THE RELATIVE IMPORTANCE OF NATIONAL AND REGIONAL FACTORS IN THE NEW YORK METROPOLITAN ECONOMY

by
Jonathan McCarthy and Charles Steindel

Federal Reserve Bank of New York
Research Paper No. 9621

August 1996

The Relative Importance of National and Regional Factors in the New York Metropolitan Economy

Jonathan McCarthy and Charles Steindel
Federal Reserve Bank of New York

First draft: July 9, 1996
This draft: July 29, 1996

Acknowledgments: We would like to thank Natasha Zabka for her research assistance, especially in the preparation of the regional data. We also would like to thank Ken Kuttner and seminar participants at the Federal Reserve Bank of New York for their comments. All errors remaining are the sole responsibility of the authors. All opinions and conclusions are those of the authors and do not reflect those of the Federal Reserve Bank of New York nor the Federal Reserve System. Please direct correspondence to the first author at Federal Reserve Bank of New York, 33 Liberty St., 3rd floor, New York, NY 10045. Phone: (212) 720-5645. Fax: (212) 720-1844.
E-mail: jonathan.mccarthy@frbny.sprint.com.

The Relative Importance of National and Regional Factors in the New York Metropolitan Economy

Jonathan McCarthy and Charles Steindel

Federal Reserve Bank of New York

Abstract

This paper explores the connections between broad indicators of economic conditions in the New York Metropolitan area and their national counterparts. Our examination provides two different views of the metropolitan economy. First, as is well known, employment growth in the region 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, suggesting a region whose goods and services remain in healthy demand.

Some methods of analyzing the data suggest that national and regional variables are more closely connected than they have been in a generation. Notwithstanding this, VAR analysis indicates that regional factors were the initial catalysts for the local recession in the 1990s. However, this analysis also indicates that national developments, in particular the slow growth in employment following the 1990-91 recession, have been important factors behind the persistence of the local recession. This is unlike the experience of the 1970s, when regional factors were primarily responsible for prolonging that recession.

Introduction

This paper explores the connections between broad indicators of economic conditions in the New York Metropolitan economy and their national counterparts. Its aim is twofold: First, to examine the relative performance of the region in recent years; second, to investigate the importance of national and regional developments on the region's economy.

Our examination of the regional economic indicators provide two different views of the metropolitan economy. First, as is well known, employment growth in the region 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, suggesting a region whose goods and services remain in healthy demand.

As befits a preliminary investigation of these contradictory data, our analysis provides some paradoxical results. Some methods of analyzing the data suggest that national and regional variables are more closely connected than they have been in a generation. Notwithstanding this, other methods indicate that regional factors were the initial catalysts for the local recession in the 1990s. However, these methods also indicate that national developments, in particular the slow growth in employment following the 1990-91 recession, are important factors behind the persistence of the local recession. This is unlike the experience of the 1970s (the previous major local recession), when regional factors were primarily responsible for prolonging that recession. In the last section of the paper, we place these disparate results into some context.

A Look at the Data

We examine three sets of summary data on the health of the regional and national economy: Nonfarm payroll employment, personal income, and wages and salaries. The regional payroll employment data are the sum of employment in the following metropolitan statistical

areas: New York City, Nassau-Suffolk, Duchess County, Jersey City, Bergen-Passaic, Newark, Middlesex-Somerset-Hunterdon, Monmouth-Ocean, Trenton, and New Haven-Bridgeport-Stamford-Danbury-Waterbury. Data are not available for Bergen-Passaic, Monmouth-Ocean, Middlesex-Somerset-Hunterdon, and New Haven-Bridgeport-Stamford-Danbury-Waterbury prior to 1975Q1; they are replaced by Paterson and Stamford, and estimates are made by extrapolating the 1975-1995 relationship between the smaller sample and the universe back through 1960.[1]

Chart 1 plots the US and regional employment data, and it clearly shows that the region has tended to grow more slowly than the nation over 1960-1995. There are two periods, though, when the relative decline in the region is most perceptible: 1970-1977 and 1989 to the present. In both periods the number of jobs in the region fell while employment in the nation grew. In fact, many commentators have noted that the employment performance of the area since 1989 has been even worse than in 1970-1977. Total employment in the region in the first quarter of 1996 was about 550,000 (nearly 6%) below its 1989 peak whereas the region had regained its 1969 employment peak by 1979; regional job growth would have to accelerate from its recent pace of a bit less than one percent a year for employment to pass its peak before the end of the millennium.

Although the region's absolute performance looks worse in the recent episode, differences in the national economic situation have to be taken into account before concluding that the region's recent relative performance has been worse. Even though there were two national recessions--one of which was severe--during the 1970s, as opposed to the one mild recession

---

[1]The employment growth trend in the smaller group of MSAs was 0.2% per quarter slower than in the larger group over 1975-1995. Accordingly, employment growth in the larger group for 1959-1975 was estimated by adding 0.2% to the growth of the smaller group. Also, the 1960-1974 data for the Newark MSA was adjusted down for a definitional change that occurred in 1975.

since 1989, national employment growth was more vigorous in the 1970s than it has been in the 1990s. Thus the employment growth in the region relative to the nation has been better in the 1990s than in the 1970s (see Table 1).[2]

The income data plotted in Charts 2 (personal income) and 3 (wages and salaries) paint a different picture of the region's performance.[3] Although there has been a decline during the 1990s in the metropolitan area's share of the nation's personal income, this decline has been only about one-half of that for employment (Table 2). This is in sharp contrast to the 1970s, where the decline in income shares was in line with that for employment. The recent movements of the regional share of national wages and salaries, though, largely have paralleled the movements of the region's employment share. However, the region's share of the nation's wages is still as high as it was in the early 1980s, even though the employment share has been reduced (Chart 3).

The relatively stronger showing of income suggests that concerns about the region's economic health may be overstated. Income in the region is heavily influenced by spending

---

[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 manufacturing and in New York City proper, which offset gains in other sectors and other parts of the region. The stagnation in the 1990s has been much more evident across sectors and throughout the area (although manufacturing 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 are 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. Prior to 1975, the regional totals are derived from growth in the sum of the corresponding series from New York State and New Jersey (there's a break in the state personal income data in 1969Q1, which is visible in Chart 2). The regional and national data are deflated by the New York metropolitan CPI and the national CPI respectively. The income series show a pronounced spike in 1992Q4 and dip in 1993Q1, which are artifacts of frontloading 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.

outside the region on the goods and services produced here; if income is holding up fairly well business in the region may be more robust than the employment data suggest. Our statistical analysis will examine further this dichotomy.

Statistical Analysis

In our statistical analysis, we attempt to answer questions like the following: How closely associated with national movements are movements in this region's employment and income indicators? How much of the recent weakness in the regional indicators--particularly employment--can be traced to movements in their national counterparts?

Traditionally, questions like these have been addressed using regional econometric models, such as Glickman (1976) or Drennan (1995, 1996). In these models, a region's performance is determined by its internal structure and national trends. They are very valuable since--for example--they can be used to test hypotheses concerning the evolution of a regional economy's structure. However, these models contain many assumptions (for instance, about which are the key aspects of the region's structure) which could easily affect the answers to questions we pose. Partly in the interests of transparency, we will use less structural methods in our analysis.

The methods we use have their source in the literature studying the interaction of national and sectoral (regional and industry) variables. An early example is Lilien (1982), who found evidence that the distribution of employment across industry sectors changed sharply over the course of business cycles. Although others have disputed his suggestion that this finding implies a small role for aggregate demand fluctuations in the business cycle (Abraham and Katz, 1986), a literature has developed studying the interaction of national, industry, and regional data. For example, Clark (1992) found that region-specific "shocks"--unexplained movements in the

regional data not related to movements in national data or industry data--account for about 40% of the fluctuations in regional industry employment, while national shocks account for another 40% and industry sectoral-specific shocks account for the remaining 20%.

Another prominent paper in this vein is Blanchard and Katz (1992), which had two principal findings. First, they found that 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 one percent, state employment falls about one percent). Second, they found when a local area shock reduces a state's employment relative to the nation, over and above what the long-term trend suggests, the jobs are permanently lost.[4]

Examining the effects of monetary policy on regions, Carlino and Defina (1996) estimate a VAR (vector autoregression) model consisting of personal income of the eight major BEA regions, an energy price variable, and the Federal funds rate. They find that the Mideast region, which includes New York, is one of the "core" regions which respond to a monetary policy shock in a way close to the average U.S. response. In contrast, the Great Lakes region is more sensitive to monetary policy than the core regions, while the Rocky Mountain and Southwest regions are less sensitive.

Looking more closely at this area, Caner and Fu (1995) estimate a VAR model of

---

[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 be surpassed eventually. There is a subtle distinction between changing the level of employment in a state and changing its underlying growth trend. Taking a long enough perspective, 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 affect 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.

employment by industry in New York State and find that state-specific factors (those not affecting national employment nor nationwide employment in an industry) were responsible for nearly three-fourths of the state's employment fluctuations over 1963-1993 and that factors common in industries across the nation were responsible for most of the rest. However, these results are not strikingly different from those of other areas--only the industrial Middle West and the West Coast display evidence of meaningful employment effects from a non-industry-centered "national shock." The New York State Department of Economic Development (1994) has documented longer-term industry trends in the state's employment and output, with similar results to ours for the metropolitan area: considerable weakness in employment, less weakness in output and income.[5] This study also finds growth rates in New York State take a very long time (up to 10 years) to recover from an adverse shock, implying substantial effects on the level of the State's employment from a one-time loss of jobs.

In another study of this region, Carolyn Sherwood-Call (1996) finds that per capita income growth in New York and New Jersey was surprisingly strong in the 1980s, in contrast to standard views that income levels across the nation should converge, with slower growth over the long haul in higher-income regions. It is then tempting to argue that the slowdown in the 1990s in the New York area represents a return to the longer-term trend; however, there are several reasons to question such an interpretation. First, as documented by Barro and Sala-i-Martin (1991), the income convergence process in the U.S. is slow, and does not necessarily stand out in the data over periods as short as a decade. Second, the differing movements of income and

---

[5]Their study uses measures of output by industry, rather than personal income. Personal income for a state is closely related to gross state product--the sum of the output of all industries.

employment in the New York area in the 1990s--with the substantially stronger performance of income--suggest that convergence phenomena (for instance, more rapid loss of high than low-income jobs) do not easily explain recent developments. 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, implying that agglomeration effects outweigh congestion effects. This suggests that income in high-density regions like New York should remain relatively high compared to other regions.

Turning to the literature examining data from urban areas (as opposed to states), Coulson and Rushen (1995) estimate a 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 the initial stages of the Miracle were "high-technology" (proxied by employment in the San Jose metropolitan area) shocks. In contrast, they find that the national and regional shocks were the major contributors to the subsequent downturn.

Our statistical analysis combines the Coulson and Rushen approach and the Blanchard and Katz approach. 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; however, we are interested in how these relationships may have changed over time. The analysis begins with the nonfarm payroll employment data, and then proceeds to examine the data for personal income and wages and salaries.

Employment

We begin our analysis by examining how the sensitivity of the region's employment to

national employment has changed over the years.[6] To do so, we estimate rolling regressions of regional employment growth on the current value plus three lags of employment growth in the rest of the nation.[7] The regressions are estimated over 10 year periods.[8]

Chart 4 presents the estimates of the elasticity of regional employment to national employment derived from these regressions.[9] As the chart clearly shows, these estimates have changed over time. For ten-year samples beginning in the 1960s, a one percent increase in national employment was associated with a one percent increase in regional employment. That relationship weakened for samples beginning in the 1970s and early 1980s; the elasticity fell to less than one-half. For samples that begin after 1982, though, the national-regional employment relationship has strengthened to levels one might associate with the cyclically sensitive Midwest, with the elasticity rising to over one.[10]

---

[6]In all of the regression analysis, the "national" variables refer to the U.S. excluding the New York metropolitan area.

[7]Augmented Dickey-Fuller tests indicated a unit root in the levels of national and regional employment, but rejected a unit root in the growth rates of the two series. Cointegration tests indicated no cointegration between national and regional employment. Similar results were found for personal income and wages and salaries. Therefore, all the regression analysis in this paper was done using growth rates.

[8]The regressions presented in this section do not include any variables to account for a possible break resulting from the construction of the regional employment data. Including dummy variables to account for the possible break do not change the substantive results.

[9]Since the equations are in growth rates, the elasticity is simply the sum of the coefficients on current and lagged national employment growth.

[10]This paper attempts to summarize the data on the regional economy, not to analyze the specific forces causing the movements. It is tempting, though, to speculate about the reasons for these changing elasticities. The relative insensitivity of regional employment to national employment growth in the 1970s could have been the product of two factors: the shrinkage of the regional manufacturing sector and the rapid growth of financial and other business services. Both

Given the weakness in regional employment since 1989, the estimated stronger relationship between the region and the nation may seem surprising. However, as we discussed in the initial examination of the data, national employment growth has been sluggish over the last decade; thus the region's relative performance has not suffered as much it did in the 1970s. This suggests that the relationship between regional and national employment could have been expected to strengthen.

Nevertheless, the recent weakness in regional employment relative to the nation suggests that regional factors as well as national factors have been contributing to the region's weakness. To explore the contributions of national and regional "shocks" to regional employment, we turn to a simple two-variable VAR model of employment growth in the region and in the rest of the nation. These VARs are estimated with four quarterly lags.

VARs can be viewed as atheoretic reduced forms describing the dynamic interactions between endogenous variables: in this case, the growth rates of regional and national employment. In order to use the VAR to identify the effects of national and regional "shocks," we must decide on how to decompose the errors from each equation into these shocks. Although the choice is arbitrary, a natural way to do the decomposition 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

---

of these trends might have been independent of national forces. In the 1980s, the downsizing of the region's manufacturing sector slowed, and financial services growth was less explosive, possibly allowing national factors to play a larger role in the region.

is not correlated with the national shock.[11]

The national and regional shocks as identified by the VAR and the associated decomposition are plotted in Chart 5. One striking thing in this chart is the series of negative shocks to regional employment from 1989 through 1991, following the generally positive shocks of the early to mid-1980s. The cumulative size of these shocks amounts to about 3⅓% (over 7 times the standard deviation of the shocks). These negative shocks are comparable to, and in some cases even larger than, those of the early to mid 1970s. At the same time, there was also a series of negative national shocks, associated with the 1990-1991 recession and the initial slow recovery from it.[12]

To what extent could these regional and national shocks explain the region's poor employment performance in the early 1990s? To assess the potential effect of each shock, we examine the impulse response functions for this system, presented in Chart 6. In the case of the regional shock, a positive unit shock (which is just over 0.4%) initially raises employment growth about 0.4%, but has little effect on growth in the following quarter. In contrast, a positive unit national shock (which also is just over 0.4%) initially raises regional employment growth by only

---

[11]To be thorough, we did some analysis using a VAR where regional employment growth was ordered first, which assumes national employment growth has no contemporaneous effect on the region. As one might suspect, the role of the national shock on the region is much more limited. However, this ordering assigns an implausibly large role for this region in the fluctuations in the rest of the nation: The impulse response of national employment states that employment growth in the rest of the nation increases by over 0.2 percent for two quarters after a regional shock and over 30 percent of the forecast variance in the rest of the nation is explained by the New York shock. Although these results may appeal to those who take Steinberg's map of New York literally, they appear extreme to us.

[12]See David Brauer (1993) for a discussion of the slow-growth economy of the early 1990s.

0.25%, but it also raises growth in the following quarter by the same amount. In subsequent quarters, both shocks continue to have small positive effects which become negligible within a year-and-a-half to two years.[13] It appears that the regional shock is a bit more important than the national one in explaining fluctuations in regional employment growth, but not to any great extent. This impression is confirmed by the variance decomposition of regional employment growth: a bit over 60% of the variance of its forecast error at virtually all horizons is accounted for by the regional shock. Thus both shocks have the potential to explain a significant portion of the region's poor performance in the early 1990s.

To examine specifically the effects of these shocks on regional employment in the 1990s, we undertake a historical decomposition of regional employment growth over 1989:1-96:1. Chart 7 displays three series: the top graph presents the difference between the VAR's forecast (using information through 1988) and actual employment growth, while the bottom two graphs present the contributions to this forecast error from the national shock (middle graph) and the regional shock (bottom graph).

From this chart, we can see that regional shocks had a major role in initiating the regional slump, while national shocks played a large role in the persistence of the slump. 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 of 1990-91. National shocks contributed to the depth of the decline in 1990-91, and also were largely responsible for the persistence of the

---

[13]The regional shock's effect is slightly more persistent than that of the national shock, which leads to a larger eventual effect on the employment level. The accumulated effects of the regional and national shocks on the regional employment level are about 1.4% and 1.0% respectively.

regional slump in 1991-93.

Chart 8 translates the evidence from Chart 7 into effects on the employment level. It displays four paths of regional employment over 1989:1-1996:1. The lowest path is the actual track of regional employment. The top path is the baseline VAR projection, which states that in the absence of the shocks regional employment would have trended up almost one percent per year. By the first quarter of 1996, the gap between this baseline and actual employment is almost 1.2 million jobs.

The two paths between the actual path and the baseline projection illustrates 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 differences between these paths and the baseline path are the contributions of each shock 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 since the middle of 1990.

To provide a comparison to the 1989-1996 period, we also undertook a historical decomposition of 1970:1-1977:1, the other prominent regional employment slump, which is presented in Chart 9. To a large extent, the roles of the regional and national shocks are the reverse of their roles in 1989-1996. The national recessions in 1970 and 1973-1975 are the major factors behind the depth of the region's employment declines during those periods. On the other hand, it is the frequent negative regional shocks, even though their magnitudes were not as large

as those of 1989-96, that contributed to the persistence of the regional slump during the 1970s.[14]

The VAR results suggest that locally-generated shocks were the initial catalyst to the employment problems of the area since 1989, but the national economy also has been a major factor behind the persistence of the local problems. However, this conclusion rests on the specification of the VAR and the identification scheme. In particular, other variables not included in the VAR could be important contributing factors for regional employment. For example, the recent upheavals in the financial sector, which is a key industry in this area, may have been an important factor contributing to the weak employment performance in the region.

To explore this possibility, we estimate a three variable VAR, adding the growth of employment in the FIRE (finance, insurance, and real estate) sector to our previous system. We identify shocks by assuming that the residual in the national employment growth equation is the national shock, which is then followed by the FIRE sector shock and then by the New York regional shock.

The results for this 3-variable VAR can be summarized as follows. Adding the sectoral variable reduces slightly the negative national and regional shocks in the early 1990s, while there are large negative sectoral shocks in 1990-91 and 1994 (Chart 10). The impulse responses of regional employment growth to the national and regional shocks are hardly affected by the third variable. The impulse response of regional employment to a positive sectoral shock is initially negligible, but there is a small positive effect at the 2-4 quarter horizons (Chart 11). For most horizons, regional shocks explain about 60%, national shocks explain about 30%, and FIRE

---

[14]Translating the evidence from Chart 9 into effects on the employment level, if only the regional shocks had occurred during 1970-1977, then employment in the first quarter of 1977 still would have been below the peak of 1970:1, and nearly the same as the actual level.

shocks explain about 10% of the forecast variance of regional employment growth. Nevertheless, the FIRE sector appears to explain some of the region's employment weakness during 1989-1996 (Chart 12).[15] It is particularly important in explaining the slow growth in 1991-92 and 1994-95. The sluggish employment growth in this sector in the 1990s--first stemming from the credit crunch, more recently from large-scale restructuring--has been a contributing factor to employment weakness in this region.

Overall, the evidence in this section suggest the following. First, the relationship between fluctuations of national employment and regional employment has appeared to strengthen recently. Large regional shocks--clearly not confined to the financial sector--were the primary factor contributing to the severity of the local recession in the early 1990s. However, slow national employment growth after the 1990-1991 recession has been a major factor behind the persistence of the regional slump, unlike the 1970s slump when regional factors were the predominant players in the persistence of the slump.[16] With regional shocks subsiding and the stronger link between the nation and the region, we should expect less erosion of this 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, the likelihood is that, barring surprises, absolute employment growth in the region is likely to be sluggish.

---

[15]In contrast, for the 1970-77 period, the sectoral shock had little effect.

[16]The prolonged regional shocks in the 1970s suggest that "ratchet" or "endgame" effects (closing a long-term unprofitable operation during one final slump) probably do not explain that slump by themselves. It is possible that these effects were more important in the 1989-92 period, but the issue warrants further investigation.

Personal Income

As we noted in the initial examination of the data, the region's personal income relative to the nation's has not declined to the same extent as has employment. This suggests that fluctuations and "shocks" to national and regional personal income may have different roles to play in explaining the fluctuations of regional income than is the case for employment.

Even though the raw data point to a stronger national effect, the rolling regressions of regional personal income on national personal income produce similar results as the employment regressions. As with those regressions, the contemporaneous value and three lags of personal income in the rest of the nation were included in the regressions, which were estimated over 10-year periods.[17] The sums of the coefficients on national personal income and its lags are presented in Chart 13. Although the elasticity is about one for samples beginning in the early 1960s, it gradually declines for succeeding samples in the 1960s. For most of the samples beginning in the 1970s, the elasticity is around one-half, much like employment. Then, for samples which begin in the 1980s, the elasticity quickly increases to one again. As was the case for employment, it appears that the relationship between this region and the nation has strengthened.

From the rolling regressions, it is not obvious why income has done relatively better than employment. To investigate this further, we turn to a two-variable VAR consisting of regional

---

[17]These regressions also include four dummy variables. The first dummy equals one over 1959-74 and zero otherwise to account for the differing construction of the data for this period (see note 3). The second equals one for 1969:1 and zero otherwise to account for a break in the reported state data used in the extrapolation. The third and fourth dummies equal one in 1992:4 and 1993:1 respectively and zero otherwise to account for the front-loading of bonuses in late 1992. Excluding these dummy variables had little effect on the substantive results of the regression, although the elasticities at the end of the sample do rise well above 1.0 in this case.

and national personal income. The VAR was estimated in growth rates with four quarterly lags.[18] The residuals from the VAR equations were again decomposed into shocks assuming an ordering where the national variable was first.

The shocks from the VAR using this ordering are presented in Chart 14. As was the case of the employment VAR, the personal income VAR identifies the region as suffering from a series of negative shocks during 1989-91, which accumulated to almost 5.5% (over 8 times the standard deviation of the shocks).[19] Although individual quarters during the 1970s had similar negative regional shocks, the shocks in 1989-1991 appear to be more persistent. Also, the shocks in 1989-1991 occurred under a backdrop of a relatively mild national recession, whereas those in the 1970s occurred when the national economy was suffering under a more severe recession.

Turning to the effects of these shocks on the region's income, we first examine the impulse response functions. As shown in Chart 15, both shocks have an immediate strong positive effect on regional income, with the regional shock's effect being slightly larger.[20] In the case of the regional shock, the effect on regional income growth quickly dissipates, with small positive responses for up to a year following the shock. The effects of the national shock last slightly longer, with small positive responses up to 6 quarters following the shock. The variance

---

[18]The dummies for 1992:4 and 1993:1 were not included in the VAR so that we could examine the extent to which it identified the front-loading of bonuses in this period as a national vs. regional shock. The substantive results from the VAR were similar when these dummies were included.

[19]Also note that the VAR identifies the late 1992 bonus front-loading as a large positive shock followed by an even larger negative shock for both the nation and the region.

[20]However, the standard deviation of the national shock--which is the size of the unit shock--is about 0.84%, whereas the standard deviation of the regional shock is about 0.64%.

decomposition is consistent with the national shock having a greater effect on the region's income growth: almost 50% of the regional income forecast variance at all horizons up to 5 years is explained by the national shock.[21]

The historical decomposition of the regional income growth during 1989-1996 displays a different role for national shocks in explaining regional income fluctuations, compared to the its role in employment fluctuations. Chart 16 shows that the national shock was a large contributor to the depth of the local recession in 1990-1991.[22] However, the national shock does not display the persistent negative effects on income that we observed for employment, which may be one reason why income has done relatively better than employment. As was the case for employment, the regional shock was the initial catalyst for the local recession and a factor in its depth.

In contrast, the story for income during the regional slump in the 1970s is similar to that of employment. Chart 17 shows that national shocks primarily contributed to the depth of the local recession, especially during 1974-1975. The chart also shows that the frequent negative regional shocks during this period were the principal reason for the persistent local slump during this period, similar to the case for employment. This division between the contributions of the two shocks may be a reason for a weaker relationship between national and regional income during this period.

The results in this section suggest that the link between personal income of the national

---

[21]Carolyn Sherwood-Call (1988) finds that for VARs estimated over 1970-86, slightly over half the variance of two-year forecasts of New York and New Jersey personal income is explained by national income shocks. These estimates were a bit above the national median.

[22]In Chart 16, the effects of the frontloading of bonuses during 1992:4-1993:2 are truncated at ±2 percent so that the contributions in other periods can be presented more clearly.

and regional economies has strengthened in recent years. Notwithstanding this, the region was buffeted by regional shocks which were a drag to regional income during the early 1990s. However, national personal income did not exert the persistent negative effect on regional income during 1990-1993 that we observed for national employment on regional employment, which may be one reason why regional income has done better than employment during the 1990s.

Wages and Salaries

In the previous two sections, we have seen that although both the region's employment and income have been buffeted by regional shocks, the region's income has performed relatively better than employment during the 1990s. We now examine that portion of income most closely associated with employment, wages and salaries, to see whether these differences have come about only because of the non-employment based income in the region (dividends, interest, etc.), or also because of the employment base in the region (i.e., the jobs in the region are higher-paying).[23]

As before, we begin with the single-equation rolling regressions. In Chart 18, the pattern of elasticities of the region to the nation for wages and salaries is much like that for employment.[24] The elasticities fall to around one-half for samples beginning in the mid to late 1970s, and then

---

[23]Of course, the region has an unusually high amount of proprietors' income, which in industries such as law and finance are affected by many of the same factors which impact wages and salaries. 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 for recent years; the bulk of this difference probably reflects self-employment.

[24]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 which begin in the 1980s. For these samples, the elasticities rise to about 2.0 rather than 1.5.

rise to as high as about 1.5 for samples which begin in 1983 or later. These latter values are those one might expect to find in highly cyclical regions, again suggesting a stronger link between the region and the nation recently.

These rolling regressions suggest that the sensitivity of wages and salaries in the region to the nation has been similar to that of 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 wages to investigate why this may be so.[25]

The shocks to national and regional wages as identified by this VAR are pictured in Chart 19. Concentrating on the regional shocks during 1989-1992, the negative shocks are not as persistent as the negative shocks to employment and income. Instead, this period is dominated by two large shocks in 1989:1 and 1991:1, which more than account for the accumulated -4⅓% shock (about 5 times the standard deviation of the shocks) during 1989-1991. There were negative national shocks in this period also, but similar sized shocks occurred in the 1970s which were more persistent.

These national and regional shocks have about the same initial impact on regional wage growth, as shown by the impulse responses in Chart 20.[26] However, the response of regional wage growth to each shock differs in the following quarter: the response to the national shock is negligible, but the response to the regional shock is negative and fairly strong. Subseqently, the responses to each shock display similar patterns: small positive values which dissipate after about

---

[25]The specification of the VAR is the same as personal income except no dummy variables are included in the system.

[26]By coincidence, the standard deviation of each shock (the unit shock) is also about the same size, about 0.85%.

six quarters. This suggests that the national shock has a larger cumulative impact on regional wages. Even so, the variance decomposition indicates that the regional shocks explain almost 55 percent of the fluctuations in regional wage growth at horizons up to five years.

The historical decompositions of the two regional slumps indicate different roles for the national and regional shocks in each slump. In the 1990s, the roles of the national and regional shocks differ from their roles during this period in either the employment or income VARs. Chart 21 shows that national shocks were a major factor in the weakness of wages through 1991.[27] Regional shocks had a very small catalyst effect 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. In constrast, the decomposition of the 1970s shown in Chart 22 is similar to those of 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 which occurred during this period.

As were the cases for employment and income, the results in this section indicate that the relationship between national and regional wages has strengthened in recent years. Moreover, weakness in national wages played a prominent role in the decline of regional wages during the early 1990s. However, regional wage shocks, possibly from the restructuring of the financial sector, have been helping to hold down wage growth in the last two years. This may portend some additional problems for the region in the future.

---

[27]In Chart 21, the effects of the frontloading of bonuses during 1992:4-1993:2 are truncated at ±4 percent so that the effects in other periods could be identified more easily.

Conclusion

Although this paper is a preliminary examination of the data, we have come to a number of conclusions. First, all three economic indicators we examined suggest that this region is more tightly linked to the national economy than it was during the 1970s. Second, even though we find this tighter link, regional shocks were catalysts for the local recession of the 1990s and major contributors to its severity. Third, the recent local recession is unlike the 1970s local recession in that national developments were significant factors in prolonging the 1990s recession, whereas regional factors were almost solely responsible for prolonging the 1970s recession. This last result implies that although absolute regional employment growth is likely to remain sluggish in the future, we should expect less of a decline in regional employment relative to the nation.

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

As befits a preliminary examination, we leave a number of questions unanswered. For example, what is the ultimate source of the regional shocks we discuss in the paper? To what extent are they the consequence of the industry composition of the region? The demographics of the region? Some sort of "true" regional shocks? We leave these questions open for now.

A policy question raised by our results also remains unanswered. Although the relatively stronger regional income data suggest that the region still can generate high-paying jobs, the weak employment data suggest that a significant portion of the population at the lower end of the

economic spectrum have been left behind. As we discussed in a footnote, Blanchard and Katz (1992) emphasize the role of outmigration as a stabilizing mechanism after a local shock; however, this takes considerable time. Should we wait for the migration process to work, or can we help those left behind to enter the economic mainstream without damaging those portions of the local economy which demonstrate vibrancy?

References

Abraham, Katherine G., and Lawrence F. Katz (1986). "Cyclical Unemployment: Sectoral Shifts or Aggregate Disturbances?" ***Journal of Political Economy*** 94, 507-22.

Barro, Robert J., and Xavier Sala-i-Martin (1991). "Convergence Across States and Regions." ***Brookings Papers on Economic Activity*** 1991:1, 107-58.

Blanchard, Olivier Jean, and Lawrence F. Katz (1992). "Regional Evolutions." ***Brookings Papers on Economic Activity*** 1992:1, 1-75.

Brauer, David (1993). "A Historical Perspective on the 1989-92 Slow Growth Period." ***Federal Reserve Bank of New York Quarterly Review***, 18:2 (Summer 1993), 1-14.

Brauer, David, and Mark Flaherty (1992). "The New York City Recession." ***Federal Reserve Bank of New York Quarterly Review***, 17:1 (Spring 1992), 66-71.

Caner, Selcuk, and Cecile Fu (1995). "Factor Analysis of Business Cycles and Sources of Regional Growth." Mimeo, January.

Carlino, Gerald A., and Robert H. DeFina (1996). "Does Monetary Policy Have Differential Regional Effects?" Federal Reserve Bank of Philadelphia ***Business Review***, March/April 1996, 17-27.

Ciccone, Antonio, and Robert E. Hall (1996). "Productivity and the Density of Economic Activity." ***American Economic Review*** 86, 54-70.

Clark, Todd (1992). "Business Cycle Fluctuations in U.S. Regions and Industries: The Roles of National, Region-Specific, and Industry-Specific Shocks." Federal Reserve Bank of Kansas City Working Paper Number 92-05, November.

Coulson, N. Edward, and Steven F. Rushen (1995). "Sources of Fluctuations in the Boston Economy." ***Journal of Urban Economics*** 38, 74-93.

Drennan, Matthew P. (1995). "The Changing Industrial Structure of the New York Region." Mimeo, Cornell University, November 1995.

Drennan, Matthew P. (1996). "The Performance of Metropolitan Area Industries."

Glickman, Norman J. (1976). ***Econometric Analysis of Regional Systems***. New York (Academic).

Hughes, James W., and Joseph J. Seneca (1996). ***Regional Economic Long Waves:***

Employment Dynamics in the Tri-State Region. New Brunswick (Rutgers).

Lilien, David M. (1982). "Sectoral Shifts and Cyclical Unemployment." ***Journal of Political Economy*** 90, 777-93.

New York State Department of Economic Development (1994). "A Long-Term Statistical Review of the New York State Economy." Working Paper Number 94-2, September.

Sherwood-Call, Carolyn. (1996). "The 1980s Divergence in State per Capita Incomes: What Does it tell Us?" Federal Reserve Bank of San Francisco ***Economic Review***, 1996:1, 14-25.

_____ (1988). "Exploring the Relationship Between National and Regional Economic Fluctuations." Federal Reserve Bank of San Francisco ***Economic Review***, 1988:3, 15-25.

Table 1

Employment Declines in the New York Area

1970Q1-1975Q4	
Peak level:	7.798[1]
Trough level:	7.295
Change (percent):	-.503 (-6.5)
Peak share of nation:	10.943
Trough share of nation:	9.391[2]
Change:	-1.6
1989Q1-1992Q3	
Peak level:	9.371
Trough level:	8.536
Change (percent):	-.835 (-8.9)
Current level:	8.824 (1996Q1)
Peak share of nation:	8.720[3]
Trough share of nation:	7.864
Change:	-0.9
Current share of nation:	7.4

---

[1]Millions

[2]1979Q4: 8.7

[3]1982Q3-1984Q2: 9.1

Table 2

Personal Income During
Employment Declines in the New York Area

1970Q1-1975Q4

Peak share of nation:	11.520
Trough share of nation:	10.231[1]
Change:	-1.3

1989Q1-1992Q3

Peak share of nation:	9.909[2]
Trough share of nation:	9.675
Change:	-0.2
Current share of nation:	9.4

[1]1979Q1: 9.4

[2]1988Q4: 10.1

Table 3

Wages and Salaries During
Employment Declines in the New York Area

1970Q1-1975Q4

Peak share of nation:	11.572
Trough share of nation:	10.382[1]
Change:	-1.2

1989Q1-1992Q3

Peak share of nation:	10.372[2]
Trough share of nation:	9.875
Change:	-0.5
Current share of nation:	9.4

[1]1979Q1: 9.3

[2]1988Q1: 10.6

Chart 1
U.S. and Regional Employment

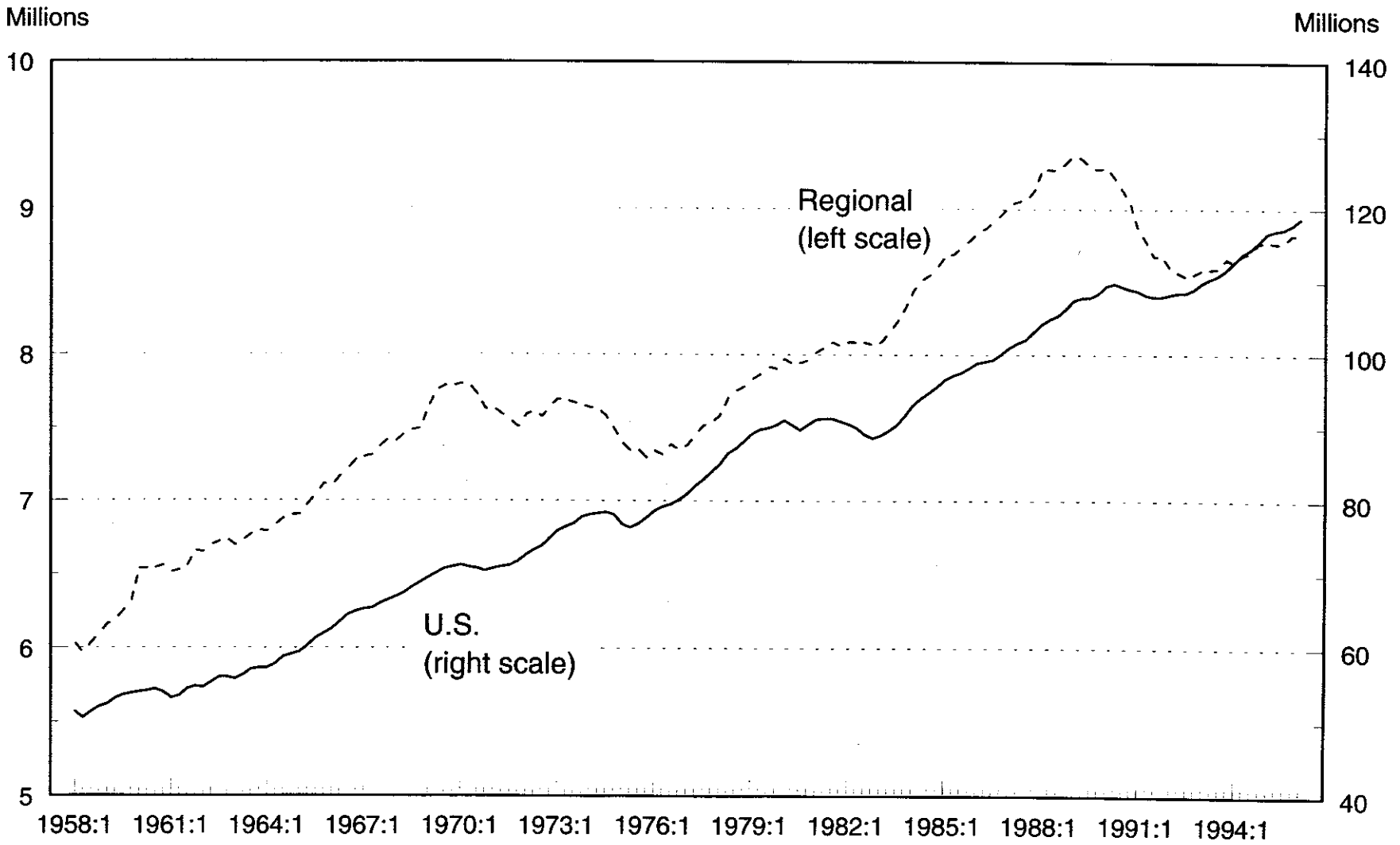

Chart 2
Regional Personal Income as a Share of the Nation

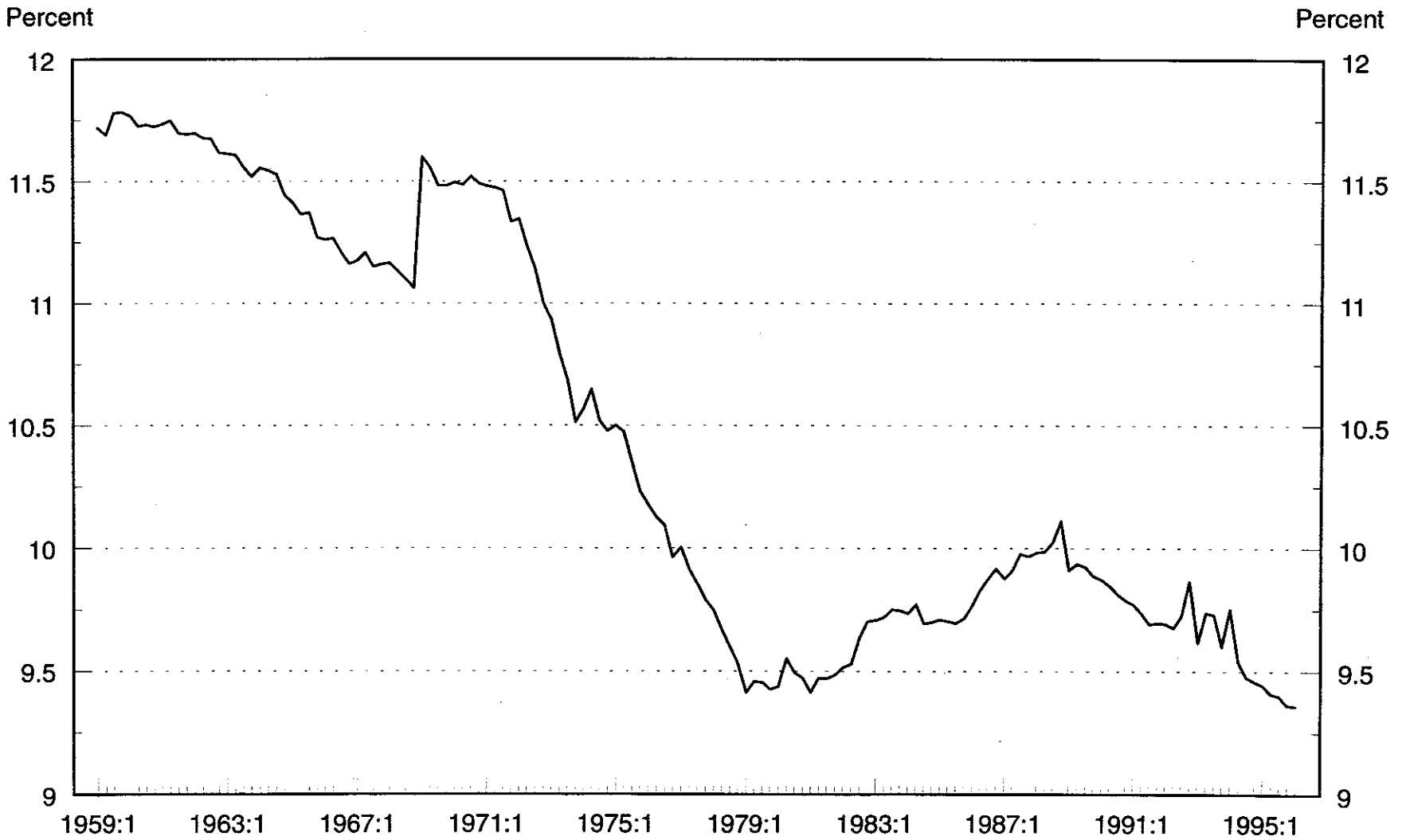

Chart 3
Regional Employment and Wages & Salaries as a Share of the Nation

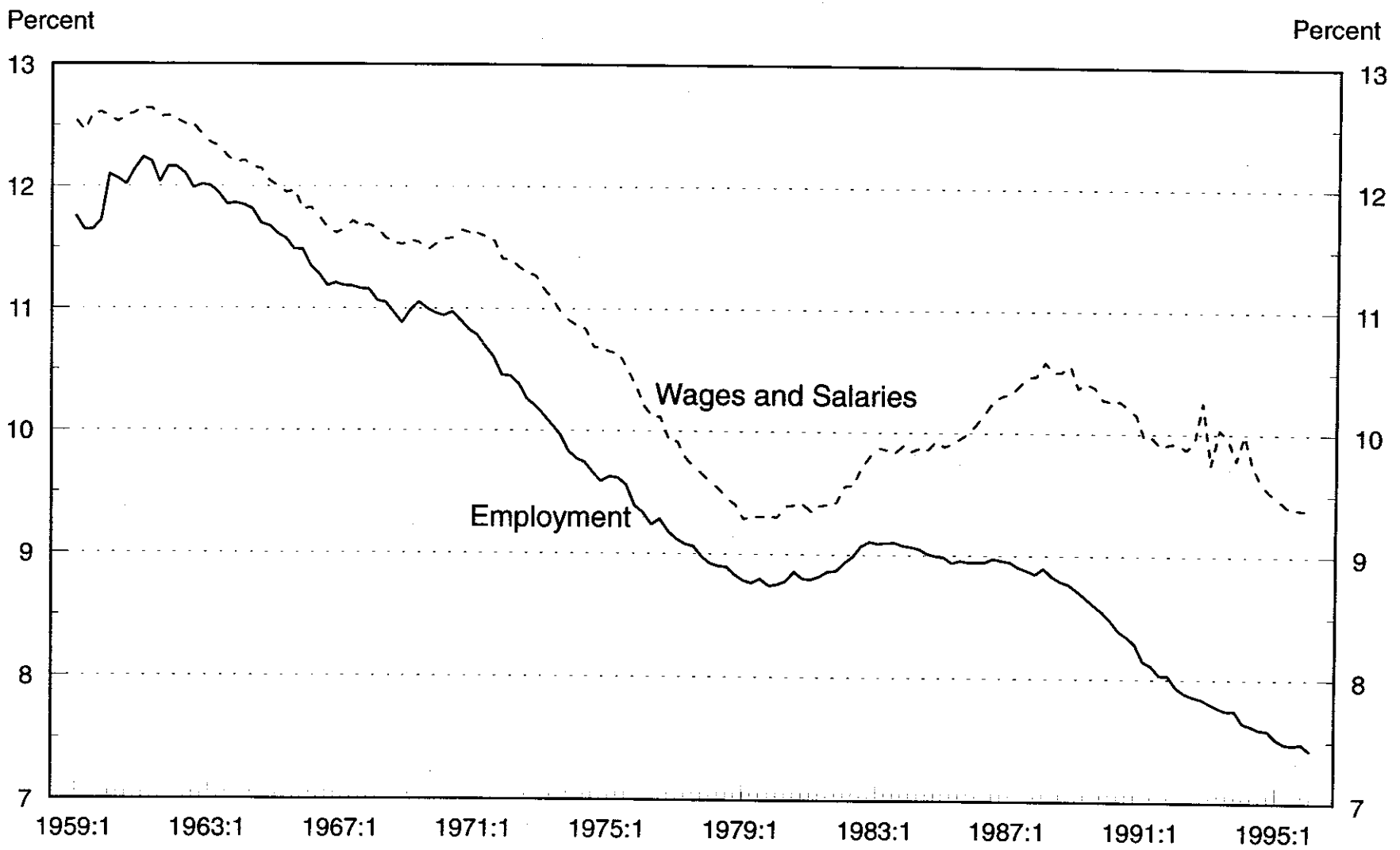

Chart 4. Elasticity of regional employment to national employment

from 10-year rolling regressions

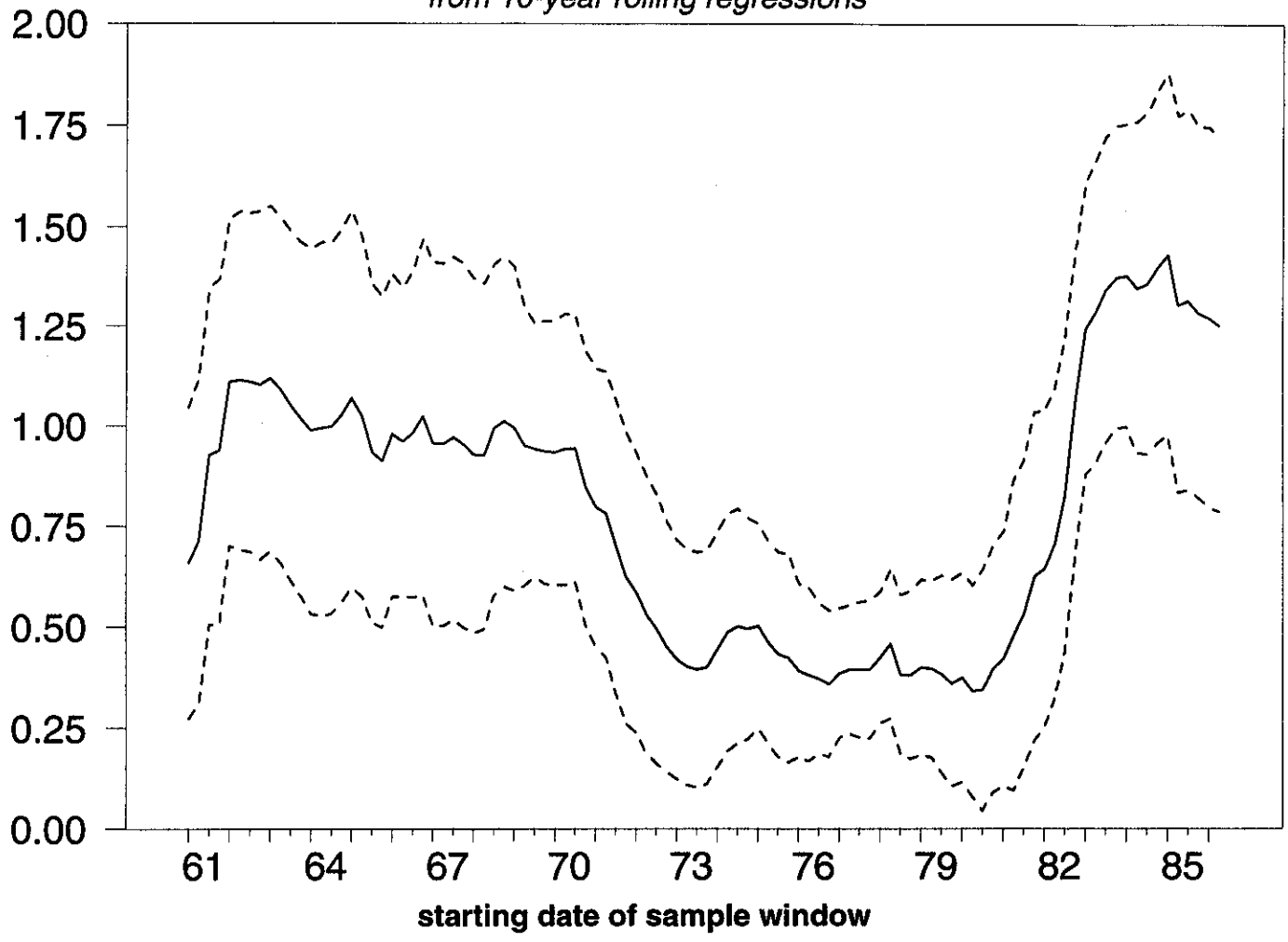

Chart 5. National and regional shocks.

as identified by the 2-variable employment VAR

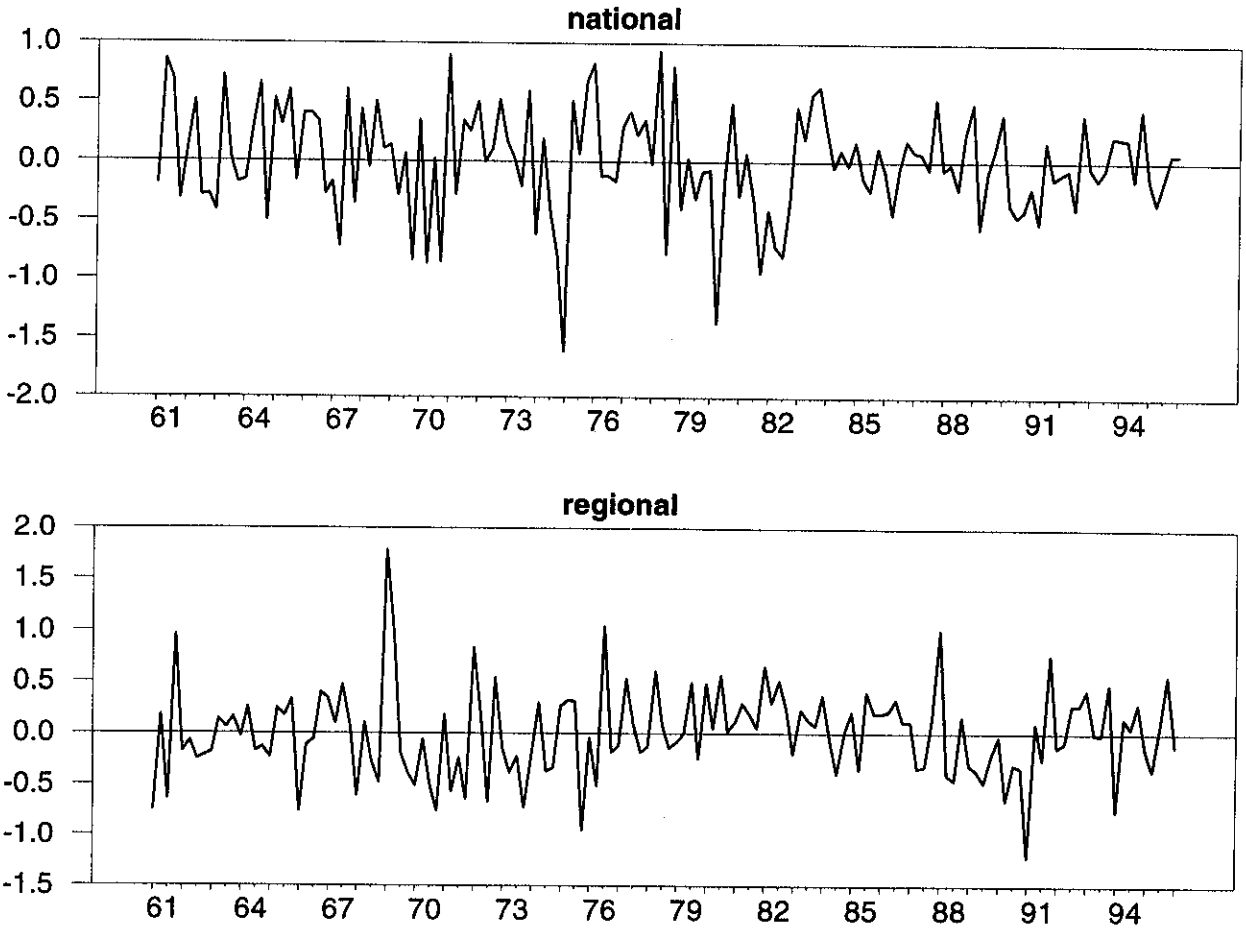

Chart 6. Impulse Responses of employment growth

with one standard error confidence bands

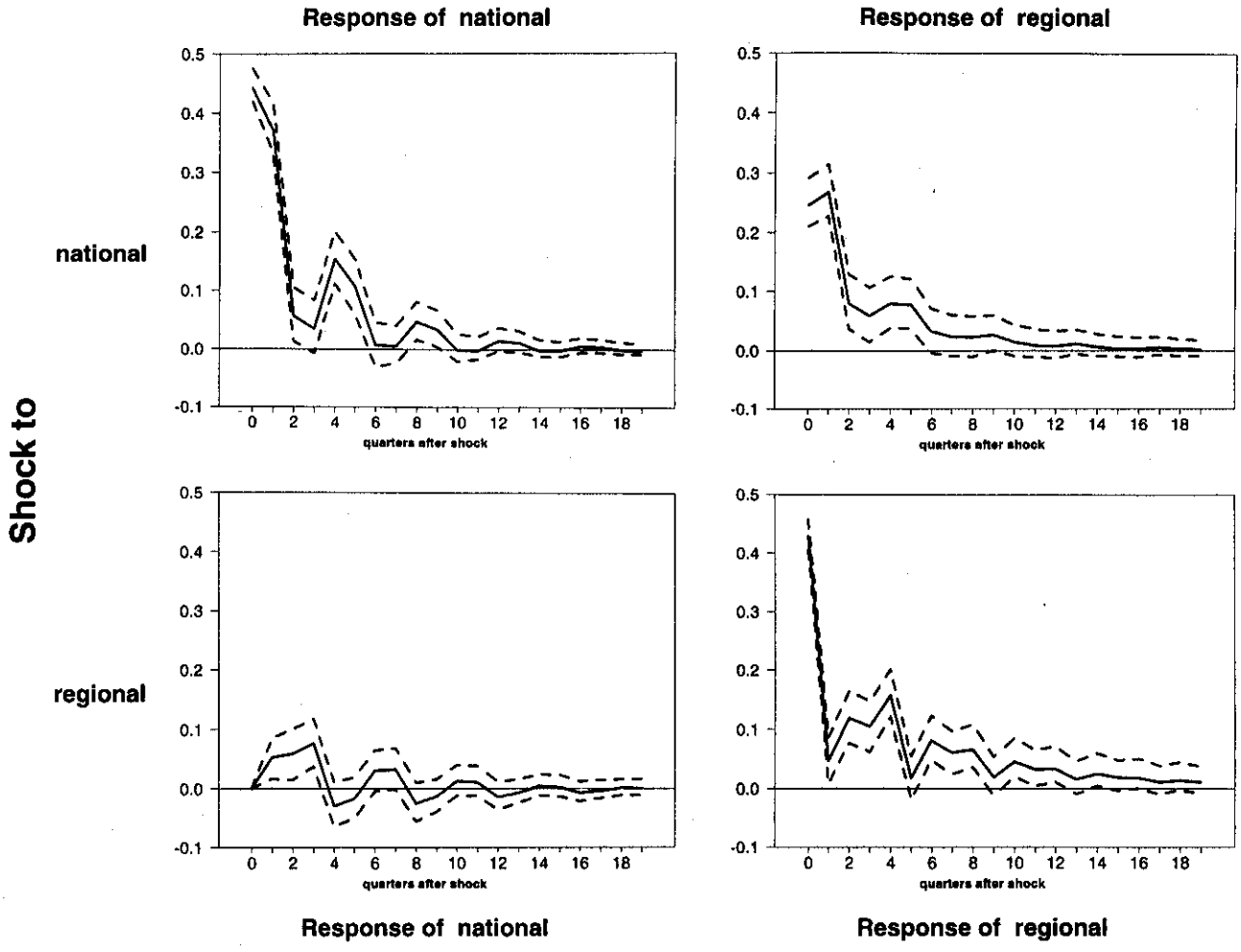

Chart 7. Historical decomposition of regional employment

1989:1-1996:1

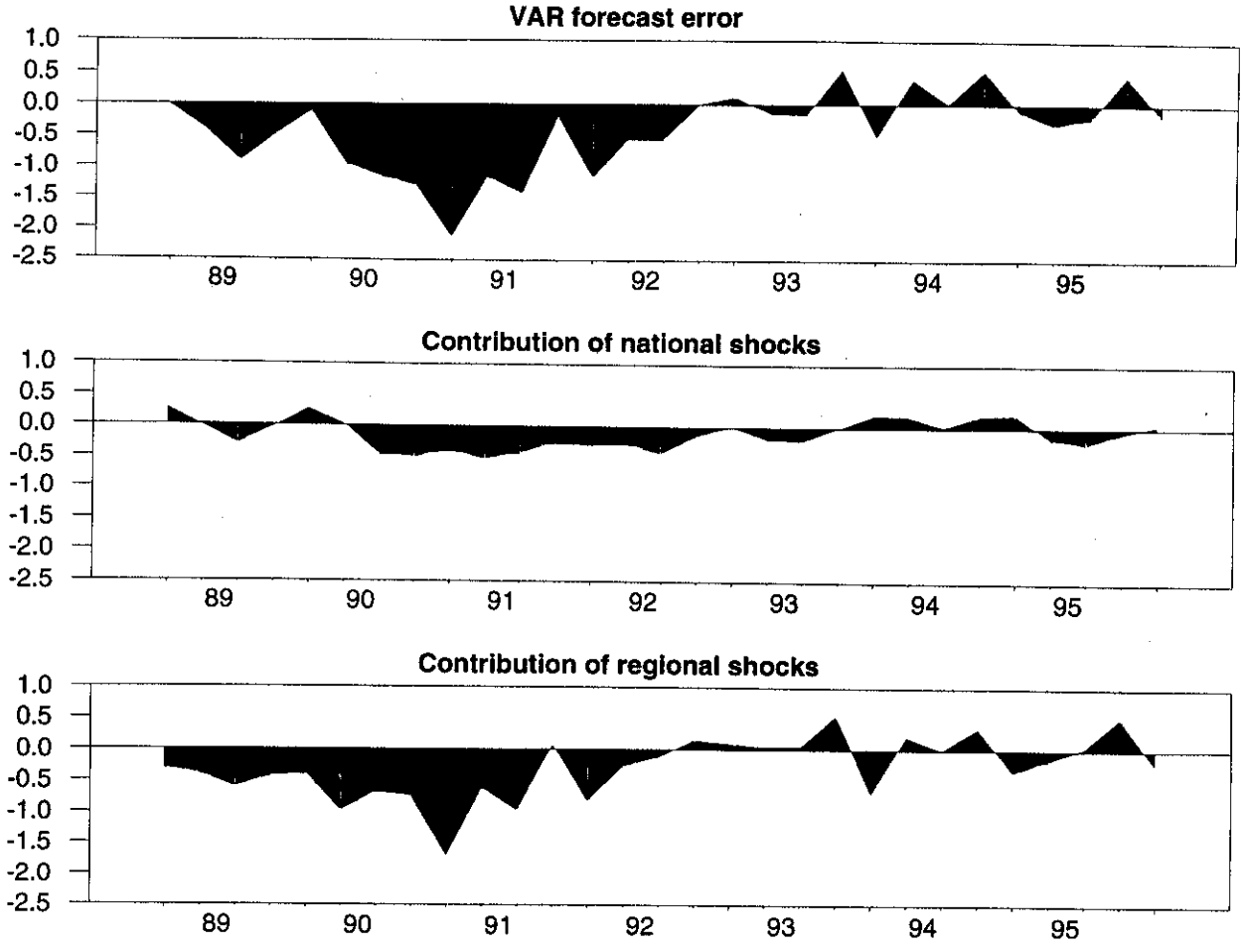

Chart 8. Alternative simulated employment paths, 1989:1-96:1

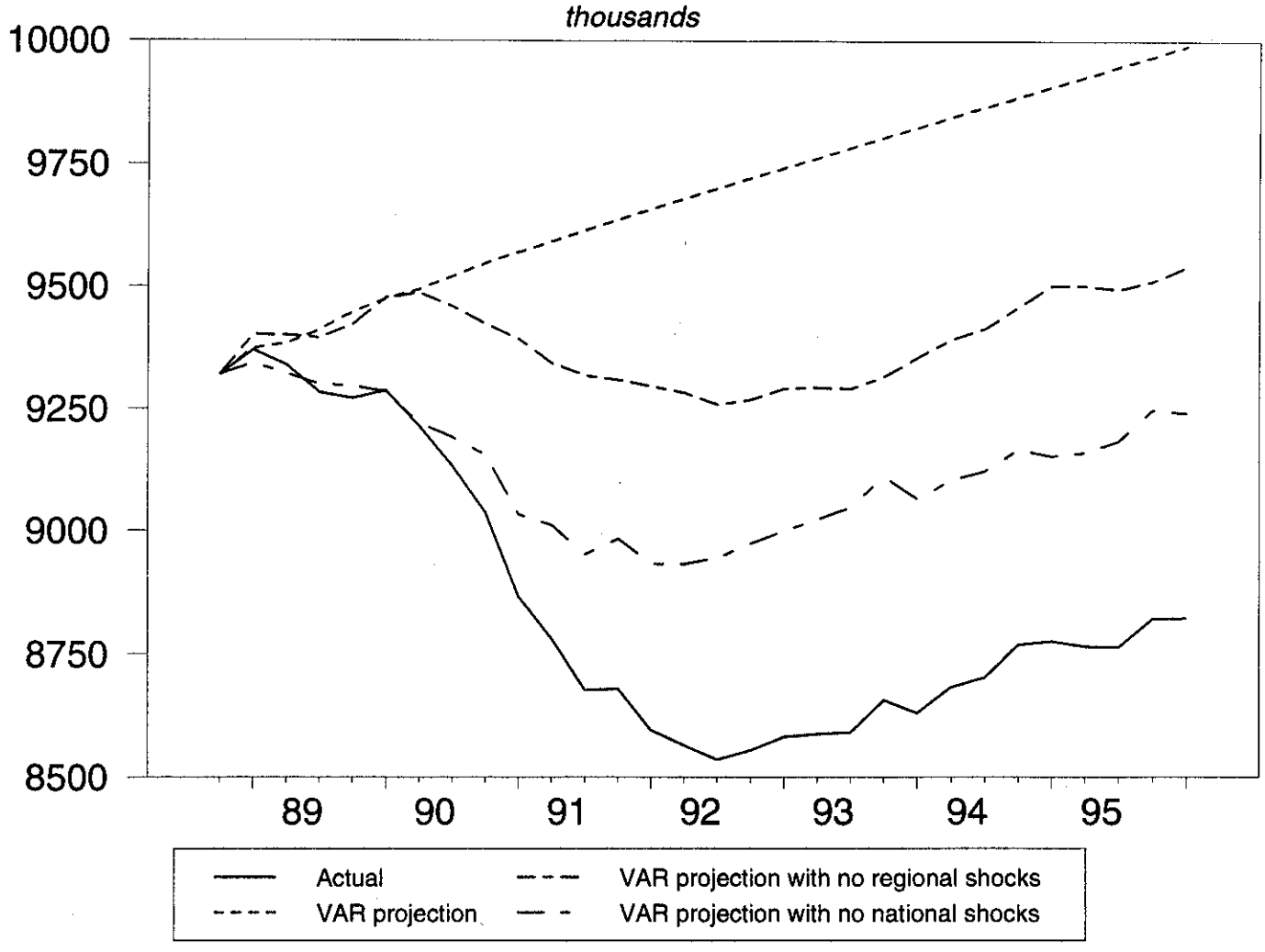

Chart 9. Historical decomposition of regional employment

1970:1-1977:1

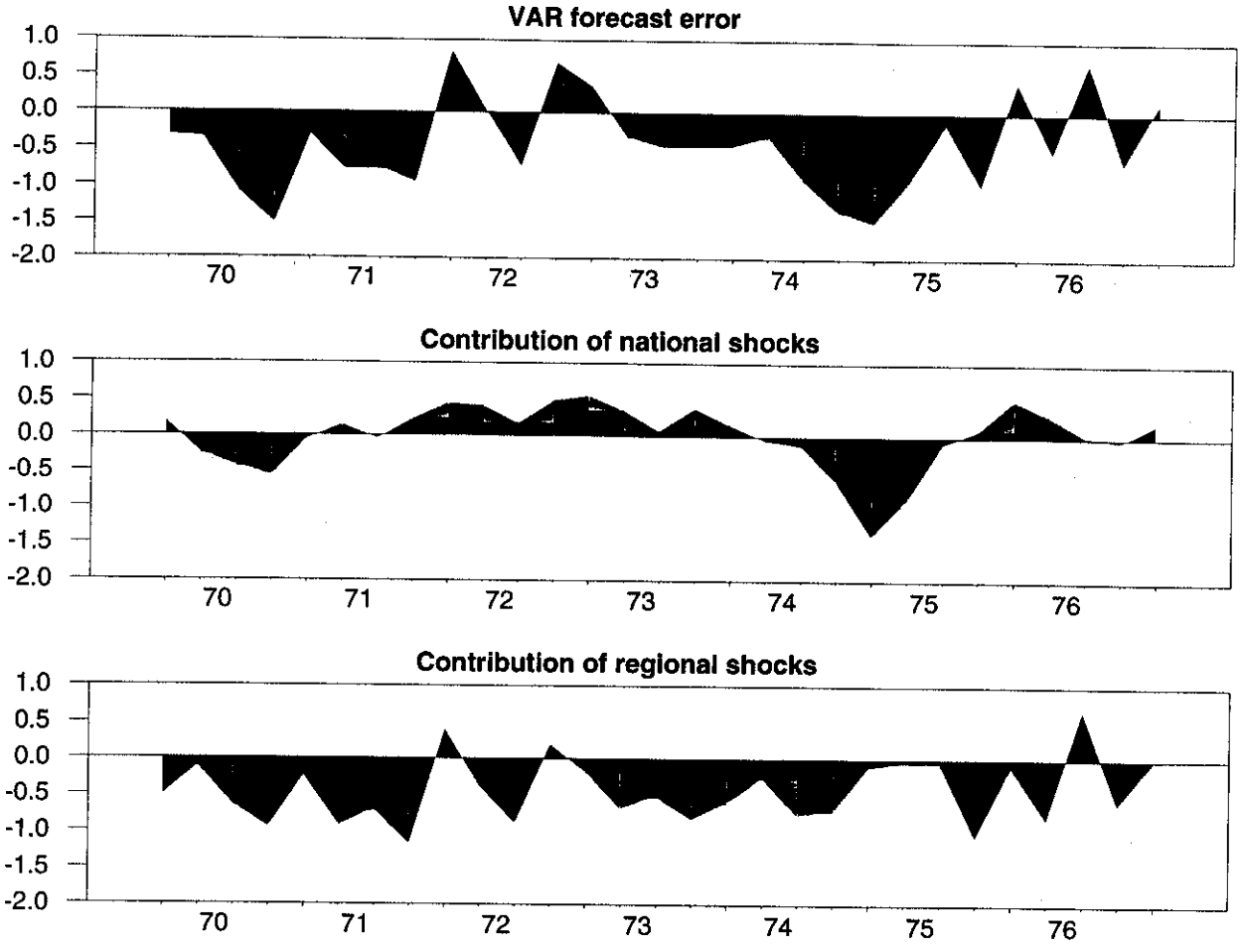

Chart 10. National, sectoral, and regional shocks

as identified by the 3-variable employment VAR

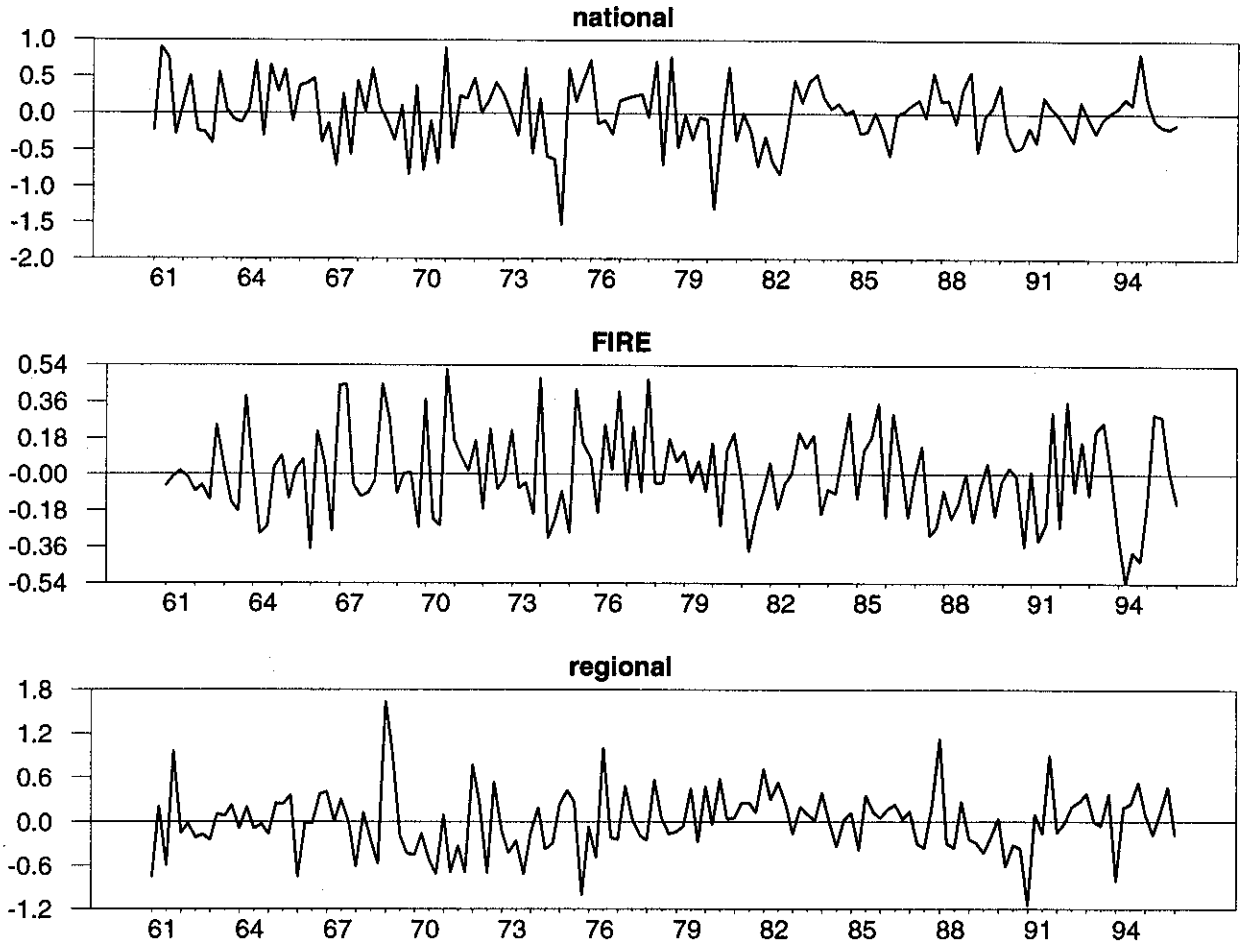

Chart 11. Impulse Responses of employment growth

with one standard error confidence bands

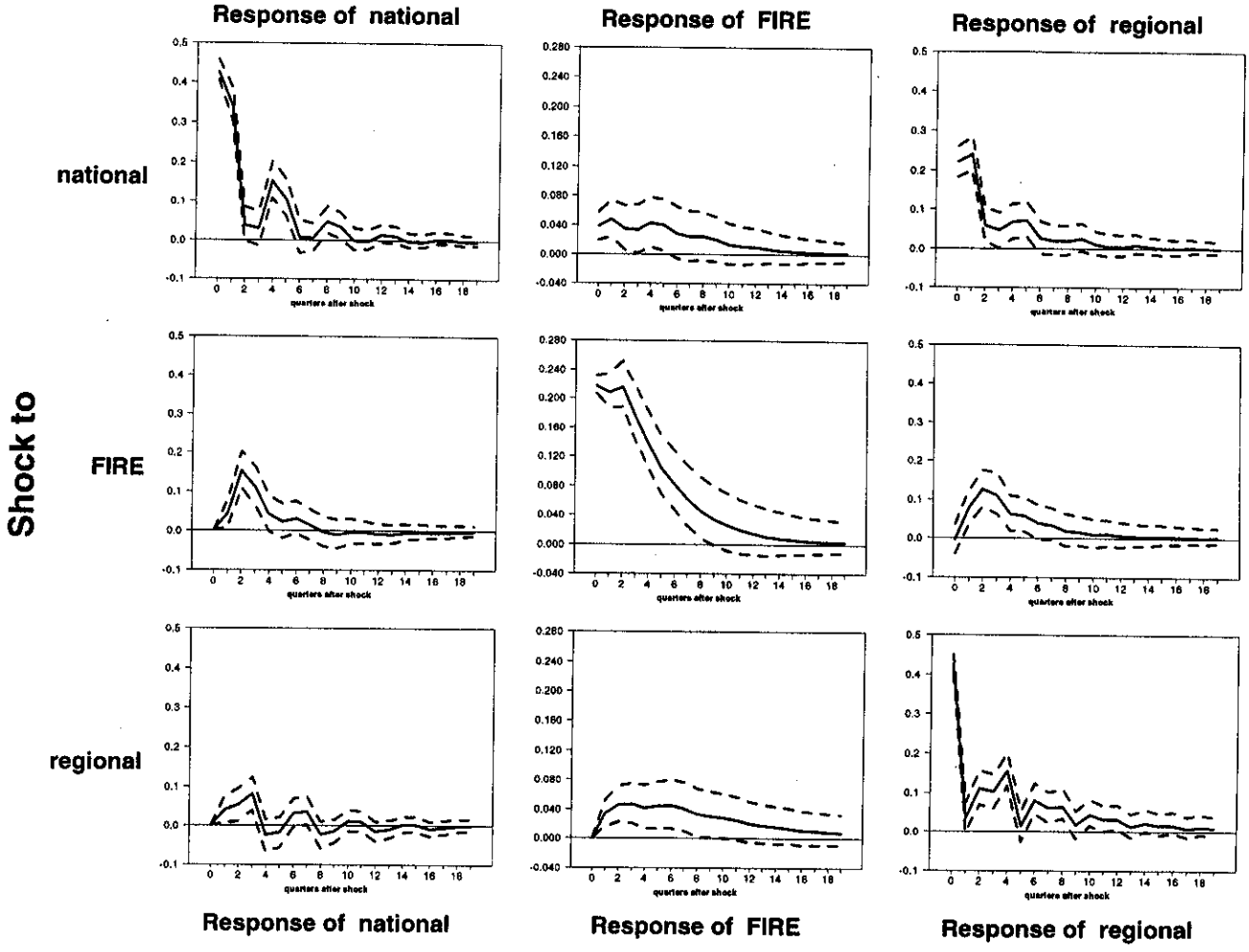

Chart 12. Historical decomposition of regional employment

1989:1-1996:1

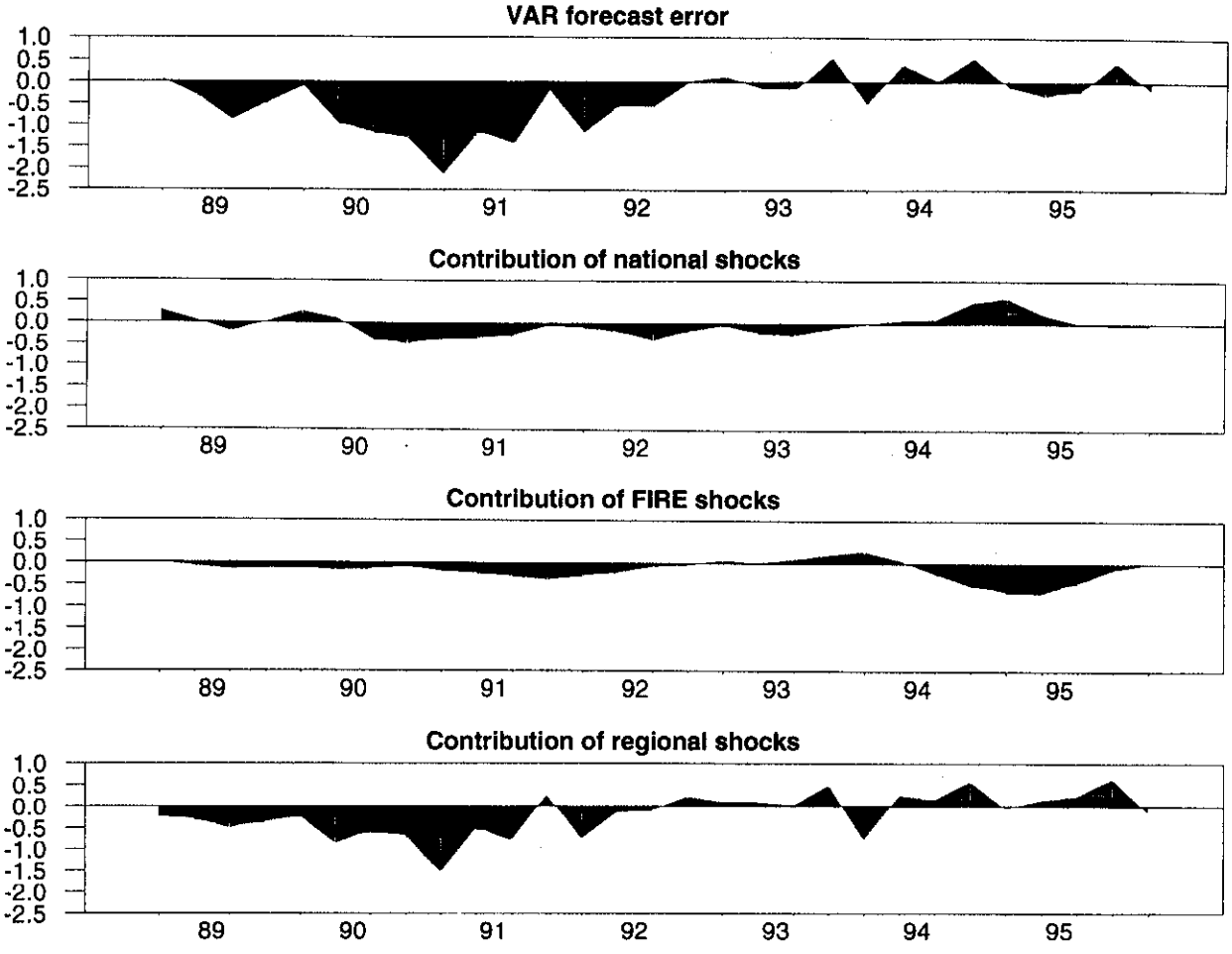

Chart 13. Elasticity of regional income to national income

from 10-year rolling regressions

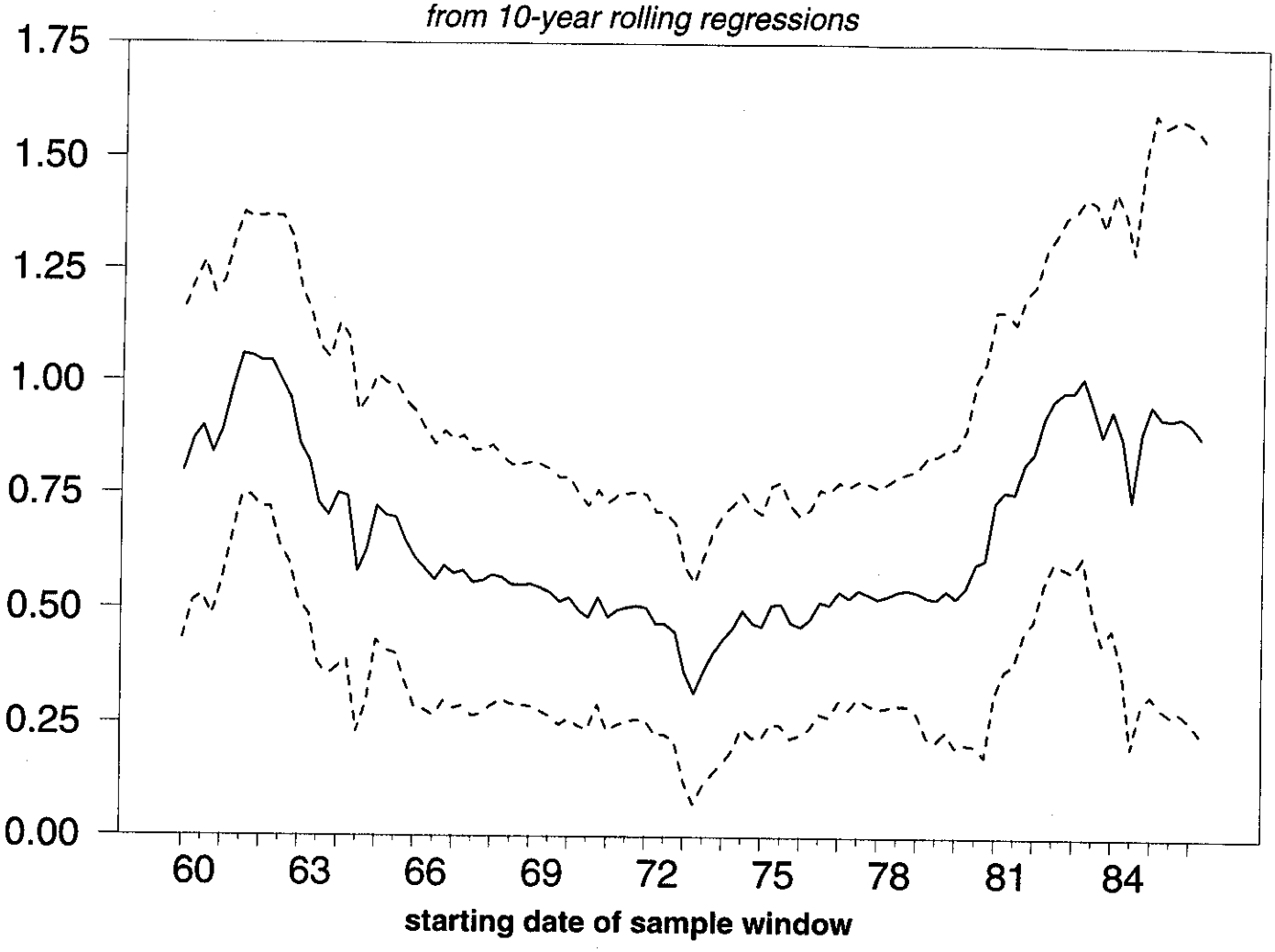

Chart 14. National and regional income shocks

as identified by the 2-variable income VAR

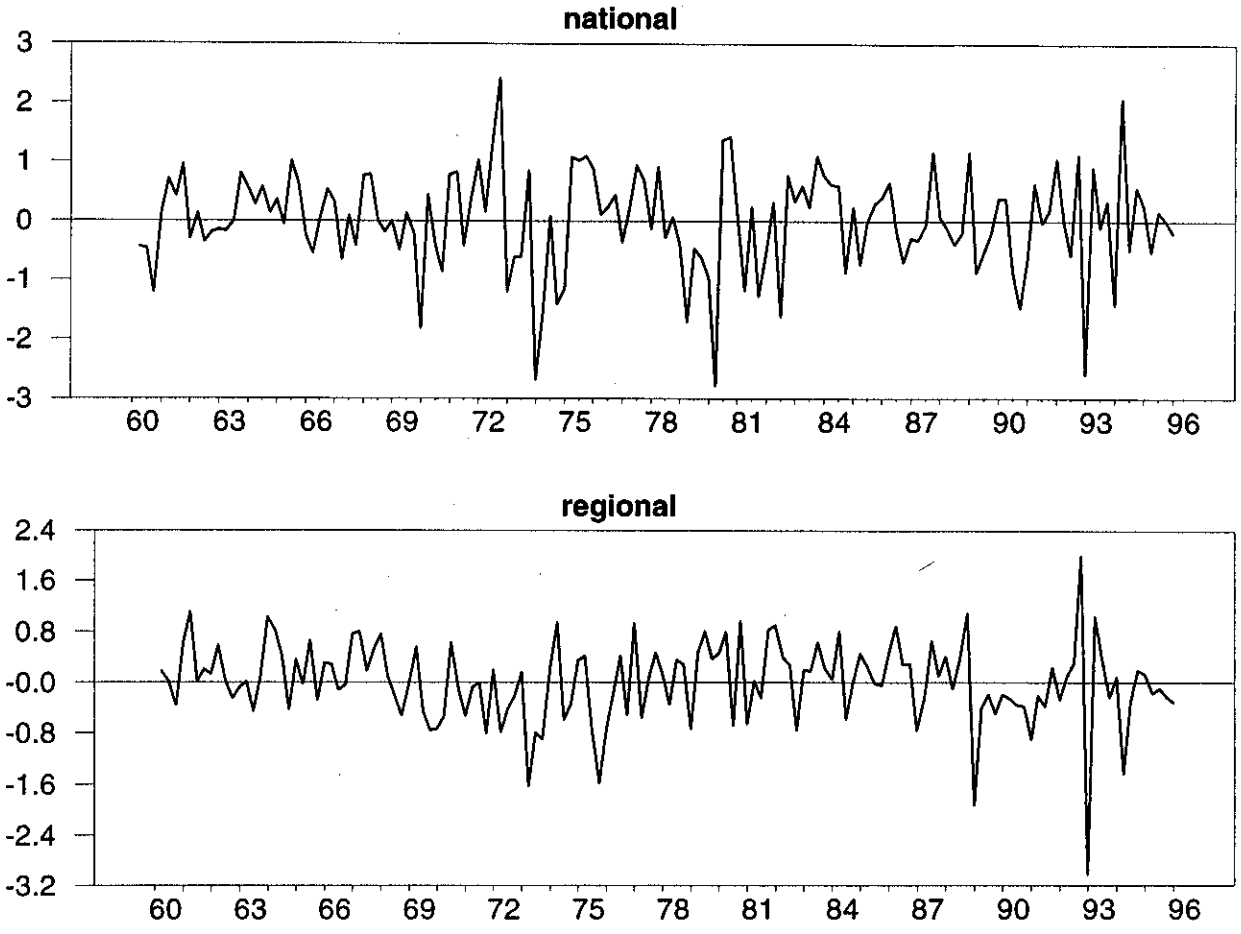

Chart 15. Impulse Responses of income growth

with one standard error confidence bands

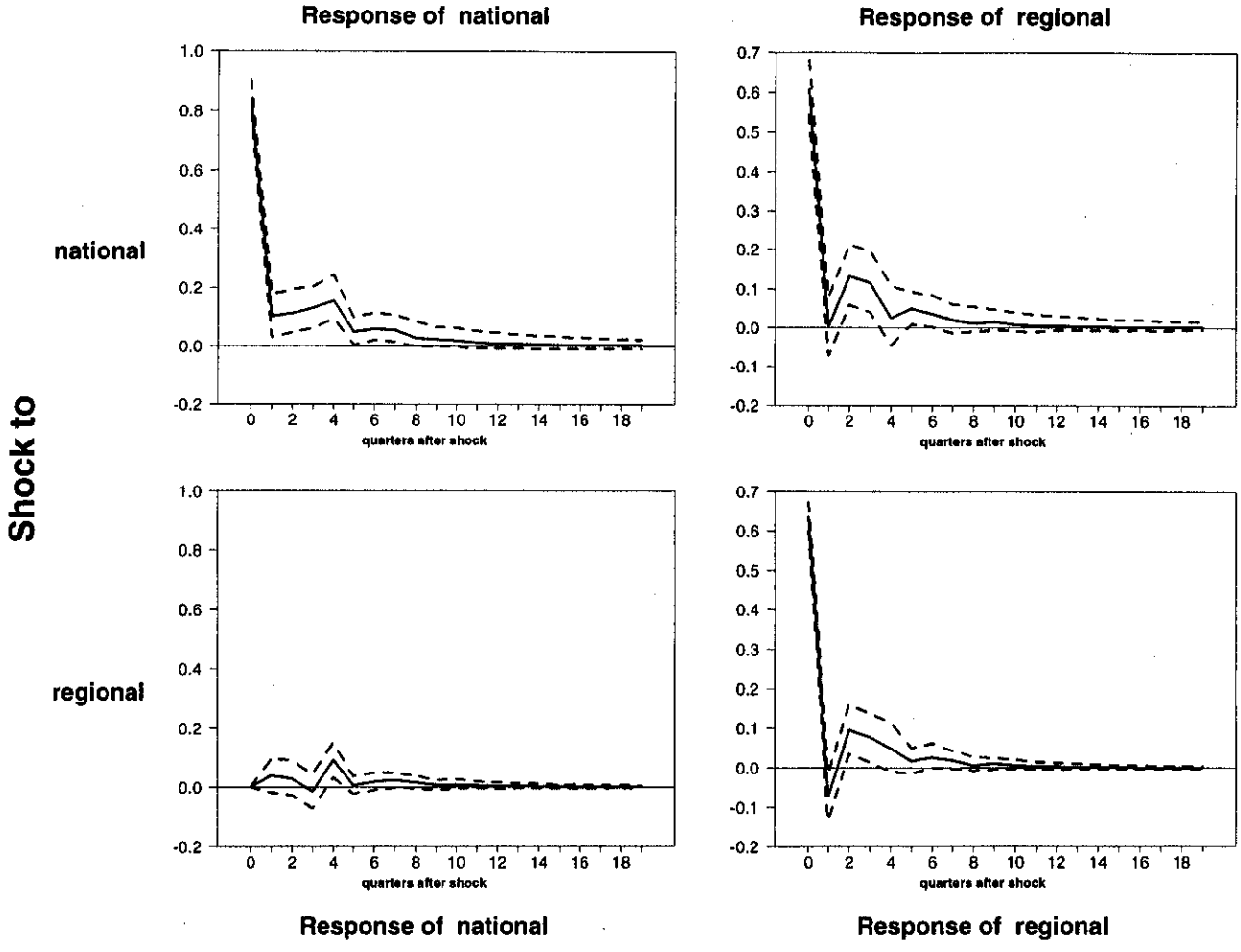

Chart 16. Historical decomposition of regional income

1989:1-1996:1

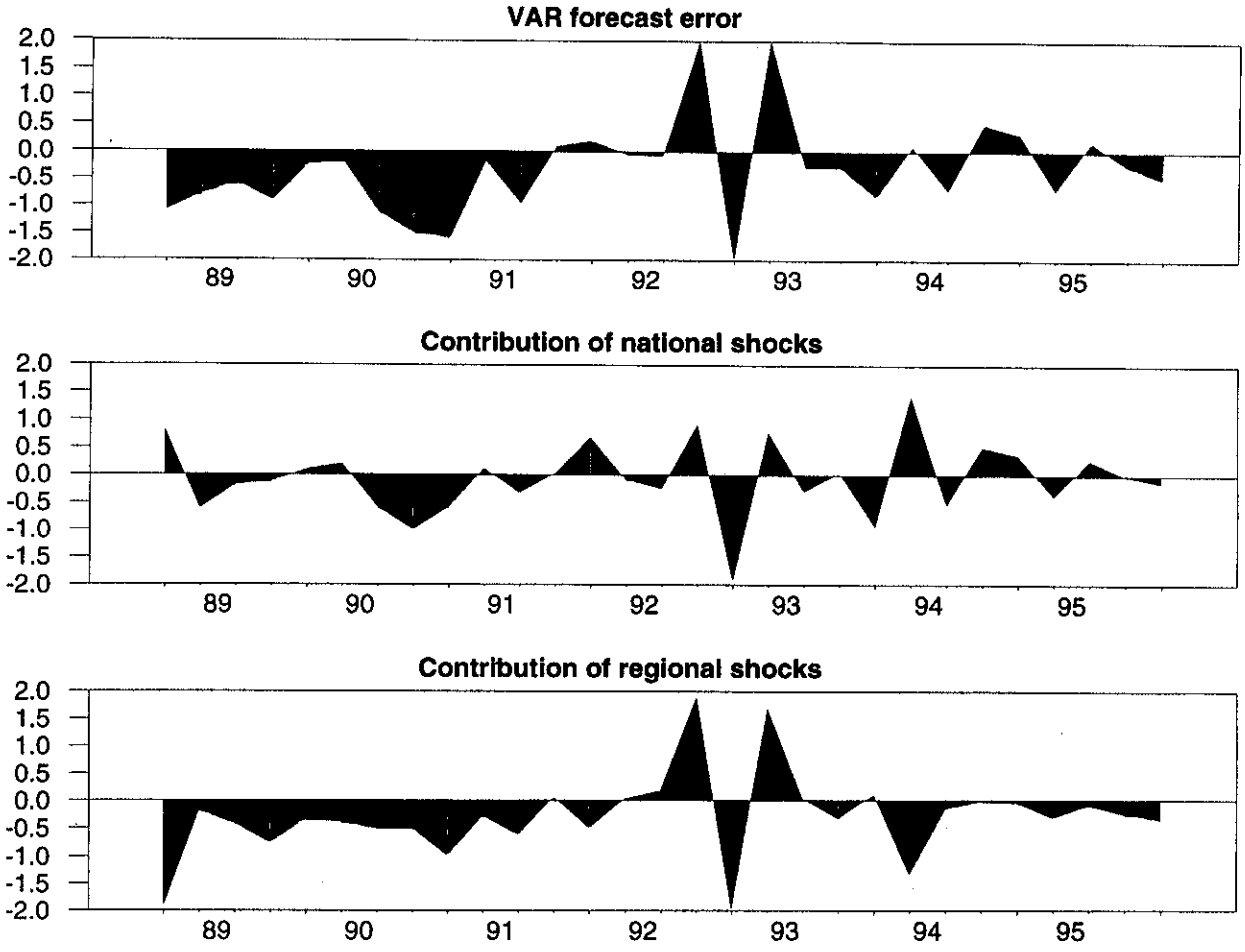

Chart 17. Historical decomposition of regional income

1970:1-1977:1

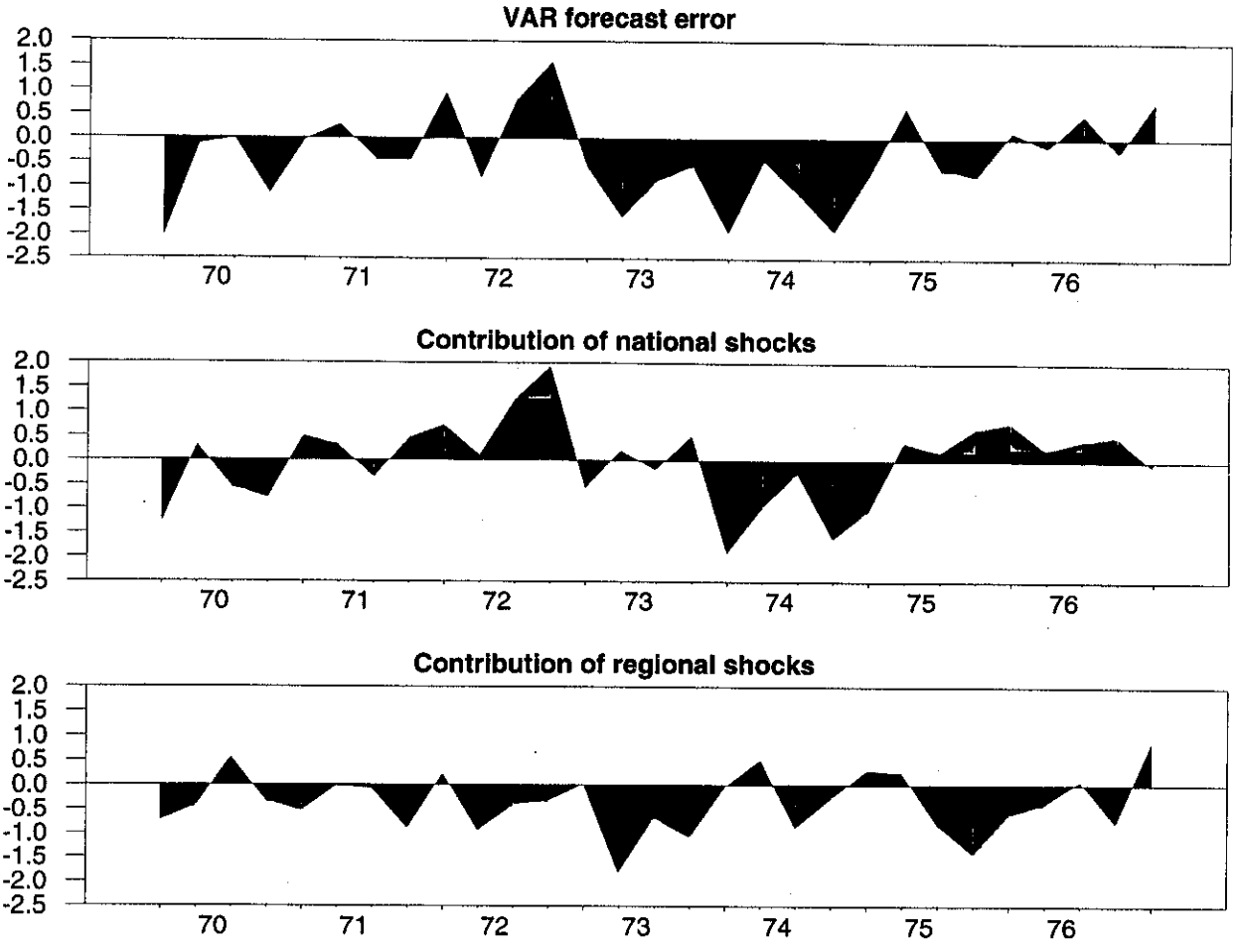

Chart 18. Elasticity of regional wages to national wages

from 10-year rolling regressions

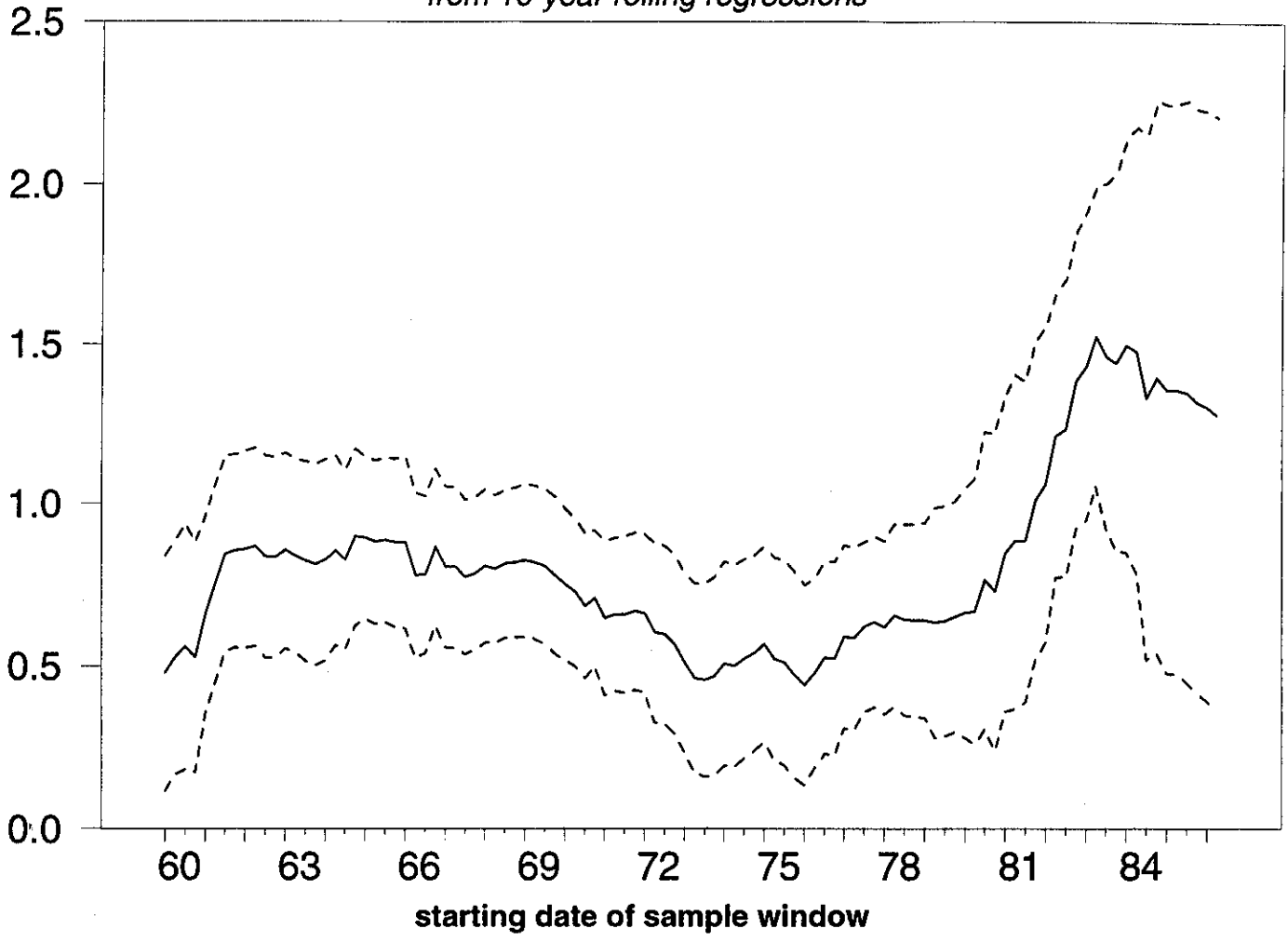

Chart 19. National and regional wage shocks

as identified by the 2-variable wage VAR

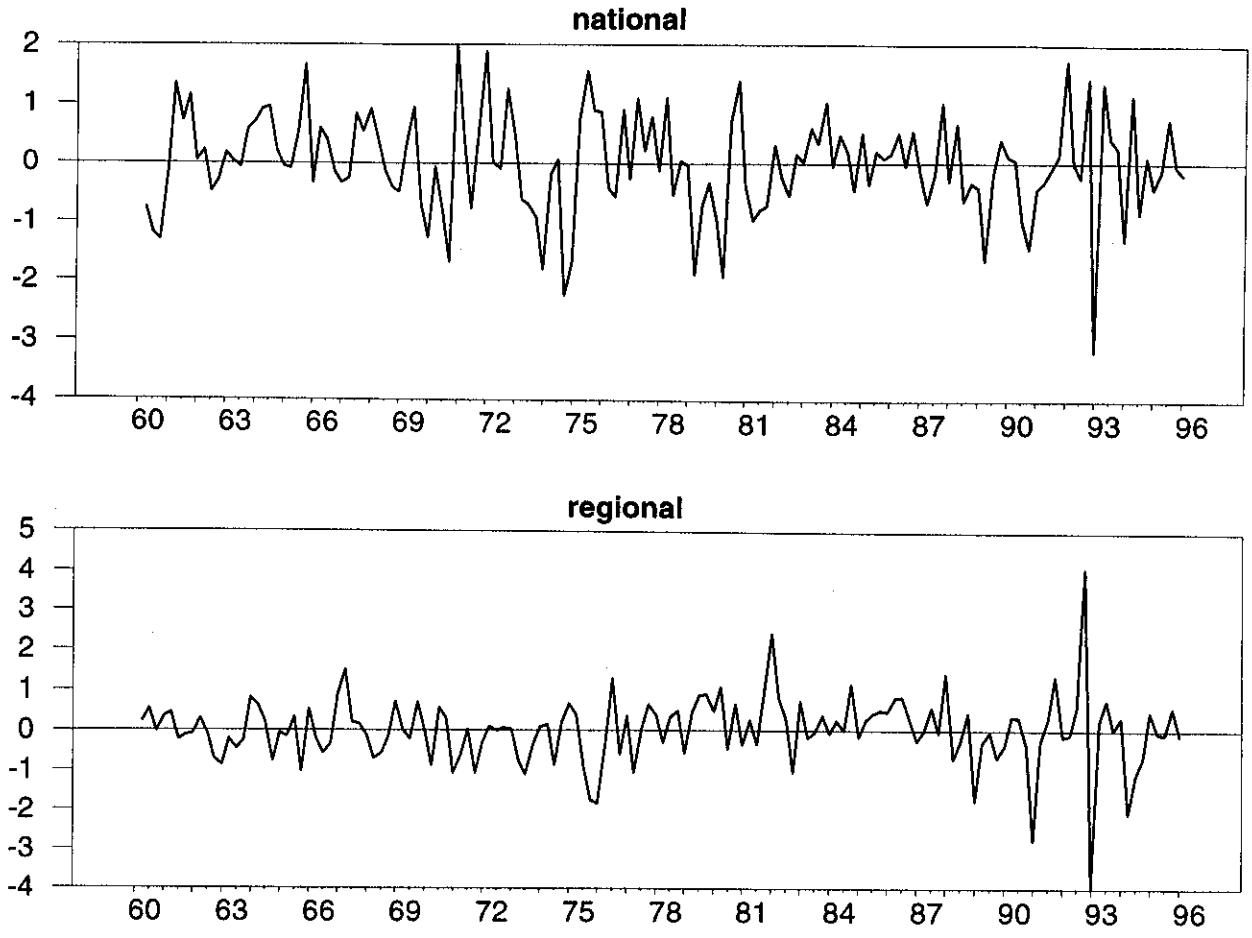

Chart 20. Impulse Responses of wage growth

with one standard error confidence bands

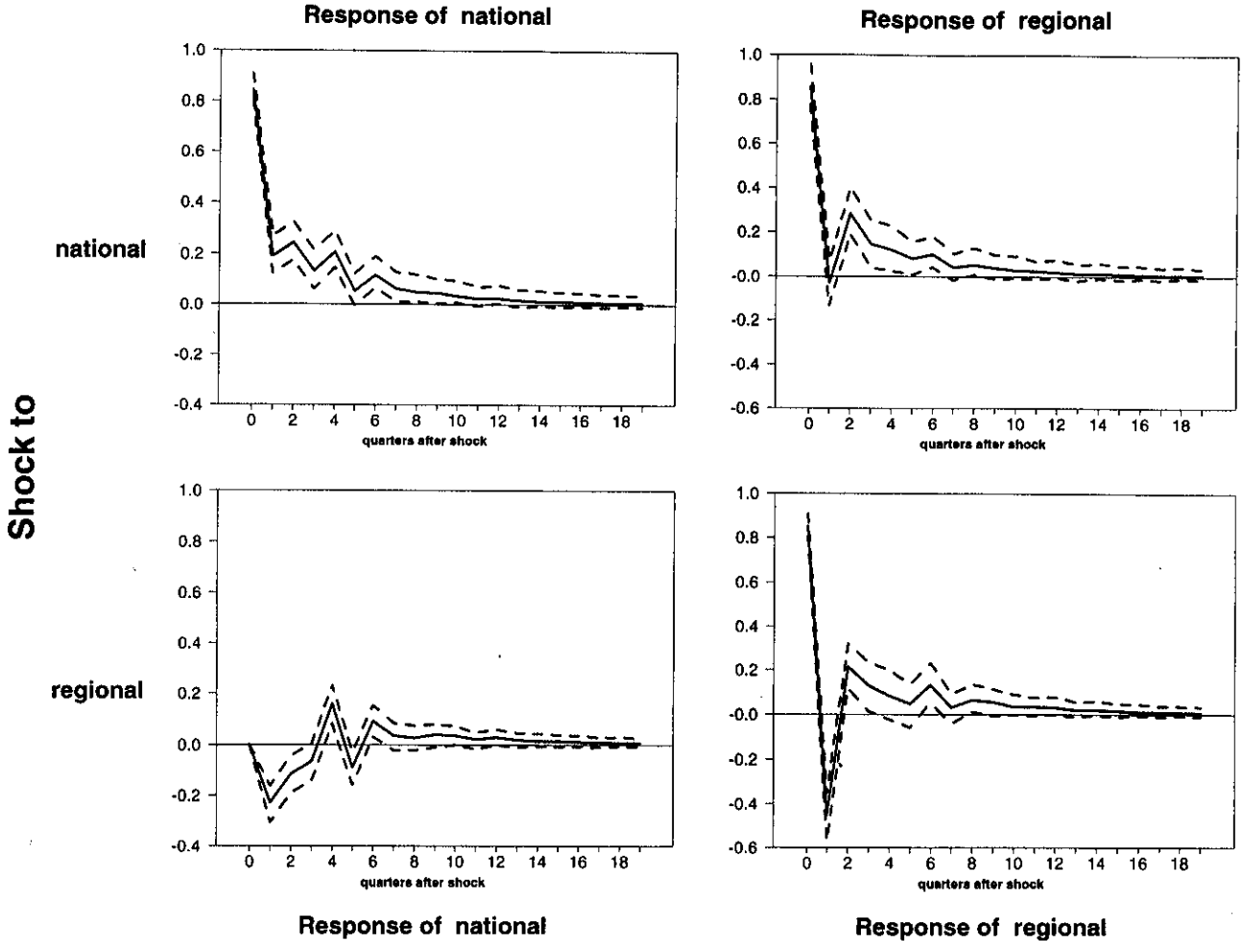

Chart 21. Historical decomposition of regional wages

1989:1-1996:1

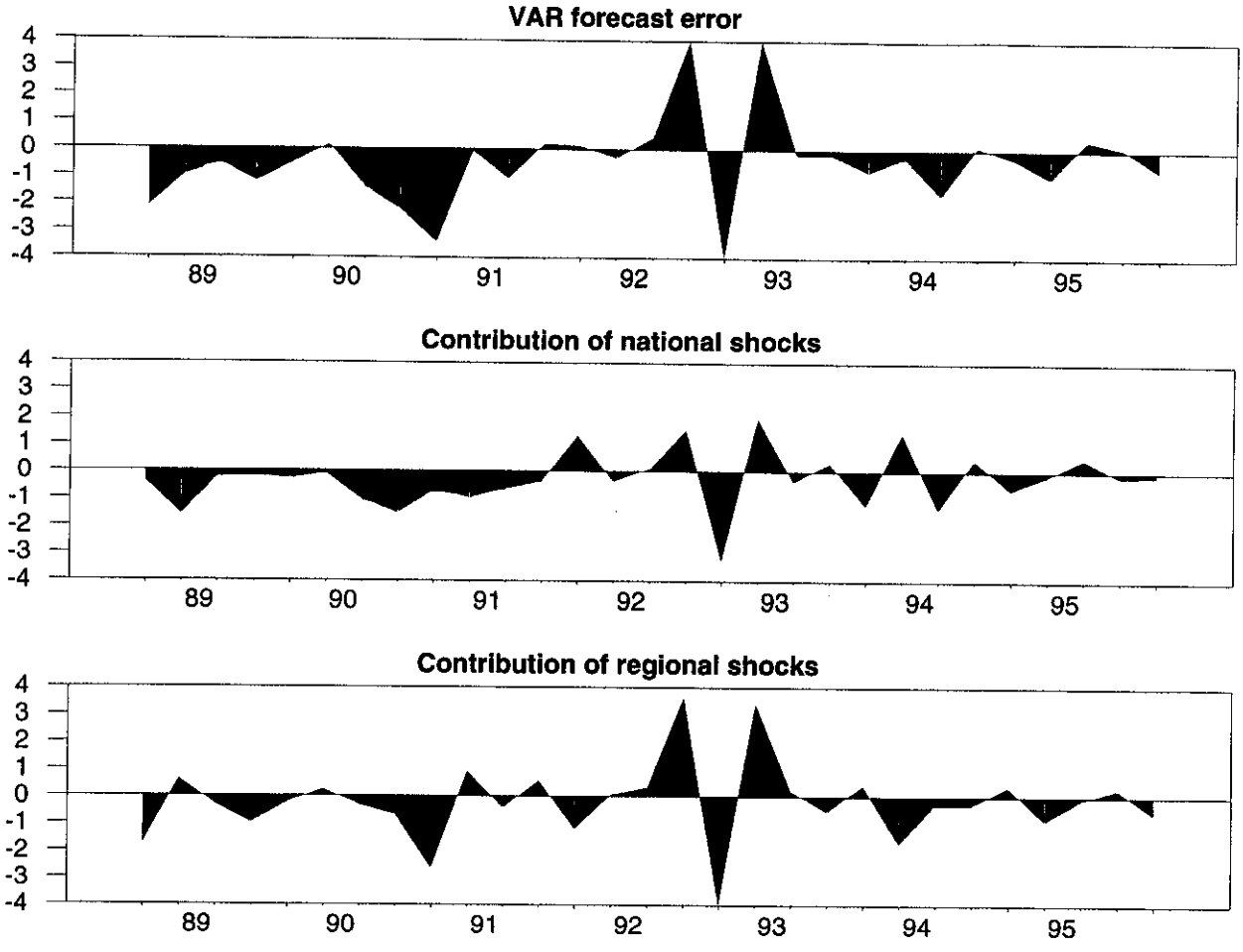

Chart 22. Historical decomposition of regional wages

1970:1-1977:1