

Ceridian-UCLA Pulse of Commerce Index™

By UCLA Anderson School of Management

February 9, 2011



UCLAAnderson
School of Management

PCI Posts 14th Consecutive Month of Year-Over-Year Growth

January PCI holds onto most of December's gains —

Recovery sustained but not enough to drive meaningful employment

The Ceridian-UCLA Pulse of Commerce Index™ (PCI), issued today by the UCLA Anderson School of Management and Ceridian Corporation fell 0.3% on a seasonally and monthly workday adjusted basis in January, giving up some of December's exceptional 1.8% sequential gain. Because of the very strong December showing, the three-month annualized moving average is up 5.1% and gaining strength. This follows a string of weak or negative readings experienced in the second half of last year, further supporting our view that there is no evidence for a "double dip" in 2011. Importantly, however, we are not yet seeing signs of the growth required to drive meaningful employment gains.

As noted last month, December's notable increase in the adjusted data was driven in part by unusual strength during the week between Christmas and New Years. But the exceptional levels of activity near the end of December were not carried forward into early January. It appears we've now settled into a period of normal growth by historical standards, not the exceptional growth that is characteristic of recoveries from recessions.

The combined effect of very strong sequential gains in December and holding onto most of those gains in January suggest growth in industrial production for January equal to 0.3% when reported on February 16th. As reflected in the table on page 5 of this report, the PCI forecast of industrial production has proven to be closely correlated to the revised results reported by the Fed. Last month, the PCI forecast of strong .6% growth was very close to the initial Fed estimate of .8%.

The PCI grew 3.4% on a year-over-year basis in January. This marked the 14th consecutive month of year-over-year growth in the index. Growth of 3.4% is respectable, but not exceptional – particularly when compared to the gains recorded in April through July of 2010. However, like last month, the year-over-year growth is encouraging because January of last year was strong, and the index was able to grow over that strong comparison. Further supporting the PCI's view of a continuing, but tepid, economic recovery is apparent in the performance of Ceridian Corporation's Human Resources/Payroll outsourcing unit, where year-over-year growth in same-store customer employment for the fourth quarter was 1.7%. This represents the second straight quarter of year-over-year growth after seven previous quarters of decline. Of course, employment growth is a lagging economic indicator, but employment trends over the past two quarters logically follow and appear to confirm the economic turnaround first indicated by the PCI over a year ago.

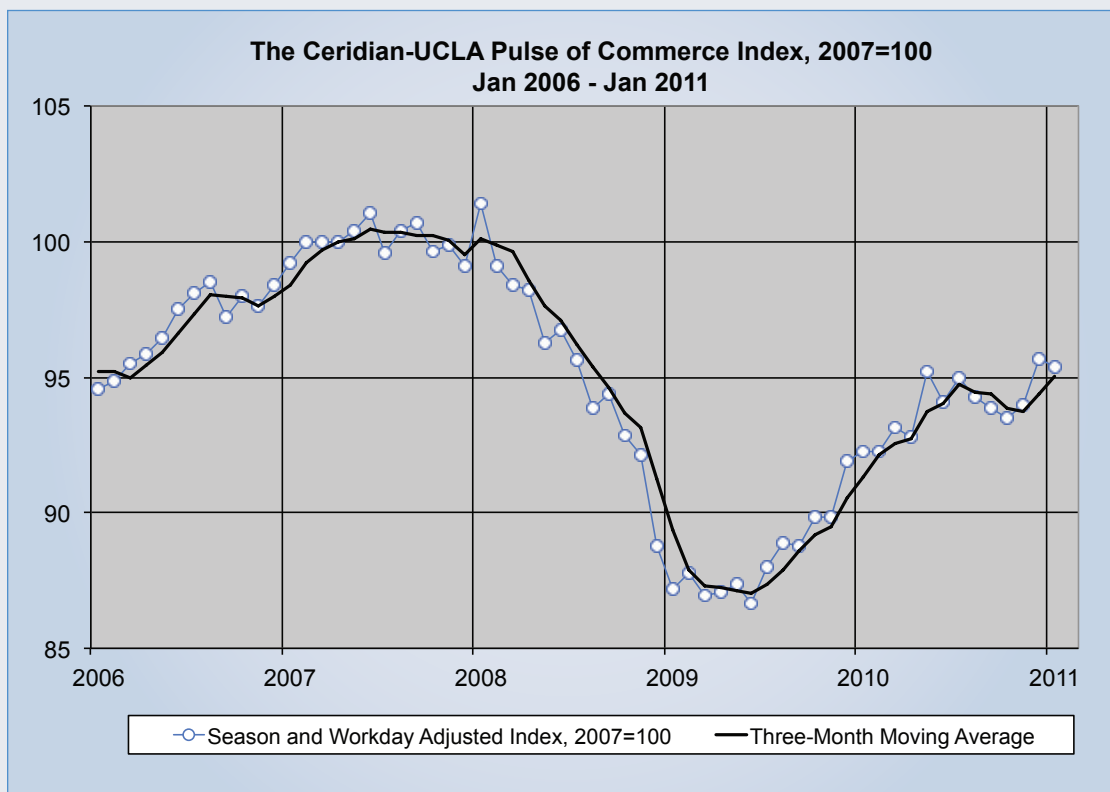
With both the "double-dip" scenario and the PIMCO "New Normal 2% growth" scenario pushed back onto the shelves by the latest favorable economic data, the remaining popular scenarios are either normal 3% GDP growth accompanied by a persistent level of unemployment, or a robust recovery with 5-6% GDP growth accompanied by a noticeably declining unemployment rate. The PCI data continues to point to the lower end of that range, consistent with the preliminary estimate of 3.2% growth in Q4 2010 GDP. A robust recovery would require PCI growth approaching 10%, while 3% growth is normal for both the GDP and the PCI.

According to the preliminary estimate for Q4 2010, GDP is now slightly above its previous peak of three years ago (Q4 2007). However, the PCI and Industrial Production are both about 5% below their respective previous peaks. This gap is symptomatic of the fact that we are still far from a full recovery. If and when the goods component of the economy returns to its normal relationship with the services sectors, GDP will be about 8% higher and the PCI will be about 15% higher than where we are now.

The advance estimate of GDP growth by the Bureau of Economic Analysis (BEA) is made before much of the previous month's data are available. The most recent estimate for Q4 2010 could be neglecting the surge in inventories-in-motion measured by the PCI at the end of December. The contributions of inventories and imports to GDP growth for Q4 were -3.7% and 2.4%, respectively, compared with overall GDP growth of 3.2%. Contributions from inventories and imports of these magnitudes would normally be expected to occur in recession quarters, when the PCI is falling. The flat growth in the PCI from the 3rd to the 4th quarter suggests inventory and import contributions to GDP will be directionally consistent with the advance estimates issued January 28 by the BEA, but much less in magnitude. We expect major revisions to one or both of these components in the next BEA report, which will have offsetting, but potentially significant, effects on the advance GDP growth estimate of 3.2% previously reported for Q4 2010. A further discussion of the PCI's usefulness in forecasting the imports, inventories and consumer durables components of GDP begins on page 6 of this report.

Unlike other data sets, the Ceridian-UCLA PCI is based on a data set containing real transactions recorded second by second at specific locations within the United States. This allows us to drill down to weekly or daily time periods within each month and within regions to provide insight into holiday effects, weather effects and other changes that might suggest a new direction for the economy. A further discussion centered on the impact of recent major snowstorms on the economy begins on page 9 of this report.

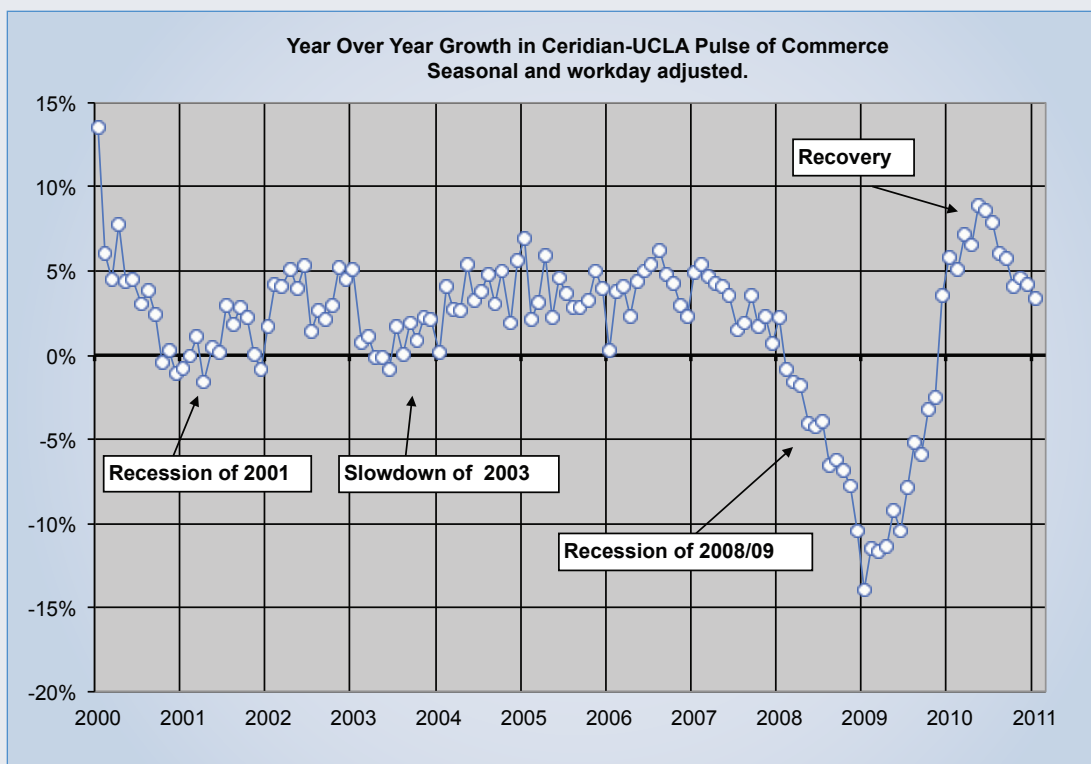
Note: Although the unadjusted data underlying the PCI are not revised, the season and workday adjustments can be improved if they depend on all the data. For that reason, this month and in every subsequent January, we will revise the season and workday adjustments, making use of the additional year of data. In addition, this month we rebase the index to 2007=100 to be consistent with the rebasing of the index of industrial production.



Ceridian-UCLA Pulse of Commerce Index, January 2011 Data Released February 9, 2011

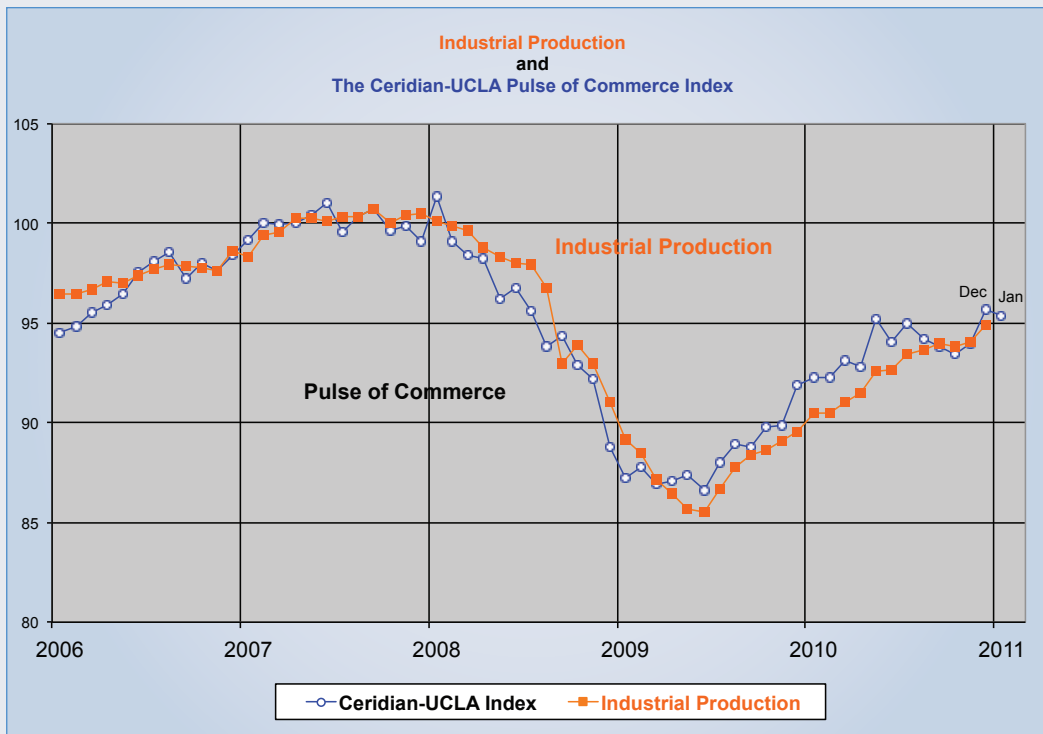
Index Value, (2007=100)	Nov-10	Dec-10	Jan-11
Seasonally and Workdays Adjusted	93.97	95.68	95.39
Unadjusted Index	91.57	93.59	93.96
Month-to-Month Growth	0.5%	1.8%	-0.3%
Annualized Growth Rates, Adjusted Index			
Three-month v. Previous Three Months	-2.8%	0.1%	5.1%
Year-Over-Year	4.6%	4.1%	3.4%

Revised workday and seasonal adjustment through 2010q12
 Workday adjustment depends on monthly fractions of weekend days
 Seasonal Adjustment using X12



Foretelling Industrial Production

The Ceridian-UCLA Pulse of Commerce Index tracks closely on a monthly basis the Industrial Production Index, as illustrated in the figure below. The jump in the PCI in December was calling for robust growth of 0.61% in December industrial production very similar to the Fed's first estimate of 0.84% released on January 14. The



weaker January PCI points to weaker industrial production growth of 0.34%. The initial estimate will be released by the Fed on February 16.

With the assistance of an econometric model, the PCI can be translated into future Industrial Production values. The “forecasts” in this report rely only on the PCI and do not make use of other variables such as employment in manufacturing and the PMI index.

The PCI is released on or about the 10th of the month and the corresponding Industrial Production Index is generally released a week later. The table below has the Federal Reserve’s estimates of the growth of Industrial Production in the first six columns, as they have been revised over time. The next seven columns in the table are forecasts based on the PCI released monthly from August 2010 to February 2011. The numbers typed in bold are one-month ahead forecasts and the current estimates of Industrial Production, which conform well in general.

Growth of Industrial Production: Fed Estimate and PCI Forecast

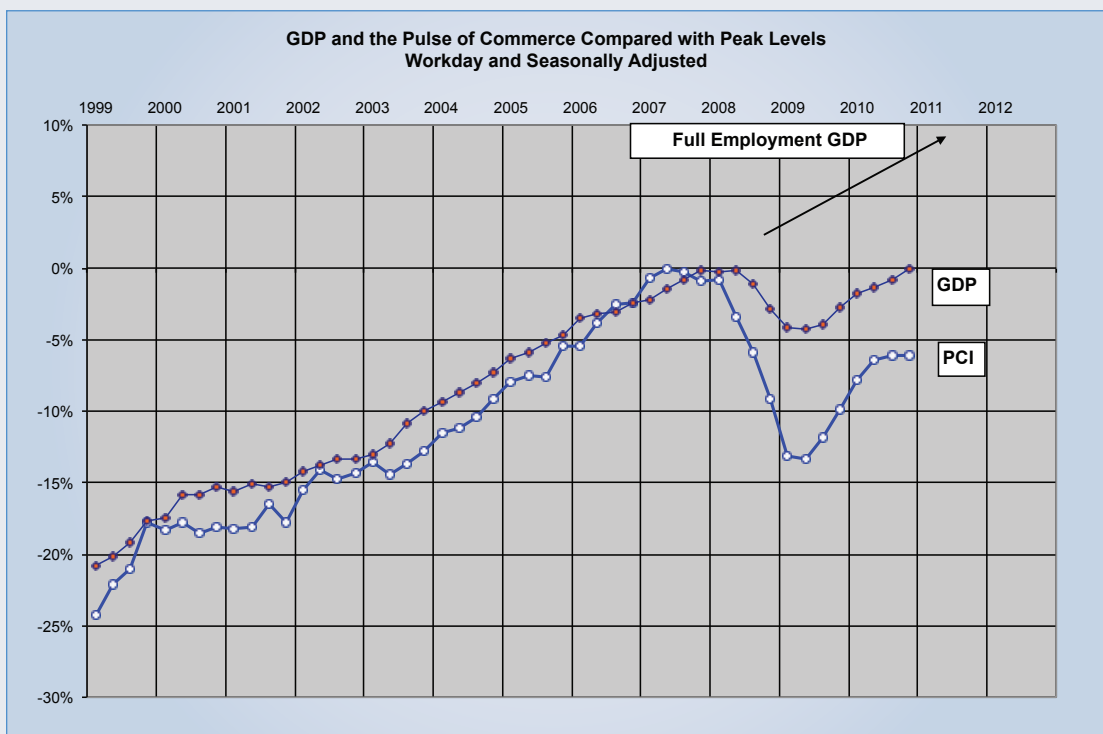
	Fed Estimates by Release Date						PCI Forecast by Release Date						
	8/17	9/15	10/18	11/16	12/15	1/14	8/11	9/14	10/13	11/9	12/7	1/11	2/9
Jul-10	0.98%	0.63%	.070%	.075%	0.81%		0.75%						
Aug-10		0.16%	0.18%	0.23%	0.22%	0.23%		0.13%					
Sep-10			-0.22%	-0.16%	0.09%	0.30%			0.00%				
Oct-10				0.01%	-0.20%	-0.13%				-0.16%			
Nov-10					0.41%	0.26%					0.01%		
Dec-10						0.84%						0.61%	
Jan-11					TBA 2/14								0.34%

GDP and the PCI

US real GDP and the Pulse of Commerce compared with their peak values are illustrated in the figure below. Several items stand out in this graph:

- The close long-run one-to-one association between GDP and the PCI until the recession of 2008/09.
- The early alarm of a softening economy when the PCI peaked in 2007 ahead of the GDP peak late in the year.
- The three-to-one relationship between the decline in the PCI and the decline in GDP during the recession of 2008/09.

But most importantly there is an ominous bending of the PCI at the end of the series, as if the PCI wanted to pull the GDP number down in the 2010Q4. Per our discussion last month: "December's strong PCI performance increases our optimism going into 2011, but not enough to change our expectation that the fourth quarter GDP will likely be less than the consensus forecast when it is released later this month." This turned out to be right on, as the advance estimate of GDP growth came in at 3.2%.



Imports and Inventories Were Highly Unusual in the Recent Release of GDP, 2010Q4

Of the components of GDP, the PCI is most helpful for forecasting imports, inventories and consumer durables. All three of these were very unusual in the advance estimate for 2010Q4 released on January 28, 2011, and these three may be revised as the December data used by the BEA roll slowly in.

The GDP growth of 3.2 in 2010Q4 is decomposed by the Bureau of Economic Analysis into the eleven components reported in Table 1. The first two columns of this table report the historical means and standard deviations of each of these components. The third column reports the 2010Q4 BEA advance estimate and the last column is a measure of the

peculiarity of the 2010Q4 data equal to the difference between the 2010Q4 value and the historical mean, scaled by the standard deviation. The components are sorted by the absolute value of this peculiarity statistic.

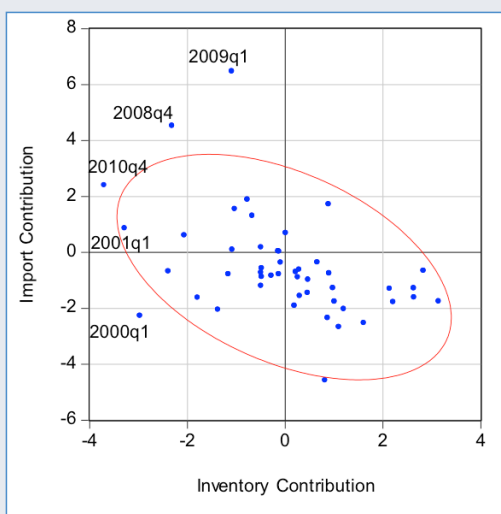
The GDP growth of 3.2 is not at all unusual given the historical mean of 2.88 and the historical typical departure from that mean of 3.52 (the Std. Dev.). But the large positive contribution of imports and the large negative contribution of inventories are both highly unusual. This is confirmed in the scatter diagram below which includes a 90% confidence ellipse for the data since 1999 when the PCI is first available. The point labeled 2010q4 is outside this normal ellipse to the northwest. **Moreover, all the other points in the same vicinity of the 2010Q4 point come from recession quarters.**

**Table 1: Contributions of the Components to GDP Growth 1970 to Present
How Unusual Was Advance Estimate of 2010Q4 GDP?**

	1970 - 2010 Q3		2010 Q4	
	Mean	Std. Dev.	Value	t-stat
GDP	2.88	3.52	3.20	0.09
Imports	-0.59	1.39	2.40	2.15
Inventories	0.08	2.20	-3.70	-1.72
Consumer Durables	0.44	1.09	1.48	0.96
State and Local	0.25	0.37	-0.10	-0.93
Consumer Nondurables	0.40	0.54	0.78	0.70
Consumer Services	1.19	0.68	0.78	-0.59
Exports	0.51	0.97	1.04	0.54
Federal Defense	0.05	0.57	-0.11	-0.28
Federal Nondefense	0.07	0.30	0.10	0.10
Residences	0.05	0.83	0.08	0.04
Equipment and Software	0.43	0.84	0.41	-0.02
Business Structures	0.02	0.50	0.02	0.00

Note: t-stat = (value-historical mean)/(std. dev.)

Contributions to GDP Growth, 1999-2010 Inventories and Imports



The PCI helps to predict Imports and Inventories

The PCI helps to predict some of these components better than others. Table 2 has various squared correlations between a contribution to GDP growth and the logarithmic growth of the PCI: $\log(\text{PCI}/\text{PCI}(-1))$. The first column reports the simple squared correlations with the PCI. The three largest are 0.39 for GDP overall, and 0.36 for imports, and 0.27 for inventories. The second column reports the squared multiple correlation when the component is explained by the level of the component in the two previous periods. The third column is the squared multiple correlation when both the history of the component and the current and past PCI are used to predict the component. The last column is the increment in the squared multiple correlation due to the PCI. The table is sorted, highest to lowest, by this last column.

Thus it is the prediction of inventories for which the PCI makes the greatest contribution, consistent with the “inventories-in-motion” interpretation of the PCI. After that comes Personal Consumption Expenditures on Durables, then GDP overall and then Imports.

Table 2: Squared Correlations, Regressions For Predicting Components of GDP, Based on Past Values of the Components and the PCI, Sorted by Increase Due to PCI

	Squared Correlations			
	Simple PCI	Multiple Correlations		
		Own Past	Plus PCI	Increase
Inventories	0.27	-0.02	0.34	0.36
PCE Durables	0.01	-0.04	0.30	0.34
GDP	0.39	0.23	0.47	0.24
Imports	0.36	0.33	0.55	0.22
PCE Nondurables	0.25	0.08	0.23	0.15
Equipment and Software	0.25	0.35	0.50	0.15
Business Structures	0.06	0.31	0.41	0.10
PCE Services	0.20	0.66	0.73	0.07
Exports	0.26	0.46	0.52	0.06
Federal Nondefense	0.00	0.16	0.18	0.02
Residential Investment	0.17	0.56	0.56	0.00
Federal Defense	0.01	-0.02	-0.06	-0.04
State and Local Gov	0.01	0.11	0.07	-0.04

Note:

PCI refers to the logarithmic change in the PCI, quarter over quarter

Simple is the simple squared correlation

Own Past includes two lagged values.

Plus PCI includes also the current and lagged values of the logarithmic change.

The PCI wants smaller contributions for Inventories and Imports

The table below reports the BEA's advance estimate of the contribution of imports, inventories and consumer durables to GDP growth in 2010Q4 and also PCI based predictions. Though the flat PCI from the third to the fourth quarter is consistent with the signs of the advance estimates of contributions, the magnitudes are much lower than the BEA numbers. Expect all these to be revised substantially as the December data roll into the government's data base. Remember that through November the PCI was threatening to decline in the 4th quarter compared with the 3rd, and it was only the December data that saved the day, allowing the PCI to be flat.

Contributions to 2010q4 GDP Growth

	Advance BEA Estimate	PCI Forecast
Imports	2.40	0.23
Inventories	-3.70	-0.39
Consumer Durables	1.48	0.34

The Impact of Snowstorms on Daily Data

Unlike other data sets, the Ceridian-UCLA PCI is based on real transactions recorded second by second at specific locations within the United States. This allows us to drill down within each month and within regions to study holiday effects, weather effects and other changes that might suggest a new direction for the economy. The issue addressed in this section is the effects of recent snowstorms on December and January diesel fuel purchases, as well as the strong inter-holiday sales discussed last month.

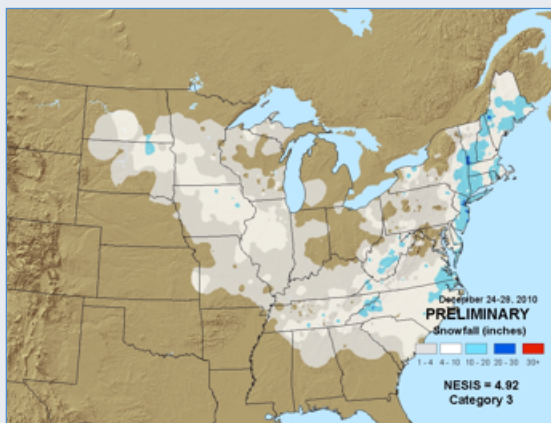
Truck traffic is likely affected by snowstorms in an obvious way, less traffic during the event and more before or after, depending on how accurately the event was anticipated. But we are measuring refuelings, not traffic, which may have greater flexibilities and more complex patterns around snowstorms. From the standpoint of the monthly data, the problematic snowstorms are the ones near the ends or beginnings of months, which may transfer diesel fuel purchases to the previous month or to the next month, causing misleading month-to-month comparisons.

The National Oceanographic and Atmospheric Administration classifies snowstorms in the Northeast according to a 5-point scale:

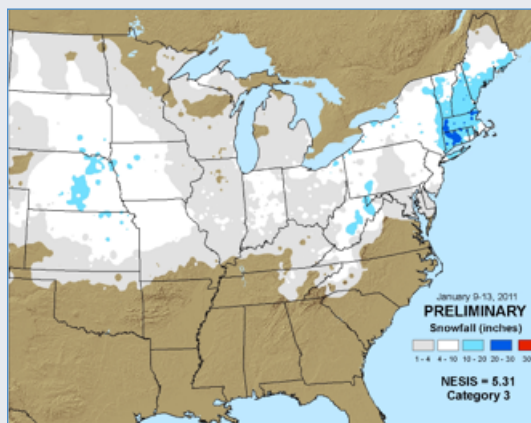
Category	Description
1	Notable
2	Significant
3	Major
4	Crippling
5	Extreme

There have been two recent Category 3 snowstorms¹: December 24-28 with heavy snowstorms concentrated along the Eastern seaboard and January 9-13 that included heavy snow in the Northeast and also in Iowa and Nebraska. The NOAA images of these storms are reproduced below.

December 24-28, 2010



January 9-13, 2011



We can explore the daily data to see if these snowstorms which were concentrated in the Northeast had a noticeable effect on the national aggregate. Seven-day national average fuel volumes for each of the last five December/January combinations and for the average of 2003 to 2006 are displayed in the figure below. The seven day averages eliminate the very strong weekly cycle the Wednesday sales, twice as much volume as Sunday sales. To make the vertical scale be interpretable, the data for each year have been divided by the overall maximum (the same number for all the data points). Large diamonds represent the latest Dec/Jan.

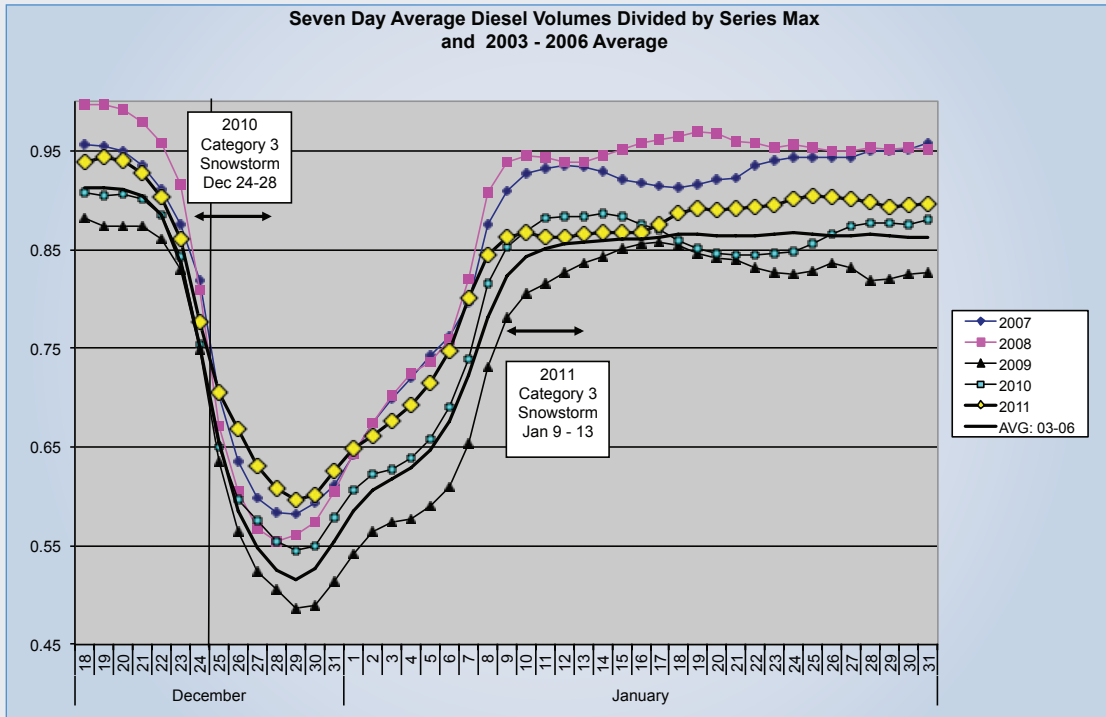
The most salient feature of this figure is the 40% decline in trucking in the seven-day periods ending December 28 or 29. While this year we did have a dip in trucking during the holidays, the dip was not as much as usual. Until Christmas, the 2010/2011 data were only slightly higher than the 2003-2006 average, but they jumped to 10% above that average between Christmas and New Years because the decline in diesel fuel transactions during this week was not as great in 2010 as it had been historically. Last month we wrote: "We shall wait to see if the improvement in 2010 is sustainable. In the meantime, we should remain wary of the December number." As it has turned out, the January data are back below the 2007 and 2008 levels beginning January 2, and the exceptional values at the end of December were not carried forward into January. Probably, a wise treatment of the holiday effect would spread the strong inter-holiday values between December and January, making the PCI less choppy with December a bit weaker and January a bit stronger.

The January snowstorm seems evident in the 2011 data which has a small dip in volume coincident with the event, Jan 9 – 13, and an increase in volume reflecting the recovery of missed sales commencing January 18. It seems reasonable to infer that the effect of this snowstorm was only to redistribute sales among January days, and not to transfer sales to February.

¹ <http://www.ncdc.noaa.gov/snow-and-ice/nesis.php#rankings>

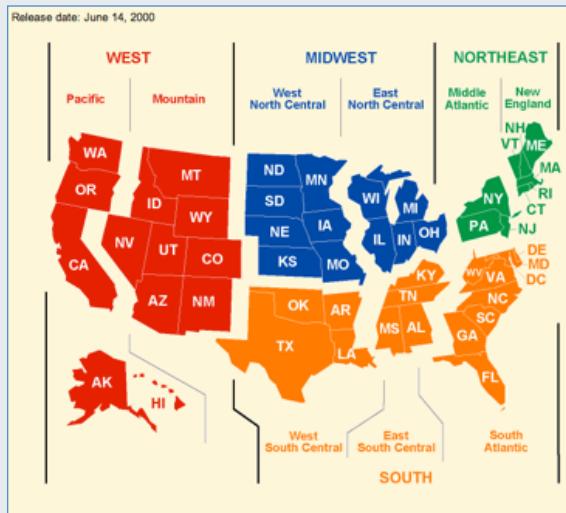
It is, however, very hard to see the Dec 24-28 snowstorm in these data which are dominated by the extreme holiday swings. The opposite is the case because of the strength of the sales volumes between the holidays, but remember that these seven-day averages commence before Christmas and before the storm began.

National Diesel Fuel Volumes in December and January

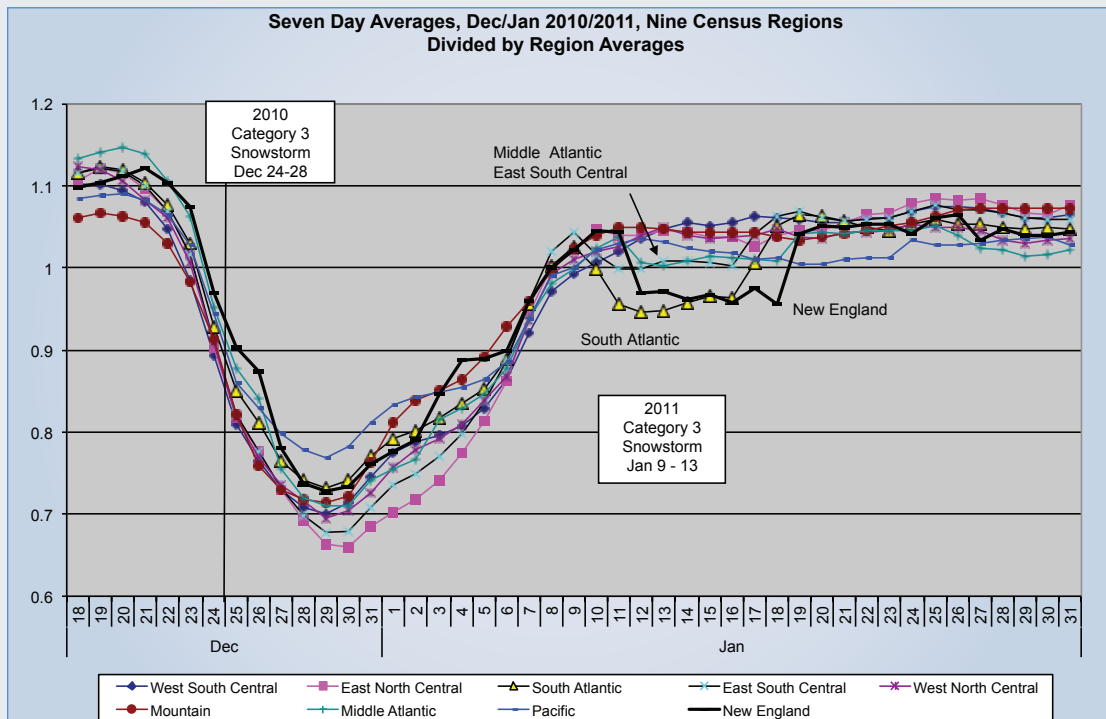


Since the snowstorms are geographically concentrated, we need to confirm that what we see in the national aggregates differentially affect subregions of the United States. The figure below illustrates the nine Census regions of the United State, and the figure after that one has the latest Dec/Jan data for each of these nine census regions. These data have been divided by the Dec/Jan average for each of the census regions, which eliminates any

Census Regions



Recent Snowstorm Effects by Census Regions

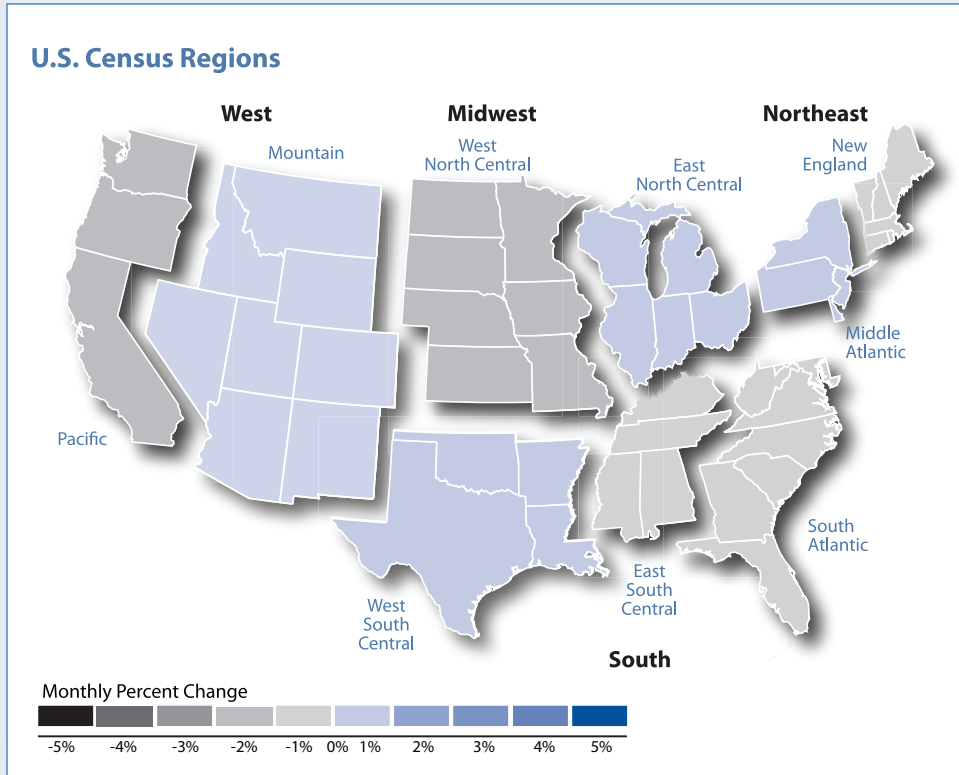


comparison of the total volumes but concentrates the eye on the Dec/Jan pattern. The January 9 – 13 snowstorm had its largest apparent effect in the South Atlantic region (Delaware and states to the South) and New England, and also a substantial apparent effect on the Middle Atlantic (NY, PA and NJ and CT) and East South Central (Kentucky and states to the South.) This geographic impact is a little surprising. This snowstorm hit New England and the Middle Atlantic hard, but it was only the most northern parts of the South Atlantic and East South Central regions that were affected. There are at least two explanations for the surprising geographic effect on trucking. Snowstorms in the Northern states are completely familiar, and with plows on the ready, the storms have only a small effect on truck traffic. In the South, with storms less familiar, there is more disruption. Secondly, we are measuring fill-ups, not truck traffic. Trucks destined for Southern states but caught in Northeast snowstorms, may have their Southern fill-ups delayed. Trucks planning on filling up in the South and driving North, may have their trips delayed by snowstorms in the Northeast.

As was the case with the national data, it is impossible in this display of Census Regions to see the impact of the storm from Dec 24 to 28 on diesel volumes that would be substantially depressed anyway because of Christmas and New Years.

Regional Summary

Four of the nine Census regions experienced growth in the PCI in January. The worst performances were in the Pacific region and the West North Central.



Ceridian-UCLA Pulse of Commerce Index

Seasonally and Workday Adjusted Sorted by January 2011 Value

Monthly Percent Change				
	Nov-10	Dec-10	Jan-11	2010 Share
Mountain	1.2%	1.9%	1.4%	9.6%
West South Central	0.7%	0.8%	0.7%	19.1%
East North Central	0.3%	1.2%	0.6%	18.2%
Middle Atlantic	-0.6%	1.5%	0.4%	6.7%
US Overall	0.5%	1.8%	-0.3%	100.0%
New England	-0.4%	-0.2%	-0.3%	1.4%
South Atlantic	0.2%	2.2%	-1.2%	17.8%
East South Central	-1.5%	3.6%	-1.5%	11.5%
West North Central	0.0%	1.6%	-2.0%	10.0%
Pacific	2.0%	1.0%	-2.3%	5.8%

About the Ceridian-UCLA Pulse of Commerce Index

The Ceridian-UCLA Pulse of Commerce Index by UCLA Anderson School of Management is based on real-time fuel consumption data for over the road trucking and serves as an indicator of the current state and possible future direction of the U.S. economy. By tracking the volume and location of diesel fuel being purchased, the index closely monitors the over the road movement of produce, raw materials, goods-in-process and finished goods to U.S. factories, retailers and consumers. Working with economists at UCLA Anderson School of Management and Charles River Associates, Ceridian publicly releases the Index monthly and also offers companies access to customized reports and data.

Comments in the monthly report are prepared by Edward Leamer, Chief Economist of the Ceridian-UCLA Pulse of Commerce Index and Director of the UCLA Anderson Forecast.

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