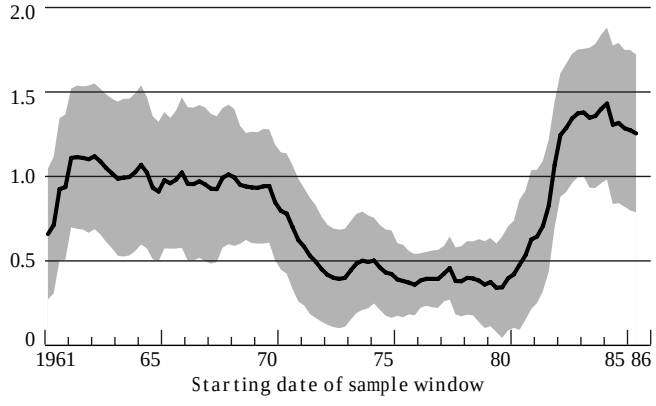
To use the VAR model, we must decide how to decompose the regression errors from each equation into national and regional shocks. Although the choice is arbitrary, one natural way is to assume that regional shocks do not immediately affect employment in the rest of the nation; that is, the residual from the employment equation for the rest of the nation is identified as the national shock. The regional shock is then identified as that portion of the residual from the regional employment equation that is not correlated with the national shock.[9]

Our assessment of the usual VAR statistics and the time series of these shocks confirms that both regional and national factors could have contributed to the regional slump in the 1990s. The variance decomposition of regional employment growth indicates a bit more than 60 percent of the variance of the regional employment growth forecast error at virtually all horizons is accounted for by the regional shock, leaving a sizable fraction to be explained by the national shock.[10] Furthermore, the VAR identifies a series of negative regional and national shocks during the 1990s associated with the regional and national recessions.[11] The regional shocks from 1989 to 1991 were especially severe, totaling about 3.3 percent, more than seven times the standard deviation of the regional shock.

To examine specifically the effects of these shocks on regional employment in the 1990s, we undertake a historical decomposition of regional employment growth from first-quarter 1989 to first-quarter 1996. In this exercise, the estimated model forecasts regional employment growth for this period using information through the end

Chart 4

Elasticity of Regional Employment to National Employment



Source: Authors' calculations.

Notes: The elasticity is estimated from ten-year rolling regressions. The line represents the point estimates of the elasticity. The shaded area represents a two-standard-error confidence band.

of 1988. The model's forecast error is then decomposed into contributions from the national and regional shocks as identified by the VAR.

We find that regional shocks had a major role in initiating the regional slump, while national shocks played a large role in its persistence (Chart 5). Regional shocks were important in causing the region to decline before the 1990-91 national recession and were a major contributor to the depth of the decline (Chart 5, bottom panel). National shocks contributed to the depth of the decline in 1990-91 and also were largely responsible for the persistence of the regional slump in 1991-93 (Chart 5, middle panel).[12]

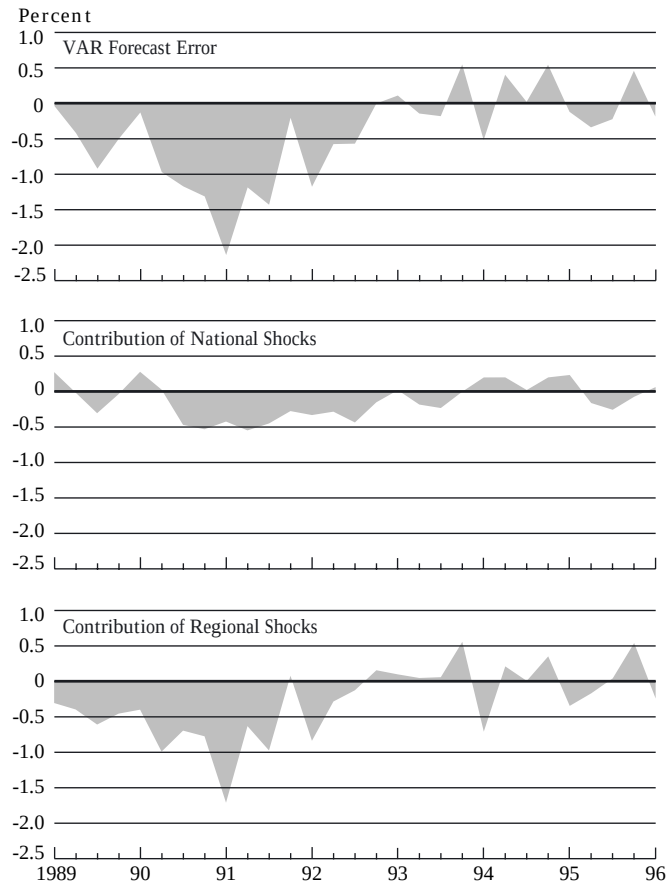
The evidence from Chart 5 is translated into effects on the employment level in Chart 6, which displays four paths of regional employment from the fourth quarter of 1988 to the first quarter of 1996. The lowest path is the actual track of regional employment. The top path is the baseline VAR forecast, which indicates that in the absence of the shocks, regional employment would have trended up almost 1 percent per year. By first-quarter 1996, the gap between the baseline and actual employment amounts to almost 1.2 million jobs.

The two paths between the actual and forecast paths illustrate the effect of each shock separately: one is the path of employment assuming that only the regional shocks occurred, and the other is the path assuming that only the national shocks occurred. The difference between each of these paths and the baseline path is each shock's contribution to the gap between the baseline and actual employment. Thus, the bulk of the gap during 1989-92 was due to the negative regional shocks. However, after the middle of 1990, the national shock became a major contributor to the gap. In fact, the effects of the national shocks were sufficiently large and persistent so that even if no regional shocks had occurred, regional employment would have increased only slightly after mid-1990.[13]

The VAR results suggest that locally generated shocks were the initial catalyst for the area's employment problems in recent years, but the national economy has also been a major factor behind the persistence of the local problems. This conclusion rests, however, on the specification of the VAR and the identification scheme. In particu-

Chart 5

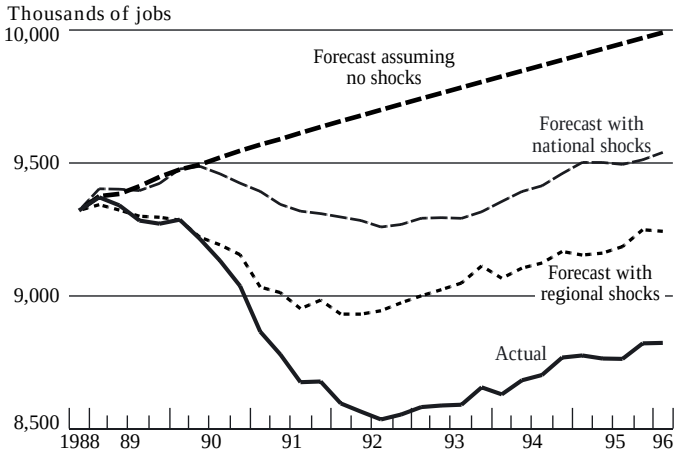
Historical Decomposition of Regional Employment
First-Quarter 1989 to First-Quarter 1996



Source: Authors' calculations.

Chart 6

Alternative Simulated Employment Paths
Fourth-Quarter 1988 to First-Quarter 1996



Source: Authors' calculations.

lar, other variables not included in the VAR could be important factors affecting regional employment. For example, the recent upheavals in the financial sector, a key industry in the New York metropolitan region, could have helped weaken employment performance.[14]

Overall, our evidence suggests that the relationship between fluctuations of national and regional employment has strengthened recently. Large regional shocks were the primary factor contributing to the severity of the local recession in the early 1990s. However, slow national employment growth after the 1990-91 recession has been a major factor behind the persistence of the regional slump. With regional shocks subsiding and the link between the nation and the region growing stronger, we should expect less erosion of the region's relative employment. The downside is that, given the weaker secular pace of national employment growth (likely both for demographic reasons and for the topping-off of labor force participation rates in many groups) and continued restructuring in the finance sector, absolute employment growth in the region is likely to be sluggish, barring any surprises.

Personal Income

As we noted earlier, the region's personal income relative to the nation's has not declined to the same extent as employment has. This finding suggests that fluctuations and shocks to national and regional personal income may play different roles in explaining the fluctuations in regional income than they do in explaining employment.

Even though the raw data point to a stronger national effect, the rolling regressions of regional real personal income growth on national real personal income growth produce results similar to those for the employment regressions. As with the employment regressions, the contemporaneous value and three lags of personal income growth in the rest of the nation were included in the personal income regressions, which were estimated over ten-year periods.[15] Although the elasticity is about 1.0 for samples beginning in the early 1960s, it gradually declines for succeeding samples in the 1960s (Chart 7). For most of the samples beginning in the 1970s, the elasticity is around 0.5, a value similar to that observed in the employment regressions. Then, for samples that begin in the 1980s, the elasticity quickly increases to 1.0 again. Overall, it appears that the relationship between income in the region and income in the nation has strengthened—the same pattern we observed earlier for employment.

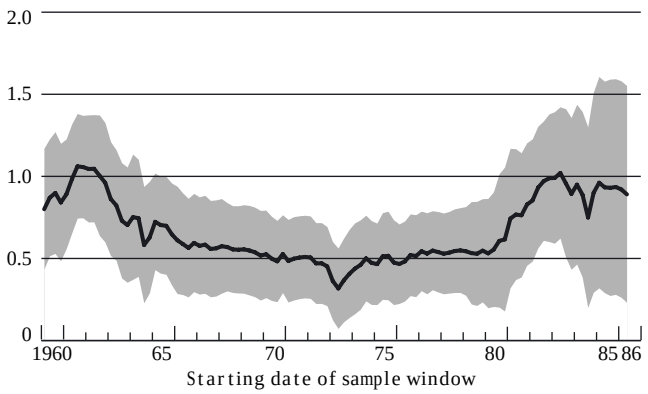
However, the rolling regressions do not explicitly indicate why income has performed relatively better than employment in recent years. To investigate this further, we turn to a two-variable VAR consisting of regional and national personal income. The VAR was estimated in growth rates with four quarterly lags.[16] The residuals from the VAR equations were again decomposed into shocks assuming an ordering placing the national variable first.

In the income model, as in the employment model, the standard VAR statistics confirm the potential for national and regional shocks to explain regional fluctuations.[17] The personal income VAR identifies the region as suffering from a series of negative income shocks during 1989-91, which accumulated to almost 5.5 percent (more than eight times the standard deviation of the regional shock).[18]

The historical decomposition of the regional income growth during 1989-96 indicates a role for national shocks in explaining regional income fluctuations that differs from their role in explaining employment fluc-

Chart 7

Elasticity of Regional Income to National Income



Source: Authors' calculations.

Notes: The elasticity is estimated from ten-year rolling regressions. The line represents the point estimates of the elasticity. The shaded area represents a two-standard-error confidence band.

tuations. Although the national shock was a large contributor to the depth of the local recession in 1990-91 (Chart 8, middle panel), it does not display the persistent negative effects on income that were observed for employment. As was the case for employment, the regional shock was the initial catalyst for the local recession and a factor in its depth (Chart 8, bottom panel).[19]

Our results suggest that the link between the nation's personal income and the region's has strengthened in recent years. Notwithstanding this, the New York metropolitan region was buffeted by regional shocks that were a drag to income during the early 1990s. However, national personal income did not exert the persistent negative effect on regional income during 1990-93 that national employment exerted on regional employment, a finding that may partly explain why regional income has performed better than employment during the 1990s.

WAGES AND SALARIES

We now examine that portion of income most closely associated with employment—wages and salaries—to see whether income has fared better than employment in the region because of strength in non-employment-based income (such as dividends or interest) or because of developments in the region's wages.[20]

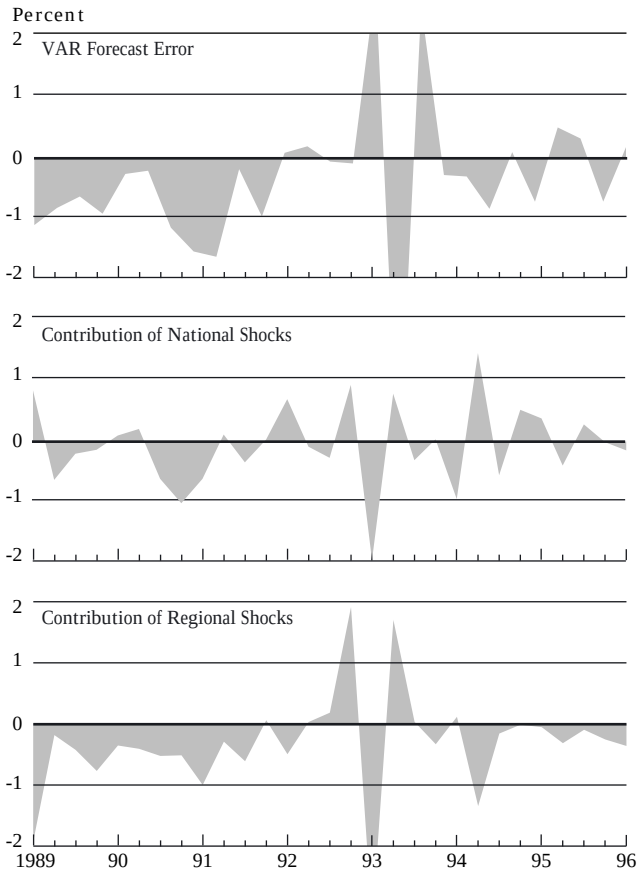
As before, we begin with single-equation rolling regressions relating regional to national wage growth. We see that the pattern of elasticities of the region to the nation is much like the pattern for employment (Chart 9).[21] The elasticities fall to around 0.5 for samples beginning in the mid-to-late 1970s, then rise to a high of about 1.5 for samples that begin in 1983 or later. These latter values are what one might expect to find in highly cyclical regions, again suggesting a stronger link between the region and the nation in recent years.

The regressions suggest that the sensitivity of the region's wages and salaries to the nation's has been similar to that for employment. However, the raw data indicate that wages in the region have done somewhat better than employment. We again turn to a two-variable VAR consisting of regional and national wage growth to investigate these apparently contrary results.[22]

The shocks to national and regional wages identified by this VAR display patterns somewhat different from those identified by the employment and income VARs. Although the VAR identifies negative regional shocks during 1989-92, they are not as persistent as the negative shocks identified in the employment and income VARs. Instead, this period is dominated by two large shocks in the first quarter of 1989 and the first quarter of 1991, which more than account for the accumulated -4.3 percent shock (about five times the standard deviation of the shocks) during 1989-91.[23] There were also negative national shocks in this period, but similar-sized shocks occurred in the 1970s that were more persistent.

Chart 8

Historical Decomposition of Regional Income
First-Quarter 1989 to First-Quarter 1996



Source: Authors' calculations.

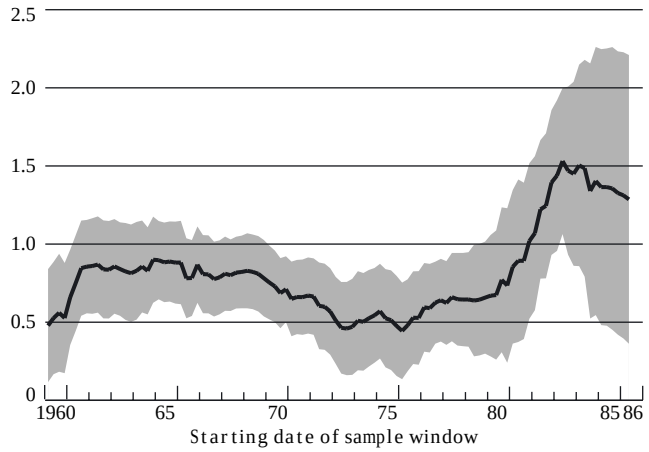
Note: The effects of the frontloading of bonuses during the fourth quarter of 1992 through the second quarter of 1993 are truncated at +/- 2 percent to present the contributions of other periods more clearly.

A historical decomposition indicates that the roles of the national and regional wage shocks during the 1990s differ from their roles during this period in either the employment or the income VARs (Chart 10). National shocks were a major factor in the weakness of wages through 1991 (Chart 10, middle panel). Regional shocks were a very small catalyst at the beginning of the slump and contributed some to the depth of the regional recession in early 1991. They were a more significant factor in the weakness of wages during 1994-95 (Chart 10, bottom panel).[24]

In sum, our results here indicate that the relationship between national and regional wages and salaries has strengthened in recent years. Moreover, weakness in national wages played a prominent role in the decline of wages in the New York metropolitan region during the early 1990s. Regional wage shocks, possibly from the restructuring of the financial sector, have helped to hold down wage growth in the last two years. On the whole, negative regional shocks to wages were a bit more evident in the 1990s than were negative shocks to overall personal income. Thus, favorable developments in nonwage income may have played a slightly larger role than favorable developments in wages in explaining the relatively good showing of overall regional income. However, it is worth noting that local data on nonwage income are probably less reliable than data on employment and wages.

Chart 9

Elasticity of Regional Wages and Salaries to National Wages and Salaries



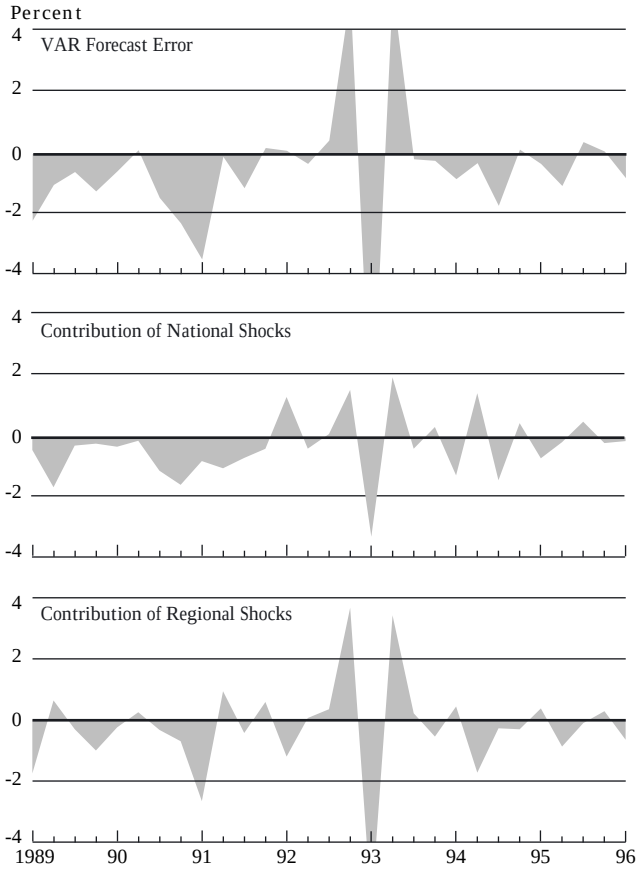
Source: Authors' calculations.

Notes: The elasticity is estimated from ten-year rolling regressions. The line represents the point estimates of the elasticity. The shaded area represents a two-standard-error confidence band.

Chart 10

Historical Decomposition of Regional Wages and Salaries

First-Quarter 1989 to First-Quarter 1996



Source: Authors' calculations.

Note: The effects of the frontloading of bonuses during the fourth quarter of 1992 through the second quarter of 1993 are truncated at +/- 4 percent to present the contributions of other periods more clearly.

CONCLUSION

Although this paper presents a preliminary examination of the data, we have come to a number of important conclusions: All three economic indicators examined—employment, personal income, and wages and salaries—suggest that the New York metropolitan region is more tightly

linked to the national economy than it was during the 1970s.[25] In addition, even though we find this relationship to be closer, regional shocks were the catalysts for the local recession of the 1990s and major contributors to its severity. National developments—possibly involving slower long-term aggregate growth—were significant factors in prolonging the local recession in the 1990s. This last conclusion implies that although absolute regional employment growth may remain sluggish in the future, we should expect less of a decline in the region's employment relative to the nation's.

We also found that employment in the region during the 1990s suffered more relative to the nation than did personal income and wages and salaries. To the extent that income in the region reflects output, this finding suggests that the goods and services produced by the metropolitan region remain desirable outside it and that the region remains competitive in what it produces.

This examination also raises some important questions. For example, What is the ultimate source of the regional shocks discussed? To what extent are these shocks the consequence of the industry composition of the region, or of the demographics of the region? Are there "true" regional shocks? Future studies may shed light on these questions.

ENDNOTES

1. Data are not available for Bergen-Passaic, Monmouth-Ocean, Middlesex-Somerset-Hunterdon (New Jersey), and New Haven-Bridgeport-Stamford-Danbury-Waterbury (Connecticut) before 1975. We develop estimates for this earlier period by substituting Paterson (New Jersey) and Stamford (Connecticut) for these MSAs and extrapolating the 1975-95 relationship between the smaller sample and the universe back through 1958. The employment growth trend in the smaller group of MSAs was 0.2 percent per quarter slower than in the larger group over 1975-95. Accordingly, employment growth in the larger group for 1958-75 was estimated by adding 0.2 percent to the growth of the smaller group. Also, the pre-1975 data for the Newark MSA was adjusted down for a definitional change that occurred in 1975.

2. The 1970s and 1990s also differed in the patterns of sectoral and intraregional employment changes. Roughly speaking, regional employment stagnation in the 1970s was due to employment losses in the manufacturing sector and in New York City proper, which offset gains in other sectors and other parts of the region. The stagnation in the 1990s was much more evident across sectors and throughout the area (although the manufacturing sector and New York City have again been especially weak).

3. Beginning in 1975, the personal income and wage and salary data for the metropolitan area reflect the sum of the data for the New York City, Nassau-Suffolk, Jersey City, Bergen-Passaic, Newark, Middlesex-Somerset-Hunterdon, Monmouth-Ocean, and New Haven-Bridgeport-Stamford-Danbury-Waterbury MSAs. Before 1975, the regional totals are derived from growth in the sum of the corresponding series from New York State and New Jersey (there is a break in the state personal income data in first-quarter 1969, which is evident in Chart 2). The income series show a pronounced spike in fourth-quarter 1992 and a dip in first-quarter 1993, which result from the frontloading of bonuses from early 1993 to late 1992 to avoid a rumored tax increase. Much of this frontloading occurred in the financial sector, so it affected this region more noticeably.

4. The loss of jobs is relative to the state's growth trend; as long as the state has a positive trend, the previous peak level of employment will eventually be surpassed. There is a subtle distinction between changing the level of employment in a state and changing its underlying growth trend. Over a sufficiently long horizon, a permanent change in the level of employment in the state does not involve a change in its growth trend. Blanchard and Katz find that the loss of jobs does not raise the state's unemployment rate over the longer term; they contend that the primary mechanism bringing the unemployment rate back down is the outmigration of displaced workers.

5. In all the regression analyses, the "national" variables refer to the United States excluding the New York metropolitan area.

6. The regressions presented here do not include any variables to account for a possible break resulting from the construction of the regional employment data. The inclusion of dummy variables to account for possible breaks does not change the substantive results.

7. Since the variables in the equations are measured in growth rates, the elasticity is simply the sum of the coefficients on current and lagged national employment growth.

8. In response to a comment from a discussant at the conference, we have examined the stability of the model over the 1961-96 sample period. Simple Chow tests indicate that many ten-year subsamples that begin in the 1970s display differences from the rest of the sample, although the robustness of these tests to choosing the breakpoints is questionable. In contrast, more robust tests, such as Hansen's (1992), display little evidence of unstable elasticity.

Even though it is not clear from these tests that the elasticity is unstable, we still find these rolling regressions useful in summarizing the data. The relative insensitivity of regional to national employment in the 1970s suggests that developments in the New York area's economy—for example, the shrinkage of the regional manufacturing sector and the rapid growth of the financial and business services sectors—probably had less to do with developments in the national economy than at other times. The greater sensitivity in recent years suggests that national developments probably have been a larger factor in regional economic fluctuations. We explore this theme further in other parts of our analysis.

9. To be thorough, we conducted an analysis using a VAR in which regional employment growth was ordered first, a step that assumes national employment growth has no contemporaneous effect on the region. As one might suspect, the effect of the national shock on the region is much more limited. However, this ordering assigns an implausibly large role to this region in the fluctuations in the rest of the nation: the impulse response of national employment indicates that employment growth in the rest of the nation increases by more than 0.2 percent for two quarters after a regional shock, and more than 30 percent of the forecast variance in the rest of the nation is explained by the New York shock.

10. Another VAR statistic, the impulse response function, also points to the significant potential of both shocks to explain regional fluctuations. The accumulated effects of a unit regional shock and a unit national shock (each of which is about 0.4 percent) on the regional employment level are about 1.4 percent and 1.0 percent, respectively. Charts depicting the impulse responses appear in McCarthy and Steindel (1996).

11. See McCarthy and Steindel (1996) for a depiction of the time series of the shocks. See Brauer (1993) for a discussion of the slow-growth economy of the early 1990s.

12. To examine whether instability in the VAR model may have affected our results, we reestimated the model using two subsamples of our data. The first used data over 1975-96 and the second excluded data from the 1970s. In both cases, the historical decompositions differed little from those displayed in Chart 5.

13. Of course, these are simply point estimates with possibly large standard error bands. They are intended only to give the flavor of the counterfactual simulations.

We also undertook a historical decomposition of the first quarter of 1970 through the first quarter of 1977, the other prominent regional employment slump. To a large extent, the roles of the regional and national shocks are the opposite of their roles in 1989-96. The national recessions in 1970 and 1973-75 are the major factors behind the depth of the region's employment declines during those periods, but the national shocks contribute little to the persistence of the regional recession. However, the frequent negative regional shocks contributed to the persistence of the regional slump. In fact, if only the regional shocks had occurred during 1970-77, employment in the first quarter of 1977 still would have been below the first-quarter 1970 peak, and nearly the same as the actual level.

14. McCarthy and Steindel (1996) and Kuttner and Sbordone (1997) examine the effects of industry shocks on metropolitan employment in the 1990s.

15. Regional and national personal income are deflated by the New York metropolitan consumer price index and the national consumer price index, respectively. These regressions also include four dummy variables. To account for the differing construction of the data for this period (as reported in endnote 3), the first dummy equals 1 over 1959-74 and zero otherwise. The second dummy equals 1 for the first quarter of 1969 and zero otherwise, to account for a break in the reported state data used in the extrapolation. The third and fourth dummies equal 1 in the fourth quarter of 1992 and the first quarter of 1993, respectively, and zero otherwise, to account for the frontloading of bonuses in late 1992. By excluding these dummy variables, we found little effect on the substantive results of the regression, although in this case the elasticities at the end of the sample do rise well above 1.0.

16. The estimation period is from the first quarter of 1961 to the first quarter of 1996. The dummies for the fourth quarter of 1992 and the first quarter of 1993 were excluded so that we could examine the extent to which the VAR identified the frontloading of bonuses in this period as a national rather than a regional shock. The substantive results were similar when these dummies were included.

17. According to the variance decomposition, almost 50 percent of the regional income forecast variance at all horizons up to five years is explained by the national shock. (Sherwood-Call [1988] finds that for VARs estimated over 1970-86, slightly more than half the variance of two-year forecasts of New York and New Jersey personal income is explained by national income shocks.) In addition, the impulse responses of regional personal income to national and regional shocks are quite similar (McCarthy and Steindel 1996). However, the standard deviation of the national shock—which is the size of the unit shock—is about 0.84 percent, whereas the standard deviation of the regional shock is about 0.64 percent.

18. The VAR also identifies the late 1992 bonus frontloading as a large positive shock followed by an even larger negative shock for the nation and the region (McCarthy and Steindel 1996).

19. In contrast, McCarthy and Steindel (1996) find that the contributions of national and regional factors to income fluctuations during the regional slump in the 1970s were similar to those for employment. National shocks primarily contributed to the depth of the local recession, especially during 1974-75. The frequent negative regional shocks during this period were the principal reason for the persistent local slump, much as they were for employment. This division between the contributions of the two shocks may be a reason for the weaker relationship between national and regional income during this period.

20. Note that the region has an unusually high amount of proprietors' income, which in industries such as law and finance is affected by many of the same factors that affect wages and salaries. A comparison of the household employment data for the region shown in Hughes and Seneca (1996) with our payroll series shows a difference of about 2 million workers for recent years; the bulk of this difference most likely reflects self-employment.

21. Growth rates for regional and national wages are restated in real terms using the same price series that were used in the personal income analysis. These regressions include the same four dummy variables as the personal income regressions did. Excluding the dummy variables from the regressions had little effect on the results except for samples that began in the 1980s. For these samples, the elasticities rose to about 2.0, rather than 1.5.

22. The specification of the VAR is the same as it was for personal income except no dummy variables are included in the system. The estimation period is again the first quarter of 1961 through the first quarter of 1996.

23. By coincidence, the standard deviations of the shocks are each about 0.85 percent. As was the case for the employment and income VARs, the variance decomposition and impulse responses of regional wages confirm the potential for each shock to explain the pattern of regional wages.

24. In contrast, the decomposition of the 1970s in the wage VAR is similar to that in the employment and income VARs. The regional shocks were the major contributor to the persistence of the slump, while the national shocks augmented the slump's depth during the national recessions (McCarthy and Steindel 1996).

25. Superficially, our results seem to differ from those of Kuttner and Sbordone (1997), who emphasize the continued—or even growing—role of regional factors in local employment. However, these authors are looking at the fraction of the *variance* in the region's employment growth that can be explained by regional factors. In contrast, we are decomposing the *amount* of growth into regional and national components. An increased national component in the amount of growth in a period can be consistent with a reduced national contribution to the variance in growth.

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