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Contact: Zac Rogers, Ph.D.
Logistics Manager's Index Analyst
Assistant Professor, Supply Chain
Management
Department of Management
Colorado State University
Fort Collins, Colorado
(970) 491-0890
E-mail: Zac.Rogers@colostate.edu
<http://www.logisticsindex.org>
Twitter: @LogisticsIndex

November 2018 Logistics Manager's Index Report®

LMI® at 66.66%

Growth is INCREASING AT AN INCREASING RATE for: Warehousing Capacity.
Growth is INCREASING AT A DECREASING RATE for: Inventory Levels, Inventory Costs, Warehousing Utilization, Warehousing Price, and Transportation Utilization, Transportation Price.

Transportation Capacity shifted from INCREASING to DECREASING.

(Fort Collins, Colorado) — According to a sample of North American logistics executives, growth continued across the logistics sector in November 2018, but at a *considerably decreased* rate. We track a significant drop in the rates of growth for Transportation Price

(down 8.2 points), Transportation Utilization (down 6.6 points), and Inventory Costs (down 7.9 points). These drops correspond with a seemingly commensurate increase in the available Transportation Capacity (up 6.8 points). Evidence still suggests that the logistics industry is expanding, but at a much slow rate than it has been over 2018. Interestingly, we track much less movement in Warehouse relative to Inventory and Transportation Industry metrics. Index values range from 0-100, and it would be unsustainable for them to remain in the 80's and 90's. *That* these values have dropped is not surprising, however *when* they dropped is somewhat surprising as the fourth quarter is generally a time when we would be expecting capacity to tighten and prices to increase.

The report was issued today by researchers at Arizona State University, Colorado State University, Rochester Institute of Technology, Rutgers University, and the University of Nevada, Reno, and in conjunction with the Council of Supply Chain Management Professionals (CSCMP).

Results Overview

The LMI score is a combination eight unique other components that make up the logistics industry, including: inventory levels and costs, warehousing capacity, utilization, and prices, and transportation capacity, utilization, and prices. The LMI is calculated using a diffusion index, in which any reading above 50 percent indicates that logistics is expanding; a reading below 50 percent is indicative of a shrinking logistics industry. The latest results of the LMI summarize the responses of over 120 supply chain professionals collected in November 2018.

As mentioned above, we record much slower rates of growth in Transportation Prices, Utilization and Inventory Costs. Throughout 2018, index scores for Transportation Costs have been in the 90's and high 80's, indicating extremely high rates of growth. In November 2018, Transportation Costs dipped into the 70's (albeit high 70's, with an index reading of 79.79) for the first time since August of 2017. Costs are still increasing, but at a significantly slower rate than they had been throughout 2018. This is likely tied to the increase in available Transportation Capacity. Until this month, the index scores for Transportation Capacity had been below 50.0 (indicating contraction) since June of 2017. It is interesting that in the fourth quarter run-up to the holiday season, a time when the transportation market generally tightens, that respondents would indicate a slight uptick in available capacity, and a drop in price growth. Throughout the two-plus years of the LMI®, Transportation Price has functioned as a leading indicator for economic growth. It is unclear if these changes are due to record-setting orders for trucking capacity¹², a softening of the economy³, or some combination of the two.

Interestingly, these changes are not evident across the three Warehousing metrics. Warehouse Prices (77.02, down 3.2 points) and Warehouse Utilization (72.62, down 0.3

¹ Smith, Jennifer & Page, Paul (2018) Truck Orders Soared to a Monthly Record in July. *The Wall Street Journal*, August 2, 2018, <https://www.wsj.com/articles/trucking-companies-ordered-big-rigs-in-record-numbers-last-month-1533249556>

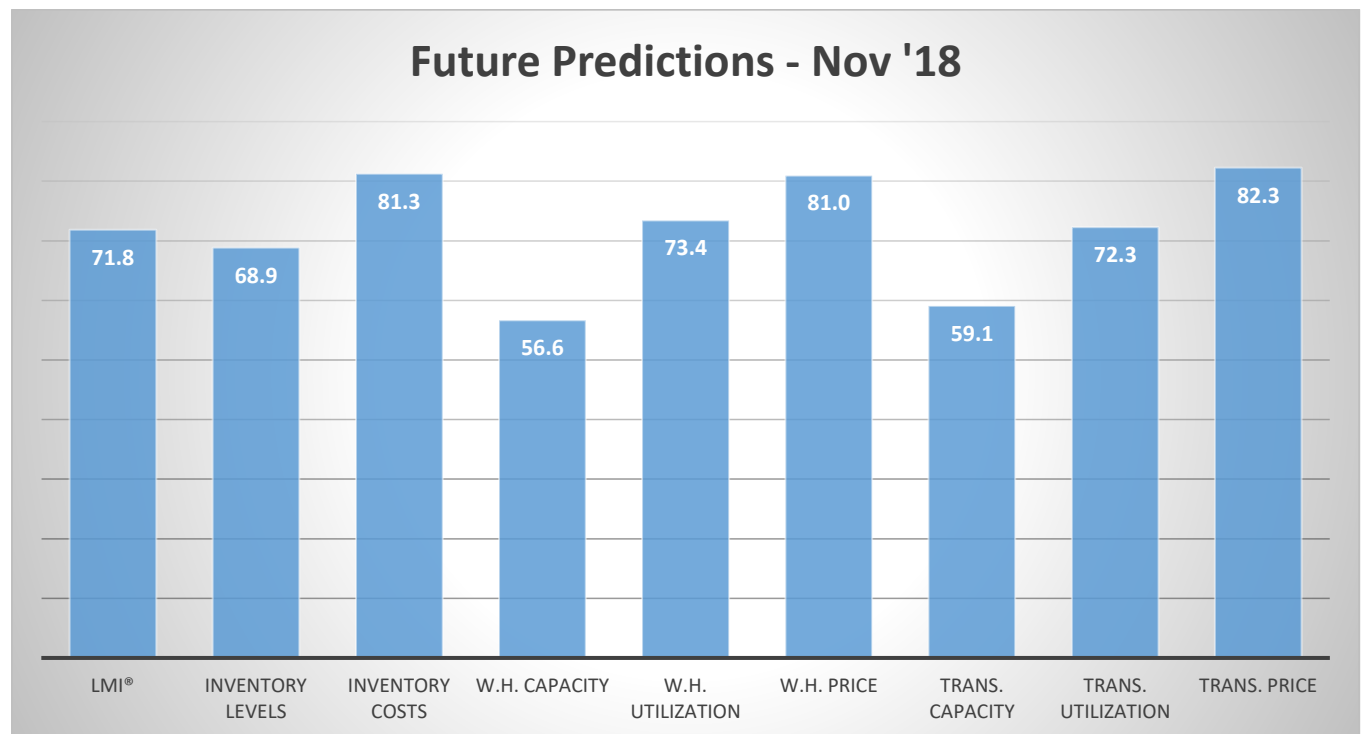
² Phillips, Erica (2018) Truck Orders Surge to Second Monthly Record. *The Wall Street Journal*, September 6, 2018, <https://www.wsj.com/articles/truck-orders-surge-to-second-straight-monthly-record-1536247879>

³ Kruger, Daniel (2018) U.S. Government Bonds Gain as Stocks Sink. *The Wall Street Journal*, December 4, 2018, <https://www.wsj.com/articles/u-s-government-bonds-gain-yield-curve-flattens-1543938831>

points) are only down slightly. Warehouse Capacity is up slightly (47.62, down 0.6 points), but with an index score below 50.0 is still technically contracting. Warehouse Capacity is the only metric to read in as contracting in November 2018.

The drop in Inventory Levels (61.89, down 0.2 points), is significantly less than the drop in Inventory Costs (73.53, down 7.9 points). We would expect Inventory Levels to be up in the fourth quarter. The dip in Inventory Costs may be reflective of the decrease in Transportation Price.

Future predictions indicate that respondents predict an increase in available Warehousing and Transportation Capacity over the next 12 months. However, they also predict continuing growth in all three cost variables (Transportation, Warehousing, and Inventory), with all three future prediction indices in the low 80's. It is worth noting that over the past year LMI® respondents have been very accurate in their future predictions. Whether or not this period's dip in growth rates will have an impact on this accuracy remains to be seen. Future predictions for LMI components 12 months from now are displayed below:



The index scores for each of the eight components of the Logistics Managers' Index, as well as the overall index score, are presented in the table below. Inventory Levels are increasing at increasing rates. Inventory Levels, Warehousing Utilization, Warehousing Price, Transportation Utilization and Transportation Price are increasing at decreasing rates - although they are all still growing. Warehousing Capacity continues to decrease at an increasing rate. Finally, Transportation Capacity has gone the other way and is INCREASING after 14 months of contraction. The overall LMI® index score is down slightly, but still indicates growth in the logistics industry.

LOGISTICS AT A GLANCE					
Index	November 2018 Index	October 2018 Index	Month-Over-Month Change	Projected Direction	Rate of Change
LMI®	66.66	69.01	-2.4	Growing	Increasing
Inventory Levels	61.89	62.13	-0.2	Growing	Decreasing
Inventory Costs	73.53	81.40	-7.9	Growing	Decreasing
Warehousing Capacity	47.62	46.99	+0.6	Contracting	Increasing
Warehousing Utilization	72.62	80.23	-0.2	Growing	Increasing
Warehousing Prices	77.02	80.51	-3.2	Growing	Increasing
Transportation Capacity	51.02	44.24	+6.8	Growing	From Contracting
Transportation Utilization	69.71	76.26	-6.6	Growing	Decreasing
Transportation Prices	79.79	87.94	-8.2	Growing	Decreasing

Historic Logistics Managers' Index Scores

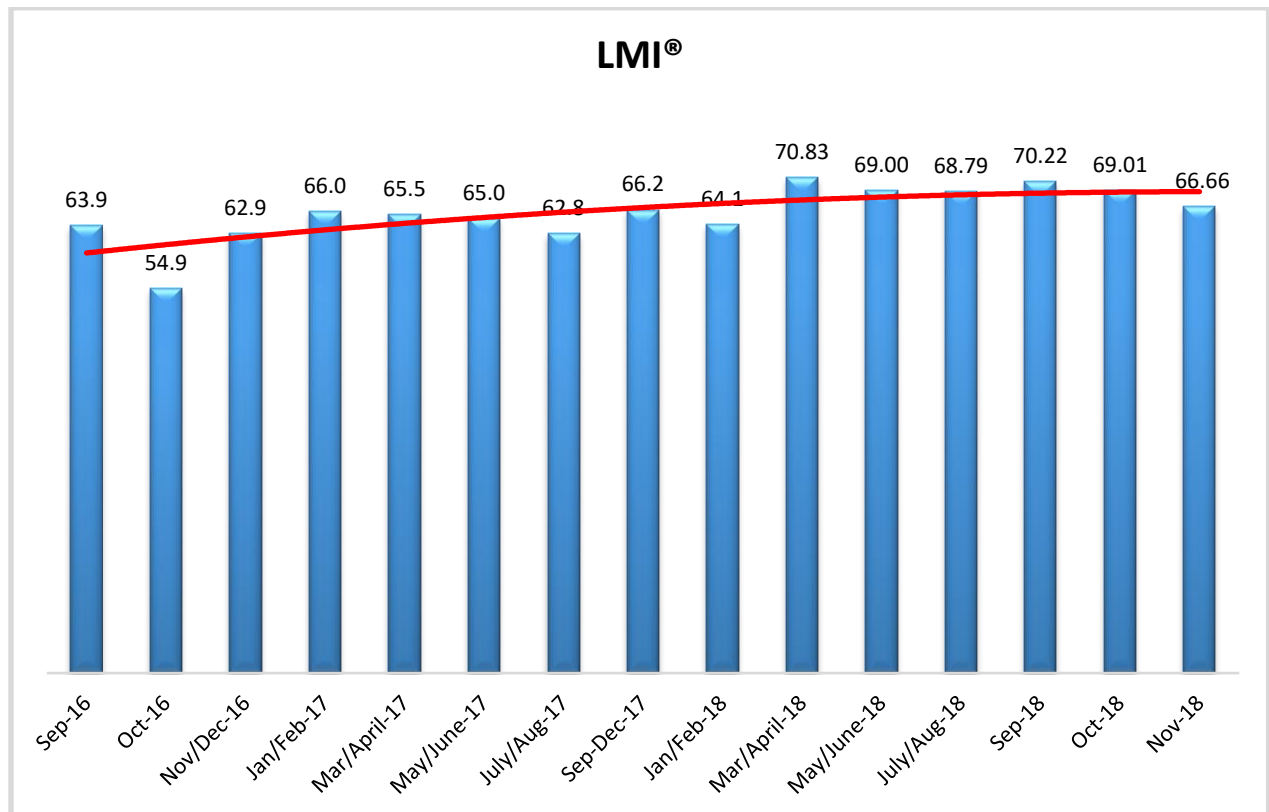
This period's along with the prior 14 readings of the LMI are presented table below:

<i>Month</i>	<i>LMI</i>	Average for previous readings – 65.7
November '18	66.6	High – 70.8 Low – 54.9 Std. Dev – 3.82
October '18	69.01	
September '18	70.22	
July/August '18	68.8	
May/June '18	69.0	
March/April '18	70.8	
January/February '18	64.1	
September-December '17	66.18	
July/August '17	62.78	
July/August '17	65.0	
Mar/April '17	65.5	
Jan/Feb '17	66.0	
Nov/Dec '16	62.9	
Oct '16	54.9	
Sep '16	63.9	

LMI®

The overall LMI index is 66.66 in the November 2018 reading. This is down slightly from the rate of growth in from October (69.01). This score still indicates a significant rate of expansion in the logistics industry, but at a slowing rate. Seven of the eight metrics are reporting a state of growth (although many at a decreasing rate), with only Warehousing Capacity currently contracting. November's reading of 66.66 is not far removed from 65.7, the average reading over the first 26 months of the index

Looking forward, respondents predict the overall LMI will continue to grow over the next year, predicting an overall index score of 71.8. This indicates an expectation of continued growth in the logistics industry well into 2019.

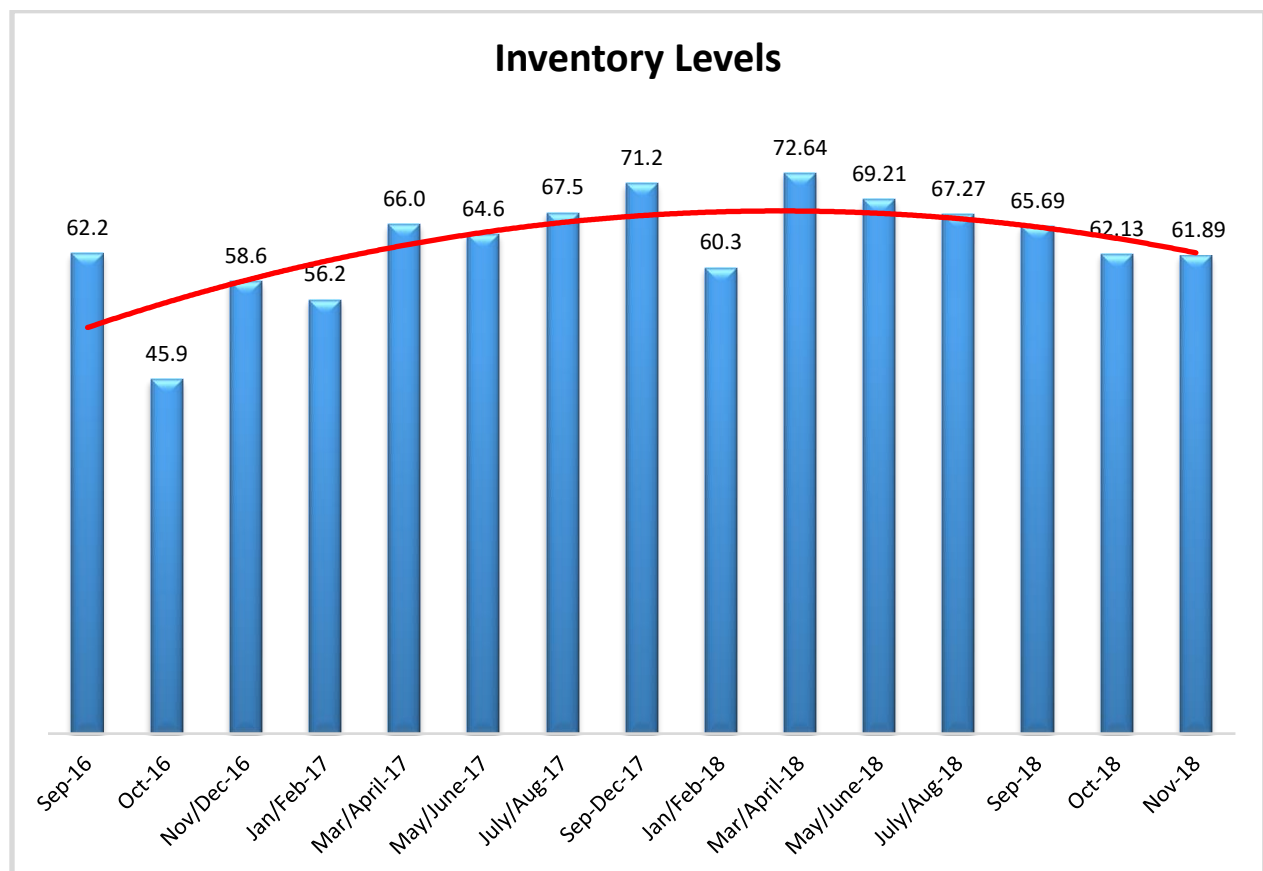


Every reading since the beginning of this project in September of 2016 has indicated growth in the logistics industry. The November 2018 reading continues that trend, with the overall index score reading at 66.66, 16.7 points above the growth/contraction threshold of 50.0.

Inventory Levels

The Inventory Level index is 61.89, which indicates that inventory levels are continuing to rise. Because this is well above 50, inventory levels are still growing, but the rate of growth is slowing, and this is the sixth consecutive month of slightly lower values. Interestingly, this value is 9.3 points below the level a year ago at this time, of 71.2. In July/August of this year, the current year's value was equal to last year's value, but values at this time last year were increasing, and in the most recent periods, values have been decreasing. It would appear that the fast growth we were seeing before has slowed to a lower growth rate, but is still significant. However, the long-term trendline shows that values are expected to stay in the growth region, that is, above 50, for the near future. If current trends continue, it could fall below 50 in approximately a year.

When asked to predict what conditions will be like 12 months from now, the average value is 68.9, indicating inventory levels are expected to be higher than current levels. This value is nearly identical to last month's year-ahead prediction of 69, which indicates a consistent prediction of increasing levels next year.

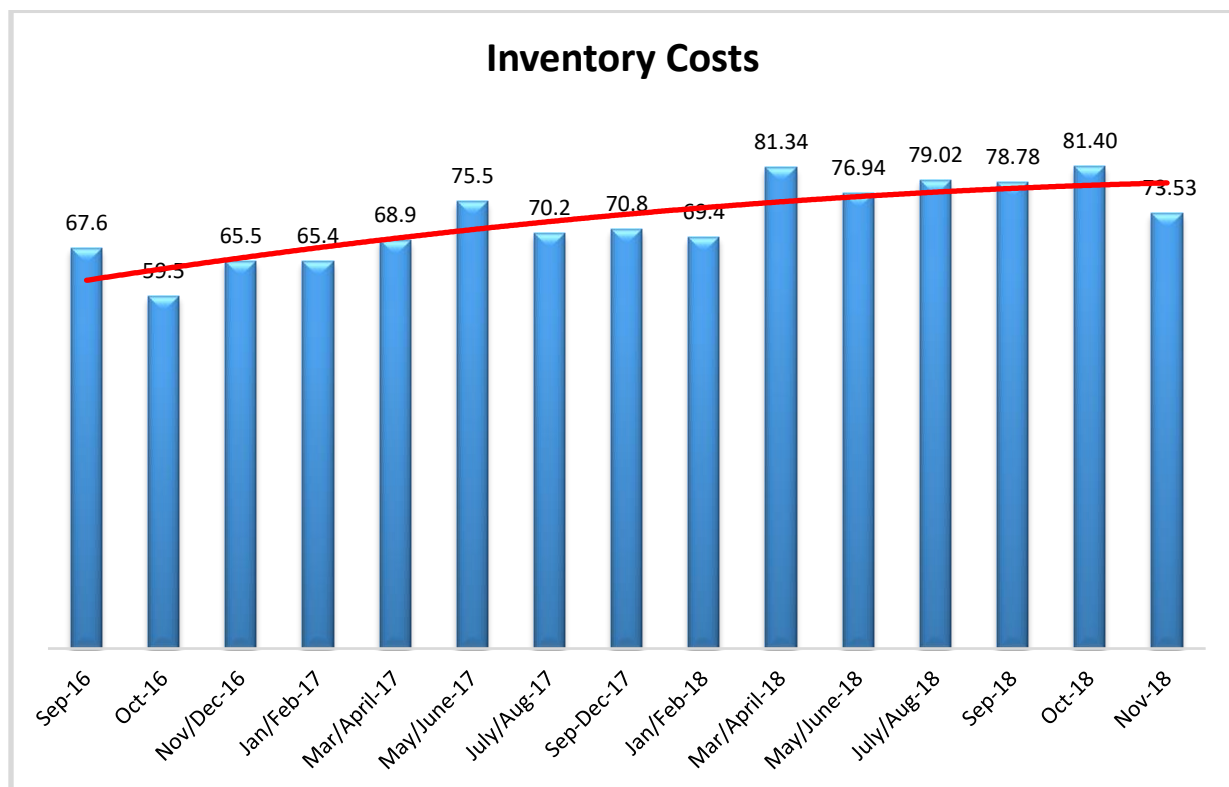


Inventory Costs

Given the high levels of inventory growth, it is not surprising that inventory costs are also increasing. The current value is 73.53, and any value above 50 indicates growth, and respondents say inventory costs have continued to climb, significantly. The current value is a significant reduction over the previous value of 81.40 (which was an all-time high). Index scores had stayed within a range of 5 points of this level from March/April through November, so the current value of 73.53 represents a significant reduction from recent values. That being said, the current value of 73.53 is 3.7 points higher than the 70.8 value last year at this time. The current value is also above the long-term average of 72.2, another sign that costs are expected to rise by a greater than expected amount. Because Inventory costs have stayed above 50 consistently, costs are expected to continue to grow, and the trendline shows that cost growth is increasing over time, so if current trends continue, inventory costs may continue to grow for the indefinite future.

Taking this graph and the previous graph of inventory values together, it is somewhat surprising that cost growth seems to be consistently stable at high levels, while the growth of inventory levels seems to have slowed. This could be related to the fact that warehousing capacity is increasing only slightly. Because inventory levels are continuing to increase, and warehousing capacity is only increasing slightly, it seems quite likely costs will continue to rise.

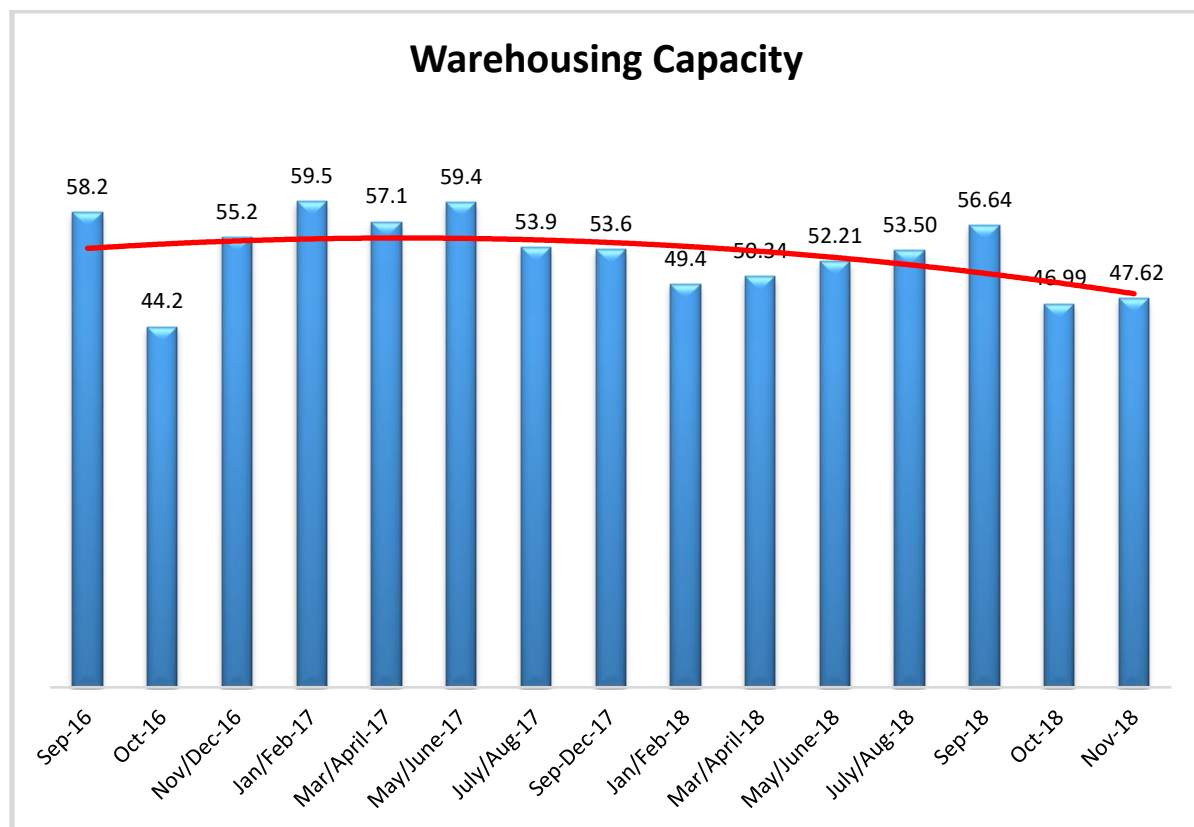
Respondents agree with this analysis. When asked about what they expect inventory costs to be like 12 months from now, the index value is 81.3, a slight increase over last month's value of 81. Respondents clearly expect inventory costs to continue to be high for the next 12 months.



Warehousing Capacity

The Warehousing Capacity Index registered 47.62 percent in November 2018. This represents slight increase (less than 1%) from the October reading of 46.99, and a nearly 10 point decrease from the September 2018 reading of 56.64 and is still sharply down from the Jan/Feb 2017 high of 59.5. It is also down from this time last year, when we recorded an index score of 53.6. This is the third lowest reading ever recorded in the LMI®. It would appear that Warehousing Capacity is contracting, now two months in a row, as the holiday season approaches.

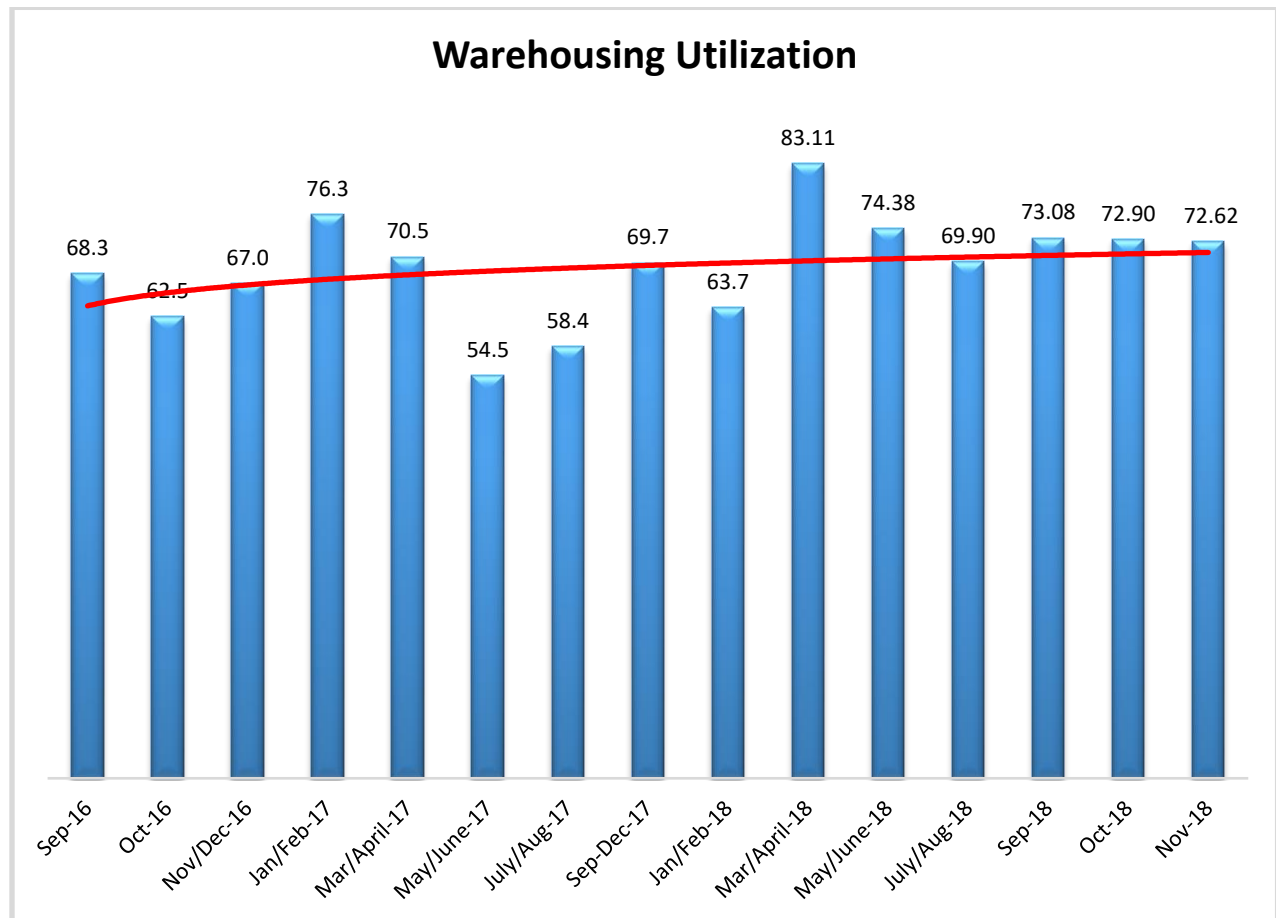
Looking forward at the next 12 months, the predicted Warehousing Capacity index is 57.9. This indicates that firms are hopeful that more warehouse space will become available over the next year, but not at a significantly high rate.



Warehousing Utilization

The Warehousing Utilization Index registered 72.62 percent in November 2018. This is a rather small decrease of .28 percentage points from the October 2018 reading of 72.90. This is the sixth highest level of Warehousing Utilization overall, and is up 18.12 points from the all-time low of 54.5 in June 2017. This slight decrease in the rate of utilization, coupled with the rather sharp decline in the rate of capacity indicates that warehousing remains relatively tight.

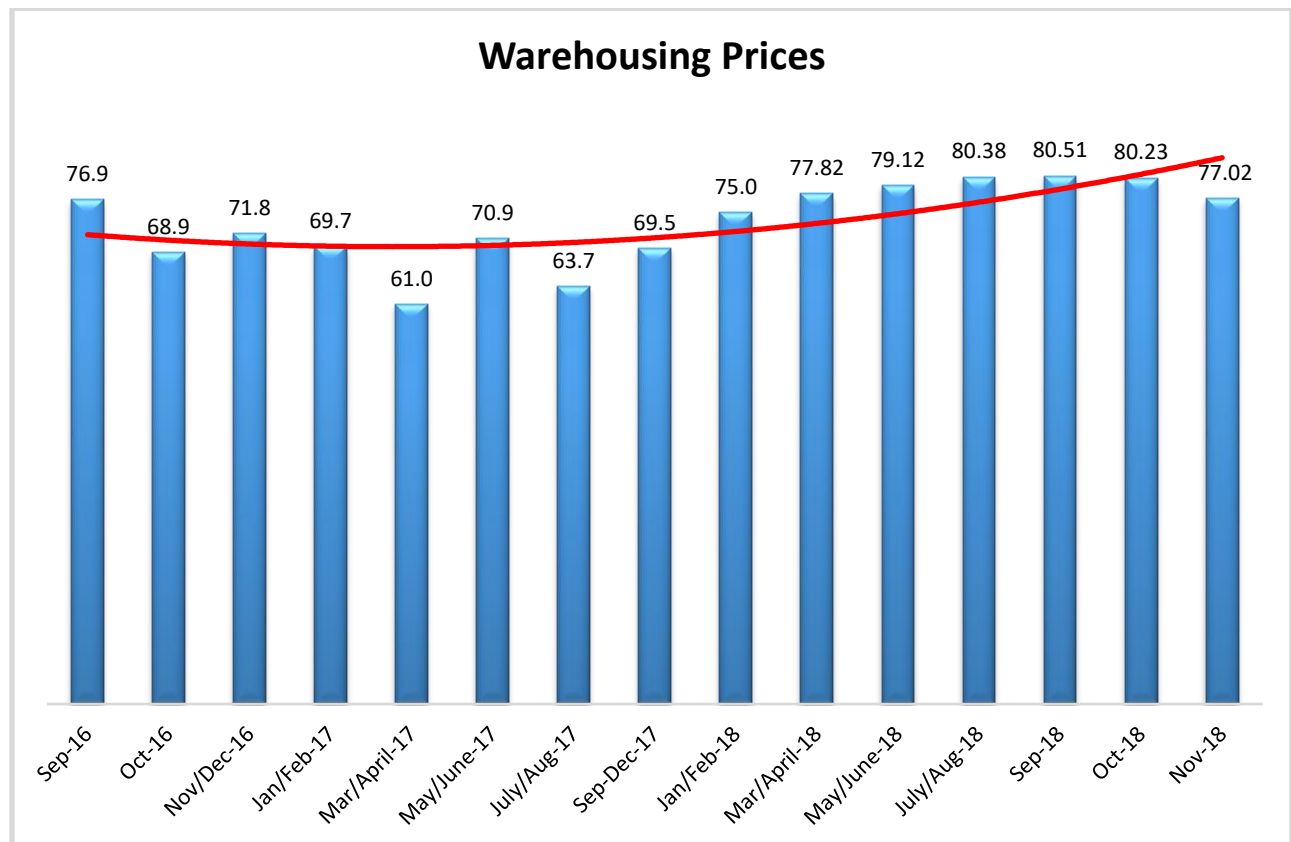
Looking forward at the next 12 months, the predicted Warehousing Utilization index is 70.5, indicating that firms anticipate utilizing existing warehouse capacity consistently over the next year.



Warehousing Prices

Finally, the Warehousing Prices Index registered 77.02 percent in November 2018. This is a somewhat sharp decrease of 3.21 percentage points from the October 2018 reading of 80.23. Taken together with the decreasing rate of capacity, as noted above, and the still high rate of increase of utilization, it appears that pricing continues to rise, though at a slower rate, as availability decreases.

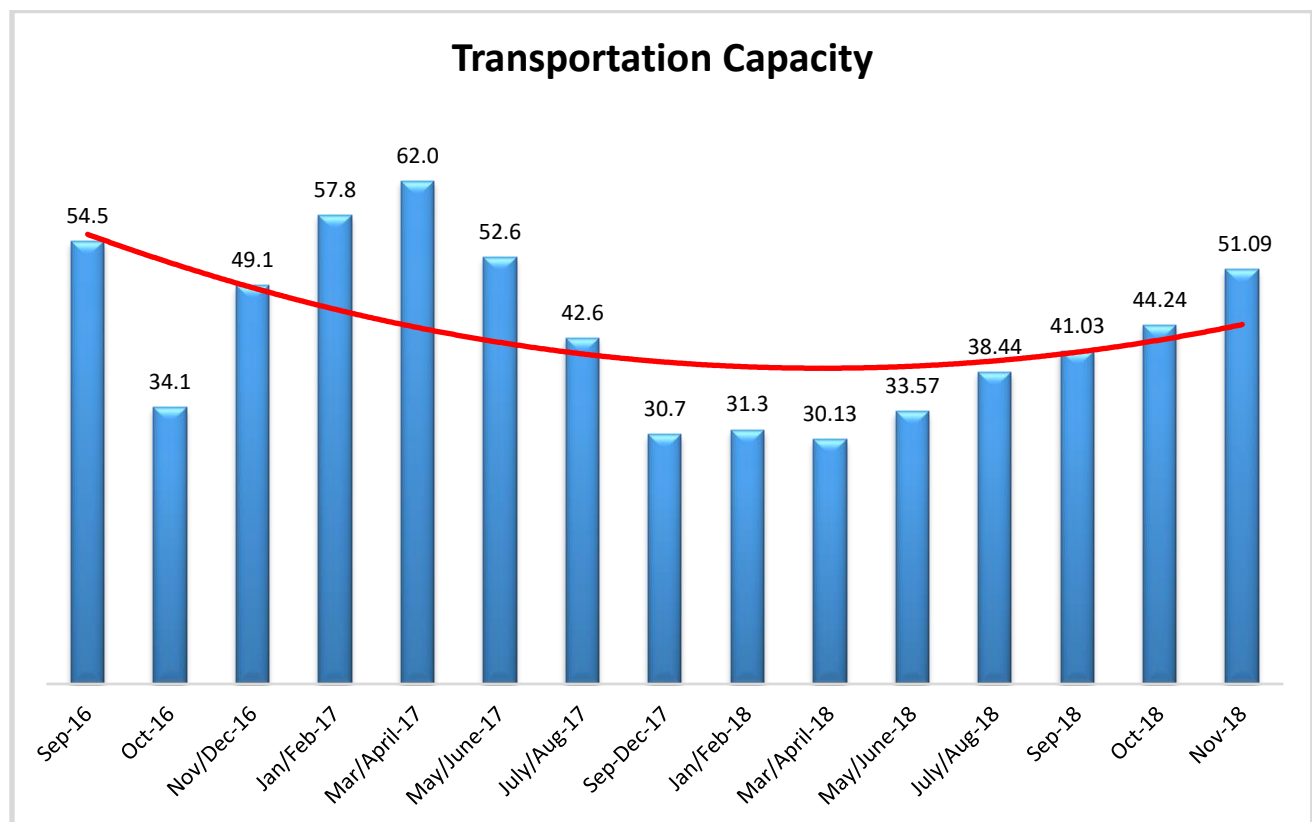
Looking forward at the next 12 months, the predicted Warehousing Prices index is 77.8, indicating little relief from increasing warehousing prices.



Transportation Capacity

The Transportation Capacity Index registered 51.09 percent in November 2018. This is an increase of 6.85 percentage points from the October reading of 44.24. The upward trend in transportation capacity is continuing, the latest reading being the fifth consecutive period showing an increase from the previous reading. Further, a reading above 50 percent indicates expansion, and this is the first reading indicating as such since May/June 2017. It should be noted the data also indicates a score of 59.06 percent for the next year. Hence, the expectation, over the next year, is continuing improvement from the current Transportation Capacity Index. The perceived increase in Transportation Capacity may also signify that there is not as much competition for it as there has been. At this time last year, the Transportation Capacity index score was 30.7, 21 points lower than this period's reading, resulting in a U-shaped curve in the historical index score graph below. It is too early to tell for certain, but this may be an indicator of slowing demand.

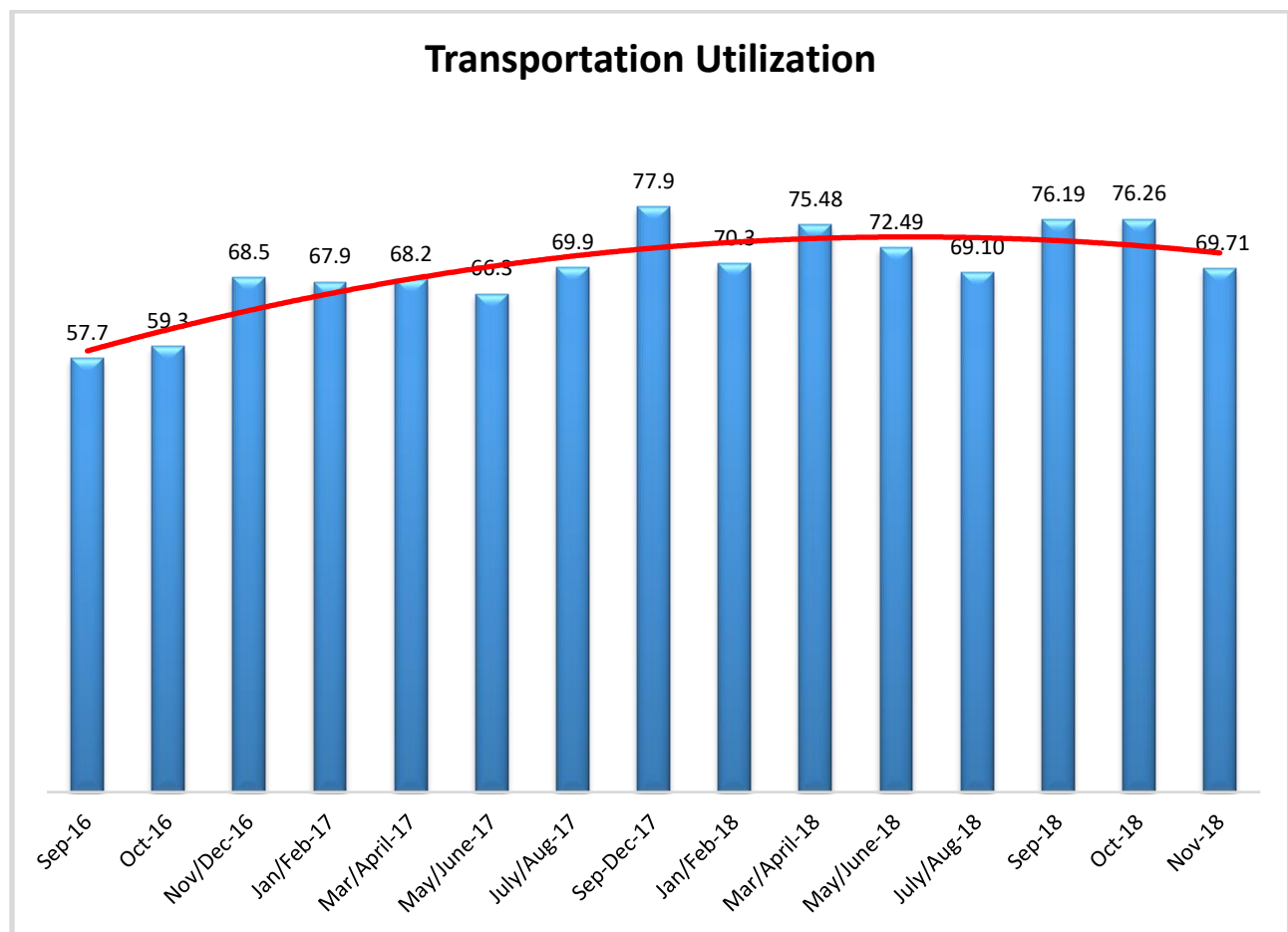
It should be noted the data also indicates a score of 59.1 percent for the next year. The expectation being that more Transportation Capacity will continue to come online, easing pressure across the overall logistics industry over the next 12 months.



Transportation Utilization

The Transportation Utilization Index registered 69.71 percent in November 2018. This is a decrease of 6.55 percentage points from the October reading of 76.26. This score indicates a continuing expansion trend in Transportation Utilization, but the rate of the increase is slowing down. This reading is up from last year's index score of 69.7. Our future Transportation Utilization Index indicates a 72.26 percent level for the next 12 months, indicating strong expectations for continuing the increase in Transportation Utilization rate.

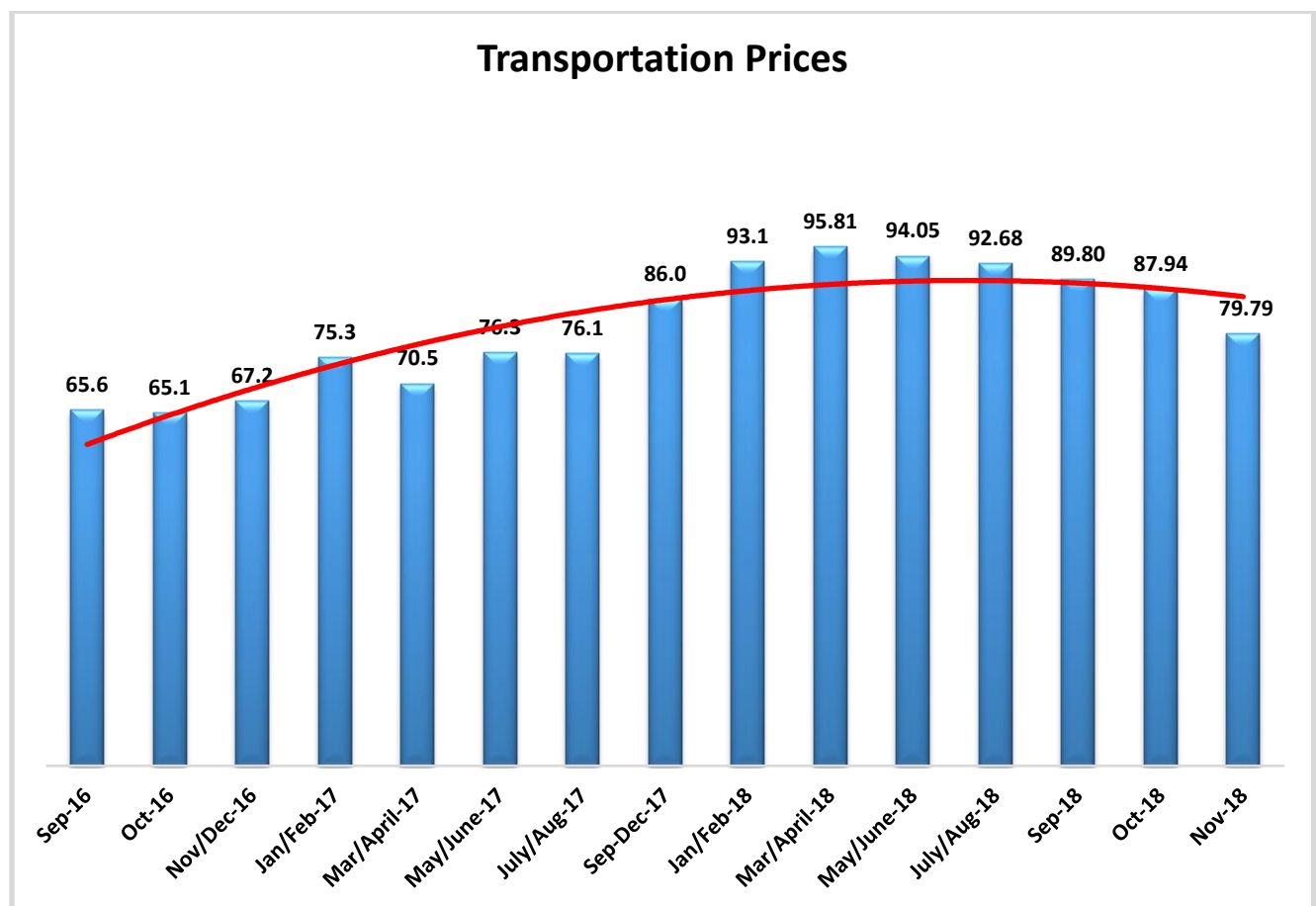
Our future Transportation Utilization Index indicates a 72.3 percent level for the next 12 months, indicating strong expectations for continuing the increase in Transportation Utilization rate.



Transportation Prices

The Transportation Prices Index registered 79.79 percent in November 2018. This is 8.15 percent lower than the October 2018 transportation prices reading. Transportation Prices Index is continuing to come off its historical highs, with the latest reading being the fifth consecutive decrease from the all-time high registered in March-April 2018. This is down from the same point last year, when Transportation Price read in with an 86.0. This shift has left a clear arc in the chart of historic index readings below. Again, this may indicate that demand is slowing down. It is only one data point and we will see next month if these changes are an aberration in the data, but it appears that this month could be the beginning of change around transportation utilization.

The future expectations for transportation prices are at 82.27 percent, indicating that the upward pressure on transportation prices is likely to persist over the next 12 months.



About This Report

The data presented herein are obtained from a survey of logistics supply executives based on information they have collected within their respective organizations. LMI® makes no representation, other than that stated within this release, regarding the individual company data collection procedures. The data should be compared to all other economic data sources when used in decision-making.

Data and Method of Presentation

Data for the Logistics Manager's Index is collected in a monthly survey of leading logistics professionals. The respondents are CSCMP members working at the director-level or above. Upper-level managers are preferable as they are more likely to have macro-level information on trends in Inventory, Warehousing *and* Transportation trends within their firm. Data is also collected from subscribers to both DC Velocity and Supply Chain Quarterly as well. Respondents hail from firms working on all six continents, with the majority of them working at firms with annual revenues over a billion dollars. The industries represented in this respondent pool include, but are not limited to: Apparel, Automotive, Consumer Goods, Electronics, Food & Drug, Home Furnishings, Logistics, Shipping & Transportation, and Warehousing.

Respondents are asked to identify the monthly change across each of the eight metrics collected in this survey (Inventory Levels, Inventory Costs, Warehousing Capacity, Warehousing Utilization, Warehousing Prices, Transportation Capacity, Transportation Utilization, and Transportation Prices). In addition, they also forecast future trends for each metric ranging over the next 12 months. The raw data is then analyzed using a diffusion index. Diffusion Indexes measure how widely something is diffused, or spread across a group. The Bureau of Labor Statistics has been using a diffusion index for the Current Employment Statics program since 1974, and the Institute for Supply Management (ISM) has been using a diffusion index to compute the Purchasing Managers Index since 1948. The ISM Index of New Orders is considered a Leading Economic Indicator.

We compute the Diffusion Index as follows:

PD = Percentage of respondents saying the category is Declining,
PU = Percentage of respondents saying the category is Unchanged,
PI = Percentage of respondents saying the category is Increasing,
 $\text{Diffusion Index} = 0.5 * PD + 0.5 * PU + 1.0 * PI$

For example, if 25% say the category is declining, 38% say it is unchanged, and 37% say it is increasing, we would calculate an index value of $0 * 0.25 + 0.5 * 0.38 + 1.0 * 0.37 = 0 + 0.19 + 0.37 = 0.56$, and the index is increasing overall. For an index value above 0.5 indicates the category is increasing, a value below 0.5 indicates it is decreasing, and a value of 0.5 means the category is unchanged. When a full year's worth of data has been collected, adjustments will be made for seasonal factors as well.

Logistics Managers Index

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About The Logistics Manager's Index®

The Logistics Manager's Index (LMI) is a joint project between researchers from Arizona State University, Colorado State University, University of Nevada, Reno, Rochester Institute of Technology and Rutgers University, supported by CSCMP.