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CONSISTENT INDEXES FOR THE 50 STATES

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Abstract

In the late 1980s James Stock and Mark Watson developed for the U.S. economy an alternative coincident index to the one now published by the Conference Board. They used the Kalman filter to estimate a latent dynamic factor for the national economy and designated the common factor as the coincident index. This paper uses the Stock/Watson methodology to estimate a consistent set of coincident indexes for the 50 states. The indexes are consistent in the following sense. (1) The input variables for estimating the common factor are the same for each state. (2) The timing of the coincident indexes is set to coincide with the same observable variable in each state (nonfarm employment). (3) And the trend of the index for each state is set to the trend of real gross state product in the state. The versions of the indexes presented in this revised working paper differ from the original versions (WP 02-7) in two ways. There was additional pre-smoothing of some input data for six states. And we modified the lag structure in the equations in several state models. The final indexes are available on the web at www.phil.frb.org/econ/stateindexes.

Consistent Economic Indexes for the 50 States

In the late 1980s James Stock and Mark Watson developed a coincident index for

the U.S. economy as an alternative to the one published at that time by the Department of

Commerce.[1] Stock and Watson's alternative index is the latent factor estimated in a

dynamic single-factor model using the Kalman filter. State versions of the Stock/Watson

type index have been developed for the New England states, New York, New Jersey,

Delaware, and Texas. This paper develops a consistent set of Stock/Watson coincident

indexes for all 50 states. Besides their use in monitoring state economies, these indexes

are useful in comparing the length, depth, and timing of recessions at the state level. They

can also be useful in time-series analysis as a composite measure of monthly economic

activity at the state level.

Comparisons of state economies could be based on a number of economic

indicators, e. g., real gross state product, real personal income, or payroll employment. Of

these indicators, real gross state product is the most comprehensive measure of economic

activity in a state, but it is available only annually and with a considerable lag. While real

gross state product is a good metric for trend growth in a state's economy, the annual

frequency of the data makes it an unsatisfactory indicator of state business cycles. At the

national level a recession is characterized as a contraction in many economic activities,

and the duration and depth of the contraction are factors in determining official

recessions.[2] Turning points in national business cycles (peaks and troughs) are dated by

months, and at least two official recessions have occurred within the span of a calendar

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[1] The traditional index is now published by the Conference Board.
[2] See Zarnowitz (1992).

year. Thus, the appropriate metric for defining state business cycles is a monthly

indicator or set of monthly indicators. The advantage of a Stock/Watson type index is that

it combines several monthly indicators in a single measure of the state's economy. The

state indexes developed in this paper do not break any new ground in modeling the

indexes. They provide a consistent set of indexes for all 50 states based on the

Stock/Watson model and some recent extensions of the model.

The Stock and Watson Model

Stock and Watson's model is based on the assumption that the observed indicators

of the economy reflect a single, unobserved dynamic factor--the underlying "state of the

economy." A Kalman filter is used to estimate this common factor. The assumptions of

the model are set out in the following sets of equations.

The measurement equations:

$$\Delta x_{t} = \alpha + \beta(L)\Delta c_{t} + \mu_{t} \tag{1}$$

And the transition equations:

$$\gamma(L)\Delta c_{t} = \delta + \eta_{t} \tag{2}$$

$$D(L)\mu_{t} = \epsilon_{t} \tag{3}$$

where

x_{t} = the log of an observed and measured variable in period t,

c_{t} = the log of the state variable to be estimated, and

L denotes the lag operator.

Equation (2) represents the law of motion for the state variable c_{t}, which is interpreted as

the underlying state of the economy. The state of the economy follows an autoregressive

process in the model. The idiosyncratic components of the measurement variables (μ)

are assumed to be uncorrelated with one another and also follow an autoregressive process.

The measurement equations allow for the inclusion of both leads and lags of the state variable (c_t), so indicators that lead or lag the business cycle can be used to construct the coincident index. Equations (1) and (2) are estimated using the standardized log difference of the observed indicators and the state variable.[3] Thus, α and δ do not have to be estimated, and the procedure provides an estimate of the standardized log difference of the latent dynamic factor.

The final coincident index is formed by setting the estimated state variable to 100 at a given date. The monthly changes are given by the estimated Δc_t, and a trend is established by the weighted average of the trends of the observed variables. The weights are determined by the contribution of the changes in the observed variables to the change in the latent dynamic factor.[4] Stock and Watson used four monthly national variables to estimate their coincident index: hours worked by employees in nonagricultural establishments, real personal income minus transfer payments, industrial production, and real manufacturing and trade sales.

The construction of state coincident indexes has led to some further developments of the original Stock and Watson model. In applying the Stock/Watson model to the Massachusetts economy, Alan Clayton-Matthews and James Stock (1998/1999) revised the model to base the trend of the coincident index on the trend in gross state product, which is published only annually and is therefore unsuited for inclusion in the

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[3] The average log difference over the sample period is subtracted from the log difference for each month and the result is divided by the standard deviation of the log differences.

measurement equations of the model. They outlined the procedures for converting the weighted average trend and standard deviation in the original Stock/Watson index to the trend and standard deviation of any measure of the economy that may have a monthly, quarterly, or annual frequency. The conversion can be done piecewise for different historical periods, if there is reason to believe there was a change in trend growth in the state's economy. Clayton-Matthews and Stock introduced a break in the trend for the Massachusetts index at the end of 1987.

In a more recent expansion of the Stock and Watson model, Alan Clayton-Matthews developed a C++ program that allows for measurement equations in which some indicator variables (x_t) are observed on a quarterly rather than a monthly basis.[5] The common factor is still modeled as a monthly variable, but the measurement equation for the quarterly indicator becomes

$$\Delta x_t = \gamma(L)\Omega(L)\,\Delta c_t + \mu_t \qquad\qquad (1')$$

and Δx_t for quarterly data is defined as $x_t - x_{t-3}$. The quarterly variable, used in the final month of each quarter for estimation purposes, can be thought of as the three-month sum of an unobserved monthly series $x_t = z_t + z_{t-1} + z_{t-2}$. Thus, $\Delta x_t = (z_t + z_{t-1} + z_{t-2}) - (z_{t-3} + z_{t-4} + z_{t-5})$ or $\Delta x_t = \Omega(L)\,\Delta z_t = (z_t - z_{t-3}) + (z_{t-1} - z_{t-4}) + (z_{t-2} - z_{t-5})$.

The inclusion of quarterly indicators in the model is especially important for state indexes because fewer monthly indicators are available at the state level than at the national level. Most state models are based on three or four indicators.[6] All the state

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[4] The weights are determined by calculating the cumulative dynamic effect on the state variable (c_t) for a standardized unit change in each observed variable (x_t). Each observed variable's share in the sum of these cumulative effects represents its weight in determining the trend.

[5] See Clayton-Matthews (1999).

[6] See Clayton-Matthews and Stock (1998/1999), Crone (2000), Orr, Rich, and Rosen (1999). The state indexes in Crone (1998/1999) were constructed using only three indicator variables, as were the indexes for

indexes developed to date include monthly payroll employment and the state unemployment rate. Other monthly variables include average hours worked in manufacturing (Clayton-Matthews, Kodrzycki, and Swaine, 1994; Crone, 2000; and Orr, Rich, and Rosen, 1999) and state withholding taxes and sales taxes (Clayton-Matthews and Stock, 1998/1999). Quarterly variables used in Stock/Watson type state indexes include real earnings (Orr, Rich, and Rosen, 1999) and real personal income minus transfer payments (Crone, 2000).

A Consistent Set of Indexes for the 50 States

If state coincident indexes are used to compare business cycles across states, a certain degree of consistency must be imposed on the construction of the indexes. At a minimum, a set of consistent state indexes should meet the following criteria:[7]

(1) The indexes should be constructed from the same set of indicators for each state.

(2) The timing of the index should be benchmarked to the same indicator variable in each state. In practice, this requires that the measurement equation for one particular indicator variable include *only* the contemporaneous value for the common factor in the model for every state.[8]

(3) The trend for each state index should correspond to the trend of the same variable for each state or to a weighted trend of several variables where the weights for the corresponding variables in each state are the same.

Connecticut, Maine, New Hampshire, Rhode Island, and Vermont in Clayton-Matthews, Kodrzycki, and Swaine (1994).

[7] This is not to imply that one cannot construct a better coincident index for any particular state by violating any of these criteria, but to the extent these criteria are violated, the comparability of the indexes is placed in question.

[8] Model specification tests suggest that using different lag structures in the other measurement equations for different states can improve the specification of the models.

Crone (1998/1999) produced a set of indexes for the 48 contiguous states based on payroll employment, the unemployment rate, and average hours worked in manufacturing. These indexes satisfied the first two criteria, but not the third. The indexes in the earlier Crone study had two major limitations. The underlying data series were all related to employment rather than to income or value added. And the trend for each state index was calculated according to the original Stock/Watson model, i.e., the weighted average trend of the components. Since the weights differed by state, the calibration of the trend was not consistent across states. The indexes developed for this paper overcome these limitations of the earlier study. They satisfy all three criteria listed above and include a quarterly variable that over the long run reflects the value of labor's contribution to output (real wage and salary disbursements). And the trend in the index for each state is based on the trend in gross state product.

Indicator Variables Used in the State Indexes

We have identified three monthly indicators and one quarterly indicator available for inclusion in the coincident indexes for all 50 states. The three monthly series are available on a consistent basis for most states since 1978, so our state indexes are estimated from that year.[9]

Nonagricultural payroll employment. This series is produced by the Bureau of Labor Statistics (BLS) in cooperation with the individual states. It is the most reliable employment series published for all the states. Its most obvious drawback is that it does not include the self-employed or farm workers. Therefore, it may be a less reliable indicator of economic activity in states whose economies are dominated by agriculture.

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[9] The indexes in Crone (2000) also included industrial electricity sales, but a consistent series for that variable is no longer available from the Department of Energy.

The BLS publishes seasonally adjusted nonfarm employment data from 1982 for most states, but the Bureau publishes only non-seasonally-adjusted data prior to that time. Since our state indexes are estimated from 1978, we seasonally adjust the employment data ourselves using the X-11 procedure.

The measurement equations for nonagricultural employment in all our state models include only the contemporary value of the latent dynamic factor. Thus, the timing of the final index is set to coincide with the timing of the employment series.

Unemployment rate. This series is also produced by the BLS in cooperation with the states. It is published on a seasonally adjusted basis from 1978 for all the states except California. The California unemployment rate series begins in 1980.[10] The data used to produce state unemployment rates are from the current population survey, the payroll employment survey, state population estimates, and unemployment claims.

Since the peak of the unemployment rate often lags the trough in economic activity at the national level, the measurement equation for the unemployment rate in some of our state models includes lags of the latent dynamic factor as well as the current value. Also, the unemployment rate is entered in the measurement equation as the standardized first difference rather than the standardized log difference.

Average hours worked in manufacturing. Stock and Watson's national index and the traditional coincident index published by the Conference Board include industrial production. There is no comparable measure of industrial output at the state level, but average hours worked in manufacturing, from the same survey as payroll employment, is used in our model as an indicator of industrial activity at the state level. These data are

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[10] The California model is estimated from 1978 with missing data for the unemployment rate in the first two years.

not published on a seasonally adjusted basis, so we seasonally adjusted the series for each state.[11]

Real wage and salary disbursements. Personal income and its components are available at the state level on a quarterly basis from the Bureau of Economic Analysis (BEA). The state indexes estimated for this project include real wage and salary disbursements.[12] The quarterly wage and salary disbursements reported by the BEA on a seasonally adjusted basis are deflated by the national CPI-U to obtain real wage and salary disbursements. We do not include in our state models proprietors' income or rent, interest, and dividends. In several farm states in our sample period, farm income represented more than 50 percent of proprietors' income in some years, and farm income can have a very irregular pattern across years and within years due in part to government price support programs. Therefore we excluded proprietors' income from the income measure in our models. Rent, interest, and dividends, unlike wages and salaries and proprietors' income, are reported by state of residence rather than by the state in which the income is generated. Since coincident indexes are meant to track economic activity or output *in the state*, rent, interest, and dividends were also excluded from our income measure.

Since wages and salaries are reported only on a quarterly basis, the lag structure in the measurement equation for this variable is adjusted as described above and in Clayton-Matthews (1999).

Seasonal Adjustment and Smoothing of the Data

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[11] In Kansas the data on average hours worked in manufacturing are not available prior to 1979, and in Indiana the data are not available prior to 1989.

[12] The national coincident indexes include monthly personal income minus transfer payments. Transfer payments are not considered payment for current production.

The data used in a Stock/Watson type model are assumed to be seasonally adjusted if the original data have a seasonal component. The unemployment rate and quarterly wages and salaries are seasonally adjusted by the BLS and the BEA, respectively. The BLS publishes a seasonally adjusted series of nonagricultural employment from 1982, but since our indexes start in 1978, we have independently adjusted the nonagricultural employment data for seasonal variation. The BLS does not publish a seasonally adjusted series for average hours worked in manufacturing at the state level. Therefore, we seasonally adjusted those data, using the X-11 procedure.

No further smoothing of the data (beyond seasonal adjustment) is theoretically necessary before estimating a Stock/Watson type model because the Kalman filter procedure smoothes the series over time. However, data with high frequency noise might require a large number of lags or leads in the measurement and/or error equations in the model to adequately estimate a single dynamic factor. For this reason, Clayton-Matthews and Stock (1998/1999) used a band pass nine-period moving average filter on some series before estimating their Massachusetts model.

Two series in our state models also required some pre-estimation smoothing beyond the normal seasonal adjustment to satisfactorily estimate the dynamic latent factor. Average hours worked in manufacturing are estimated from a survey taken during one week in each month. The estimates are particularly susceptible to unusual weather, work stoppages, and other exceptional factors; and the series exhibits a good deal of high frequency noise. We smoothed the manufacturing hours series in the process of seasonal adjustment. The X-11 seasonal adjustment uses a moving average procedure to decompose the monthly data into three components—trend-cycle, seasonal, and irregular.

The seasonally adjusted series includes both the trend-cycle and irregular components. One option in the X-11 procedure is to weight the extreme values of the *irregular* component based on their distance from the mean in standard deviation units.[13] The default for this option in SAS is to give full weight to those irregular components that are less than 1.5 standard deviations from the mean and gradually reduce the weights to zero when the irregular component is more than 2.5 standard deviations from the mean. For 20 states the SAS default option did not smooth the manufacturing hours series sufficiently for the series to contribute to the estimation of the common factor. In those cases we gave full weight to irregular components that were less than one standard deviation from the mean and gradually reduced the weight to zero when the irregular component was greater than two standard deviations from the mean[14] (Appendix A). In seven states we also used the SAS default option to weight the irregular component of the nonfarm employment data to produce a series smooth enough to estimate the common dynamic factor. And in nine states we applied the weights to irregular components of the employment series that were one standard deviation or greater from the mean (Appendix A).

Several anomalies also appeared in the wage and salary data and in the unemployment series in several states. Nationally, wages and salaries declined more than 4 percent in real terms in the first quarter of 1993. That was more than four times greater than the average absolute percentage change since 1978 and more than 50 percent greater than the next highest absolute percentage change. This quarterly decline in wages and

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[13] The irregular component in the multiplicative version of the X-11 seasonal adjustment procedure has a value that varies around one and is used to adjust the trend-cycle component, measured in units of the original data series.

[14] A freezing rain and snow storm in the Northwest in January 1980 and a strike at Boeing in Seattle in October and November 1989 reduced hours worked in manufacturing in Washington state so dramatically that the manufacturing hours data for the state had to be eliminated (i.e., designated as missing data) in these months to satisfactorily estimate a common factor for the state's economy.

salaries is attributed in part to the movement of bonuses and other one-time compensation into 1992 in anticipation of an income tax increase proposed by the new administration.[15] This did not represent a shift in economic activity but rather a shift in the timing of compensation and, therefore, should not be reflected in the coincident index. The impact of this shift was concentrated in 12 states in which the quarterly decline in real wages and salaries was greater than 4 percent. The wage and salary data for the first quarter of 1993 were eliminated, i.e., designated as missing data, in those states before estimating the coincident index model.[16] Wage and salary data were also eliminated for two quarters in West Virginia (1978:I and 1981:II) because strikes by coal miners reduced real wage and salary disbursements by more than 10 percent in those two quarters (Appendix A).

In several states there are one or more shifts in the level of the unemployment rate in a single month that may be the result of a change in the current population sample. In two instances this shift in the level of the unemployment rate was reversed in six to 10 months.[17] In eight states we eliminated one to three months of unemployment data on the basis that the data exhibited a shift of more than 1.5 percentage points in the level of the rate in a single month. In the eight states combined this resulted in the elimination of only 12 months of unemployment data since 1978 before estimating the coincident index models (Appendix A).

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[15] For a discussion of this issue see Feldstein and Feenberg (1996).

[16] In New York state real wages and salaries declined more than 10 percent in the first quarter of 1993 and increased more than 4 percent in the fourth quarter of 1992; so the fourth-quarter 1992 data were also eliminated from the wage and salary series in New York state.

[17] Opposing shifts appear in the data for Oklahoma in June 1980 and December 1980 and in the data for Georgia in March 1991 and January 1992.

The pre-estimation smoothing of some data series and the elimination of some anomalous data points prevent outliers from distorting the estimation of a relatively smooth coincident index from the Stock/Watson model.

Model Specification and Estimation

Except for the restriction that the measurement equation for employment contain only the contemporaneous value of the latent dynamic factor, no *a priori* restrictions were placed on the lag structure of any of the measurement equations in our state models. But we did specify the autoregressive process for the common factor by an AR(2) equation in the model for each state.

In the final models, 14 states had one or more lags of the state variable (common factor) in the measurement equation for unemployment, and 12 states had lags of the state variable in the measurement equation for wage and salary disbursements. In the measurement equation for average hours worked in manufacturing, 25 states had one or more leads of the state variable, and six states had one or more lags of the state variable. (See tables in Appendix B.)

The models were evaluated on several criteria. First, the coefficients in the measurement equations had the expected signs and most were statistically significant. Second, in most states the relative contributions of the observed variables to the monthly change in the common factor were well distributed. Changes in employment were generally the largest contributor to monthly changes in the common factor (c_t). In eight states the change in employment contributed more than 70 percent to the change in the common factor, but in almost half the states it contributed less than 50 percent. The change in hours worked in manufacturing was often the least important determinant of

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the change in the common factor. In 22 states manufacturing hours worked contributed less than 5 percent to the monthly change in the common factor. In two states the change in wages and salaries accounted for less than 5 percent of the change in the common factor, and the change in the unemployment rate accounted for less than 5 percent in one state.

In their national model, Stock and Watson check the assumption of a single latent factor by testing whether the disturbances in the measurement equations are predictable by past values of the indicator variables or past values of the errors from the measurement equations (Stock and Watson 1989 and 1991). In a series of tests, they regress the errors from each measurement equation on a constant and six lags of the errors from each of the measurement equations and six lags of the indicator variables. If the single index model is the proper specification, the coefficients on the lags should jointly be insignificantly different from zero. We applied the same test to our state models and report the F-statistics for rejecting the hypothesis that the coefficients are not different from zero. (See tables in Appendix B.) The critical value of the F-statistic at the .05 level is approximately 2.14 for the monthly variables and approximately 2.2 for equations that contain quarterly wage and salary data.[18] In most cases we cannot reject the hypothesis that jointly the coefficients on the six lags are not different from zero supporting the assumption of a single common factor. Of the 1600 F-statistics reported for the 50 states, only 84 suggest a problem with the assumption of a single latent factor.

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[18] There are always six degrees of freedom in the numerator. Except for Indiana, for which manufacturing hours data are not available from 1978 to 1988, the degrees of freedom in the denominator range from 257 to 285 for equations with only monthly variables. The degrees of freedom in the denominator range from 70 to 84 for equations that contain wages and salaries or the error from the wage and salary equation. For Indiana the monthly equations that contain manufacturing hours or the error from the hours equation have 151 degrees of freedom in the denominator, and for equations that contain both hours and wages and salaries the degrees of freedom in the denominator is 40.

Setting the Trend in the State Indexes

Because the Stock-Watson index is estimated based on the standardized log differences in the components, a trend must be introduced into the index after it is constructed. Stock and Watson used a weighted average of the trends of the components to establish the trend of the index. The weights were based on the contribution of the components to the monthly change in the common factor. Therefore, the relative weights of the components in determining the trend will differ by state. Since the indexes developed in this paper are intended to be consistent across states, we re-trend the indexes based upon the trend in real gross state product for each state.

Since the lag structure differs in each of the state models, the final indexes derived from the Stock/Watson model begin in different months in 1978 or 1979 for different states.[19] Therefore, we re-trended the indexes beginning in 1979. We based our re-trending of the index on the GSP data for the years 1979 to 2000. We reconstitute the state indexes from a standard Stock/Watson model so their average growth rate corresponds to the average growth of real gross state product from 1979 to 2000. If

c_t = the log of a Stock/Watson type index in which the trend is equal to the weighted average of the trends of the components,

And

$\Delta \bar{c}$ = The average monthly log difference of the index in the years on which the re-trending is based (1979-2000),

And

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[19] The indexes for eight states begin in various months in 1979—Louisiana, New Jersey, Ohio, Oklahoma, Texas, Virginia, Wisconsin, and Wyoming.

$\Delta\ \overline{gsp}$ = The average annual log difference in real gross state product in the years

on which the re-trending is based (1979-2000),

then an original Stock/Watson type index can be re-trended based on the average growth

in real gross state product by calculating a new set of monthly changes,

$$\Delta\ \hat{c}_t = \Delta\ c_t - \Delta\ \overline{c} + (\Delta\ \overline{gsp}\ /12).$$

Establishing a given month to equal 100 for the index (in our case July 1992), $\Delta\ \hat{c}_t$ can be

used to form a Stock/Watson type index with same trend as real gross state product.[20]

Conclusion

The state indexes described in this paper have been constructed on a consistent

basis for all 50 states. Despite the constraint of a certain level of consistency in the

models, the coefficients in the measurement equations have the expected signs and are

almost always statistically significant. Diagnostic tests of the single-index specification

for the models generally support that assumption. The final indexes and accompanying

graphs are available at www.phil.frb.org/econ/stateindexes.

The goal of this project has been to provide researchers with a set of indexes of

economic activity in each of the 50 states that can be used to examine other issues.

Possible issues include the study of state business cycles, the effect of national economic

forces on individual states, and the effect of the state's overall economic activity on state

fiscal conditions, poverty, or in-migration.

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[20] This procedure adjusts only the first moment of the change in the original index to the first moment of the change in real gross state product. Clayton-Matthews and Stock (1998/1999) adjust the first two moments of the original index. In some states the standard deviation of the annual change in real gross state product was so small that adjusting the second moment of the change in the original index obscured the business-cycle fluctuation in the state economy.

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Appendix A

Seasonal Adjustment and Pre-estimation Smoothing of the Data

We seasonally adjusted the nonfarm employment data and the average hours worked in manufacturing for all the states because these two series are not available on a seasonally adjusted basis for the time period over which we estimated our models. The pre-estimation smoothing of the data is described in this appendix.

Nonfarm Payroll Employment:

In addition to the normal seasonal adjustment, in the following states the irregular components that were between 1.5 standard deviations and 2.5 standard deviations from the mean were given a weight between one and zero. Those more than 2.5 standard deviations from the mean were given a weight of zero.

Michigan	Oregon	Virginia
Nebraska	Rhode Island	West Virginia
Nevada		

In the following states the irregular components that were between one standard deviation and two standard deviations from the mean were given a weight between one and zero. Those more than two standard deviations from the mean were given a weight of zero.

Delaware	Minnesota	Ohio
Iowa	Montana	South Dakota
Kentucky	North Dakota	Washington

Hours worked in manufacturing:

In addition to the normal seasonal adjustment, in all states except the following, the irregular components that were between 1.5 standard deviations and 2.5 standard deviations from the mean were given a weight between one and zero. Those more than 2.5 standard deviations from the mean were given a weight of zero. In the following

states the irregular components that were between one standard deviation and two standard deviations from the mean were given a weight between one and zero. Those more than two standard deviations from the mean were given a weight of zero.

Alabama	Louisiana	South Dakota
Alaska	Michigan	Tennessee
Delaware	New Hampshire	Texas
Florida	North Carolina	Washington
Georgia	Oregon	West Virginia
Hawaii	Pennsylvania	Wyoming
Kentucky	Rhode Island	

In Washington state the hours worked in manufacturing were treated as missing data for January 1980 because a severe storm in the week of the survey reduced the hours worked by more than 5 percent. The entries for October and November 1989 were also treated as missing data because a strike at Boeing reduced manufacturing hours worked by more than 14 percent from the months immediately preceding.

Unemployment rate:

For the months indicated in the following states, the unemployment rate was treated as missing data because of an anomalous change of more than 1.5 percentage points in a single month:

Delaware (September 1990)
Georgia (March 1991, January 1992)
Illinois (November 1993)
Michigan (April 1980, December 1981, February 1991)
New Jersey (May 1992)
North Carolina (October 1981)
Oklahoma (June 1980, December 1980)
Rhode Island (December 1989)

Wage and salary disbursements:

Wage and salary disbursements were treated as missing data in the first quarter of 1993 for the following states because the shift of bonuses and other compensation into

1992 in anticipation of a tax increase resulted in a decline of more than 4 percent in real wages and salaries for the quarter:

California	Massachusetts	Ohio
Connecticut	Michigan	Pennsylvania
Delaware	New Jersey	Rhode Island
Illinois	New York	Washington

Because of the shift of compensation to 1992, wage and salary disbursements in New York increased more than 4 percent in the fourth quarter of 1992, so data in that quarter were also treated as missing for New York state.

Strikes by coal miners reduced real wage and salary disbursements in West Virginia by more than 10 percent in the first quarter of 1978 and the second quarter of 1981, so wage and salary data for those quarters were treated as missing data.

Appendix B

The following tables present the estimated coefficients for the equations in each of the state models with their standard errors and the F-statistics for the diagnostic tests of the single common factor assumption.

Alabama

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.432	0.051	8.52
Unemployment Rate	C_t	-0.786	0.045	-17.37
	C_{t-1}	0.336	0.059	5.72
Average Weekly Mfg. Hours	C_{t+2}	0.218	0.044	5.02
Wage and Salary Dist.	C_t	0.135	0.036	3.74
	C_{t-1}	-0.080	0.035	-2.27

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.497	0.080	-6.22
	(2)	-0.143	0.075	-1.91
Unemployment Rate	(1)	0.740	0.069	10.75
Average Weekly Mfg. Hours	(1)	-0.185	0.060	-3.09
	(2)	-0.008	0.059	-0.13
Wage and Salary Dist.	(1)	-0.074	0.111	-0.67
	(2)	0.040	0.104	0.39

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.380	0.079	4.82
Lag 2	0.362	0.063	5.75

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.348	0.774	1.113	0.709
Error(Unemployment Rate)	0.734	0.887	3.046	1.666
Error(Mfg. Hours)	1.972	1.981	0.800	0.316
Error(Wage and Salary Dist.)	1.685	2.095	1.499	0.905
Employment	0.802	0.261	1.864	0.414
Unemployment Rate	0.961	0.930	2.774	2.507
Average Weekly Mfg. Hours	1.961	1.979	0.973	0.335
Wage and Salary Dist.	2.072	0.939	3.041	1.085

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.16	-0.48	0.18	0.29
Relative Contribution (%)	54.84	22.87	8.50	13.78

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.364	0.126	2.88
Unemployment Rate	C_t	-0.145	0.081	-1.80
Average Weekly Mfg. Hours	C_{t+2}	0.002	0.037	0.06
Wage and Salary Dist.	C_t	0.060	0.020	2.98

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.245	0.086	-2.85
Unemployment Rate	(1)	0.025	0.058	0.43
	(2)	0.199	0.057	3.47
	(3)	0.219	0.059	3.73
Average Weekly Mfg. Hours	(1)	-0.314	0.056	-5.65
Wage and Salary Dist.	(1)	-0.175	0.148	-1.18
	(2)	-0.140	0.135	-1.03

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.444	0.272	1.63
Lag 2		0.339	0.241	1.41

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.171	1.972	0.797	0.257
Error(Unemployment Rate)	2.108	0.981	2.389	0.556
Error(Mfg. Hours)	1.900	0.548	1.806	1.421
Error(Wage and Salary Dist.)	0.323	0.389	2.283	0.802
Employment	1.476	2.117	0.641	0.308
Unemployment Rate	1.944	0.764	2.180	0.440
Average Weekly Mfg. Hours	1.889	0.550	1.830	1.520
Wage and Salary Dist.	1.103	1.027	2.160	0.451

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.27	-0.12	0.00	0.54
Relative Contribution (%)	65.77	6.22	0.24	27.77

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.353	0.047	7.55
Unemployment Rate	C_t	-0.305	0.063	-4.83
Average Weekly Mfg. Hours	C_t	0.074	0.035	2.13
Wage and Salary Dist.	C_t	0.038	0.006	5.92

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.211	0.081	-2.59
	(2)	-0.028	0.075	-0.38
Unemployment Rate	(1)	0.412	0.077	5.34
	(2)	0.158	0.089	1.78
	(3)	0.127	0.068	1.88
Average Weekly Mfg. Hours	(1)	-0.127	0.059	-2.17
	(2)	0.086	0.059	1.46
Wage and Salary Dist.	(1)	-0.337	0.116	-2.91
	(2)	0.097	0.113	0.86

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.310	0.117	2.64
Lag 2		0.586	0.120	4.89

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.793	1.249	1.599	1.078
Error(Unemployment Rate)	1.066	0.928	1.145	0.460
Error(Mfg. Hours)	1.018	1.919	1.572	0.732
Error(Wage and Salary Dist.)	0.214	1.858	0.424	0.797
Employment	1.718	1.851	1.662	0.948
Unemployment Rate	1.061	0.527	1.308	0.217
Average Weekly Mfg. Hours	1.085	1.950	1.510	0.622
Wage and Salary Dist.	0.508	1.733	0.848	0.679

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.72	-0.25	0.14	0.58
Relative Contribution (%)	63.81	9.36	5.33	21.50

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.394	0.054	7.27
Unemployment Rate	C_{t-2}	-0.367	0.054	-6.75
Average Weekly Mfg. Hours	C_{t+2}	0.115	0.034	3.43
Wage and Salary Dist.	C_t	0.195	0.055	3.52
	C_{t-1}	-0.153	0.054	-2.84

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.072	0.083	-0.87
	(2)	-0.074	0.085	-0.87
Unemployment Rate	(1)	0.169	0.074	2.29
	(2)	-0.045	0.075	-0.60
	(3)	0.067	0.068	1.00
Average Weekly Mfg. Hours	(1)	-0.283	0.060	-4.73
	(2)	-0.156	0.061	-2.55
	(3)	-0.089	0.059	-1.50
Wage and Salary Dist.	(1)	-0.163	0.145	-1.13
	(2)	0.217	0.180	1.20
	(3)	-0.121	0.142	-0.85

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.210	0.069	3.04
Lag 2	0.620	0.072	8.60

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.535	1.263	1.694	0.401
Error(Unemployment Rate)	1.542	0.368	0.561	1.171
Error(Mfg. Hours)	1.928	0.956	0.151	1.541
Error(Wage and Salary Dist.)	2.034	2.118	1.108	2.119
Employment	0.465	1.009	1.871	0.314
Unemployment Rate	1.613	0.797	2.363	1.287
Average Weekly Mfg. Hours	2.013	0.684	0.422	0.982
Wage and Salary Dist.	1.267	2.065	2.340	1.118

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.02	-0.21	0.29	0.94
Relative Contribution (%)	41.52	8.70	11.68	38.10

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

California

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.346	0.068	5.07
Unemployment Rate	C_t	-0.536	0.182	-2.94
	C_{t-1}	0.249	0.208	1.20
Average Weekly Mfg. Hours	C_t	0.048	0.022	2.21
Wage and Salary Dist.	C_t	0.031	0.007	4.25

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.440	0.121	-3.62
	(2)	-0.254	0.093	-2.74
Unemployment Rate	(1)	0.222	0.140	1.59
	(2)	0.195	0.102	1.92
Average Weekly Mfg. Hours	(1)	-0.277	0.058	-4.81
	(2)	-0.174	0.058	-3.03
Wage and Salary Dist.	(1)	-0.057	0.107	-0.53

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.745	0.131	5.70
Lag 2		0.154	0.117	1.32

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.716	2.063	1.635	0.691
Error(Unemployment Rate)	1.586	3.737	0.943	0.368
Error(Mfg. Hours)	0.745	1.306	0.625	0.550
Error(Wage and Salary Dist.)	1.808	0.846	1.098	0.716
Employment	1.542	2.618	3.138	0.379
Unemployment Rate	1.790	3.486	0.923	0.267
Average Weekly Mfg. Hours	0.773	1.281	0.531	0.551
Wage and Salary Dist.	1.609	1.022	2.248	0.320

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	2.17	-0.52	0.08	0.10
Relative Contribution (%)	75.67	18.01	2.88	3.43

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Colorado

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.478	0.087	5.47
Unemployment Rate	C_t	-0.282	0.059	-4.77
Average Weekly Mfg. Hours	C_{t+1}	0.034	0.038	0.91
Wage and Salary Dist.	C_t	0.050	0.011	4.45

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.323	0.143	-2.25
	(2)	-0.154	0.122	-1.26
	(3)	0.201	0.113	1.78
Unemployment Rate	(1)	0.233	0.061	3.82
	(2)	0.181	0.061	2.98
Average Weekly Mfg. Hours	(1)	-0.265	0.058	-4.57
	(2)	-0.062	0.060	-1.04
	(3)	0.193	0.058	3.31
Wage and Salary Dist.	(1)	-0.050	0.104	-0.48
	(2)	0.227	0.104	2.18

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.402	0.163	2.47
Lag 2		0.417	0.152	2.74

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.865	1.063	1.250	1.394
Error(Unemployment Rate)	1.182	1.004	1.066	0.433
Error(Mfg. Hours)	1.249	1.537	0.565	0.880
Error(Wage and Salary Dist.)	0.545	0.463	1.297	0.386
Employment	1.390	1.315	1.447	1.589
Unemployment Rate	1.224	0.771	1.112	0.478
Average Weekly Mfg. Hours	1.617	1.297	0.744	0.754
Wage and Salary Dist.	0.971	0.956	2.291	0.965

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.58	-0.19	0.04	0.15
Relative Contribution (%)	80.50	9.70	2.10	7.70

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Connecticut

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.287	0.075	3.81
Unemployment Rate	C_t	-0.277	0.077	-3.57
Average Weekly Mfg. Hours	C_{t+2}	0.061	0.028	2.19
Wage and Salary Dist.	C_t	0.039	0.010	3.80

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.118	0.089	-1.32
	(2)	0.025	0.086	0.29
Unemployment Rate	(1)	-0.001	0.072	-0.02
	(2)	0.145	0.067	2.17
Average Weekly Mfg. Hours	(1)	-0.320	0.059	-5.42
	(2)	-0.114	0.061	-1.85
	(3)	-0.101	0.058	-1.73
Wage and Salary Dist.	(1)	-0.164	0.141	-1.17
	(2)	-0.075	0.134	-0.56

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.483	0.252	1.92
Lag 2	0.412	0.242	1.70

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.242	1.344	1.060	0.578
Error(Unemployment Rate)	1.506	1.033	0.984	1.700
Error(Mfg. Hours)	1.597	0.724	1.268	1.517
Error(Wage and Salary Dist.)	0.614	2.850	0.853	0.592
Employment	1.924	1.424	1.009	0.643
Unemployment Rate	1.368	0.321	0.569	1.986
Average Weekly Mfg. Hours	1.438	0.919	1.181	1.938
Wage and Salary Dist.	1.029	2.242	0.205	1.106

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.37	-0.79	0.29	0.67
Relative Contribution (%)	43.85	25.45	9.31	21.39

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Delaware

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.246	0.060	4.08
Unemployment Rate	C_t	-0.076	0.036	-2.15
Average Weekly Mfg. Hours	C_{t+1}	0.023	0.029	0.78
Wage and Salary Dist.	C_t	0.029	0.008	3.85

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.171	0.072	-2.37
Unemployment Rate	(1)	-0.209	0.058	-3.61
Average Weekly Mfg. Hours	(1)	-0.191	0.057	-3.36
Wage and Salary Dist.	(1)	-0.374	0.103	-3.63

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.084	0.065	1.29
Lag 2		0.840	0.077	10.94

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.766	1.992	1.489	0.420
Error(Unemployment Rate)	1.256	1.589	1.567	0.557
Error(Mfg. Hours)	2.156	0.576	1.212	1.183
Error(Wage and Salary Dist.)	0.730	0.440	1.158	1.177
Employment	0.660	2.202	1.673	0.455
Unemployment Rate	1.187	1.199	1.621	0.438
Average Weekly Mfg. Hours	2.147	0.536	1.202	1.107
Wage and Salary Dist.	0.851	0.597	1.025	0.992

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.87	-0.46	0.13	1.39
Relative Contribution (%)	48.52	11.91	3.40	36.17

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Florida

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.347	0.051	6.76
Unemployment Rate	C_t	-0.316	0.059	-5.38
Average Weekly Mfg. Hours	C_{t+2}	0.110	0.103	1.07
	C_{t+1}	-0.073	0.103	-0.71
Wage and Salary Dist.	C_t	0.124	0.039	3.19
	C_{t-1}	-0.098	0.038	-2.59

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.471	0.074	-6.34
	(2)	-0.346	0.070	-4.92
Unemployment Rate	(1)	0.149	0.063	2.38
	(2)	0.218	0.063	3.45
Average Weekly Mfg. Hours	(1)	-0.236	0.060	-3.95
	(2)	0.070	0.059	1.18
Wage and Salary Dist.	(1)	-0.209	0.106	-1.98
	(2)	0.197	0.112	1.76

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.408	0.143	2.87
Lag 2	0.477	0.136	3.50

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.466	0.940	1.165	0.749
Error(Unemployment Rate)	1.228	1.119	0.919	1.715
Error(Mfg. Hours)	1.426	0.794	0.751	0.195
Error(Wage and Salary Dist.)	0.914	0.912	0.507	1.336
Employment	0.343	0.818	1.100	0.488
Unemployment Rate	1.074	0.978	0.621	1.422
Average Weekly Mfg. Hours	1.520	0.725	0.784	0.245
Wage and Salary Dist.	0.733	0.602	0.566	1.246

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	2.04	-0.33	0.13	0.37
Relative Contribution (%)	71.18	11.36	4.55	12.91

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.422	0.062	6.77
Unemployment Rate	C_t	-0.316	0.056	-5.63
Average Weekly Mfg. Hours	C_t	0.067	0.047	1.44
Wage and Salary Dist.	C_t	0.170	0.042	4.02
	C_{t-1}	-0.128	0.042	-3.07

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.309	0.089	-3.47
	(2)	-0.147	0.080	-1.83
Unemployment Rate	(1)	-0.112	0.067	-1.68
	(2)	0.083	0.063	1.32
Average Weekly Mfg. Hours	(1)	0.020	0.059	0.34
	(2)	0.031	0.059	0.52
Wage and Salary Dist.	(1)	-0.088	0.109	-0.81
	(2)	0.331	0.136	2.43

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.357	0.139	2.56
Lag 2	0.478	0.135	3.55

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.921	0.261	1.218	0.720
Error(Unemployment Rate)	1.239	1.609	1.603	0.608
Error(Mfg. Hours)	1.414	0.245	1.189	0.652
Error(Wage and Salary Dist.)	0.269	0.326	0.447	1.375
Employment	1.545	0.327	2.211	0.801
Unemployment Rate	1.062	1.819	2.398	1.021
Average Weekly Mfg. Hours	1.361	0.236	1.070	0.721
Wage and Salary Dist.	0.361	0.481	1.298	1.332

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.41	-0.44	0.06	0.39
Relative Contribution (%)	61.16	19.23	2.59	17.03

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.309	0.071	4.36
Unemployment Rate	C_t	-0.770	0.063	-12.23
	C_{t-1}	-0.046	0.086	-0.54
	C_{t-2}	0.597	0.090	6.67
Average Weekly Mfg. Hours	C_t	0.055	0.036	1.51
Wage and Salary Dist.	C_t	0.033	0.012	2.85

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.203	0.067	-3.03
	(2)	-0.180	0.070	-2.59
Unemployment Rate	(1)	-0.117	0.172	-0.68
	(2)	1.077	0.188	5.73
	(3)	0.582	0.263	2.22
	(4)	-0.403	0.168	-2.41
	(5)	-0.449	0.139	-3.24
Average Weekly Mfg. Hours	(1)	-0.188	0.058	-3.26
	(2)	0.062	0.058	1.06
	(3)	0.149	0.058	2.58
	(4)	-0.057	0.058	-0.97
	(5)	-0.208	0.057	-3.65
Wage and Salary Dist.	(1)	-0.090	0.110	-0.81
	(2)	0.217	0.111	1.95

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.157	0.124	1.27
Lag 2		0.679	0.150	4.51

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	2.289	0.604	0.658	0.895
Error(Unemployment Rate)	2.958	0.450	2.214	1.348
Error(Mfg. Hours)	0.575	0.649	0.659	0.122
Error(Wage and Salary Dist.)	1.773	1.010	0.319	0.599
Employment	2.131	0.784	0.490	1.245
Unemployment Rate	2.956	0.456	2.012	1.131
Average Weekly Mfg. Hours	0.662	0.505	0.771	0.242
Wage and Salary Dist.	2.094	0.920	0.240	1.059

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.56	-1.07	0.17	0.37
Relative Contribution (%)	49.42	33.68	5.37	11.54

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.524	0.058	9.05
Unemployment Rate	C_t	-0.797	0.079	-10.04
	C_{t-1}	0.428	0.077	5.56
Average Weekly Mfg. Hours	C_{t+1}	0.090	0.032	2.78
Wage and Salary Dist.	C_t	0.070	0.010	6.76

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.323	0.067	-4.83
Unemployment Rate	(1)	0.524	0.166	3.16
Average Weekly Mfg. Hours	(1)	-0.390	0.057	-6.81
	(2)	-0.213	0.057	-3.75
Wage and Salary Dist.	(1)	-0.197	0.112	-1.76

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.401	0.088	4.57
Lag 2		0.330	0.076	4.36

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.793	0.663	1.245	1.129
Error(Unemployment Rate)	1.969	0.813	0.427	1.043
Error(Mfg. Hours)	1.758	1.031	1.254	0.570
Error(Wage and Salary Dist.)	0.546	0.818	0.434	0.522
Employment	2.570	0.647	1.368	1.419
Unemployment Rate	1.768	0.923	0.540	1.062
Average Weekly Mfg. Hours	1.593	1.000	1.517	0.700
Wage and Salary Dist.	1.549	1.039	0.539	0.714

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.04	-0.53	0.11	0.20
Relative Contribution (%)	55.28	28.02	6.06	10.64

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Illinois

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.160	0.031	5.17
Unemployment Rate	C_t	-0.791	0.066	-11.92
	C_{t-1}	0.639	0.078	8.18
Average Weekly Mfg. Hours	C_{t+1}	0.036	0.021	1.74
Wage and Salary Dist.	C_t	0.093	0.024	3.87
	C_{t-1}	-0.071	0.024	-3.02

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.189	0.069	-2.73
	(2)	-0.058	0.068	-0.85
Unemployment Rate	(1)	0.682	0.138	4.95
Average Weekly Mfg. Hours	(1)	-0.122	0.059	-2.08
	(2)	0.070	0.058	1.21
Wage and Salary Dist.	(1)	-0.149	0.143	-1.04
	(2)	0.194	0.145	1.33

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.967	0.112	8.65
Lag 2	-0.020	0.104	-0.19

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.457	1.005	1.291	1.017
Error(Unemployment Rate)	1.515	0.678	1.558	0.937
Error(Mfg. Hours)	0.650	1.485	0.830	0.348
Error(Wage and Salary Dist.)	0.717	1.039	0.151	0.685
Employment	0.410	1.801	2.283	0.413
Unemployment Rate	1.529	0.381	1.106	1.011
Average Weekly Mfg. Hours	0.925	1.300	0.781	0.393
Wage and Salary Dist.	1.130	1.234	1.585	0.603

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.71	-1.44	0.21	2.32
Relative Contribution (%)	30.08	25.28	3.72	40.91

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.522	0.054	9.72
Unemployment Rate	C_t	-0.484	0.055	-8.79
Average Weekly Mfg. Hours	C_{t+1}	0.174	0.075	2.31
Wage and Salary Dist.	C_t	0.069	0.009	7.89

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.173	0.100	-1.72
	(2)	-0.012	0.095	-0.13
Unemployment Rate	(1)	0.121	0.073	1.67
	(2)	0.122	0.070	1.74
Average Weekly Mfg. Hours	(1)	-0.332	0.080	-4.13
	(2)	0.052	0.079	0.65
Wage and Salary Dist.	(1)	-0.191	0.120	-1.59
	(2)	0.130	0.113	1.15

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.410	0.115	3.56
Lag 2	0.365	0.114	3.21

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.401	0.744	0.659	1.417
Error(Unemployment Rate)	0.942	0.769	0.892	0.755
Error(Mfg. Hours)	0.660	0.283	2.020	0.239
Error(Wage and Salary Dist.)	0.119	0.956	0.937	0.403
Employment	1.532	0.918	0.901	0.856
Unemployment Rate	1.075	0.789	1.159	1.173
Average Weekly Mfg. Hours	0.456	0.303	2.103	0.253
Wage and Salary Dist.	0.640	0.751	0.660	0.961

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.07	-0.38	0.16	0.19
Relative Contribution (%)	59.57	21.25	8.79	10.39

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.600	0.058	10.28
Unemployment Rate	C_t	-0.379	0.039	-9.69
Average Weekly Mfg. Hours	C_t	0.084	0.033	2.58
Wage and Salary Dist.	C_t	0.059	0.007	7.85

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	0.306	0.121	2.54
Unemployment Rate	(1)	-0.207	0.068	-3.03
	(2)	-0.100	0.069	-1.43
	(3)	0.182	0.065	2.79
Average Weekly Mfg. Hours	(1)	-0.317	0.055	-5.72
Wage and Salary Dist.	(1)	-0.159	0.114	-1.40

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.425	0.067	6.31
Lag 2		0.373	0.070	5.34

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.608	0.822	1.862	0.652
Error(Unemployment Rate)	0.986	1.590	1.738	1.315
Error(Mfg. Hours)	0.643	0.824	1.577	0.481
Error(Wage and Salary Dist.)	0.481	0.673	1.608	0.893
Employment	1.774	1.745	2.340	0.833
Unemployment Rate	0.727	0.885	1.465	1.007
Average Weekly Mfg. Hours	0.845	0.509	1.484	0.492
Wage and Salary Dist.	1.335	0.784	1.876	0.603

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.21	-0.33	0.06	0.14
Relative Contribution (%)	69.33	19.23	3.58	7.87

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Kansas

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.409	0.071	5.76
Unemployment Rate	C_t	-0.344	0.069	-4.95
Average Weekly Mfg. Hours	C_t	0.096	0.041	2.33
Wage and Salary Dist.	C_t	0.049	0.010	4.72

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.405	0.076	-5.34
	(2)	-0.336	0.073	-4.58
Unemployment Rate	(1)	0.033	0.067	0.50
Average Weekly Mfg. Hours	(1)	-0.281	0.059	-4.75
	(2)	-0.137	0.059	-2.33
Wage and Salary Dist.	(1)	-0.408	0.098	-4.15

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.272	0.119	2.28
Lag 2	0.471	0.117	4.04

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.835	1.441	1.705	1.216
Error(Unemployment Rate)	0.550	0.749	1.482	1.748
Error(Mfg. Hours)	1.171	1.519	0.741	1.499
Error(Wage and Salary Dist.)	0.706	1.260	0.140	1.116
Employment	0.831	1.280	2.102	0.716
Unemployment Rate	0.674	0.592	1.149	1.251
Average Weekly Mfg. Hours	1.259	1.531	0.827	1.680
Wage and Salary Dist.	0.854	0.545	0.490	0.486

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.39	-0.38	0.15	0.19
Relative Contribution (%)	65.72	18.18	7.00	9.09

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Kentucky

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.496	0.063	7.82
Unemployment Rate	C_t	-0.368	0.053	-7.01
Average Weekly Mfg. Hours	C_t	0.088	0.042	2.08
Wage and Salary Dist.	C_t	0.042	0.008	5.46

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	0.024	0.104	0.23
Unemployment Rate	(1)	-0.091	0.067	-1.36
Average Weekly Mfg. Hours	(1)	-0.174	0.058	-3.01
	(2)	0.184	0.058	3.18
Wage and Salary Dist.	(1)	-0.128	0.089	-1.45

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.405	0.101	3.99
Lag 2		0.414	0.104	4.00

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.793	0.978	2.170	1.052
Error(Unemployment Rate)	1.802	2.005	1.115	1.356
Error(Mfg. Hours)	0.734	1.173	0.769	1.308
Error(Wage and Salary Dist.)	1.531	1.458	0.528	0.553
Employment	1.142	0.992	3.011	1.559
Unemployment Rate	1.647	2.082	1.997	1.426
Average Weekly Mfg. Hours	0.815	1.153	0.778	1.367
Wage and Salary Dist.	1.635	2.867	1.758	0.476

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.27	-0.49	0.08	0.19
Relative Contribution (%)	62.63	24.07	3.89	9.40

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.472	0.074	6.36
Unemployment Rate	C_t	-0.180	0.069	-2.59
Average Weekly Mfg. Hours	C_t	0.069	0.034	2.04
Wage and Salary Dist.	C_t	0.056	0.010	5.59

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.106	0.114	-0.93
	(2)	-0.104	0.113	-0.92
Unemployment Rate	(1)	0.414	0.061	6.81
	(2)	0.167	0.061	2.75
Average Weekly Mfg. Hours	(1)	-0.201	0.058	-3.43
	(2)	-0.074	0.059	-1.26
	(3)	0.121	0.059	2.05
	(4)	-0.149	0.058	-2.56
Wage and Salary Dist.	(1)	-0.201	0.117	-1.72
	(2)	0.231	0.122	1.89
	(3)	0.091	0.116	0.79
	(4)	-0.049	0.111	-0.44

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.269	0.125	2.15
Lag 2		0.559	0.125	4.46

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.045	1.415	2.573	2.149
Error(Unemployment Rate)	1.097	1.962	0.905	0.947
Error(Mfg. Hours)	1.240	1.550	0.719	0.531
Error(Wage and Salary Dist.)	1.513	0.871	0.655	0.077
Employment	0.043	1.415	2.333	1.900
Unemployment Rate	1.237	1.724	0.699	0.504
Average Weekly Mfg. Hours	1.255	1.917	0.940	0.493
Wage and Salary Dist.	1.444	1.069	0.888	0.226

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.49	-0.09	0.11	0.28
Relative Contribution (%)	75.60	4.64	5.58	14.18

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Maine

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.296	0.089	3.31
Unemployment Rate	C_t	-0.274	0.098	-2.81
Average Weekly Mfg. Hours	C_{t+2}	0.057	0.041	1.41
Wage and Salary Dist.	C_t	0.044	0.014	3.25

Estimated Coefficients for lags in the autoregressive equations for the error terms

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	(1)	-0.199	0.064	-3.12
Unemployment Rate	(1)	-0.020	0.065	-0.31
	(2)	0.118	0.062	1.89
	(3)	0.147	0.062	2.36
Average Weekly Mfg. Hours	(1)	-0.273	0.056	-4.83
Wage and Salary Dist.	(1)	-0.322	0.108	-2.99

Estimated Coefficients in the autoregressive equation for the common factor

		Coefficient	Asymptotic Standard Error	t-statistic
Lag 1		0.450	0.217	2.07
Lag 2		0.388	0.199	1.95

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.436	0.486	0.372	1.152
Error(Unemployment Rate)	3.050	0.402	0.850	1.179
Error(Mfg. Hours)	0.772	1.541	0.537	0.731
Error(Wage and Salary Dist.)	1.419	1.135	0.838	1.461
Employment	1.510	0.277	0.463	0.773
Unemployment Rate	2.919	0.446	0.863	0.843
Average Weekly Mfg. Hours	0.729	1.544	0.565	0.490
Wage and Salary Dist.	1.748	1.014	0.771	1.481

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.14	-0.52	0.19	0.73
Relative Contribution (%)	43.98	20.22	7.46	28.33

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.269	0.053	5.13
Unemployment Rate	C_t	-0.538	0.137	-3.93
	C_{t-1}	-0.018	0.113	-0.16
	C_{t-2}	0.318	0.148	2.14
Average Weekly Mfg. Hours	C_{t+1}	0.058	0.029	2.02
Wage and Salary Dist.	C_t	0.040	0.009	4.38

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.323	0.084	-3.86
	(2)	-0.155	0.085	-1.82
	(3)	0.120	0.083	1.46
Unemployment Rate	(1)	-0.101	0.084	-1.20
	(2)	0.293	0.128	2.28
	(3)	0.149	0.079	1.90
Average Weekly Mfg. Hours	(1)	-0.353	0.055	-6.44
Wage and Salary Dist.	(1)	-0.218	0.126	-1.74

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.208	0.119	1.75
Lag 2		0.682	0.118	5.77

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	2.066	1.540	1.831	0.505
Error(Unemployment Rate)	1.537	0.742	0.964	0.467
Error(Mfg. Hours)	0.782	0.914	2.088	1.223
Error(Wage and Salary Dist.)	0.672	1.134	0.472	1.404
Employment	2.346	1.690	1.749	0.160
Unemployment Rate	1.696	0.628	0.889	0.411
Average Weekly Mfg. Hours	0.769	0.894	2.151	0.867
Wage and Salary Dist.	0.526	0.680	1.238	1.242

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.48	-0.84	0.21	0.75
Relative Contribution (%)	45.06	25.58	6.56	22.79

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.434	0.045	9.74
Unemployment Rate	C_t	-0.461	0.056	-8.19
Average Weekly Mfg. Hours	C_{t+2}	0.058	0.032	1.80
Wage and Salary Dist.	C_t	0.044	0.009	4.99

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.333	0.095	-3.50
	(2)	0.099	0.086	1.16
	(3)	0.437	0.094	4.64
	(4)	0.282	0.092	3.07
Unemployment Rate	(1)	0.057	0.084	0.68
	(2)	-0.007	0.088	-0.08
Average Weekly Mfg. Hours	(1)	-0.441	0.058	-7.66
	(2)	-0.042	0.062	-0.67
	(3)	0.185	0.062	2.96
	(4)	0.208	0.058	3.61
Wage and Salary Dist.	(1)	-0.171	0.105	-1.63
	(2)	0.296	0.108	2.75
	(3)	0.176	0.109	1.62

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.281	0.078	3.58
Lag 2	0.570	0.086	6.66

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.955	0.211	1.601	0.616
Error(Unemployment Rate)	1.748	1.801	1.133	1.067
Error(Mfg. Hours)	0.489	2.359	1.284	0.994
Error(Wage and Salary Dist.)	1.465	0.681	0.882	0.702
Employment	1.109	0.355	1.665	0.960
Unemployment Rate	2.601	0.767	1.317	1.206
Average Weekly Mfg. Hours	0.412	2.175	1.830	0.860
Wage and Salary Dist.	1.854	0.511	0.942	0.290

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.79	-0.99	0.09	0.27
Relative Contribution (%)	36.78	46.07	4.42	12.73

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Michigan

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.566	0.064	8.89
Unemployment Rate	C_t	-0.523	0.065	-8.00
Average Weekly Mfg. Hours	C_t	0.217	0.046	4.67
Wage and Salary Dist.	C_t	0.128	0.026	5.02
	C_{t-1}	-0.056	0.024	-2.40

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.190	0.125	-1.52
	(2)	0.414	0.089	4.63
	(3)	0.347	0.121	2.87
	(4)	-0.023	0.106	-0.21
Unemployment Rate	(1)	-0.150	0.074	-2.01
	(2)	0.096	0.068	1.41
	(3)	0.085	0.071	1.20
	(4)	0.196	0.068	2.91
	(5)	0.073	0.069	1.05
Average Weekly Mfg. Hours	(1)	-0.201	0.060	-3.35
	(2)	0.133	0.060	2.21
	(3)	0.206	0.061	3.40
	(4)	-0.050	0.061	-0.82
Wage and Salary Dist.	(1)	-0.468	0.166	-2.82
	(2)	-0.165	0.157	-1.05

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.572	0.169	3.39
Lag 2		0.186	0.159	1.17

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.241	0.818	2.023	0.467
Error(Unemployment Rate)	0.520	1.167	0.845	0.407
Error(Mfg. Hours)	1.207	0.612	1.359	1.568
Error(Wage and Salary Dist.)	0.556	0.795	0.844	0.666
Employment	1.802	1.307	3.108	0.494
Unemployment Rate	1.636	1.282	0.957	0.451
Average Weekly Mfg. Hours	1.420	0.971	1.786	1.173
Wage and Salary Dist.	1.303	1.995	3.173	1.472

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.48	-0.29	0.10	0.73
Relative Contribution (%)	30.05	18.38	6.23	45.34

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Minnesota

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.533	0.071	7.48
Unemployment Rate	C_t	-0.378	0.054	-6.96
Average Weekly Mfg. Hours	C_t	0.114	0.034	3.31
Wage and Salary Dist.	C_t	0.048	0.008	5.83

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	0.139	0.130	1.07
	(2)	0.263	0.137	1.92
	(3)	0.369	0.121	3.05
Unemployment Rate	(1)	-0.077	0.069	-1.13
	(2)	0.067	0.069	0.98
	(3)	0.254	0.064	3.99
Average Weekly Mfg. Hours	(1)	-0.357	0.055	-6.51
Wage and Salary Dist.	(1)	-0.269	0.109	-2.46

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.413	0.093	4.42
Lag 2		0.391	0.094	4.15

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.733	1.335	1.310	0.734
Error(Unemployment Rate)	1.268	0.640	1.646	1.043
Error(Mfg. Hours)	0.537	2.263	0.347	0.558
Error(Wage and Salary Dist.)	2.030	0.817	0.860	1.111
Employment	0.917	1.310	2.670	0.378
Unemployment Rate	1.504	0.256	1.871	0.674
Average Weekly Mfg. Hours	0.611	1.693	0.476	0.566
Wage and Salary Dist.	1.933	0.513	1.930	1.021

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.55	-0.55	0.31	0.76
Relative Contribution (%)	25.44	25.29	14.19	35.09

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Mississippi

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.268	0.051	5.29
Unemployment Rate	C_t	-0.160	0.062	-2.60
	C_{t-1}	-0.167	0.067	-2.49
Average Weekly Mfg. Hours	C_t	0.577	0.132	4.35
	C_{t-1}	-0.511	0.142	-3.60
Wage and Salary Dist.	C_t	0.042	0.011	3.94

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.304	0.077	-3.93
	(2)	-0.235	0.077	-3.05
	(3)	0.062	0.072	0.86
Unemployment Rate	(1)	0.114	0.066	1.74
	(2)	0.039	0.060	0.65
	(3)	0.259	0.060	4.34
Average Weekly Mfg. Hours	(1)	-0.116	0.114	-1.02
	(2)	-0.186	0.096	-1.95
	(3)	0.071	0.089	0.80
	(4)	-0.201	0.088	-2.28
Wage and Salary Dist.	(1)	-0.008	0.119	-0.07
	(2)	0.036	0.111	0.32

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.485	0.167	2.90
Lag 2		0.379	0.150	2.52

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.351	1.297	0.913	1.198
Error(Unemployment Rate)	0.723	0.925	1.739	1.057
Error(Mfg. Hours)	0.739	0.447	0.069	0.757
Error(Wage and Salary Dist.)	2.709	1.473	0.757	1.346
Employment	0.754	0.960	0.854	1.166
Unemployment Rate	0.877	1.122	1.201	0.887
Average Weekly Mfg. Hours	0.828	0.594	0.137	0.944
Wage and Salary Dist.	2.800	1.288	0.832	1.155

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.50	-0.43	1.55	0.54
Relative Contribution (%)	37.33	10.68	38.53	13.46

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Missouri

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.179	0.035	5.18
Unemployment Rate	C_t	-0.150	0.039	-3.87
Average Weekly Mfg. Hours	C_t	0.662	0.168	3.94
	C_{t-1}	-0.630	0.168	-3.74
Wage and Salary Dist.	C_t	0.017	0.005	3.54

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.200	0.069	-2.88
	(2)	-0.025	0.066	-0.38
Unemployment Rate	(1)	0.255	0.062	4.09
	(2)	0.022	0.062	0.35
	(3)	0.040	0.060	0.66
Average Weekly Mfg. Hours	(1)	-0.446	0.115	-3.87
Wage and Salary Dist.	(1)	-0.144	0.108	-1.33

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.994	0.199	5.00
Lag 2		-0.063	0.195	-0.33

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.433	1.526	1.341	1.049
Error(Unemployment Rate)	0.247	0.151	1.445	1.285
Error(Mfg. Hours)	1.457	1.718	0.371	0.806
Error(Wage and Salary Dist.)	0.807	0.591	0.598	1.971
Employment	0.370	1.426	1.067	0.888
Unemployment Rate	0.335	0.243	1.540	1.074
Average Weekly Mfg. Hours	1.620	1.778	0.395	0.668
Wage and Salary Dist.	1.030	0.536	0.827	1.431

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	2.71	-0.66	4.45	1.04
Relative Contribution (%)	30.62	7.42	50.23	11.73

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.651	0.129	5.03
Unemployment Rate	C_t	-0.265	0.055	-4.80
Average Weekly Mfg. Hours	C_t	0.054	0.037	1.45
Wage and Salary Dist.	C_t	0.071	0.012	5.92

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.044	0.169	-0.26
	(2)	0.018	0.132	0.14
	(3)	0.274	0.165	1.66
Unemployment Rate	(1)	-0.161	0.061	-2.63
	(2)	0.081	0.060	1.36
	(3)	0.233	0.061	3.82
	(4)	0.120	0.061	1.97
Average Weekly Mfg. Hours	(1)	-0.371	0.057	-6.47
	(2)	-0.234	0.057	-4.08
Wage and Salary Dist.	(1)	-0.277	0.143	-1.94
	(2)	-0.065	0.142	-0.46
	(3)	-0.030	0.129	-0.23

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.238	0.079	2.99
Lag 2	0.420	0.105	4.01

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.286	1.357	0.845	0.303
Error(Unemployment Rate)	0.836	0.276	1.140	0.739
Error(Mfg. Hours)	0.869	0.651	1.169	0.602
Error(Wage and Salary Dist.)	1.955	1.817	0.288	1.140
Employment	0.276	1.278	1.152	0.467
Unemployment Rate	0.699	0.449	1.055	0.825
Average Weekly Mfg. Hours	0.860	0.985	0.733	0.869
Wage and Salary Dist.	2.184	1.503	0.979	1.185

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.99	-0.14	0.07	0.25
Relative Contribution (%)	68.17	9.93	4.65	17.25

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.441	0.126	3.50
Unemployment Rate	C_t	-0.241	0.075	-3.22
Average Weekly Mfg. Hours	C_t	0.045	0.033	1.39
Wage and Salary Dist.	C_t	0.045	0.014	3.19

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.067	0.107	-0.62
	(2)	0.236	0.094	2.51
Unemployment Rate	(1)	-0.099	0.067	-1.48
Average Weekly Mfg. Hours	(1)	-0.384	0.058	-6.60
	(2)	-0.104	0.058	-1.79
Wage and Salary Dist.	(1)	-0.148	0.111	-1.33

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.613	0.283	2.17
Lag 2		0.153	0.243	0.63

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.415	1.167	1.542	0.907
Error(Unemployment Rate)	0.828	1.986	2.356	0.536
Error(Mfg. Hours)	0.751	0.531	1.698	0.576
Error(Wage and Salary Dist.)	0.614	0.569	0.078	1.367
Employment	0.609	1.115	1.003	1.047
Unemployment Rate	1.055	1.338	2.578	0.450
Average Weekly Mfg. Hours	0.679	0.437	1.724	0.585
Wage and Salary Dist.	1.273	0.839	0.133	0.943

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.08	-0.51	0.15	0.35
Relative Contribution (%)	51.65	24.46	7.08	16.81

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Nevada

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.501	0.083	6.06
Unemployment Rate	C_t	-0.490	0.101	-4.86
	C_{t-1}	0.157	0.112	1.40
Average Weekly Mfg. Hours	C_{t+2}	0.054	0.033	1.66
Wage and Salary Dist.	C_t	0.116	0.030	3.89
	C_{t-1}	-0.067	0.029	-2.35

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.228	0.194	-1.18
	(2)	0.216	0.083	2.60
	(3)	0.367	0.138	2.67
	(4)	0.294	0.137	2.15
Unemployment Rate	(1)	0.213	0.076	2.81
	(2)	0.204	0.069	2.97
Average Weekly Mfg. Hours	(1)	-0.265	0.059	-4.49
	(2)	-0.002	0.061	-0.03
	(3)	0.016	0.059	0.28
Wage and Salary Dist.	(1)	-0.330	0.117	-2.81
	(2)	-0.004	0.114	-0.03
	(3)	0.147	0.106	1.38

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.628	0.131	4.81
Lag 2	0.173	0.114	1.51

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.166	1.000	1.124	0.330
Error(Unemployment Rate)	1.735	0.640	1.523	1.996
Error(Mfg. Hours)	1.298	1.306	0.818	0.365
Error(Wage and Salary Dist.)	1.813	0.826	0.447	0.933
Employment	1.648	0.610	0.919	1.021
Unemployment Rate	1.588	0.687	1.504	2.125
Average Weekly Mfg. Hours	1.293	1.259	0.819	0.628
Wage and Salary Dist.	1.734	0.564	0.904	1.467

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.74	-0.30	0.09	0.98
Relative Contribution (%)	35.11	14.16	4.31	46.43

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.306	0.064	4.77
Unemployment Rate	C_t	-0.648	0.061	-10.57
	C_{t-1}	0.384	0.087	4.42
Average Weekly Mfg. Hours	C_{t+1}	0.013	0.024	0.55
Wage and Salary Dist.	C_t	0.028	0.007	4.07

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.227	0.104	-2.19
	(2)	-0.196	0.102	-1.91
	(3)	-0.138	0.099	-1.40
	(4)	-0.182	0.087	-2.10
	(5)	-0.131	0.078	-1.67
Unemployment Rate	(1)	0.684	0.083	8.21
Average Weekly Mfg. Hours	(1)	-0.221	0.058	-3.81
	(2)	-0.057	0.059	-0.97
	(3)	0.166	0.058	2.86
Wage and Salary Dist.	(1)	-0.191	0.103	-1.87

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.705	0.123	5.74
Lag 2	0.209	0.108	1.94

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.905	0.478	0.606	0.425
Error(Unemployment Rate)	0.849	0.470	0.604	0.652
Error(Mfg. Hours)	1.552	1.738	1.597	1.228
Error(Wage and Salary Dist.)	0.372	0.820	0.890	0.765
Employment	1.409	0.462	1.239	0.842
Unemployment Rate	0.610	0.478	0.683	0.842
Average Weekly Mfg. Hours	1.446	1.619	1.737	1.113
Wage and Salary Dist.	0.615	0.857	1.007	0.865

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	2.30	-0.64	0.03	0.20
Relative Contribution (%)	72.59	20.11	0.88	6.42

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.383	0.065	5.91
Unemployment Rate	C_t	-0.308	0.059	-5.23
Average Weekly Mfg. Hours	C_t	0.461	0.104	4.42
	C_{t-1}	-0.386	0.108	-3.57
Wage and Salary Dist.	C_t	0.037	0.009	4.04

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.292	0.113	-2.59
	(2)	-0.123	0.114	-1.08
	(3)	0.089	0.096	0.93
Unemployment Rate	(1)	-0.021	0.067	-0.31
	(2)	0.006	0.066	0.09
Average Weekly Mfg. Hours	(1)	-0.284	0.077	-3.67
	(2)	-0.019	0.071	-0.27
	(3)	0.216	0.079	2.72
Wage and Salary Dist.	(1)	0.022	0.113	0.20
	(2)	0.129	0.101	1.28
	(3)	0.102	0.104	0.99
	(4)	0.026	0.105	0.24

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.501	0.138	3.63
Lag 2		0.349	0.128	2.72

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.312	0.630	1.049	0.360
Error(Unemployment Rate)	0.909	0.091	1.270	0.612
Error(Mfg. Hours)	1.547	1.358	1.031	0.545
Error(Wage and Salary Dist.)	1.020	0.758	0.253	0.710
Employment	2.002	0.686	0.739	0.410
Unemployment Rate	0.853	0.185	1.077	0.509
Average Weekly Mfg. Hours	2.174	1.381	1.044	0.811
Wage and Salary Dist.	1.310	0.662	0.458	0.441

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.60	-0.53	0.60	0.18
Relative Contribution (%)	54.94	18.25	20.66	6.15

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.359	0.066	5.46
Unemployment Rate	C_t	-0.410	0.076	-5.41
Average Weekly Mfg. Hours	C_{t+2}	0.021	0.035	0.60
Wage and Salary Dist.	C_t	0.046	0.012	3.77

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.334	0.076	-4.40
	(2)	-0.201	0.073	-2.74
Unemployment Rate	(1)	0.057	0.077	0.74
	(2)	0.169	0.075	2.25
	(3)	0.215	0.069	3.13
	(4)	0.039	0.068	0.58
	(5)	0.153	0.069	2.23
Average Weekly Mfg. Hours	(1)	-0.380	0.057	-6.63
	(2)	-0.225	0.057	-3.92
Wage and Salary Dist.	(1)	-0.139	0.109	-1.28
	(2)	0.083	0.107	0.78

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.285	0.132	2.15
Lag 2	0.450	0.125	3.61

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.488	0.352	0.463	1.829
Error(Unemployment Rate)	1.587	0.683	1.171	0.750
Error(Mfg. Hours)	0.404	0.488	1.231	0.893
Error(Wage and Salary Dist.)	1.081	1.269	1.642	0.467
Employment	0.612	0.654	0.606	1.913
Unemployment Rate	1.149	0.077	1.093	0.643
Average Weekly Mfg. Hours	0.394	0.429	1.197	0.828
Wage and Salary Dist.	0.908	3.015	1.472	0.317

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.41	-0.29	0.06	0.29
Relative Contribution (%)	68.60	13.99	3.11	14.30

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.359	0.070	5.13
Unemployment Rate	C_t	-0.284	0.058	-4.94
Average Weekly Mfg. Hours	C_t	0.037	0.030	1.24
Wage and Salary Dist.	C_t	0.026	0.006	4.03

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.362	0.119	-3.05
	(2)	-0.156	0.111	-1.40
	(3)	0.183	0.098	1.86
Unemployment Rate	(1)	0.020	0.067	0.30
	(2)	0.023	0.065	0.36
Average Weekly Mfg. Hours	(1)	-0.137	0.058	-2.35
	(2)	-0.072	0.058	-1.24
Wage and Salary Dist.	(1)	-0.429	0.108	-3.97
	(2)	-0.014	0.108	-0.13

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.451	0.259	1.74
Lag 2		0.438	0.246	1.78

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.390	0.827	0.666	1.053
Error(Unemployment Rate)	0.349	0.612	1.091	0.328
Error(Mfg. Hours)	1.356	1.296	1.498	0.769
Error(Wage and Salary Dist.)	0.479	0.948	1.559	0.362
Employment	1.245	0.650	1.673	1.096
Unemployment Rate	0.525	0.620	2.038	0.232
Average Weekly Mfg. Hours	1.328	1.108	1.808	0.794
Wage and Salary Dist.	0.850	0.778	1.780	0.166

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.87	-0.54	0.07	0.28
Relative Contribution (%)	67.77	19.56	2.68	9.99

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.502	0.063	8.00
Unemployment Rate	C_t	-0.450	0.066	-6.81
Average Weekly Mfg. Hours	C_t	0.174	0.059	2.94
Wage and Salary Dist.	C_t	0.153	0.040	3.83
	C_{t-1}	-0.098	0.039	-2.53

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.171	0.093	-1.83
	(2)	-0.074	0.086	-0.86
Unemployment Rate	(1)	-0.029	0.072	-0.40
	(2)	0.114	0.075	1.53
Average Weekly Mfg. Hours	(1)	-0.102	0.060	-1.71
	(2)	0.211	0.060	3.51
	(3)	0.269	0.061	4.42
	(4)	-0.060	0.062	-0.97
	(5)	-0.103	0.063	-1.65
Wage and Salary Dist.	(1)	-0.205	0.116	-1.76
	(2)	0.107	0.122	0.88

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.373	0.109	3.42
Lag 2	0.413	0.116	3.55

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.466	1.319	1.060	2.104
Error(Unemployment Rate)	0.924	0.568	1.110	0.954
Error(Mfg. Hours)	1.324	0.721	0.203	0.870
Error(Wage and Salary Dist.)	1.151	0.226	0.755	0.558
Employment	1.648	1.009	2.271	1.331
Unemployment Rate	0.836	0.583	2.350	0.437
Average Weekly Mfg. Hours	1.540	1.077	0.403	0.718
Wage and Salary Dist.	1.591	0.507	2.121	0.323

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.00	-0.46	0.10	0.33
Relative Contribution (%)	53.04	24.26	5.39	17.31

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.692	0.071	9.78
Unemployment Rate	C_t	-0.346	0.051	-6.76
Average Weekly Mfg. Hours	C_t	0.119	0.048	2.47
Wage and Salary Dist.	C_t	0.064	0.012	5.22

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	0.224	0.141	1.59
	(2)	-0.186	0.108	-1.71
	(3)	0.376	0.098	3.83
	(4)	-0.318	0.143	-2.23
Unemployment Rate	(1)	-0.223	0.061	-3.67
Average Weekly Mfg. Hours	(1)	-0.244	0.058	-4.17
	(2)	-0.080	0.059	-1.37
Wage and Salary Dist.	(1)	-0.212	0.104	-2.04

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.292	0.070	4.19
Lag 2		0.277	0.083	3.35

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.652	0.469	1.166	1.451
Error(Unemployment Rate)	1.620	1.343	0.263	0.858
Error(Mfg. Hours)	1.510	1.293	0.859	1.449
Error(Wage and Salary Dist.)	1.002	0.483	2.287	0.960
Employment	0.449	0.422	1.750	1.773
Unemployment Rate	1.631	0.889	0.561	1.001
Average Weekly Mfg. Hours	1.492	1.320	1.039	1.620
Wage and Salary Dist.	1.473	0.919	2.290	0.956

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.07	-0.21	0.07	0.04
Relative Contribution (%)	77.05	15.12	4.77	3.06

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.407	0.048	8.55
Unemployment Rate	C_t	-0.338	0.045	-7.56
Average Weekly Mfg. Hours	C_{t+1}	0.161	0.032	5.02
Wage and Salary Dist.	C_t	0.051	0.007	7.04

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.079	0.107	-0.74
	(2)	0.592	0.130	4.57
	(3)	0.544	0.137	3.98
	(4)	0.000	0.098	0.00
	(5)	-0.278	0.108	-2.58
Unemployment Rate	(1)	0.058	0.072	0.81
	(2)	-0.005	0.068	-0.08
	(3)	-0.057	0.067	-0.85
Average Weekly Mfg. Hours	(1)	-0.168	0.061	-2.76
	(2)	0.049	0.062	0.79
	(3)	-0.014	0.061	-0.22
	(4)	-0.114	0.060	-1.89
Wage and Salary Dist.	(1)	-0.196	0.171	-1.15
	(2)	-0.091	0.149	-0.62
	(3)	-0.006	0.126	-0.05
	(4)	-0.022	0.105	-0.21

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	1.017	0.130	7.81
Lag 2	-0.191	0.127	-1.51

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.319	1.046	1.099	2.201
Error(Unemployment Rate)	0.709	0.605	1.883	1.950
Error(Mfg. Hours)	0.859	1.141	0.093	0.924
Error(Wage and Salary Dist.)	1.594	0.784	1.776	0.123
Employment	0.930	1.133	3.988	2.566
Unemployment Rate	0.937	0.557	3.977	1.500
Average Weekly Mfg. Hours	1.634	0.984	0.584	1.566
Wage and Salary Dist.	2.436	1.091	4.438	1.269

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.64	-0.61	0.27	0.86
Relative Contribution (%)	26.74	25.64	11.38	36.25

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Oklahoma

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.370	0.076	4.84
Unemployment Rate	C_t	-0.305	0.075	-4.06
Average Weekly Mfg. Hours	C_{t+2}	-0.004	0.034	-0.11
Wage and Salary Dist.	C_t	0.055	0.012	4.47

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.285	0.092	-3.10
	(2)	-0.234	0.086	-2.72
	(3)	-0.022	0.076	-0.29
Unemployment Rate	(1)	-0.012	0.067	-0.17
	(2)	0.129	0.060	2.17
	(3)	0.368	0.060	6.09
	(4)	0.119	0.066	1.80
Average Weekly Mfg. Hours	(1)	-0.302	0.056	-5.36
Wage and Salary Dist.	(1)	-0.144	0.130	-1.10
	(2)	0.059	0.135	0.44
	(3)	-0.027	0.133	-0.21
	(4)	0.110	0.107	1.02

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.485	0.184	2.64
Lag 2	0.318	0.165	1.93

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.832	0.634	0.540	0.427
Error(Unemployment Rate)	0.958	1.320	0.828	0.512
Error(Mfg. Hours)	1.460	1.334	0.439	0.895
Error(Wage and Salary Dist.)	1.561	3.990	0.821	1.012
Employment	0.678	0.729	0.491	0.553
Unemployment Rate	1.099	1.043	0.740	0.632
Average Weekly Mfg. Hours	1.241	1.320	0.513	0.855
Wage and Salary Dist.	0.532	5.760	0.843	0.703

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.53	-0.20	-0.01	0.39
Relative Contribution (%)	71.92	9.54	0.33	18.21

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.568	0.065	8.67
Unemployment Rate	C_t	-0.437	0.073	-5.96
Average Weekly Mfg. Hours	C_{t+2}	0.041	0.025	1.67
Wage and Salary Dist.	C_t	0.152	0.031	4.90
	C_{t-1}	-0.103	0.031	-3.34

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	0.095	0.126	0.76
	(2)	0.323	0.167	1.93
	(3)	0.413	0.132	3.14
Unemployment Rate	(1)	-0.070	0.078	-0.91
Average Weekly Mfg. Hours	(1)	-0.556	0.059	-9.44
	(2)	-0.246	0.067	-3.68
	(3)	-0.007	0.069	-0.10
	(4)	-0.184	0.066	-2.77
	(5)	-0.090	0.058	-1.54
Wage and Salary Dist.	(1)	0.075	0.136	0.55
	(2)	0.383	0.111	3.46
	(3)	0.194	0.123	1.57

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.339	0.089	3.79
Lag 2	0.405	0.102	3.96

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.378	0.753	1.191	0.869
Error(Unemployment Rate)	0.960	0.405	1.322	0.982
Error(Mfg. Hours)	1.814	1.108	0.051	0.507
Error(Wage and Salary Dist.)	2.718	0.436	0.709	0.994
Employment	0.470	0.827	1.597	0.550
Unemployment Rate	0.793	0.488	1.372	0.843
Average Weekly Mfg. Hours	2.350	1.250	0.086	0.508
Wage and Salary Dist.	2.218	1.080	1.453	1.010

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.34	-1.08	0.31	0.35
Relative Contribution (%)	16.48	51.76	15.03	16.73

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.392	0.041	9.54
Unemployment Rate	C_t	-0.677	0.086	-7.83
	C_{t-1}	-0.035	0.078	-0.44
	C_{t-2}	0.253	0.076	3.33
Average Weekly Mfg. Hours	C_{t+2}	0.199	0.041	4.86
Wage and Salary Dist.	C_t	0.049	0.008	6.11

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.194	0.085	-2.30
	(2)	-0.184	0.072	-2.56
	(3)	0.080	0.070	1.15
Unemployment Rate	(1)	0.155	0.127	1.22
	(2)	0.370	0.137	2.71
Average Weekly Mfg. Hours	(1)	-0.131	0.059	-2.23
	(2)	-0.030	0.059	-0.51
	(3)	0.056	0.059	0.96
	(4)	0.157	0.058	2.70
Wage and Salary Dist.	(1)	-0.143	0.112	-1.28

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.171	0.080	2.12
Lag 2	0.671	0.083	8.08

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.571	0.541	1.174	0.569
Error(Unemployment Rate)	0.552	1.292	1.981	0.767
Error(Mfg. Hours)	0.267	0.158	0.260	0.059
Error(Wage and Salary Dist.)	1.233	1.023	1.143	1.409
Employment	0.833	0.472	1.487	0.522
Unemployment Rate	0.399	1.192	1.932	0.592
Average Weekly Mfg. Hours	0.349	0.292	0.556	0.020
Wage and Salary Dist.	1.153	0.785	2.558	1.025

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.05	-0.77	0.18	0.28
Relative Contribution (%)	45.86	33.99	7.88	12.27

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.377	0.083	4.53
Unemployment Rate	C_t	-0.304	0.070	-4.37
Average Weekly Mfg. Hours	C_{t+2}	0.026	0.027	0.98
Wage and Salary Dist.	C_t	0.047	0.010	4.57

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.184	0.101	-1.82
	(2)	0.015	0.079	0.19
	(3)	0.245	0.076	3.23
	(4)	-0.023	0.081	-0.29
Unemployment Rate	(1)	0.231	0.064	3.60
	(2)	0.098	0.061	1.61
	(3)	0.057	0.058	0.97
Average Weekly Mfg. Hours	(1)	-0.366	0.058	-6.33
	(2)	-0.120	0.058	-2.07
Wage and Salary Dist.	(1)	-0.354	0.121	-2.93

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.563	0.208	2.71
Lag 2	0.271	0.199	1.36

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.883	1.796	0.955	0.095
Error(Unemployment Rate)	0.537	0.870	0.678	0.857
Error(Mfg. Hours)	1.141	1.237	0.602	0.967
Error(Wage and Salary Dist.)	0.524	1.253	1.259	0.413
Employment	0.763	1.341	1.001	0.122
Unemployment Rate	0.592	0.947	0.688	0.627
Average Weekly Mfg. Hours	0.642	1.294	0.623	0.850
Wage and Salary Dist.	0.962	0.633	0.792	0.268

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.12	-0.42	0.08	0.65
Relative Contribution (%)	49.24	18.64	3.63	28.48

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.289	0.052	5.51
Unemployment Rate	C_t	-0.353	0.065	-5.47
Average Weekly Mfg. Hours	C_t	0.355	0.106	3.36
	C_{t-1}	-0.011	0.137	-0.08
	C_{t-2}	-0.254	0.108	-2.35
Wage and Salary Dist.	C_t	0.045	0.009	5.10

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.212	0.064	-3.30
Unemployment Rate	(1)	0.195	0.076	2.56
Average Weekly Mfg. Hours	(1)	-0.225	0.074	-3.03
	(2)	0.283	0.066	4.28
	(3)	0.069	0.071	0.97
Wage and Salary Dist.	(1)	-0.268	0.112	-2.39

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.479	0.188	2.54
Lag 2	0.394	0.178	2.22

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.661	0.508	1.828	2.010
Error(Unemployment Rate)	0.800	0.396	1.072	0.417
Error(Mfg. Hours)	0.282	0.922	0.553	0.624
Error(Wage and Salary Dist.)	0.535	0.603	0.659	0.799
Employment	1.477	0.407	2.692	1.232
Unemployment Rate	0.727	0.374	0.953	0.312
Average Weekly Mfg. Hours	0.276	0.942	0.634	0.593
Wage and Salary Dist.	0.402	0.625	1.314	0.633

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.94	-0.74	0.59	0.68
Relative Contribution (%)	31.93	25.09	19.82	23.16

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

South Dakota

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.516	0.068	7.56
Unemployment Rate	C_t	-0.140	0.060	-2.34
	C_{t-1}	-0.130	0.060	-2.18
Average Weekly Mfg. Hours	C_t	0.084	0.032	2.63
Wage and Salary Dist.	C_t	0.058	0.011	5.35

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	0.543	0.094	5.76
Unemployment Rate	(1)	0.036	0.062	0.57
Average Weekly Mfg. Hours	(1)	-0.318	0.057	-5.58
	(2)	-0.119	0.060	-1.98
	(3)	0.060	0.059	1.01
	(4)	-0.236	0.056	-4.23
Wage and Salary Dist.	(1)	-0.254	0.133	-1.92

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.296	0.076	3.88
Lag 2		0.504	0.087	5.77

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.812	1.468	0.778	1.749
Error(Unemployment Rate)	2.107	0.800	0.281	1.603
Error(Mfg. Hours)	0.734	1.406	1.239	1.416
Error(Wage and Salary Dist.)	0.706	1.445	1.588	0.649
Employment	1.493	0.967	1.392	1.035
Unemployment Rate	1.575	0.542	0.375	1.597
Average Weekly Mfg. Hours	0.762	1.673	0.645	1.344
Wage and Salary Dist.	0.585	1.804	1.319	0.757

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.84	-0.28	0.26	0.57
Relative Contribution (%)	43.13	14.40	13.37	29.10

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.477	0.056	8.58
Unemployment Rate	C_t	-0.487	0.061	-7.94
Average Weekly Mfg. Hours	C_t	0.289	0.082	3.51
	C_{t-1}	0.106	0.078	1.36
	C_{t-2}	-0.334	0.084	-3.98
Wage and Salary Dist.	C_t	0.165	0.033	4.96
	C_{t-1}	-0.118	0.032	-3.64

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.456	0.091	-5.02
	(2)	-0.217	0.082	-2.65
Unemployment Rate	(1)	0.067	0.072	0.92
	(2)	0.178	0.076	2.34
Average Weekly Mfg. Hours	(1)	-0.029	0.061	-0.47
	(2)	0.043	0.062	0.68
	(3)	0.199	0.063	3.14
Wage and Salary Dist.	(1)	-0.180	0.112	-1.61
	(2)	0.116	0.114	1.01

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.333	0.093	3.60
Lag 2		0.472	0.095	4.96

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.390	0.962	0.648	0.801
Error(Unemployment Rate)	0.893	1.220	1.060	0.968
Error(Mfg. Hours)	0.459	0.248	1.072	0.618
Error(Wage and Salary Dist.)	1.005	1.194	1.102	1.652
Employment	0.536	0.802	1.009	1.059
Unemployment Rate	0.777	0.912	1.271	1.219
Average Weekly Mfg. Hours	0.580	0.369	1.006	0.665
Wage and Salary Dist.	0.288	0.403	0.479	0.780

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.29	-0.37	0.12	0.26
Relative Contribution (%)	63.18	18.21	6.01	12.60

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.204	0.047	4.36
Unemployment Rate	C_t	-0.571	0.088	-6.47
	C_{t-1}	0.412	0.063	6.51
Average Weekly Mfg. Hours	C_{t+2}	0.152	0.061	2.50
	C_{t+1}	-0.126	0.061	-2.07
Wage and Salary Dist.	C_t	0.018	0.005	3.76

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.232	0.065	-3.56
Unemployment Rate	(1)	-0.138	0.088	-1.58
	(2)	0.414	0.085	4.90
	(3)	0.405	0.100	4.07
Average Weekly Mfg. Hours	(1)	-0.231	0.058	-3.97
Wage and Salary Dist.	(1)	-0.197	0.101	-1.94
	(2)	0.102	0.103	0.99
	(3)	0.048	0.106	0.45
	(4)	0.330	0.102	3.22

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	1.244	0.186	6.68
Lag 2	-0.298	0.177	-1.68

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	2.367	0.631	1.070	1.416
Error(Unemployment Rate)	1.048	0.657	1.408	0.842
Error(Mfg. Hours)	1.649	2.615	1.366	0.750
Error(Wage and Salary Dist.)	0.664	0.174	0.489	0.103
Employment	2.048	0.919	1.770	1.369
Unemployment Rate	0.755	0.493	0.423	0.947
Average Weekly Mfg. Hours	1.586	2.367	1.237	0.582
Wage and Salary Dist.	0.546	1.732	1.749	0.572

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	3.44	-0.87	0.45	0.52
Relative Contribution (%)	65.14	16.42	8.60	9.84

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.308	0.068	4.52
Unemployment Rate	C_t	-0.325	0.080	-4.06
Average Weekly Mfg. Hours	C_{t+1}	0.027	0.024	1.12
Wage and Salary Dist.	C_t	0.031	0.008	3.93

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.145	0.077	-1.88
	(2)	-0.229	0.071	-3.23
Unemployment Rate	(1)	0.057	0.077	0.74
	(2)	0.168	0.065	2.60
	(3)	0.138	0.068	2.03
	(4)	0.156	0.075	2.08
	(5)	0.099	0.080	1.24
Average Weekly Mfg. Hours	(1)	-0.333	0.060	-5.56
	(2)	0.096	0.063	1.52
	(3)	-0.004	0.060	-0.06
Wage and Salary Dist.	(1)	-0.305	0.110	-2.77
	(2)	0.052	0.117	0.45
	(3)	0.102	0.106	0.96

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.620	0.260	2.39
Lag 2		0.284	0.245	1.16

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.869	1.383	0.776	0.572
Error(Unemployment Rate)	0.560	1.455	1.158	1.270
Error(Mfg. Hours)	0.551	1.173	0.357	0.527
Error(Wage and Salary Dist.)	0.943	0.512	2.061	0.131
Employment	0.982	1.596	1.255	1.117
Unemployment Rate	0.622	2.508	0.392	1.098
Average Weekly Mfg. Hours	0.588	0.988	0.461	0.672
Wage and Salary Dist.	1.140	0.961	2.291	0.611

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	2.05	-0.39	0.09	0.47
Relative Contribution (%)	68.50	12.94	2.98	15.57

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.433	0.098	4.40
Unemployment Rate	C_t	-0.438	0.099	-4.44
Average Weekly Mfg. Hours	C_t	0.041	0.035	1.17
Wage and Salary Dist.	C_t	0.061	0.016	3.86

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.340	0.080	-4.25
	(2)	-0.113	0.075	-1.51
Unemployment Rate	(1)	0.038	0.077	0.49
Average Weekly Mfg. Hours	(1)	-0.481	0.057	-8.40
	(2)	-0.197	0.057	-3.45
Wage and Salary Dist.	(1)	-0.148	0.110	-1.34

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.279	0.118	2.37
Lag 2		0.412	0.138	3.00

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.925	1.974	0.275	0.766
Error(Unemployment Rate)	1.668	1.900	0.112	0.919
Error(Mfg. Hours)	0.475	0.529	0.993	0.172
Error(Wage and Salary Dist.)	1.663	1.012	1.138	1.831
Employment	1.137	1.507	0.484	0.813
Unemployment Rate	1.575	2.307	0.147	0.818
Average Weekly Mfg. Hours	0.711	0.649	0.906	0.117
Wage and Salary Dist.	2.832	0.977	0.451	1.337

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.00	-0.53	0.09	0.19
Relative Contribution (%)	55.54	29.32	4.82	10.32

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.458	0.065	7.01
Unemployment Rate	C_t	-0.320	0.061	-5.20
Average Weekly Mfg. Hours	C_t	0.063	0.032	1.98
Wage and Salary Dist.	C_t	0.108	0.040	2.67
	C_{t-1}	-0.077	0.040	-1.91

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.045	0.102	-0.44
Unemployment Rate	(1)	0.068	0.064	1.05
	(2)	0.159	0.064	2.49
	(3)	0.138	0.064	2.17
Average Weekly Mfg. Hours	(1)	-0.274	0.059	-4.63
	(2)	-0.030	0.061	-0.49
	(3)	-0.030	0.061	-0.50
	(4)	0.066	0.059	1.11
Wage and Salary Dist.	(1)	-0.207	0.109	-1.91
	(2)	0.111	0.109	1.02
	(3)	0.119	0.113	1.06
	(4)	0.194	0.109	1.78

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.352	0.102	3.44
Lag 2		0.515	0.108	4.78

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	1.465	0.380	0.739	1.051
Error(Unemployment Rate)	0.218	1.117	1.405	1.415
Error(Mfg. Hours)	0.612	1.735	0.077	0.849
Error(Wage and Salary Dist.)	0.958	0.504	0.705	0.676
Employment	1.994	0.868	1.109	0.858
Unemployment Rate	0.289	1.140	1.873	1.531
Average Weekly Mfg. Hours	0.982	1.593	0.017	0.924
Wage and Salary Dist.	1.251	0.361	1.929	0.530

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.59	-0.28	0.11	0.29
Relative Contribution (%)	70.28	12.28	4.78	12.66

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.513	0.070	7.36
Unemployment Rate	C_t	-0.270	0.067	-4.06
	C_{t-1}	-0.185	0.073	-2.53
Average Weekly Mfg. Hours	C_{t+1}	0.025	0.034	0.71
Wage and Salary Dist.	C_t	0.031	0.010	3.10

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	0.057	0.116	0.49
	(2)	0.331	0.104	3.17
	(3)	0.395	0.106	3.73
Unemployment Rate	(1)	-0.234	0.073	-3.18
Average Weekly Mfg. Hours	(1)	-0.284	0.057	-4.97
	(2)	-0.094	0.057	-1.64
Wage and Salary Dist.	(1)	-0.061	0.108	-0.57

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.341	0.107	3.19
Lag 2		0.446	0.096	4.63

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.816	1.985	1.302	0.317
Error(Unemployment Rate)	2.848	0.445	0.638	1.045
Error(Mfg. Hours)	1.659	1.602	1.989	0.141
Error(Wage and Salary Dist.)	0.240	0.346	0.725	0.638
Employment	0.479	1.733	1.629	0.602
Unemployment Rate	3.499	0.519	0.857	0.685
Average Weekly Mfg. Hours	1.735	1.869	2.117	0.070
Wage and Salary Dist.	0.245	0.530	0.760	1.161

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.44	-1.19	0.06	0.24
Relative Contribution (%)	22.51	61.58	3.29	12.62

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

West Virginia

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.380	0.056	6.76
Unemployment Rate	C_t	-0.499	0.059	-8.52
Average Weekly Mfg. Hours	C_{t+1}	0.092	0.044	2.10
Wage and Salary Dist.	C_t	0.061	0.011	5.44

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.054	0.063	-0.85
	(2)	-0.156	0.065	-2.41
Unemployment Rate	(1)	0.011	0.114	0.10
	(2)	-0.085	0.122	-0.70
	(3)	0.034	0.090	0.37
Average Weekly Mfg. Hours	(1)	-0.288	0.058	-4.97
	(2)	0.010	0.060	0.16
	(3)	0.147	0.057	2.57
Wage and Salary Dist.	(1)	-0.251	0.120	-2.10

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.307	0.094	3.28
Lag 2	0.455	0.101	4.49

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.547	0.450	1.087	0.877
Error(Unemployment Rate)	0.856	0.812	0.766	0.917
Error(Mfg. Hours)	0.962	1.819	1.151	1.139
Error(Wage and Salary Dist.)	2.974	2.692	0.686	0.603
Employment	0.603	0.343	1.775	0.931
Unemployment Rate	0.650	0.775	1.330	0.750
Average Weekly Mfg. Hours	0.942	1.812	1.677	1.316
Wage and Salary Dist.	1.973	1.771	0.961	0.936

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	0.76	-0.85	0.10	0.22
Relative Contribution (%)	39.52	43.95	5.20	11.33

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Wisconsin

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.575	0.052	11.05
Unemployment Rate	C_t	-0.521	0.054	-9.56
Average Weekly Mfg. Hours	C_t	0.209	0.052	4.04
Wage and Salary Dist.	C_t	0.143	0.029	4.88
	C_{t-1}	-0.085	0.029	-2.97

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.407	0.113	-3.61
	(2)	-0.105	0.103	-1.03
Unemployment Rate	(1)	0.199	0.075	2.66
Average Weekly Mfg. Hours	(1)	-0.238	0.060	-3.97
	(2)	-0.072	0.061	-1.19
	(3)	0.134	0.063	2.12
	(4)	0.206	0.062	3.31
	(5)	0.167	0.060	2.80
Wage and Salary Dist.	(1)	-0.160	0.111	-1.44
	(2)	0.264	0.105	2.50
	(3)	0.087	0.112	0.77
	(4)	0.288	0.107	2.68

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1	0.305	0.079	3.86
Lag 2	0.478	0.082	5.84

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.940	1.885	2.010	1.133
Error(Unemployment Rate)	0.788	0.581	1.362	0.336
Error(Mfg. Hours)	1.292	1.405	0.044	0.486
Error(Wage and Salary Dist.)	1.126	1.014	1.285	0.917
Employment	1.225	1.958	3.308	0.908
Unemployment Rate	0.882	0.414	2.301	0.365
Average Weekly Mfg. Hours	1.943	1.187	0.610	0.666
Wage and Salary Dist.	1.896	0.679	2.348	0.268

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.17	-0.35	0.09	0.09
Relative Contribution (%)	68.98	20.47	5.03	5.52

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.

Wyoming

Estimated Coefficients of the common factor (C) with leads (+) and lags (-)

Measurement Equation	Variable	Coefficient	Asymptotic Standard Error	t-statistic
Employment	C_t	0.346	0.069	5.02
Unemployment Rate	C_t	-0.607	0.097	-6.27
	C_{t-1}	0.447	0.111	4.02
Average Weekly Mfg. Hours	C_t	0.297	0.079	3.76
	C_{t-1}	-0.263	0.078	-3.38
Wage and Salary Dist.	C_t	0.054	0.011	4.99

Estimated Coefficients for lags in the autoregressive equations for the error terms

Employment	(1)	-0.445	0.081	-5.47
	(2)	-0.177	0.074	-2.39
Unemployment Rate	(1)	0.219	0.116	1.89
	(2)	0.178	0.109	1.64
	(3)	0.305	0.102	3.00
	(4)	-0.193	0.122	-1.59
Average Weekly Mfg. Hours	(1)	-0.282	0.059	-4.75
Wage and Salary Dist.	(1)	-0.297	0.134	-2.22
	(2)	0.021	0.143	0.15
	(3)	0.007	0.153	0.04
	(4)	0.020	0.145	0.14
	(5)	0.189	0.121	1.56

Estimated Coefficients in the autoregressive equation for the common factor

Lag 1		0.713	0.149	4.78
Lag 2		0.123	0.122	1.01

F-statistics for tests of single-index model*

	Error Employment	Error Un. Rate	Error Avg. Weekly Mfg. Hours	Error Wage and Salary Dist.
Error(Employment)	0.891	1.787	1.054	1.764
Error(Unemployment Rate)	1.988	0.368	0.501	1.095
Error(Mfg. Hours)	1.586	2.171	0.746	0.095
Error(Wage and Salary Dist.)	1.001	0.690	0.992	2.339
Employment	0.405	1.361	1.009	1.459
Unemployment Rate	1.778	0.207	0.475	1.441
Average Weekly Mfg. Hours	1.655	1.989	0.731	0.067
Wage and Salary Dist.	0.285	4.839	0.781	1.437

Relative Contribution of Observed Variables to Monthly Changes in the Common Factor

	Employment	Unemployment Rate	Average Weekly Mfg. Hours	Wage and Salary Dist.
Cumulative dynamic multiplier	1.60	-0.46	0.37	0.48
Relative Contribution (%)	55.04	15.80	12.64	16.52

* F-statistics for the hypothesis that the coefficients are zero in regressions of errors in the measurement equation against six lags of the errors from the various measurement equations or six lags of the measurement variables.