25th Annual “State of Logistics Report®”

Update

Recovery: Good News/Bad News

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U.S. Business Logistics Costs

Note: Revised to reflect updates in BEA Private Inventories series.
Logistics Cost As A Percent of GDP

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>8.4</td>
</tr>
<tr>
<td>2005</td>
<td>9.1</td>
</tr>
<tr>
<td>2006</td>
<td>9.7</td>
</tr>
<tr>
<td>2007</td>
<td>9.8</td>
</tr>
<tr>
<td>2008</td>
<td>9.3</td>
</tr>
<tr>
<td>2009</td>
<td>7.8</td>
</tr>
<tr>
<td>2010</td>
<td>8.3</td>
</tr>
<tr>
<td>2011</td>
<td>8.4</td>
</tr>
<tr>
<td>2012</td>
<td>8.3</td>
</tr>
<tr>
<td>2013</td>
<td>8.2</td>
</tr>
</tbody>
</table>
## The U.S. Business Logistics System Cost is the Equivalent of 8.2 Percent of Current GDP in 2013

<table>
<thead>
<tr>
<th>Category</th>
<th>$ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carrying Costs - $2.459 Trillion All Business Inventory</strong></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>2</td>
</tr>
<tr>
<td>Taxes, Obsolescence, Depreciation, Insurance</td>
<td>330</td>
</tr>
<tr>
<td>Warehousing</td>
<td>137</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>469</td>
</tr>
<tr>
<td><strong>Transportation Costs</strong></td>
<td></td>
</tr>
<tr>
<td>Motor Carriers</td>
<td></td>
</tr>
<tr>
<td>Truck – Intercity</td>
<td>453</td>
</tr>
<tr>
<td>Truck – Local</td>
<td>204</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>657</td>
</tr>
<tr>
<td>Other Carriers</td>
<td></td>
</tr>
<tr>
<td>Railroads</td>
<td>74</td>
</tr>
<tr>
<td>Water (International 30, Domestic 7)</td>
<td>37</td>
</tr>
<tr>
<td>Oil Pipelines</td>
<td>13</td>
</tr>
<tr>
<td>Air (International 13, Domestic 20)</td>
<td>33</td>
</tr>
<tr>
<td>Forwarders</td>
<td>38</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>195</td>
</tr>
<tr>
<td>Shipper Related Costs</td>
<td>10</td>
</tr>
<tr>
<td>Logistics Administration</td>
<td>53</td>
</tr>
<tr>
<td><strong>TOTAL LOGISTICS COST</strong></td>
<td>1385</td>
</tr>
</tbody>
</table>

*May not sum to total due to rounding*
Economy and Freight Logistics Had A Banner Year in 2014
That’s the Good News

- 2014 was the best year for the supply chain industry since the Great Recession
- GDP has grown faster than 3.5 percent in four of the last five quarters
- The last time the U.S. experienced a sustained period of economic growth higher than 3 percent per quarter was from 2003 through 2005, when GDP grew faster than 4 percent in five out of ten quarters
- The U.S. economy is on fairly solid ground – unemployment is falling, real net income and household net worth are inching up, inflation is low to moderate, and gas prices are tumbling
- This is good news for carriers
The growth is good for business, but will bring with it higher transportation costs - the ability to control rates has shifted into the hands of carriers.

Capacity problems that emerged in 2014 will continue to worsen for at least the next two years before they begin to improve:
- rail – both equipment and track capacity
- trucking – severe and growing driver shortage, not enough equipment, and diminished productivity of existing capacity
- ports – inadequate chassis supply and insufficient operational capabilities to efficiently handle mega containerships.

The result is not enough capacity, increased congestion, less reliability in delivery times, and higher rates.
Inventory Carrying Costs

- Inventory carrying costs affect all business and comprise the cost of capital to hold the inventory – the interest component in the SOL model; warehousing costs; and depreciation, obsolescence, taxes and insurance.
- Inventories have built back up to a level higher than they were before the drawdown at the start of the Great Recession and the Federal Reserve is ending “quantitative easing” which held down interest rates for the last five years so this component will rise.
- Vacancy rates have dropped substantially as inventories grew and rents are on the rise.
- Taxes and insurance increases have been modest, but have accelerated in 2014.
- Depreciation and obsolescence grow with inventory size.
Total U.S. Business Inventories

Source: U.S. Department of Commerce, Census Bureau
Inventories Beginning To Level Off

Private Inventories

Source: U.S. Department of Commerce, Census Bureau
Interest Rates Still Low But Inching Up

Source: Board of Governors of the Federal Reserve System
The Inventory to Sales Ratio on the Rise

Source: U.S. Department of Commerce, Census Bureau
Transportation Costs

- Transportation costs are measured in the SOL model using carrier freight revenues.
- Transportation shipment and tonnage volume has not yet regained its pre-recession levels.
  - In the second half of 2014, the missing element of the recovery – consumers – began to get back in the game. Recovery from every recession since the Great Depression has been led by the consumer sector.
  - Consumer confidence rose substantially during 2014, and with it spending. Spending on other than necessities continues to increase, which has spurred production and imports.
- Expenditures for freight are much higher than pre-recession levels.
Cass Monthly Freight Indexes

Source: Cass Logistics, Cass Freight Index, January 1990 = 1.0.
Truck Industry Recap

- The five year long recovery kept capacity supply and demand in balance, albeit close to the tipping point in the trucking industry; truck utilization rates remain close to 100 percent.
- Driver shortage is the number one issue – ATA says industry needs 30K more drivers now; driver pay has not kept pace with inflation.
- Driver turnover rates are still high – 100 percent or higher for large TL carriers and 94 percent for smaller TL carriers.
- Bankruptcies are on the rise.
- Recall of HOS restart rule pending more research and justification.
- Despite record orders for new Class 8 trucks and trailers, new equipment in service has risen little in 2014 – average age of fleet is up to 7.8 years from 7.3 years in 2013.
Truck Industry Recap (cont.)

- Trucking company costs have been rising faster than rates
- ATRI measures and tracks the cost per mile for trucking companies – in 2009 it was $1.45/mile, in 2013 it was $1.68/mile; driver wages average 44¢/mile and driver benefits 13¢/mile
- Since 2009 average costs are up:
  - Drivers – 16 percent
  - Power units – 11 percent
  - Trailers – 18 percent
  - Tires – 50 percent
  - Parts – 14 percent
- Yet rates are up an average of 11 percent since 2009
- New Class 8 trucks run upwards of $135K – credit is more difficult to get and there is not a strong incentive to expand fleet size with driver uncertainties
- Fuel costs and surcharges down, but for how long?
Truck Tonnage Index

Source: American Trucking Associations
Class 8 Truck Orders

Source: FTR Associates, Truck OEMs – Total N.A. Class 8 Orders (US/CAN/MEX/EXP)
Railroad Industry Recap

- Industry experienced serious capacity issues which started with backlogs created by the unusually harsh winter at the beginning of the year in the northwest and cascading across the nation; equilibrium was not restored until September.
- Equipment shortages reported, especially for agricultural products, which had a banner year.
- Petroleum shipments growing with shale extraction.
- Freight car builders and component suppliers are scrambling to keep up with demand. The freight car backlog at the end of third-quarter 2014 amounted to 124,437 cars and platforms, the highest backlog level since October 1979.
- The possibility of rate re-regulation is real and looming.
Freight Railroads in Kentucky

- 13 freight railroads with 2,608 miles of rail operated
- 4,195 employees with average wages and benefits of $106,210
- $284 million paid to 14,340 railroad retirement beneficiaries
- Each freight rail job supports 4.5 jobs elsewhere in the economy
- 252.3 million tons of freight were moved by rail – it would have taken about 14 million additional trucks to move those goods
- Kentucky is the third-largest coal producing state and sixth nationally in originated rail tons of autos and auto parts
- Kentucky is ranked tenth nationally in rail tons of coal terminated; most of that coal is used to generate electricity – only four states generate more electricity from coal than Kentucky

Source: Association of American Railroads, 2012 data
Maritime Industry Recap

- Ocean sector shipping costs have increased as carriers form new alliances and change their operating procedures; ocean carriers financial position slowly improving after several years of losses
  - The industry is concentrating – the top 20 container lines now control more than 80 percent of the fleet capacity, up from around 55 percent; alliances are becoming more prevalent world wide
  - The move to larger TEU ships is reducing operating costs; Slow steaming is the norm now; number of sailings and the frequency of port calls is declining
  - Inland waterway system has not yet rebounded
    - The system was plagued with weather extremes that made navigation difficult
    - 2014, particularly the second half, was an improvement over the last couple of years, with significant improvement in agriculture

The biggest news in this sector is the passage of WRRDA, the Water Resources and Reform and Development Act

#WRRDAISLAW
#AMERICAWINS
Cass/INTTRA Monthly Ocean Container Indexes

Ocean Container Freight Index
U.S. Exports

Index

Ocean Container Freight Index
U.S. Imports

Index

Source: Cass Logistics, Cass/INTTRA Ocean Container Index, January 2010 = 1.0
## U.S. Ports Performance was Mixed in 2013

<table>
<thead>
<tr>
<th>Port</th>
<th>2013 TEUs</th>
<th>2012 TEUs</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Los Angeles</td>
<td>7,868,582</td>
<td>8,077,714</td>
<td>-2.6%</td>
</tr>
<tr>
<td>Long Beach</td>
<td>6,730,573</td>
<td>6,045,662</td>
<td>11.3%</td>
</tr>
<tr>
<td>New York</td>
<td>5,467,347</td>
<td>5,529,908</td>
<td>-1.1%</td>
</tr>
<tr>
<td>Savannah</td>
<td>3,033,727</td>
<td>2,966,213</td>
<td>2.3%</td>
</tr>
<tr>
<td>Oakland</td>
<td>2,346,528</td>
<td>2,344,392</td>
<td>0.1%</td>
</tr>
<tr>
<td>Norfolk</td>
<td>2,223,532</td>
<td>2,105,887</td>
<td>5.6%</td>
</tr>
<tr>
<td>Houston</td>
<td>1,950,071</td>
<td>1,934,845</td>
<td>0.8%</td>
</tr>
<tr>
<td>Tacoma</td>
<td>1,891,568</td>
<td>1,711,289</td>
<td>10.5%</td>
</tr>
<tr>
<td>Charleston</td>
<td>1,601,367</td>
<td>1,514,587</td>
<td>5.7%</td>
</tr>
<tr>
<td>Seattle</td>
<td>1,592,753</td>
<td>1,885,680</td>
<td>-15.5%</td>
</tr>
</tbody>
</table>

Source: Individual port reports
Monthly Tonnage Indicator for Internal Waterways

Source: U.S. Army Corps of Engineers, Navigation Data Center
Kentucky Inland Waterways

- Bordered on three sides by rivers – the Mississippi River, the Ohio River, and the Big Sandy River
- Kentucky has over 1,591 miles of inland waterways with 12 public Riverports
- Waterways support 15,640 jobs in Kentucky and contribute $2.5B to the state economy
- Essential commodities are shipped to and from Kentucky on inland waterways including
  - $26B of manufactured goods, including computers and electronic products, appliances, machinery, electrical equipment and clothing
  - $10B of basic chemicals used in hundreds of consumer products
  - $6B of agricultural and food products for domestic use and exports

Source: U.S. Chamber of Commerce, prepared by Parsons, 2013 data
Recap of Air and Pipeline Sectors

- Air cargo industry rebounded in 2014 after three years of stagnation
  - Through November 2014 air cargo tonnage up 2.7 percent; more cargo took to the skies in December because of the port problems on the west coast
  - Better news is load factor is up 44 percent
  - Traditional air cargo fleet capacity decreased 1.1 percent
  - The growth of cargo space in passenger jet bellies and their relative cost advantage is putting significant pressure on all cargo jets – cargo on passenger jets up 1.1 percent

- Oil pipeline costs were up 4.6 percent in 2013
  - Ton-miles rose slightly
  - The mandated rate increase accounted for most of the cost increase
U.S. Third Party Logistics Market

Source: Armstrong and Associates
U.S. 3PL Market Segments

- The overall 3PL market is forecast to have risen 5.2 percent in 2014
- Domestic Transportation Market is estimated to increase 7.5 percent, significantly higher than the other segments because more shippers are turning to 3PLs to help meet capacity requirements – shippers with as little as $3M in annual spend are using 3PLs

U.S. 3PL Market Segments 2013 Net Revenue

- Total $64.6 B ↑ 1.7%
- Domestic Transportation Management $7.1 B ↑ 7.2%
- International Transportation Management $18.0 B ↑ 0.6%
- Dedicated Contract Carriage (DCC) $11.8 B ↑ 3.6%
- Value-Added Warehousing and Distribution (VAWD) $27.7 B ↑ 0.3%
What did the economy look like in 2014?

- **GDP Growth Rate**
  - 2014q3
  - 2014q2
  - 2014q1
  - 2013
  - 2012
  - 2011
  - 2010
  - 2009
  - 2008
  - 2007

- **Unemployment Rate**
  - 2008
  - 2009
  - 2010
  - 2011
  - 2012
  - 2013
  - 2014

- **Exports**
  - Index 2000 = 100
  - 2012
  - 2013
  - 2014

- **Imports**
  - 2012
  - 2013
  - 2014

Source: Federal Reserve Bank of St. Louis
Looking Ahead

- The U.S. economy will continue to strengthen and grow; the global economy will continue to lag
- Growth in freight volume
- What is the greatest threat to freight logistics? Capacity, capacity, capacity!
- Trucking capacity shortage will not be fixed in the short run
  - Bottom line: expect to pay much higher rates with uncertain capacity availability.
  - Recommendation: contract for the capacity needed, with more attention to capacity guarantees than rates; a good alternative is to engage one or more 3PLs for additional capacity or for your guaranteed capacity. Shippers willing to work with carriers to optimize equipment utilization will have the best chance of mitigating rate increases in 2015 as carriers are often willing to trade quicker turns of their equipment and drivers for no rate increase.
Rail and intermodal capacity shortage will also not be fixed in the short run

- Bottom line: Capacity and service issues will be present throughout the year; rates will need to increase to cover the additional costs
- Recommendation: contract for the capacity needed; use 3PLs for additional capacity

Ocean carrier will continue to be in an over capacity situation

- Bottom line: Ocean carrier rates will continue to climb while reliability, caused either by the carrier or port problems, will also rise. Adequate and properly positioned equipment, such as chassis and containers, will get better slowly. Drayage carriers are threatened by the inefficiencies and congestion at the ports because their number of turns is being reduced.
- Recommendation: Consider alternative or the use of multiple ports and alternative product sourcing
Looking Ahead (Cont.)

- Other issues that could affect freight logistics
  - Change in global economy up or down
  - Increased modal regulation
  - Changes in product sourcing – especially locating manufacturing in the U.S., Canada and Mexico
  - Rate structure for the new Panama Canal
  - Drastic change in fuel prices
Questions? Contact me at:
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703-587-6213

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