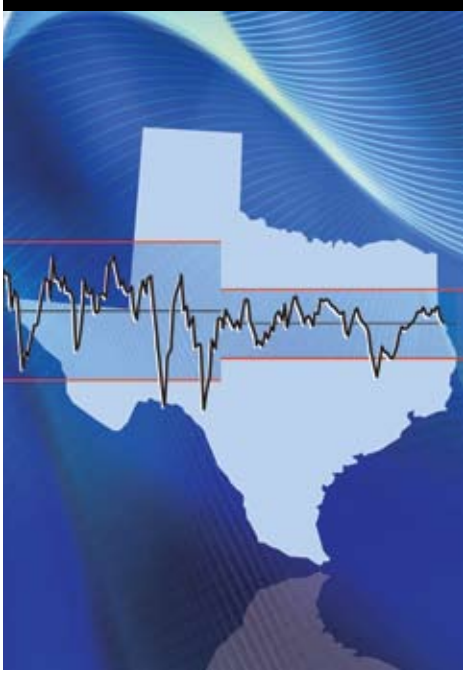


A Regional Perspective on the 'Great Moderation'

By Evan F. Koenig and Nicole Ball

The Great Moderation impacted job growth across nearly all regions over a fairly short period of time.

U.S. economic growth has been much steadier the past 24 years than it was the preceding 24. One result of this "Great Moderation" has been less time spent in recession: Our economy contracted for a total of 59 months between 1960 and 1983, compared with only 16 months between 1984 and 2007. The number of recessions fell from five to two.

Proposed explanations include better monetary policy, fewer adverse shocks to energy supplies, financial innovation and deregulation that have made credit more readily available and improvements in supply-chain management that have helped manufacturers and retailers maintain tighter control of inventories.

In a recent article, we looked at an industry-by-industry breakdown of the Great Moderation.[1] Here, we look at regional patterns. Are some sections of the country especially large contributors to national jobs volatility? If so, they may give early warning of national employment swings.

We also focus on the decrease in Texas job-growth volatility and compare the industries chiefly responsible for this decline with those responsible for the greater stability of the nation as a whole. We show that although changes in Texas and the nation have made the two more similar, the correlation between state and U.S. job growth remains low.

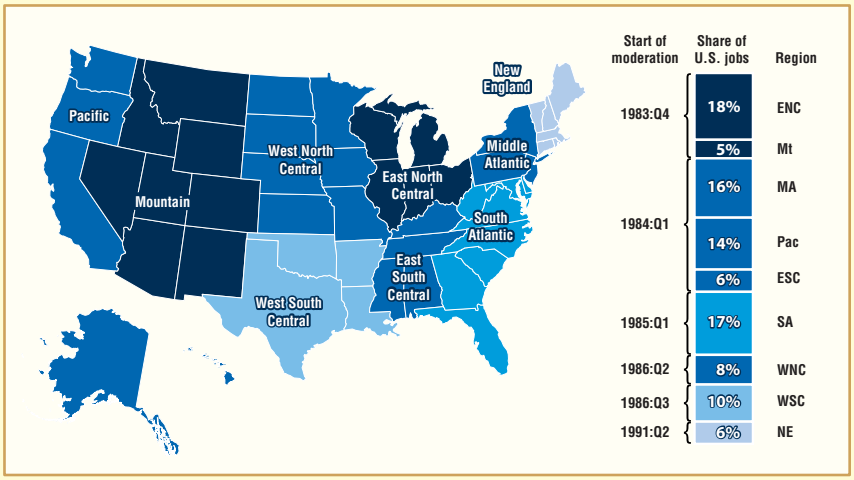
Timing Differences

U.S. job growth became less volatile beginning in first quarter 1984, and five of nine Census Bureau divisions, containing nearly 60 percent of the nation's jobs, experienced sharp volatility declines within one quarter of the national date (*see map*).

Volatility in the South Atlantic division, with another 17 percent of the nation's jobs, declined a year later. Five quarters later still, job growth in the West North Central division stabilized. One quarter after that, job growth in the West South Central division—which includes Texas and Louisiana—became less volatile. New England was the laggard: Its job growth didn't stabilize until second quarter 1991.

Whatever its cause, the Great Moderation obviously impacted job growth across nearly all regions over a fairly short period

Regions Vary in Timing of Decline in Job-Growth Volatility

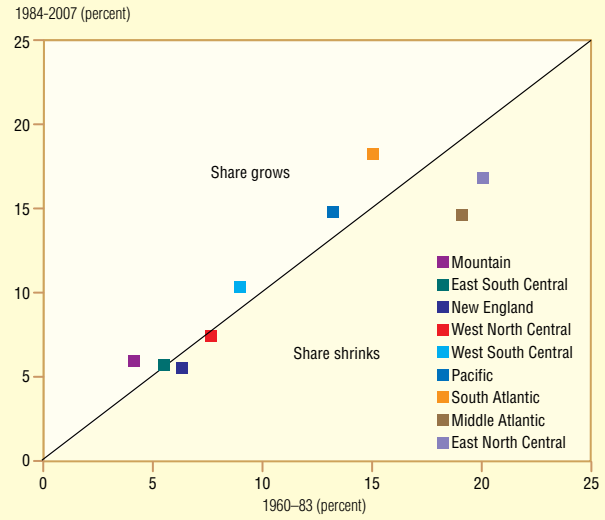


SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas.

Chart 1

Smallest Get Bigger, Biggest Get Smaller

(Regional share of national employment in early and late periods)

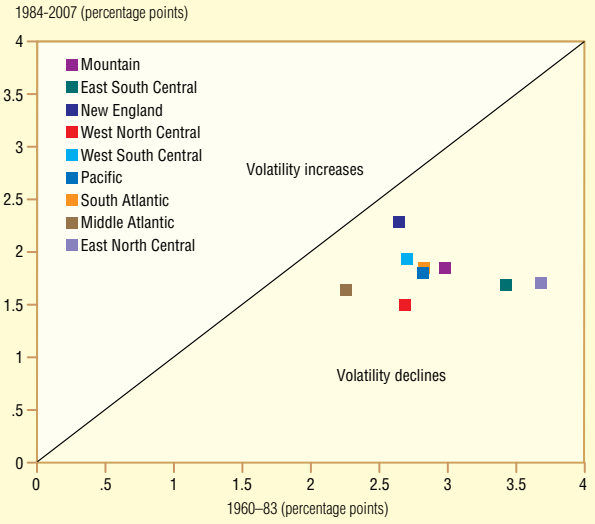


SOURCES: Bureau of Labor Statistics; Haver Analytics.

Chart 2

The Industrial Heartland Gets a Pacemaker

(Regional employment volatility in early and late periods)



SOURCES: Bureau of Labor Statistics; Haver Analytics.

of time. Within three years, Census divisions accounting for 94 percent of the nation's jobs transitioned to the new, more stable pattern.

It seems doubtful that innovations in inventory control and supply-chain management would have spread so widely, so quickly. Although an energy shock probably helped delay the West South Central's moderation, it's hard to find evidence that greater energy-price stability played a broader role in the Great Moderation. By elimination, that leaves Great Moderation explanations that emphasize financial deregulation, financial innovation and improved monetary policy.

Regional Volatility Contributions

We can determine each region's impact on the Great Moderation by comparing how much it contributes to national job-growth volatility before and after the national break. For convenience, we call the prebreak interval (1960–83) the early period and the postbreak interval (1984–2007) the late period.

Three factors determine a region's contribution to swings in national employment growth: (1) How big the region is relative to the nation; (2) the volatility of the region's job growth; and (3) the correlation between regional and national job growth.

Relative size. In the early period, shares of national employment range from 4.2 percent (Mountain) and 5.5 percent (East South Central) to 19.1 percent (Middle Atlantic) and 20.1 percent (East North Central). The West South Central region is in the middle of the pack at 9 percent.

By the late period, the smallest regions see their shares of total employment increase, while the largest regions see their shares shrink (*Chart 1*). The result is a narrower range of job shares—from 5.6 percent (New England) and 5.8 percent (East South Central) to 16.9 percent (East North Central) and 18.3 percent (South Atlantic). The West South Central region remains in the middle—at 10.4 percent of national employment.

Regional volatility. If one region grows in relative size, another must shrink. Regional job-growth volatility faces no such constraint, and in fact, volatility declines in every region between the early and late periods. The result is a much smaller dispersion of regional volatilities—2.3 to 3.7 percentage points before 1984 versus 1.5 to 2.3 after 1984. The most volatile region in the late period (New England) is no more volatile than the least volatile region in the early period (Middle Atlantic).

The largest declines, by far, occur in regions that were initially the most volatile (*Chart 2*). From the early to late period, volatility falls from 3.7 to 1.7 percentage points in the East North Central and from 3.4 to 1.7 points in the East South Central.[2] The West North Central region also experiences a large decline—from 2.7 to 1.5 points.

The two regions that were most volatile in the early period and whose volatility fell most are among the nation's most manufacturing focused. As of 1990—the earliest year an industry breakdown of regional employment is available—manufacturing's share of jobs was 20.8 percent in the East North Central and 21.9 percent in the East South Central region. The national average was only 16.2 percent.

These large declines are consistent with earlier studies that point to manufacturing as the sector in which the Great Moderation has had the biggest impact.

Regional correlation. When it comes to the correlation between regional and national growth, the early period shows two distinct groups: the West South Central and Mountain regions, both with 0.75 correlations, and the remaining regions, with correlations between 0.86 and 0.93.

Not much changes in the late period except in the West South Central region, where the correlation drops from 0.75 to 0.54. In both early and late periods—but especially the late period—West South Central job growth is tied only loosely to the national economy.

The falling correlation between West South Central and national job growth has a lot to do with oil prices. Because of its relatively heavy energy-extraction activity, the region tends to differ from the rest of the nation in its response to global energy shocks. The collapse of oil prices in first quarter 1986 curtailed the region's job growth without having much impact on the nation.[3]

The correlation between West South Central and national job growth is 0.62

when we measure from the region's volatility break date in third quarter 1986 rather than the national break in first quarter 1984. Recalculating from Texas' break in fourth quarter 1987 raises the correlation coefficient to 0.78—roughly the same as the 1960–83 period, but lower than every region except the Mountain.

Total contribution. Multiplying relative size, volatility and correlation determines each region's total contribution to national job-growth volatility.

In the early period, the heavily industrialized East North Central region's large size, high volatility and high correlation make it far and away the largest contributor to U.S. job volatility (*Chart 3*). The smallest contributors—the Mountain, New England, East South Central, West South Central and West North Central regions—are characterized by small size, medium volatility and low correlation.

Going from the early to the late period, the largest contribution decline comes from the East North Central region, which shows a sharp, 54 percent fall in volatility and a 15 percent reduction in relative size. This pattern—a large decline in volatility mediated by a modest upward or downward adjustment to relative size—is typical. Only in the West South Central does a decline in the correlation with national job growth have an important stabilizing effect.

How About Texas?

Statistical tests show the break in Texas' job-growth volatility occurs in fourth quarter 1987, roughly three years after the national break. For Texas, as for the West South Central region as a whole, the delay can be linked to the adverse effects of the 1986 oil-price collapse.

Different industries explain the volatility declines in Texas and the U.S. (*Chart 4*).[4] For the nation, goods-producing industries account for 99 percent of the volatility reduction. The private service-providing industries' contribution increases slightly between the early and late periods, but this is offset by a reduced contribution from government. For Texas, the goods industries aren't nearly as dominant, accounting for 73 percent of the total decline in volatility reduction. The private service industries contribute 22 percent.

Differences between Texas and the nation are notable at a finer level of industry analysis, too. For the U.S., durable manufacturing accounts for 67 percent of the total volatility reduction, and nondurable manufacturing accounts for 19 percent. In Texas, these industries account for 27 percent and 8 percent, respectively.

Other important Texas volatility reductions come from construction (18 percent) and natural resources and mining (16 percent). The latter finding isn't surprising, given that the early Texas sample is marked by the energy boom and bust.

Within the national service supersectors, a big increase in volatility comes from "other services"—a catch-all category that includes the professional and business services and the leisure and hospitality industries.[5] In contrast, this category's impact on Texas' volatility is small. Similarly, the trade, transportation and utilities supersector contributes more to Texas' Great Moderation than to the nation's.[6]

Have Texas and the nation become more or less alike in terms of industry contributions to job-growth volatility? We compare industry volatility contributions from second quarter 1970 through fourth quarter 1983, when job growth was volatile in both Texas and the nation, and from fourth quarter 1987 through fourth quarter 2007, after job growth had moderated in both. The comparison reveals that Texas and the nation are far more similar in the late period than in the early period (*Chart 5*).

In the early period, natural resources and mining; trade, transportation and utilities; and other services (and private services as a whole) make substantially larger contributions to job-growth volatility in Texas than the nation. Durable and nondurable manufacturing, along with education and health and, to a lesser extent, information services, make smaller contributions in Texas.

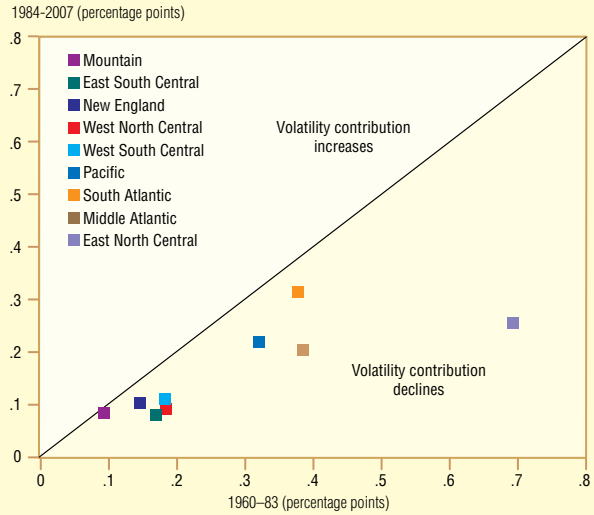
In the late period, differences shrink markedly. Only private services as a whole remains a noticeably larger source of job-growth volatility for Texas than for the nation.

Industry convergence occurs in relative

Chart 3

All Regions Contribute to Volatility Decline

(Regional contribution to national job-growth volatility in early and late periods)

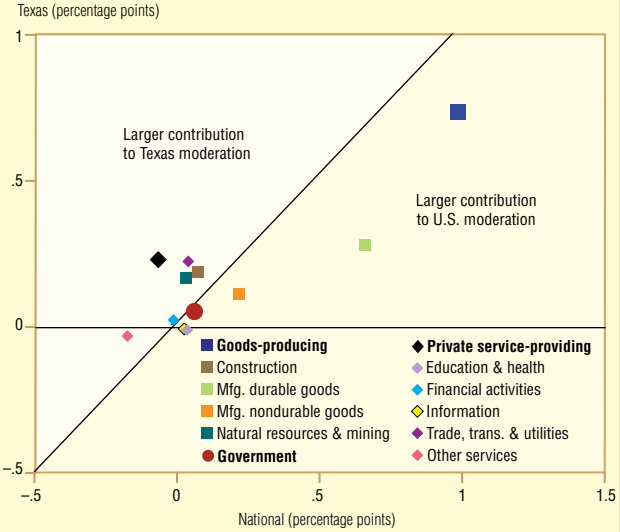


SOURCES: Bureau of Labor Statistics; Haver Analytics.

Chart 4

Sources of Volatility Decline Differ for Texas and Nation

(Industry contribution to total volatility decline between early and late periods)



SOURCES: Bureau of Labor Statistics; Texas Workforce Commission; Federal Reserve Bank of Dallas.

size, volatility and correlation measures. In the early period, for example, Texas has somewhat larger shares of employment than the nation in the natural resources and mining, construction, and trade, transportation and utilities industries and notably smaller shares in the durable goods manufacturing and other-services industries. In the late period, no significant differences remain.

Industry volatilities follow a similar pattern. Early on, job growth in the natural resources and mining industry is much less volatile in Texas than in the nation. Construction is also less volatile in Texas than in the nation, while Texas' other-services growth shows substantial excess volatility. In the late period, Texas and national volatilities are generally closer to each other than before.

Early-period correlations between industry job growth and aggregate job growth are often very different in Texas than in the nation. For example, the correlation between aggregate growth and growth in natural resources and mining is far higher in Texas than the nation. In the late period, these differences shrink markedly. The biggest change between the two periods is in the education and health supersector, where the national correlation falls sharply and the Texas correlation rises a bit.

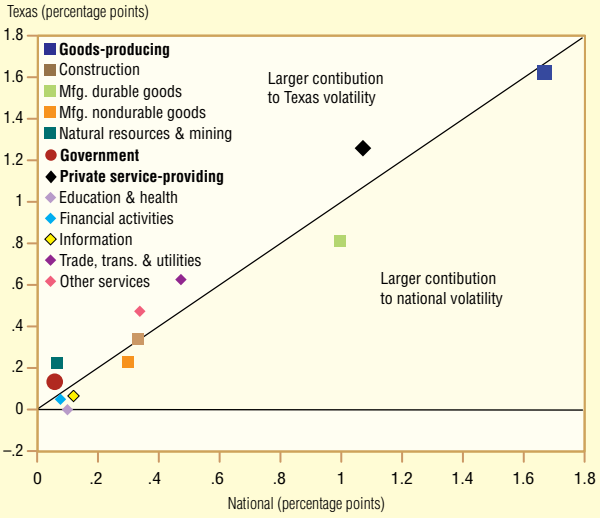
Although Texas has become more like the nation in both industry composition and the contributions each industry makes to aggregate job-growth volatility, this doesn't mean the state's job growth has become more highly correlated with the nation's. In fact, the correlation rises only modestly, from 0.73 to 0.80, between 1970–83 and 1987–2007.

Chart 5

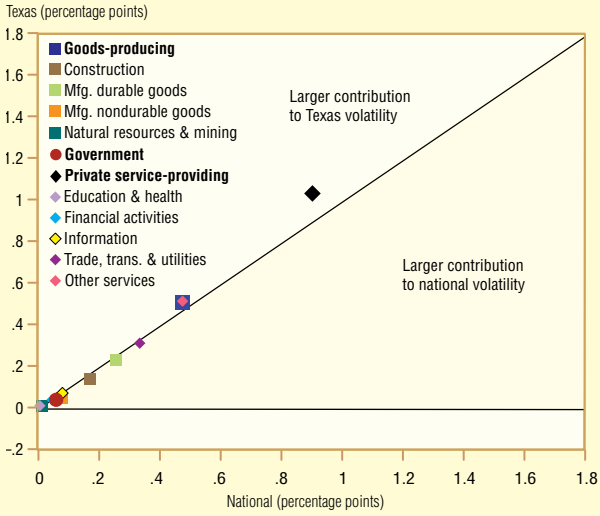
Sources of Volatility: Texas vs. the Nation

(Industry contribution to volatility)

A. Early period



B. Late period



SOURCES: Bureau of Labor Statistics; Haver Analytics.

South Atlantic Best Barometer

Although the Great Moderation has left our region looking more like the rest of the country, if one had to choose an area to monitor as a barometer of the national economy, it would probably be the South Atlantic region rather than Texas or the West South Central region.

The South Atlantic region accounts for more variation in national job growth (31 percent) than any other census division, and job growth there has the highest correlation with national job growth (0.93). The West South Central region, in contrast, accounts for only 11 percent of the variation in national job growth and—even excluding the immediate aftermath of the 1986 oil-price collapse—has the lowest correlation with national growth (0.62).

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Notes

[1] See "The 'Great Moderation' in Output and Employment Volatility: An Update," by Nicole Ball and Evan F. Koenig, Federal Reserve Bank of Dallas *Economic Letter*, Vol. 2, No. 9, September 2007.

[2] We measure volatility by the standard deviation of quarterly job growth. The standard deviation is one-fourth the width of a band that captures 95 percent of the job-growth data.

[3] See Table 3 in "Energy Prices and State Economic Performance," by Stephen P.A. Brown and Mine K. Yücel, Federal Reserve Bank of Dallas *Economic Review*, Second Quarter 1995, pp. 13–23. The Brown–Yücel data imply that a 10 percent oil-price decline, hitting in the 1980s, would have lowered employment 1.44 percent in the West South Central region and 0.24 percent in the Mountain region. All other regions are modestly helped by the oil-price decline. The price of crude oil fell 52 percent between fourth quarter 1985 and second quarter 1986.

[4] We calculate these industry contributions for Texas and the nation for both early and late sample periods. For Texas, the early period runs from second quarter 1970 through third quarter 1987 and the late period from fourth quarter 1987 through fourth quarter 2007. (Texas jobs data disaggregated by industry begin in 1970.) For the nation, the corresponding periods are first quarter 1960 through fourth quarter 1983 and first quarter 1984 through fourth quarter 2007. For Texas and the nation, we then calculate the change in each industry's volatility contribution as a percentage of the total change in job-growth volatility.

[5] We lump these industries together to facilitate comparison with Texas, where data are not available over the entire period at as fine a disaggregation level as for the nation.

[6] The underlying story behind the fall in volatility contribution is a bit different for each Texas industry. In the case of natural resources and mining, the fall reflects a lower correlation with overall job growth, reduced industry volatility and a shrunken job share, in that order. In construction, most of the decline stems from reduced industry volatility, with assists from smaller size and a lower correlation. In manufacturing, reductions in industry volatility and size are responsible for much of the decline. The trade, transportation and utilities industry's Texas volatility contribution falls mostly because of its reduced volatility and secondarily because of a lower correlation with total Texas job growth.