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May/June 2018 Logistics Manager's Index Report®

LMI® at 69.0%

Growth for Inventory Price, Inventory Levels, Warehousing Price, Warehousing Utilization, Warehousing Capacity, Transportation Utilization, and Transportation Price is INCREASING.

The rate of growth is DECREASING for all of the metrics above EXCEPT for Warehousing Capacity and Warehousing Price. Transportation Capacity is DECREASING.

(Fort Collins, Colorado) — According to a sample of North American logistics executives, economic activity across the logistics sector expanded, although at a marginally slower rate

in May and June of 2018. This growth is primarily driven by increases in price, utilization and inventory levels.

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 of all of the other components that make up the index 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 May/June 2018 overall LMI® index registered 69.0 percent which is down slightly from the March/April 2018 reading of 72.64. This decrease was expected due to seasonal influences, but still indicates a healthy rate of growth in the overall logistics industry, and is up 4 points year-over-year. The rate of growth is lower than it was last period, but that was expected due to seasonal effects. The high rate of growth is still quite high and is primarily driven by high levels of growth in Inventory Levels, Inventory Costs, Warehousing Utilization, Transportation Utilization, Transportation Prices and an all-time index high score in Warehousing Prices. The overall index score is tempered by the low score of 33.6 in Transportation Capacity, and the moderate Warehousing Capacity score of 52.2. The lack of excess capacity in both the transportation and industrial real estate markets are most likely driving forces behind the soaring Warehousing and Transportation Costs. According to *The Wall Street Journal*, firms are attempting to address this shortage by building out private fleets¹, and by ordering a record number of big rigs – more than double the amount that was ordered at this time last year². However, it is worth noting that when asked to predict what the industry will look like one year in the future, respondents were pessimistic that sufficient capacity will be available, or that prices will stabilize.

Growth in Warehouse Prices has been trending upwards since July/August of 2017, and reached an all-time index high in the most recent period. Transportation Prices have been steadily increasing for the last year, and have achieved index scores greater than 90.0 in every reading in 2018 (for reference, the highest possible score in a diffusion index is 100.0). This is a rate of growth far exceeding any other components of the LMI. This is partially driven by low levels of available Transportation Capacity. The May/June 2018 Transportation Capacity reading of 33.57 indicates contraction in available capacity as supply continues to be outstripped by demand. There appears to be little hope on the horizon for a relief from this situation, when asked to predict the transportation capacity and prices 12 months into the future, respondents predicted a diffusion index of 45.5 for future Transportation Capacity and a corresponding future Transportation Price index of 94.3.

¹ Phillips, Erica & Smith, Jennifer. "As Shipping Costs Soar, Supply Chains Get a Makeover". *The Wall Street Journal*, June 17, 2018.

² Smith, Jennifer. "Truck-Factory Backlogs Soar on Heavy Demand for Big Rigs". *The Wall Street Journal*. July 5, 2018.

Clearly firms are expecting a continuing shortage of available transportation, and a subsequent increase in prices.

We also note growth, although at marginally decreased rates, in Inventory Levels and Inventory Costs. Firms continue to be bullish on the prospect of future sales. The need to store and move increasing inventory is likely correlated with the shortage of warehouse and transportation capacity and the corresponding increase in price. Finally, we track the anticipated movement of all eight components of the LMI over the next 12 months. Seven of the eight are predicted to experience varying levels of growth over the next year. With Transportation Price growing the most (94.3) and Warehousing Capacity the least (60.0). The only metric that is predicted to decline over the next 12 months is Transportation Capacity, with a score of 45.5. This suggests that Transportation Prices will only continue increasing as supply struggles to match demand.

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. Warehousing Capacity is very slightly growing, although with an index score of 52.21 it is approximately at a steady state. Transportation Capacity is contracting. Inventory Levels, Inventory Costs, Warehousing Utilization, Transportation Utilization, Transportation Prices, and the overall Logistics Managers' Index are increasing, at slightly to moderately decreasing rates. Warehousing Prices are increasing at an increasing rate – reaching an all-time metric high in the history of the LMI®.

LOGISTICS AT A GLANCE					
Index	May/June 2018 Index	March/April 2018 Index	Month-Over-Month Change	Projected Direction	Rate of Change
LMI®	69.00	70.83	-1.8	Growing	Decreasing
Inventory Levels	69.21	72.64	-3.4	Growing	Decreasing
Inventory Costs	76.94	81.34	-4.4	Growing	Decreasing
Warehousing Capacity	52.21	50.34	1.9	Slightly Growing	Increasing
Warehousing Utilization	74.38	83.11	-8.7	Growing	Increasing
Warehousing Prices	79.12	77.82	1.3	Growing	Increasing
Transportation Capacity	33.57	30.13	3.4	Contracting	Increasing
Transportation Utilization	72.48	75.48	-3.0	Growing	Decreasing
Transportation Prices	94.05	95.81	-1.8	Growing	Decreasing

Transportation typically functions as a leading indicator of overall economic health. The dramatic contraction in Transportation Capacity, combined with the steep, continuing growth in Transportation Prices indicates that demand is high and the industry is healthy. The increase in Inventory Levels and Warehousing Price are further evidence that the demand for available logistics capacity remains high, while available supply seemingly struggles to keep up.

Tariffs on steel and aluminum were put into place on June 1st, and more were implemented at midnight on July 6th. The LMI® does not seem to have been impacted by these tariffs as of yet. It is unclear what the impact of these tariffs or a potential trade war might be on the overall logistics industry, and how the rates of growth or contraction across our eight metrics might differ from the future projections made by our panelists.

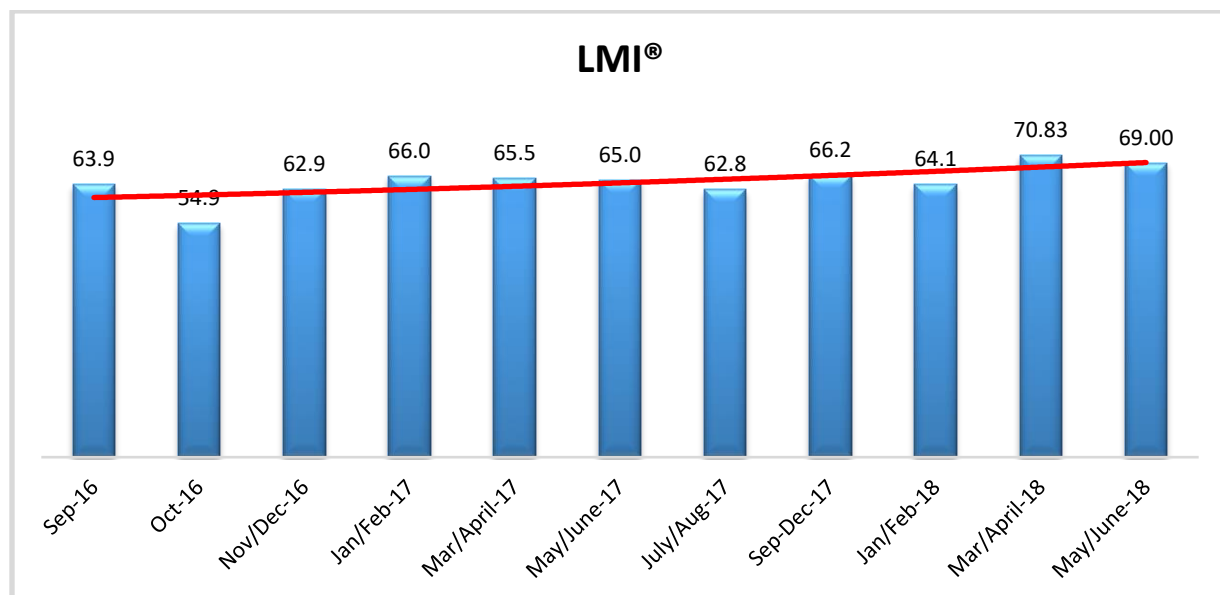
Historic Logistics Managers' Index Scores

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

<i>Month</i>	<i>LMI</i>	Average for previous readings – 64.6 High – 70.8 Low – 54.9 Std. Dev – 3.9
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	
May/June '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 69.0 in the May/June 2018 reading. This is a marginally lower rate of growth than the March/April index, which at 72.6, was the highest level tracked in the 22 months of the LMI®. While the rate of growth is down slightly in May/June, it is still higher than the average overall index score of 64.6. This indicates that the logistics industry continues to grow at a rapid pace. As mentioned above, this growth is primarily driven by significant rates of growth in Inventory Costs, Warehouse and Transportation Utilization, and Warehouse and Transportation Prices. Warehouse prices are higher in May/June 2018 than at any other time in the history of the LMI®. As mentioned above, 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.

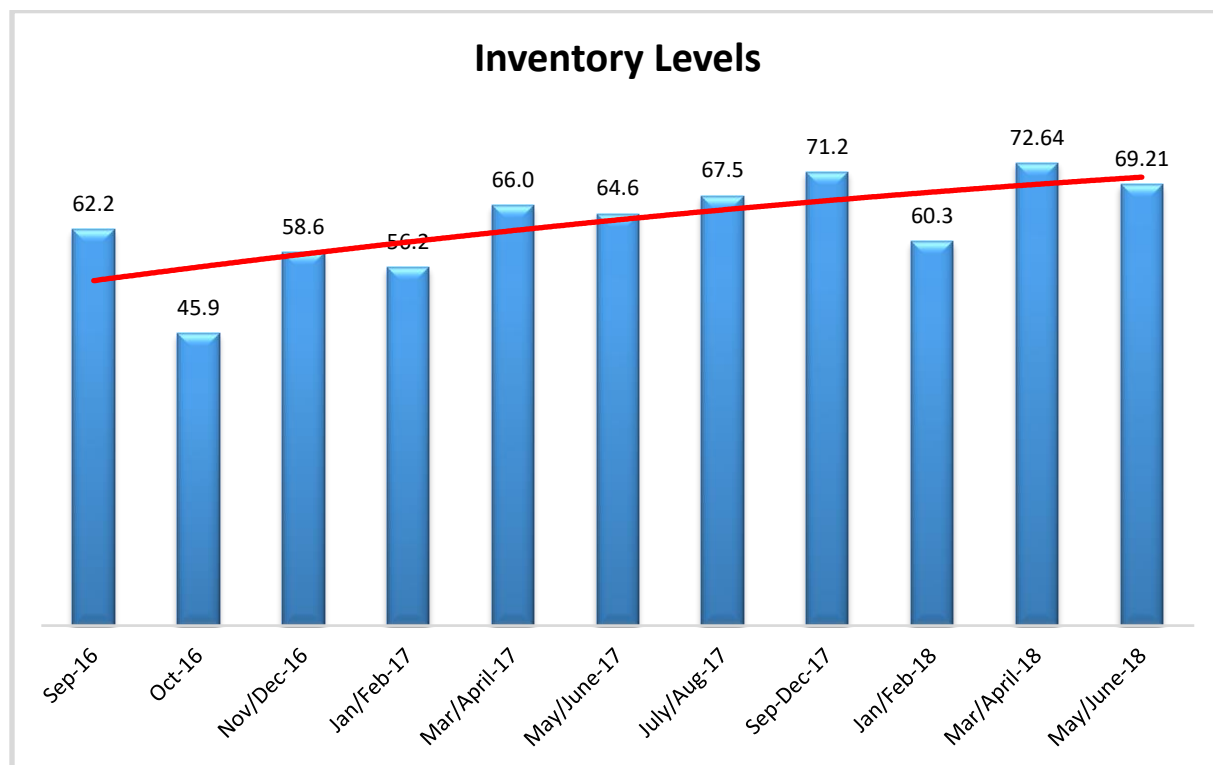


Every reading since the beginning of this project in September of 2016 has indicated growth in the logistics industry. The May/June 2018 reading continues that trend, with the overall index score reading at 69.0, 19 points above the growth/contraction threshold of 50.0. Firms appear to be increasing inventory levels, turning up demand for warehousing and transportation and leading to a subsequent increase in prices for both. While the researchers feel strongly that warehousing, transportation, and inventory trends are key economic indicators, the exact relationship between the LMI and the overall economy as indicated by GDP has yet to be established empirically.

Inventory Levels

The Inventory Level index is 69.21, well above the average index score of 63.1, although down slightly from the all-time high growth rate of 72.6 in March/April. This is similar to the drop observed from the March/April 2017 to the May/June 2017 LMI® reading. This drop was not unexpected and is likely attributable to seasonal factors. However, it is worth noting that the rate of growth in May/June 2017 was 64.6, indicating that the rate of growth in inventory levels has increased by 5 points year-over-year. As with the year-over-year growth in March/April, the index indicates inventory levels are continuing to grow, and at an increasing rate.

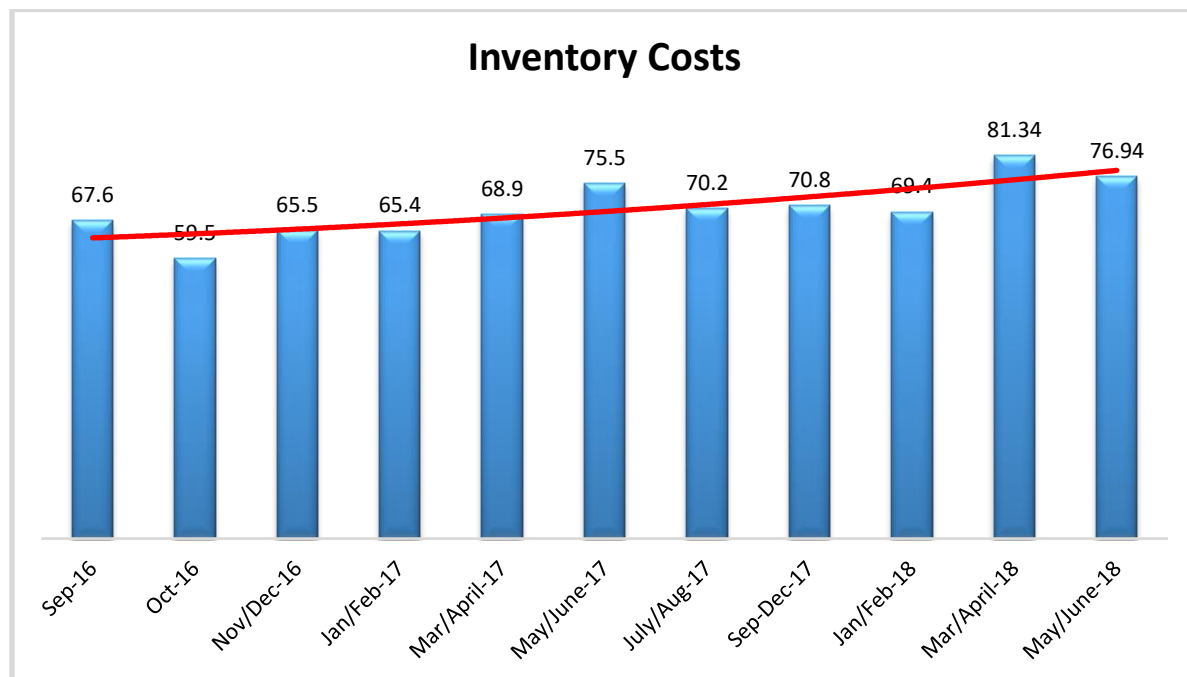
Looking forward at the next 12 months, the Inventory Levels are expected to grow at a rate of 70.3, which indicates panelists expect inventory levels to be even higher 12 months from now.



Inventory Costs

The Inventory Cost index for May/June 2018 is 76.94. This is similar to 2017, in that the reading in May/June 2017 was 75.5. This is dissimilar to 2017, in that May/June 2017 was the highest reading of the year. March/April of 2018 was 81.34, the highest level read in the history of the index and 12.5 points higher than in March/April 2017. It is unclear what the driver of the year-over-year difference in the previous period was. Both Inventory Costs and Inventory Levels, continue to grow, although at slightly decreased rates.

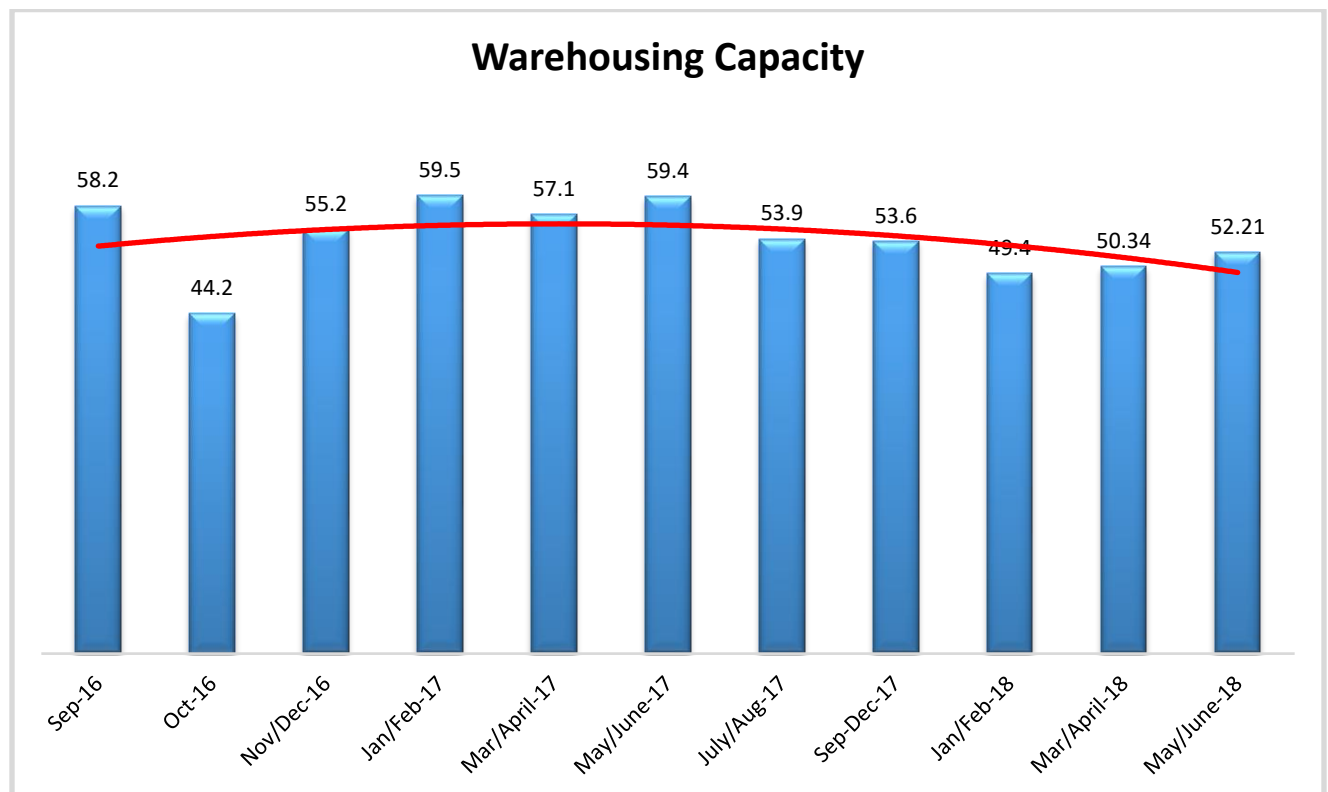
When asked about the upcoming 12 months, panelists returned a value of 78.2, indicating that inventory costs are expected to continue to climb for the next year.



Warehousing Capacity

The Warehousing Capacity Index registered 52.21 percent in May-June 2018. This represents a nearly 2 percentage point increase from the March-April reading of 50.34 and as well as a sharp decline from the Jan/Feb 2017 high of 59.5. Warehouse capacity is growing marginally, reflecting a tight real estate market. The rate of growth is 7.2 points down from May/June 2017.

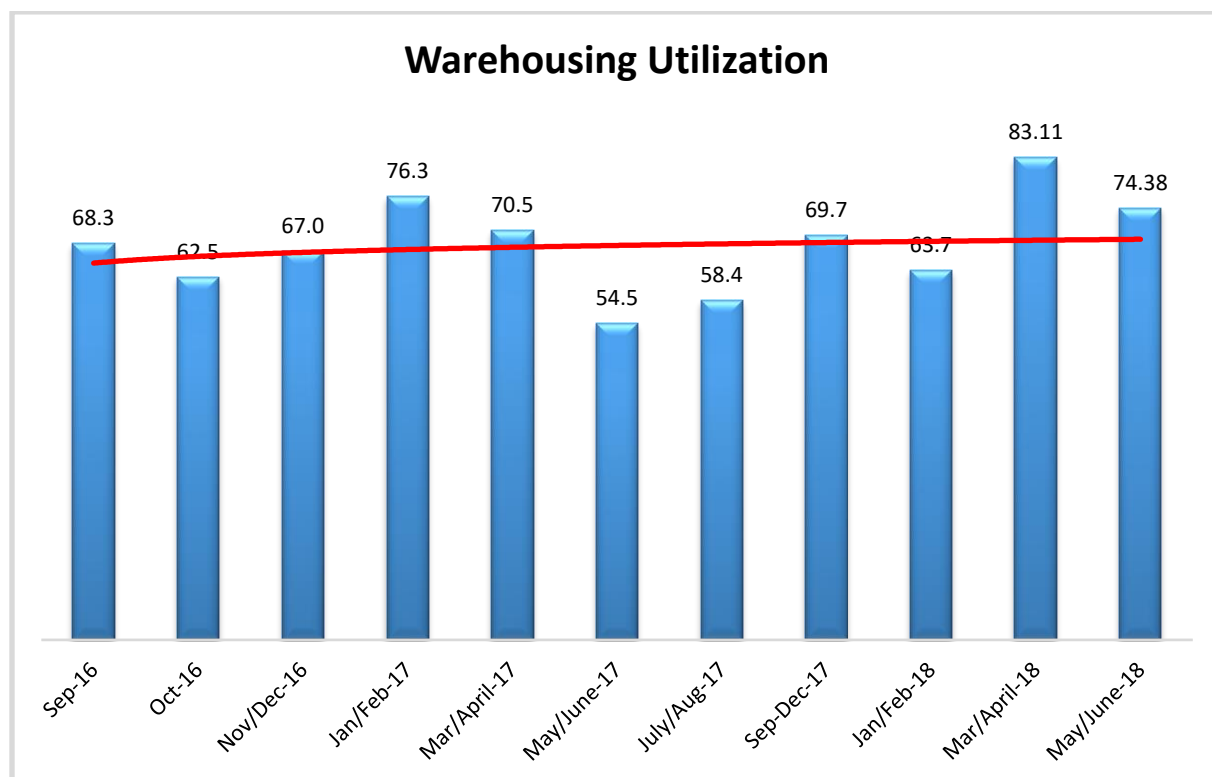
Looking forward at the next 12 months, the predicted Warehousing Capacity index is 60.0. This indicates that firms are optimistic that more warehouse space will become available over the next year, potentially easing the current mismatch between the supply and demand of affordable warehousing.



Warehousing Utilization

The Warehousing Utilization Index registered 74.38 percent in May/June 2018. This is a sharp decline of 8.73 percentage points from the March-April reading of 83.11. The period-to-period drop is similar to what was observed between March/April 2017 and May/June 2017, indicating that seasonal factors may be at play. However, the May/June 2018 index is 19.9 points higher than the May/June 2017 index. This indicates that the rate of growth in Warehouse Utilization is much higher than 12 months ago, reflecting the right real estate market mentioned above.

Looking forward at the next 12 months, the predicted Warehousing Utilization index is 77.2, indicating that firms anticipate utilizing more of the existing warehouse capacity over the next year.



Warehousing Prices

The Warehousing Prices Index registered 79.12 percent in May/June 2018. This is a slight increase of 1.3 percentage points from the March/April reading of 77.82, and is the highest value for the Warehousing Prices Index to date. This is the second consecutive period with a historically high Warehousing Price value. The index is 9 points higher than in May/June 2017. Once again, the index is indicative of a tightening in the commercial/industrial real estate market.

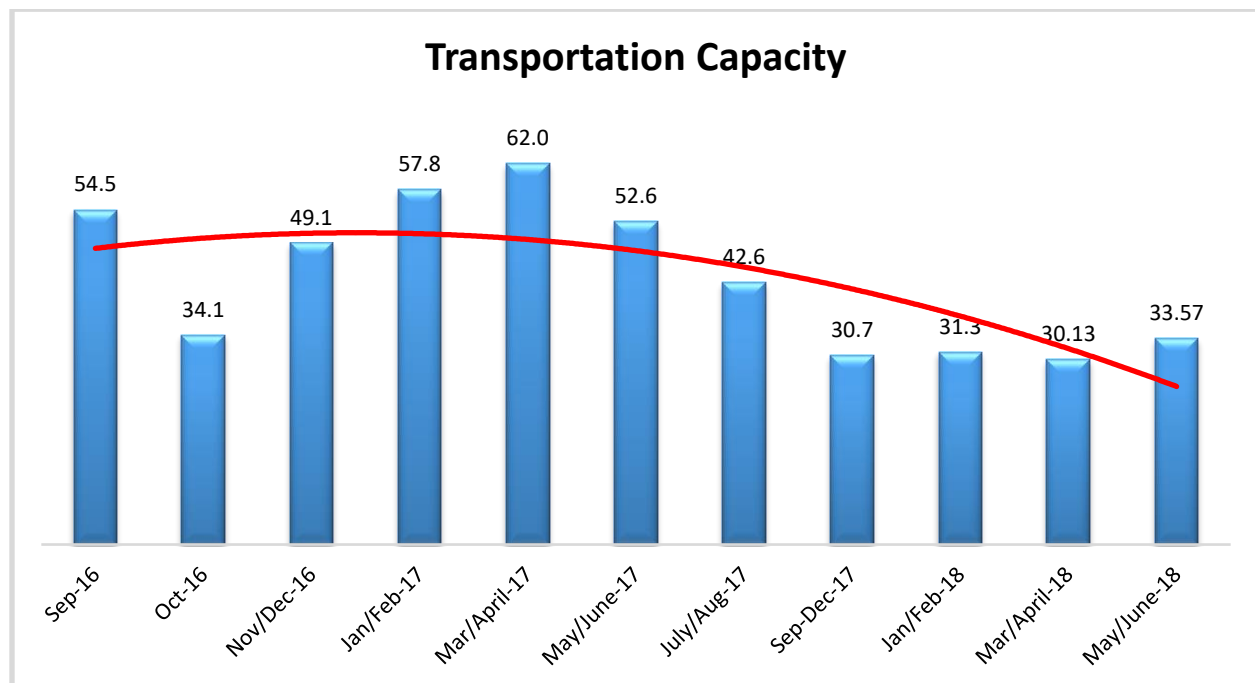
Looking forward at the next 12 months, the predicted Warehousing Prices index is 78.9, indicating little relief from increasing warehousing prices.



Transportation Capacity

The Transportation Capacity Index registered 33.57 percent in May/June 2018. This is an increase of 3.44 percentage points from the March/April reading of 30.13. This is 19 points lower than the Transportation Capacity index in May/June 2017. It would appear that transportation excess capacity is still historically low, but the rate of contraction has slowed slightly, at least for now.

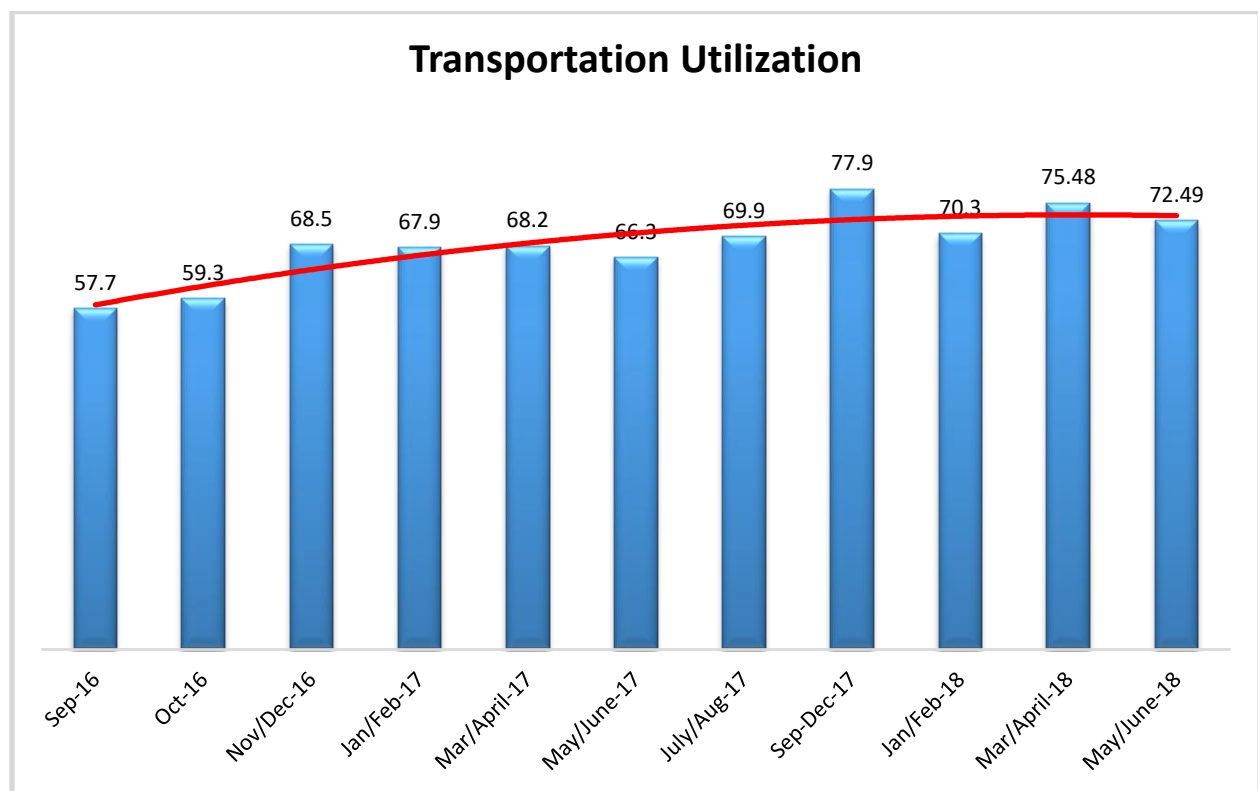
Looking forward at the next 12 months, the predicted Inventory Level index is 45.5. The decreased rate of contraction indicates that respondents are hopeful that more capacity will be coming online in the next year. However, this is the only component of the LMI that is predicted to continue decreasing over the upcoming year. Respondents are pessimistic that the level of available transportation supply will be sufficient to meet demand over the next 12 months.



Transportation Utilization

The Transportation Utilization Index registered 72.49 percent in May/June 2018. This is a decrease of 2.99 percentage points from the March/April reading of 75.48. After a brief rebound in March/April 2018, the Transportation Utilization index has dropped slightly, although it can still be considered historically high, and reflects the lack of available Transportation Capacity. This latest reading is 6.19 points higher than the index in May/June 2017.

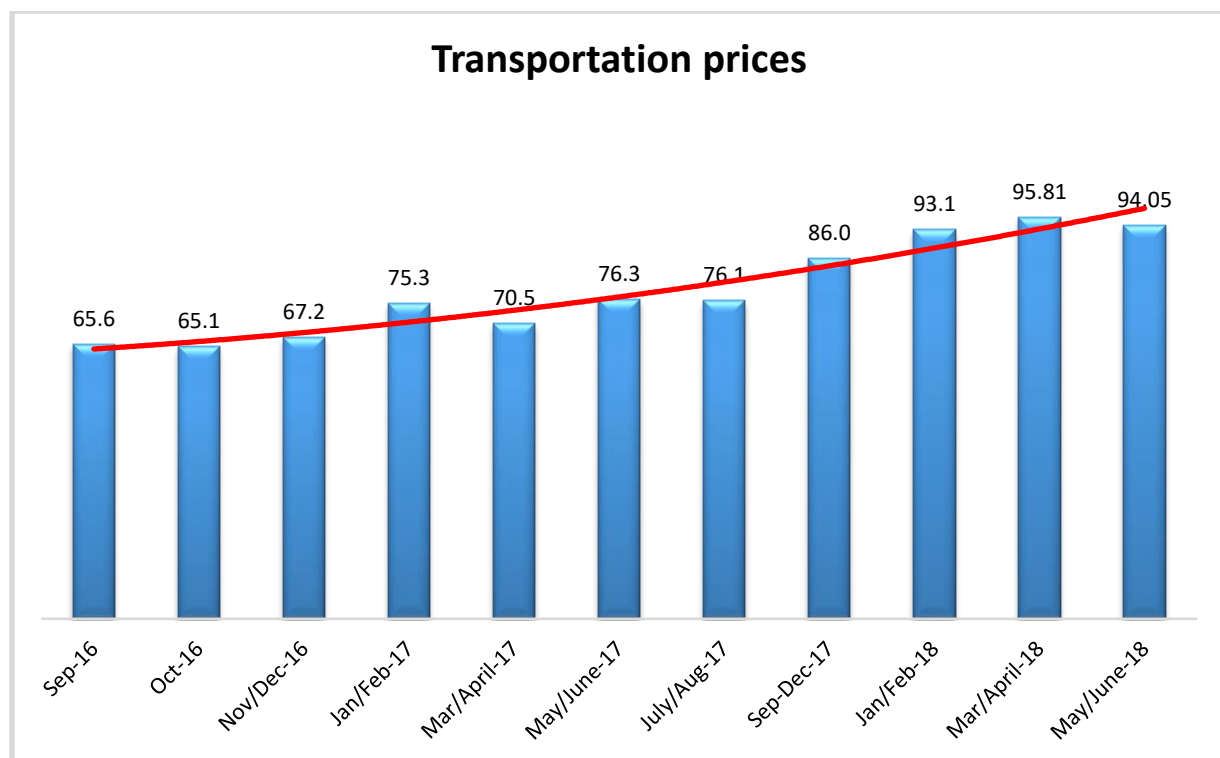
Looking forward at the next 12 months, the predicted Transportation Utilization is 72.4. This indicates that utilization will continue to increase over the next year as companies attempt to make the most out of limited, expensive space.



Transportation Prices

The Transportation Prices Index registered 94.05 percent in May-June 2018. This is 1.76 percent lower than the historical high registered in March-April 2018. The prices are increasing at an extremely fast pace. Nearly every respondent reported increasing transportation costs, whether or not they had long-term contracts in place. This is up nearly 18 points from the May/June 2017 index score of 76.3 (which at the time, was the highest in the history of the index). The maximum score in a diffusion index is 100.0, and the Transportation Price index has been over 90.0 in every reading in 2018. The shortage of Transportation Capacity reported above, is driving prices to historic levels.

Looking forward at the next 12 months, the predicted Transportation Prices index is 94.3. Respondents are pessimistic of receiving any relief from escalating transportation costs.



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.