

the Southwest ECONOMY

FEDERAL RESERVE BANK OF DALLAS

JULY/AUGUST 1993

Reassessing Texas Employment Growth

One of the most widely used sources of information on the Texas economy is nonfarm payroll employment from the Current Employment Statistics (CES) program, produced by the Texas Employment Commission (TEC) in cooperation with the Bureau of Labor Statistics (BLS). When assessing current economic conditions in the state, analysts often rely on the CES data because they are timely and provide broad industry detail and sample coverage. Annual revisions, however, reveal that month-to-month changes in the most current employment data often provide a misleading picture of employment growth.

Two adjustments to the nonfarm employment data for Texas can improve the reliability of the data

and reduce the extent of annual revisions.¹ The first adjustment is simply the use of preliminary data to estimate, in advance, the size of BLS' annual revision. The second adjustment is a new two-step seasonal adjustment procedure that eliminates an odd January jump often found in the seasonally adjusted data before the annual revision. With these adjustments, the data show a much milder (and less volatile) pace of expansion over the past two quarters than when the data is seasonally adjusted by standard methods.

Estimating Revisions

Each CES employment series is actually a combination of data from two different sources. Firms covered

Chart 1
Texas Total Nonfarm Employment
(Not seasonally adjusted)

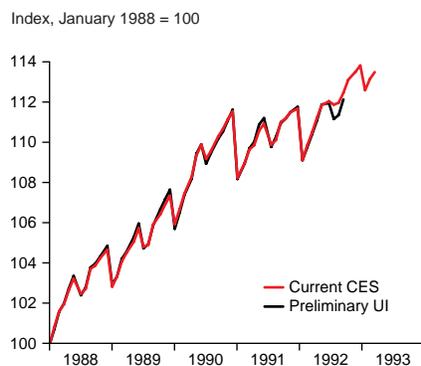
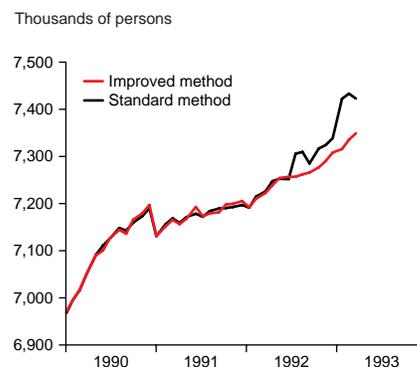


Chart 2
Texas Total Nonfarm Employment
(Seasonally adjusted)



by unemployment insurance (UI) laws are the first source. The UI data cover about 98 percent of all nonfarm employment but are only available on a three-quarter lagged basis. The second source is BLS' Establishment Survey, which covers about 40 percent of nonfarm employment, but which is available on a much more timely basis. In the current CES data, employment since April 1992 is based on the Establishment Survey series, while earlier data are based on the UI data. Every year, concurrent with the release of the January data, BLS benchmarks the CES data to the UI

I N S I D E

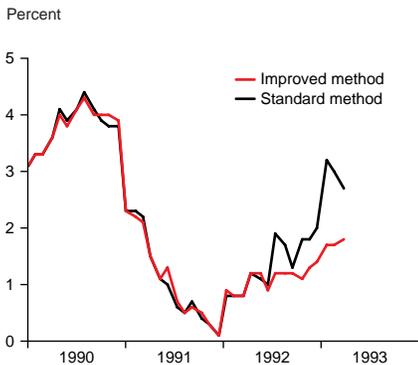
Controlling Inflation

Central Bank

Independence in Mexico

The Btu Tax

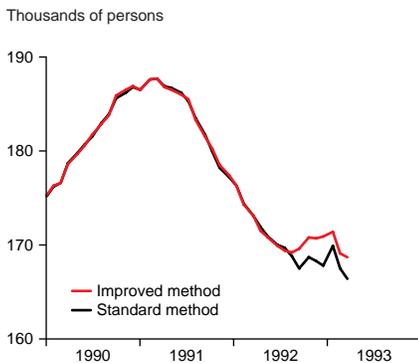
Chart 3
Texas Total Nonfarm Employment
(Year-over-year percentage change)



data. That is, another year of UI data is incorporated into the CES data. The benchmark covers the period from April two-years-prior to March of the previous year—for example, April 1991 to March 1992.

Preliminary UI data for Texas at the two-digit Standard Industrial Classification (SIC) level are available from TEC considerably before the release of BLS' official benchmark. While preliminary UI data are subject to revision, overall, changes in the preliminary UI series give a good indication of the final benchmarked CES data, as Chart 1 shows.² Since the current benchmarked data end in March 1992, the preliminary UI data after that month represent a forecast that employment growth for the third quarter of 1992 will be revised downward somewhat when the CES data are benchmarked in March 1994.

Chart 4
Texas Nonfarm Employment—Mining
(Seasonally adjusted)



We incorporate preliminary UI data into the CES data by using changes in the preliminary UI data to revise the CES data from the end of the benchmarked period in March 1992, through September 1992. The CES data are then extended forward from September by using changes in the Establishment Survey data.

Using the Appropriate Seasonal Factors

Use of the CES employment series to analyze current economic conditions in Texas results in an odd pattern in which, after seasonal adjustment, employment appears to jump sharply in January 1993, as the line labeled “standard method” in

Chart 5
Texas Nonfarm Employment—Manufacturing
(Seasonally adjusted)

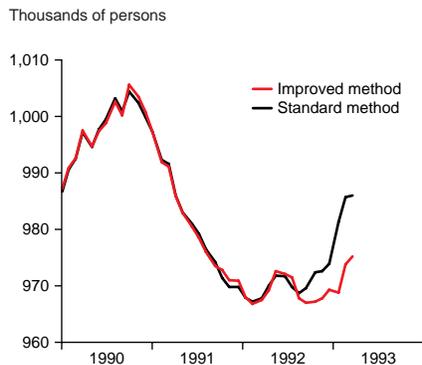
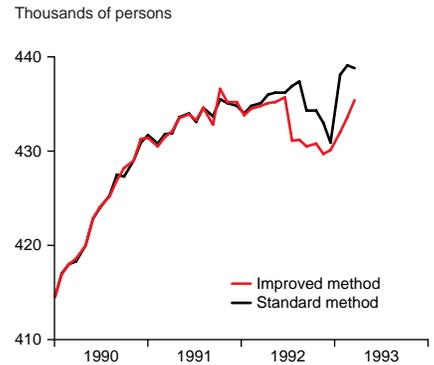


Chart 2 illustrates. The seasonally adjusted CES series suggests that employment in Texas jumped at an annual rate of 15.6 percent in January.³ A similar pattern develops when using year-over-year data to adjust for seasonality, as shown in Chart 3.

The validity of the January employment gain is questionable, however. The January jump does not concur with other economic information, and in past years, similar January jumps have disappeared once the CES data were benchmarked. Once recognized, this systematic pattern invites closer examination. As it turns out, the UI data and the Establishment Survey data exhibit *different seasonal patterns*. In particular, the

Chart 6
Texas Nonfarm Employment—Transportation,
Communication, Public Utilities
(Seasonally adjusted)



normal seasonal decline in employment that occurs every January is much larger in the UI data than in the Establishment Survey data. Because the seasonal patterns are different, use of traditional seasonal adjustment procedures can lead to erratic and misleading movements in the most current monthly CES estimates.⁴

A better seasonal adjustment procedure practically suggests itself—seasonally adjust the two parts of the data separately. To do this, one needs each monthly time series to be at least three years long. This was no problem for the UI-based part of the CES data, but it was necessary to construct a historical Establishment Survey-based series. This was done, back to January 1988, using data that had been archived each year at the time of BLS' annual revision. Once this was done, seasonal factors

Chart 7
Texas Nonfarm Employment—Trade
(Seasonally adjusted)

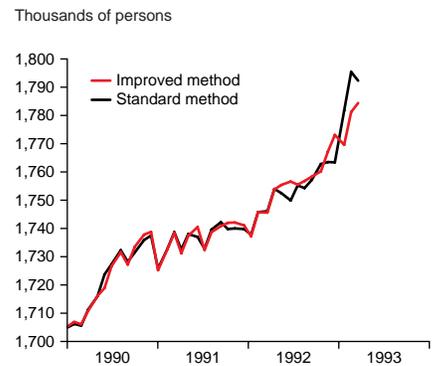
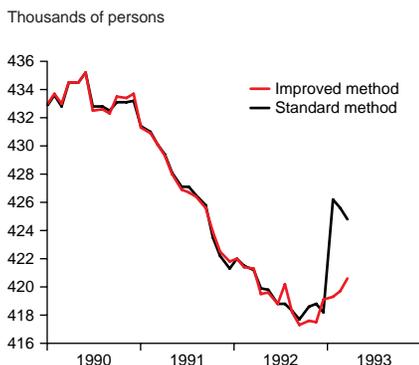


Chart 8
Texas Nonfarm Employment—Finance,
Insurance, Real Estate
(Seasonally adjusted)

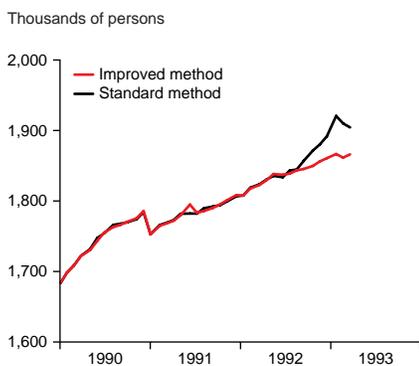


were separately calculated for the UI-based data and the newly constructed Establishment Survey-based data. The seasonal factors were then applied to the appropriate parts of the data, producing the final “improved” seasonally adjusted data. The procedure was done at the two-digit SIC industry level.

What the Data Are Telling Us Now

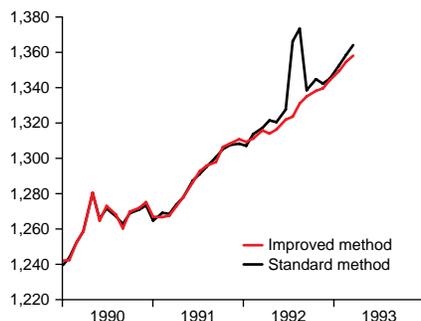
The line labeled “improved method” in Chart 2 was derived by applying to the CES data the adjustment for the preliminary UI data and the appropriate seasonal factors for each of the available industries and then summing across industries. According to the improved CES series, Texas’ total nonfarm employment shows a much smoother growth path since the second quarter

Chart 9
Texas Nonfarm Employment—Services
(Seasonally adjusted)



than was indicated by the data before the authors’ adjustments. This is attributable to applying correct seasonal factors. In particular, note that the January 1993 jump has been eliminated. From June 1992 to March 1993, total nonfarm employment grew at a fairly steady annual rate of 1.7 percent, while the previous data indicated a growth rate of 3.2 percent over this period. This difference is due in part to the January jump causing growth to be overstated, but also because of the incorporation of the preliminary UI data, which indicated that the Establishment Survey was overestimating growth somewhat between the second and third quarters of 1992.

The results are even more dramatic



when examined at some level of industry detail, as shown by Charts 4 through 10. Severe January jumps have been eliminated in all sectors except government (which had no such jump). In all sectors except mining and government, the improved series shows slower overall growth since mid-1992. The normal early summer decline in local government employment appears to be much smaller as measured by the Establishment Survey than it is in the UI data. This results in a huge increase when seasonally adjusting using normal methods. The two-step seasonal adjustment procedure appears to have eliminated the problem.

Conclusion

The CES data are perhaps the most important and useful information regional analysts have. Nonetheless, the lack of continuity in the data sources used to construct the CES series sometimes make it difficult to interpret economic conditions in Texas. The use of the UI series to forecast rebenchmarking of the CES series and implementation of the special seasonal adjustment procedure described here should help analysts achieve a better understanding of current Texas economic conditions than if standard methods are used.

—Franklin D. Berger
Keith R. Phillips

¹ For further detail on the technical aspects of the authors’ adjustments and the applications of these adjustments to other states, see Frank Berger and Keith Phillips, “The Disappearing January Blip and Other State Employment Mysteries,” Federal Reserve Bank of Dallas, forthcoming.

² The regional office of BLS goes through painstaking procedures in editing UI data before it releases the annual benchmark. The procedure includes examining firm-level data for inconsistencies over time and across surveys.

³ The basic seasonal adjustment method the authors use is the X-11 procedure developed by the Bureau of the Census, U.S. Department of Commerce. For an explanation of the X-11 procedure, see Bureau of the Census, *X-11 Information for the User*, U.S. Department of Commerce (Washington, D.C.: Government Printing Office, 1969).

⁴ Essentially, the seasonal adjustment procedure views the small decline in employment in January 1993 as aberrant. With only 10 to 22 months of unbenchmarked (that is—Establishment Survey-based) data at the end of the CES series, the seasonal adjustment method does not have sufficient information to detect that a different seasonal pattern is in force.