Should the Transportation Output Be Included as Part of Coincident Indicators System?

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Transportation and the Modern Economy

History Review

- U.S. DOC (1923), Dixon (1924)
  -- 1st President’s Conference on Unemployment in 1921.
- Early NBER studies
  -- Burns and Mitchell (1946) and Hultgren (1948); Moore (1961), Babson’s reports.
- Transportation Services Index (TSI)

The Honorable Norman Mineta, Secretary of the U.S. Department of Transportation, visits the NYSE to announce a new economic indicator, the Transportation Services Index (TSI), and rings The Opening Bell (1/29/2004).
A transportation index tracks business activity

Economists, investors, and policymakers are always looking for better ways to gauge current and future economic activity. Now the government is offering a brand-new tool.

On Mar. 10 the Transportation Dept. released the first report of its Transportation Services Index (TSI), a monthly measure that follows freight and passenger movements. Made up of eight components ranging from trucking tonnage to mass-transit ridership to petroleum pipeline transport, the December reading rose 1%, to a high of 118.5.

That gain is a good sign for the economy, according to the index' creator, Kajal Lahiri, an economics professor at the State University of New York at Albany.
Vital Signs

Freight Transportation Services Index, change from a year earlier

More freight is on the move. The Freight Transportation Services Index, which measures the combined amount of goods transported by truck, rail, air, pipeline and inland waterway in the U.S., was up 3.3% in January from the low it logged last May. However, the index was 1.3% below its January 2009 level and 14% below its January 2008 level.

Source: Bureau of Transportation Statistics

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Our publications so far:


5). “Economic Indicators for the U.S. Transportation Sector” (with W. Yao), Transportation Research – A, 40, 2006, 872-887.
TSI: Constituents

- Consistent with National Income and Product Account (NIPA) Satellite Model (For-Hire Transportation)
  Source: North America Industry Classification System (NAICS, 1997)

- Others

- Others

- Others

- Others
## TSI: Data Documentation

<table>
<thead>
<tr>
<th>Subsectors</th>
<th>Total Transportation Services Output</th>
<th>Data Series</th>
<th>Original Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airlines</td>
<td>Freight Movement</td>
<td>Passenger Travel</td>
<td>Air RTM</td>
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<tr>
<td>Rail</td>
<td>Freight</td>
<td>Monthly Railroads Traffic</td>
<td>Rail RPM</td>
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<td>Trucking</td>
<td>Freight</td>
<td>Tonnage Index</td>
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<td>Waterway</td>
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<td>Commerce Tonnage Indicator</td>
<td>U.S. Army Corps</td>
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<td>Pipelines</td>
<td>Freight</td>
<td>Energy Movements Index</td>
<td>U.S. EIA</td>
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<tr>
<td>Transit</td>
<td>Passenger</td>
<td>Ridership</td>
<td>APTA</td>
</tr>
</tbody>
</table>
Chained Fisher-ideal index: annually weighted

\[
\frac{I_m^A}{I_{m-1}^A} = \sqrt{\frac{\sum I_m P_{y(m-6)}}{\sum I_{m-1} P_{y(m-6)}} \times \frac{\sum I_m P_{y(m+6)}}{\sum I_{m-1} P_{y(m+6)}}},
\]

\[
I_m^A = \frac{I_m^A}{I_{m-1}^A} \times \frac{I_{m-1}^A}{I_{m-2}^A} \times \cdots \times \frac{I_1^A}{I_0^A} \times 100
\]
Transportation Services Index (Total) and U.S. Economic Cycles

Note: Dark shaded areas represent the NBER-defined recessions for the U.S. economy; lightly shaded areas represent growth slowdowns for the U.S. economy.
Cyclical movements are obtained as deviation from Hodrick-Prescott (JME, 1997) trend of TSI.
Transportation Services Index  
(From U.S. DOT RITA website)
Transportation Services Index (Freight) and U.S. Economic Cycles

Freight Index
Smoothed

Dec-03
Nov-99
Dec-01
Transportation Services Index (Passenger) and U.S. Economic Cycles

- Nov-00
- Dec-03
- Jan-03
- Sep-01

Graph showing the relationship between the Transportation Services Index (Passenger) and U.S. Economic Cycles.
Spider Chart During Recession of 1973:11 to 1975:3
Spider Chart During Recession of 1980:1 to 1980:7
Spider Chart During Recession of 1981:7 to 1982:11
Spider Chart: Recession of 1990:7 to 1991:3
Spider Chart During Recession of 2007:12 to 2009:03 (Tentative)

- Recession
- Industrial Production
- Personal Income
- TSI-Total
- Employment
- Real Manufacturing and Trade Sales
## Summary

<table>
<thead>
<tr>
<th>Recessions</th>
<th>Growth Cycle</th>
<th>Business Cycle Chronology of TSI</th>
<th>Lead and Lag of Recessions of Economy</th>
<th>Lead and Lag of Growth Cycle of Economy</th>
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<td>-</td>
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Conclusions

TSI is roughly coincident with the onset of growth slowdowns, and recoveries from recessions.

TSI outperforms other coincident indicators in dating troughs of U.S. business cycles.

TSI, although giving early signals to the start of recession, is still very useful in dating peaks when combined with one of the two broad measures (EMP or INC).

TSI (Total and Freight) leads the onset of recessions and recoveries from growth slowdowns with consistent regularity.