















FOR RELEASE: Tuesday, February 2nd, 2021

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January 2021 Logistics Manager's Index Report®

LMI® at 67.2%

Growth is INCREASING AT A INCREASING RATE for: Inventory Levels, Inventory Costs, Warehousing Utilization, and Warehousing Prices,
Growth is INCREASING AT A DECREASING RATE for: Transportation Utilization, and
Transportation Prices

Warehousing Capacity and Transportation Capacity are CONTRACTING

(Fort Collins, Colorado) — The January 2021 reading of the LMI is a continuation of the trends observed at the end of 2020. Capacity continues to contract and prices continue to grow across the board. The January LMI reads in at 67.2, up slightly (+0.5) from 66.7 in December. This is well above the all-time average of 62.4, and significantly above (+13.1) last January's reading of 54.1. Much of the increase in this month's LMI are driven by increases in the rate of growth for the inventory metrics. Due to constricted capacity and

high inventory levels, it would appear that as firms increase the amount of inventory they're holding, the cost of doing so is increasing at an increasing rate. This combined with tight capacity and high prices contributes to the increasing rate of growth detected in this month's LMI.

As predicted in December's report, the logistics capacity crunch continued in January the first month of 2021. Much of this tightness can be observed in the glut of traffic currently sitting in U.S. ports. Ports in Georgia saw a 25% increase in traffic in November and December, a double-digit increase in January, and expect volume to remain high at least through February. This is interesting as these tend to be slower months due to the postholiday slowdown and the Chinese Lunar New Year. U.S. ports are expanding to handle this influx of volume, with the port of Savannah adding capacity to handle an additionally 150,00 containers annually¹. Traffic through the port of LA remains high as well, time spent waiting for inbound containers increased from 2.5 days in early 2020 to 5 days in December. Firms are still having difficulty digging out of the inventory and supply chain backlogs built up in the early parts of the pandemic and exacerbated by the changing nature of commerce that has emerged during COVID-19. Making the already difficult challenge of working through this backlog even more challenging, in Late January the Port of LA is experiencing an outbreak of COVID-19, with over 700 infected; the number of infections in the first two months of 2021 is expected to exceed the number in the last eight months of 2020. As of the time of this writing there is no plan to slow operations, but that prospect may become more difficult if the rate of infection remains high². The virus is taking its toll on both sides of the Pacific, as an outbreak in the Northern Chinese city of Dalian has also led the Chinese government to slow down traffic between northern and southern ports at least through February. This is leading to slowed traffic within China, bottlenecking the outflow of cargo, combined with the line of traffic at U.S. ports, firms and logistics companies are experiencing difficulties from "both sides" of the supply chain³. The crunch on ocean capacity is aggravated by the lack of airfreight capacity. Due to international travel restrictions, in the past two weeks available air capacity is down 16% year over year⁴.

In many ways, logistics is an outlier in the overall economy. While up in the fourth quarter, GDP was down 3.5% in 2020, the steepest decline since the 1940's. Logistics was able to act counter-cyclically due to the 2.5% increase in consumer spending over the same time

¹ Link-Willis, K. (2021, January 26). *Georgia Ports ends roller-coaster year on upside*. FreightWaves. https://www.freightwaves.com/news/georgia-ports-ends-roller-coaster-year-on-upside

² Miller, G. (2021, January 22). *COVID outbreak could cripple California container ports*. FreightWaves. https://www.freightwaves.com/news/covid-outbreak-could-cripple-california-container-ports

³ LaRocco, L. A. (2021, January 28). *Commentary: Breaking the backbone of trade*. FreightWaves. https://www.freightwaves.com/news/commentary-breaking-the-backbone-of-trade

⁴ Kulisch, E. (2021, January 31). *Reversal of Fortune: Capacity drains from air cargo market again*. FreightWaves. https://www.freightwaves.com/news/reversal-of-fortune-capacity-drains-from-air-cargo-market-again

period⁵. The shifting pressures caused by the increase in consumer demand for last-mile services, combined with the high costs shippers are dealing on the B2B side due to the capacity crunch one of the primary drivers of logistics demand, are reflected in the recent decision by UPS to sell off its freight business. UPS is pivoting away from industrial and LTL shipments and honing in on parcel and B2C delivery⁶. Interestingly, the demand for durable goods (such as chips for automobiles and gaming consoles) has led to an increase in manufacturing, for which supply is struggling to keep up with demand and sourcing has become difficult⁷ ⁸. This is reflected in the recent increase in flatbed spot market rates, as well as tender rejections, and has led some analysts to feel confident about an industrial recovery in 20219. The pressure from consumer demand is likely to grow with the rollout of the vaccine and the possibility of stimulus, with experts predicting a 4-5% bounce back in GDP in 2021.

In summation, the amount of inventory in the supply chain continues to grind some modes of transportation to a halt, putting a heavy burden on available capacity, and driving up prices.

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) issued this report today.

Results Overview

The LMI score is a combination of eight unique 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 supply chain professionals collected in January 2021. As we have seen for most of the last eight months, January's LMI displays continued, expansion in the logistics industry.

⁶ Smith, J., & Ziobro, P. (2021, January 25). UPS to Sell Freight Trucking Business to TFI for \$800 Million. Wall Street Journal. https://www.wsj.com/articles/ups-to-sell-freight-trucking-business-to-tfi-for-800-million-11611592797

⁵ Torry, H. (2021, January 28). U.S. Economy Shrank in 2020 Despite Fourth-Quarter Growth. *Wall Street Journal*. https://www.wsj.com/articles/us-gdp-economic-growth-fourth-quarter-2020-11611802382

⁷ Tita, B. (2021, January 24). Manufacturing Rebound Has Suppliers Struggling to Keep Up. *Wall Street Journal*. https://www.wsj.com/articles/manufacturing-rebound-has-suppliers-struggling-to-keep-up-11611484202

⁸ Ho, J. (2021, February 1). Profits, costs up for package delivery companies. Marketplace. https://www.marketplace.org/2021/02/01/shipping-company-profits-and-costs-have-increased-amid-pandemic-e-commerce-boom/

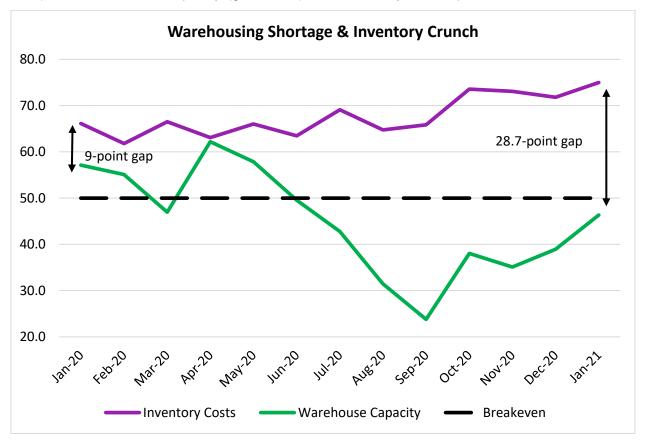
⁹ Strickland, Z. (2021, January 31). *Flatbed is making a comeback*. FreightWaves. https://www.freightwaves.com/news/flatbed-is-making-a-comeback

Overall, the LMI is up (+0.5) from December's reading of 66.7. It is important to remember that this is a rate of growth, and not overall growth, meaning the logistics industry still expanded significantly in January, if at a slightly slower pace than in October and November.

As mentioned above, Inventory has been a primary driver of the continued pace of growth. Inventory Levels are up (+5.7) to 62.5. This indicates significant levels of inventory growth, and is up 13.3 points from last January. The rate of inventory growth can be slow in January, as firms bounce back from the Q4 rush, but that does not seem to be the case this year as firms rush to work through the bottlenecks at ports and backlogs of inventory. The increase levels have led to increases in Inventory Costs, up (+3.2) to a 75.0, the highest level observed in two years of the index. It is possible that due to the lack of capacity, that inventory prices are increasing at an increasing marginal rate, meaning that each additional increase in inventory being held is leading to ever-increasing increases in the cost to hold it.

This crunch is reflected in Warehouse Capacity, which is down (-1.3) to 45.6. This is the ninth month since the start of the pandemic that capacity has contracted. Consistent with this dip are increases in Warehouse Utilization (+5.3) to 68.9 and Warehouse Prices (0.9) to 77.8, both of which are above the all-time average for those metrics and indicative of significant growth.

The relationship between the lack of capacity and increasing inventory prices is elaborated on in the figure below in which the rates of change in Inventory Costs (purple line) and Warehouse Capacity (green line) over the last year are presented.



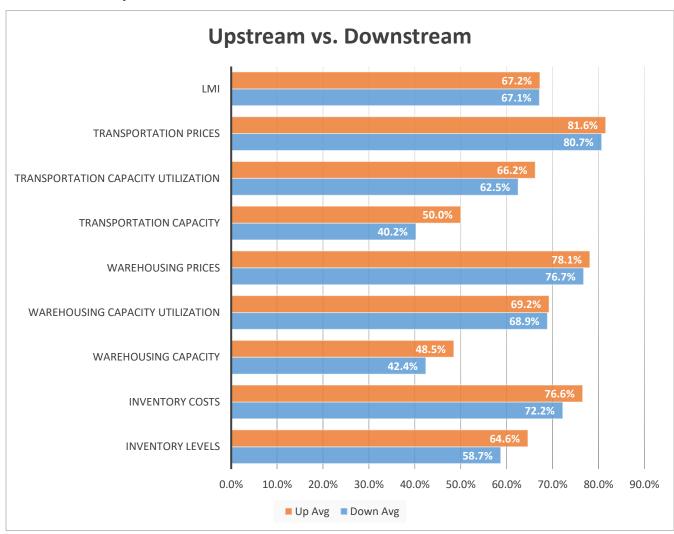
Any data point beneath the dotted black breakeven line indicates contraction, anything above indicates growth. In January of 2021, Inventory Costs were growing at a rate of 66.1 and Warehouse Capacity was increasing at a rate of 57.1, for a small, 9-point difference between the two. At the time new warehouses were coming online and providing some relief in cost pressures for firms. This shifted starting in mid-summer when available Warehouse Capacity cratered. Warehouse Capacity has decreased for eight consecutive months, making it increasingly more difficult, and expensive to store inventory. This lack of space means that the cost of holding inventory is increasing at a marginally increasing rate. Essentially, with the lack of capacity holding additional inventory becomes continually more expensive. This is demonstrated by the 28.7-point gap that now exists between the two metrics, with the cost of holding inventory continuing to increase at supply networks run out of places to store it.

Finally, January saw continued expansion in the transportation market. Capacity registered in at 46.3, a reduced rate of contraction (+7.3) from December, but still contraction. This marks eight consecutive months that available transportation has contracted month-over-month, with firms struggling to find sufficient capacity in sea, land, and air. The lack of capacity led to growth in Transportation Utilization which is reading in at 64.3, down 0.8 from December. Transportation Prices continue their torrid rate of increase, reading in at 81.0, the sixth consecutive month of growth in the 80's, which we would consider to be heightened rates of expansion. This stands in stark contrast to a year ago, when Transportation Prices read a 50.0, indicating no movement and tame prices, highlighting just how much the industry has shifted in the course of 12 months.

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. Six of the eight metrics show signs of growth, with both capacity metrics continuing their run of contraction. Inventory and warehouse metrics are up, and transportation is slightly down, but still growing at significant rates Overall, we are observing significant growth through the first month of 2021.

LOGISTICS AT A GLANCE						
Index	January 2021 Index	December 2020 Index	Month-Over-Month Change	Projected Direction	Rate of Change	
LMI®	67.2	66.7	0.5	Growing	Increasing	
Inventory Levels	62.5	56.8	5.7	Growing	Increasing	
Inventory Costs	75.0	71.8	3.2	Growing	Increasing	
Warehousing Capacity	45.6	46.9	-1.3	Contracting	Increasing	
Warehousing Utilization	68.9	63.6	5.3	Growing	Increasing	
Warehousing Prices	77.8	76.9	0.9	Growing	Increasing	
Transportation Capacity	46.3	39.0	7.4	Contracting	Decreasing	
Transportation Utilization	64.3	65.1	-0.8	Growing	Decreasing	
Transportation Prices	81.0	85.1	-4.1	Growing	Decreasing	

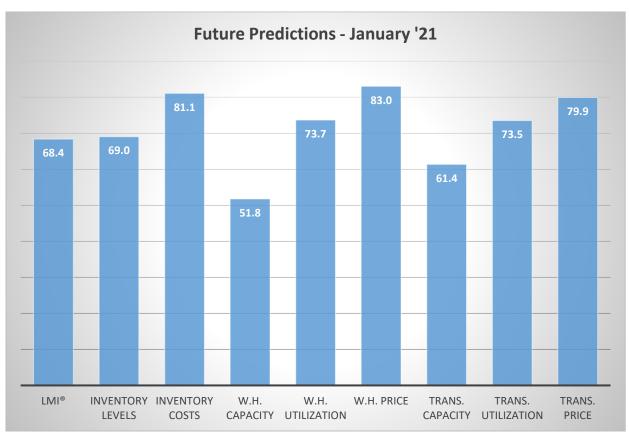
This month, both upstream and downstream firms reported significant continued growth in utilization of logistics services, albeit in somewhat different ways. Downstream firms such as retailers (represented by the orange bars) reported more robust growth across all eight metrics in January.



T-tests demonstrate a significant difference between the two in the change in available transportation capacity. Capacity continues to contract for downstream firms at a rate of 40.2, while it remains steady month-over month for upstream respondents at a rate 50.0. This suggests that firms closer to consumers are still struggling to procure transportation, while the difficulties felt by upstream firms have plateaued.

January '21	Inv. Lev.	Inv. Costs	WH Cap.	WH Util.	WH Price	Trans Cap	Trans Util.	Trans Price
Upstream	64.6	76.6	48.5	69.2	78.1	50.0	66.2	81.6
Downstream	58.7	72.2	42.4	68.9	76.7	40.2	62.5	80.7
Delta (abs)	5.9	4.3	6.1	0.3	1.4	9.8	3.7	0.9
Significant?	No	No	No	No	No	Marginal	No	No

Respondents were asked to predict movement in the overall LMI and individual metrics 12 months from now. Their predictions for future ratings are presented below. They predict that prices will continue to grow at high levels across the board. Respondents are optimistic that a significant amount of transportation capacity will come online, but are less bullish about movements in new warehousing capacity.



Interestingly, when asked to predict movement 12 months from now, upstream firms expect to hold significantly higher levels of inventory (by nearly 15 points) than their downstream counterparts. Whether this is due to the "catch-up" upstream firms are playing due to shipping backlogs, or perhaps a strategy tilted away from JIT driven by the shortages many firms experienced due to the pandemic remains to be seen. No matter the root of the cause, this disparity in inventory levels is worth keeping an eye on as it may lead to repercussions in the transportation and warehousing markets.

Future	Inv.	Inv.	WH	WH	WH	Trans	Trans	Trans
Readings	Lev.	Costs	Cap.	Util.	Price	Сар	Util.	Price
Downstream	61%	80%	51%	73%	81%	59%	74%	80%
Upstream	76%	82%	53%	75%	84%	63%	74%	81%
Delta (abs)	14.9%	2.3%	1.9%	1.7%	2.5%	4.5%	0.5%	0.9%
Significant?	Yes	No	No	No	No	No	No	No

Historic Logistics Managers' Index Scores

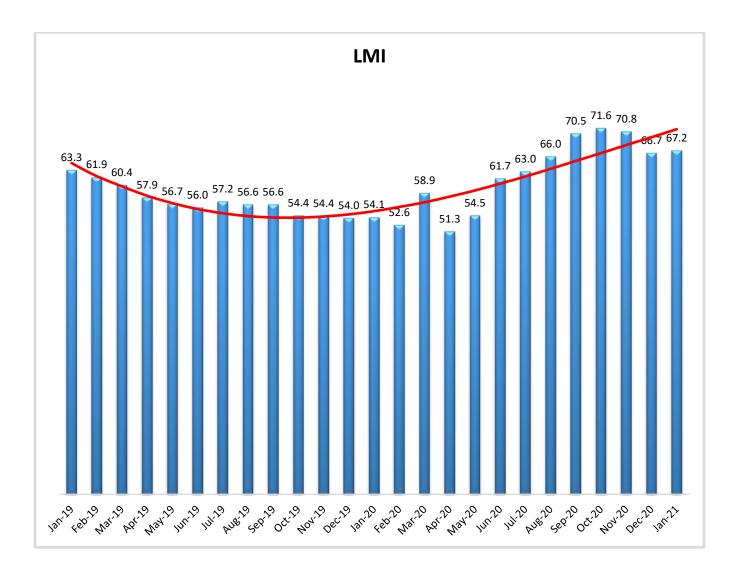
This period's along with prior readings from the last two years of the LMI are presented table below. The values have been updated to reflect the method for calculating the overall LMI:

Month	LMI	Average for previous readings – 62.4		
Jan '21	67.2	High – 75.7		
Dec '20	66.7	Low – 51.3		
Nov '20	70.8	Std. Dev – 6.37		
Oct '20	71.6			
Sep '20	70.5			
Aug '20	66.0			
July '20	63.0			
June '20	61.7			
May '20	54.5			
Apr '20	51.3			
Mar '20	58.9			
Feb '20	52.6			
Jan '20	54.1			
Dec '19	54.0			
Nov '19	54.4			
Oct '19	54.4			
Sep '19	56.6			
August '19	56.6			
July '19	57.2			
June '19	56.0			
May'19	56.7			
April '19	57.9			
March '19	60.41			
February '19	61.95			
January '19	63.33			

LMI®

The overall LMI index is 67.2, up (+0.5) from December's reading of 66.7. This breaks a streak of three consecutive readings above 70.0. This is driven by an increase in inventory and warehousing metrics, but tempered by a mild loosening in the rates of growth for transportation metrics. The reading of 67.2 is significantly higher than the index-average LMI score of 62.4.

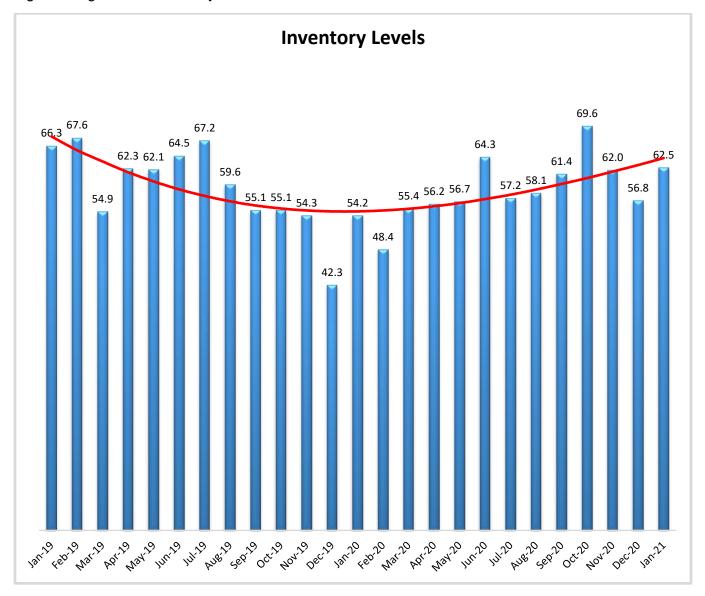
Respondents expect some loosening of capacity constraints but continue growth in prices over the next 12 months, leading to a future LMI prediction of 68.4, down slightly from December's future prediction of 69.8. This sentiment seems to be reflected by firms, as the logistics industry added 53,000 positions in December despite overall employment dropping by 140,000 jobs. Given this, it would seem that he logistics industry is primed to continue its steady rate of growth over the next 12 months.



Inventory Levels

The Inventory Level value is 62.5 up 5.6 points from December's reading of 56.8. The current value is considerably higher (8.3 points) than the same time last year, whether this is due to a move away from JIT by some retailers or firms struggling to catch up with the backlog coming in through the ports, or a combination of the two, is unclear. Upstream respondents returned a value of 64.6, compared to 58.7 for downstream respondents. Both represent growth in inventory levels, but upstream respondents are experiencing greater growth, by 5.9 points. This is the opposite from last month, when downstream values were 2.8 points higher than upstream. We see both upstream and downstream respondents reporting growth, but upstream is still growing slightly faster.

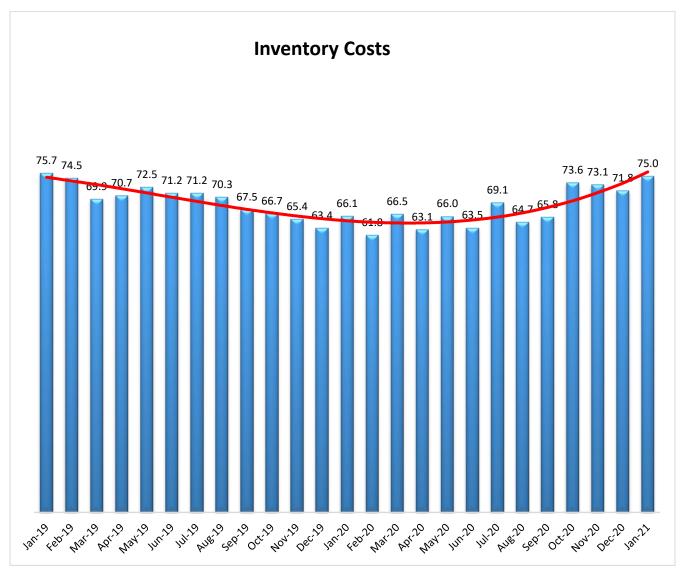
When asked to predict what conditions will be like 12 months from now, the average value is 69.0, down slightly (-2.2) from December's future prediction of 72.2., but still predicting a significant growth in inventory levels over the next 12 months.



Inventory Costs

Given the continued increases in inventory levels, it is not surprising that inventory costs have continued to increase. The current value is 75.0 up (+3.2) from the previous reading of 71.8. This is also above the long-term average of 70.0 and 8.9 points above the value last year at this time, all of which is indicative of the pressure firms are currently under in terms of higher-than-normal inventory and the lack of space in which to store it. This is not limited to one sector of the economy as both upstream and downstream inventory costs are continuing to increase significantly. Given the significant increase in inventory levels seen above, and consistent increases in warehousing costs, it seems quite likely that inventory costs will continue to rise this year.

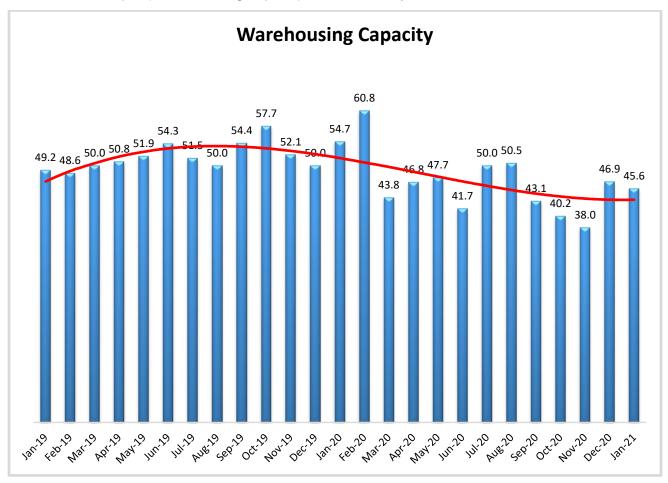
Responses from participants seem consistent with this hypothesis. When asked about what they expect inventory costs to be like 12 months from now, the index value is 75.0, down slightly (-1.6) from December's future prediction of 76.6, but still reflecting significant levels of growth.



Warehousing Capacity

The Warehousing Capacity Index registered 45.6 percent in January 2021, which means that warehouse capacity is still below the 50 percent mark for the fifth consecutive month, indicating contraction in this space. This is down rather modestly from last month, showing a 1.3-point decline. In addition, this reading is sharply down by over 9 percentage points from the reading one year ago (January 2020 registered in at 54.7). Previous predictions from the LMI reports indicated that "as the tensions of the holiday season ease more capacity is being brought back online. If this continues, warehousing capacity may rebound to more normal levels seen in the pre-pandemic landscape". While this is directionally true (i.e. increased levels from October & November 2020), we are still off the mark from one year ago. This is likely due to the shift in consumer behavior as a result of the pandemic, in addition to the bet that many e-commerce retailers are making with respect to future growth. The forthcoming months will indicate whether or not this prediction is accurate.

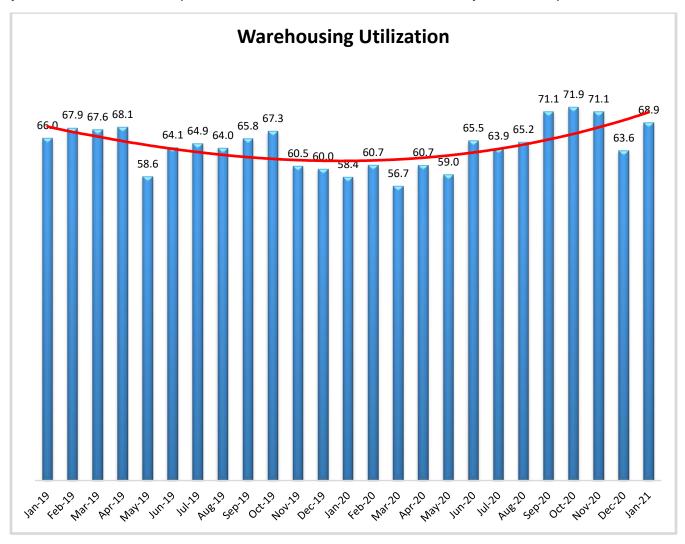
Looking forward at the next 12 months, the predicted Warehousing Capacity index is predicted to increase slightly with a score of 51.8, essentially unchanged (-0.1) from December's future prediction of 51.9, The future predictions of the last 3 months have hovered around 50, indicating that respondents expect available warehousing to roughly maintain status quo (i.e. not enough space) over the next year.



Warehousing Utilization

The Warehousing Utilization Index registered 68.9 percent in January 2020. This represents a rather sizable 5.3 percentage point increase from last month, and is up rather dramatically by over 10 percentage points from the January 2020 reading of 58.4. This increase in the rate at which the utilization is increasing, coupled with the warehousing capacity dynamics provides evidence to suggest that the previous month's prediction that a market shift may occur could be coming to fruition. Should the trends and dynamics of the previous months continue to manifest in this way, the industry wide push towards ecommerce may be a permanent shift rather than a temporary reaction to market dynamics.

Looking forward at the next 12 months, the predicted Warehousing Utilization index is 73.7, up (+2.5) from December's future prediction of 71.2. This seems to support the notion that respondents do not expect significant amounts of warehousing to come online in the next year, and therefore anticipate the need to utilize more of the currently available space.



Warehousing Prices

Warehousing Prices Index registered 77.8 percent in January 2021. This reading represents a rather negligible increase of just under 1 percentage point from last month, which (though marginally) breaks downward trend in the increased growth rate in warehousing prices amid the COVID-19 disruption(s), and previous holiday season preparations. This reading is also up by nearly 8 percentage points from the reading one year ago. Previous predictions focused on the increase in utilization, and decrease in capacity to suggest that there would continue to be an upward pressure on pricing. Indeed, that the pricing index for warehousing have been above 60% (i.e. vastly increasing rates) since May of 2020 suggests that the observations from previous reports are not anecdotal, but rather that such trends can be expected for some time to come. Largely, we expect that the consumer behavioral shift towards e-commerce has resulted in firms increasing their safety stock footprint in warehouses, thereby increasing the rate at which utilization is increasing. Necessarily, this places upward pressure on pricing. Should this trend continue, much more warehouse capacity needs to come online for pricing to come down.

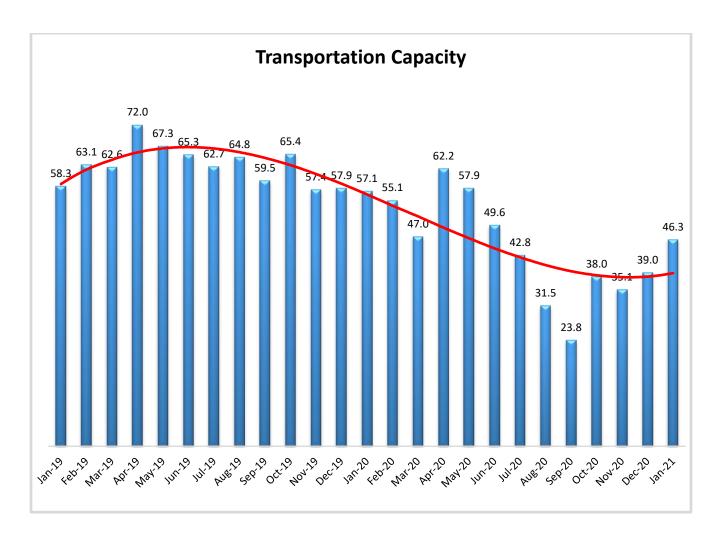
Future predictions suggest that respondents are expecting prices to continue to grow at a rate of 83.0, a negligible increase (+0.1) from December's future prediction of. With the anticipated shortage of capacity, respondents are anticipating that costs will continue to increase significantly over the next 12 months.



Transportation Capacity

The Transportation Capacity Index registered 46.3 percent in January 2021. This constitutes an increase of 7.3 percentage points from the December reading of 39.0. Although we have an upward trend, the Transportation Capacity Index is still under 50 indicating contraction of capacity for the eighth consecutive month. This is consistent with recent news reports indicating that firms are struggling to find the trucks, ships, and now planes necessary to meet consumer demand. Finding sufficient transportation continues to be an issue for many firms (particularly customer-facing firms), the seven lowest scores for the last two years in the Transportation Capacity index have come in the last seven months. It will be interesting to see if this metric ticks back towards expansion, as respondents believe more capacity will be coming online at some point over the next year.

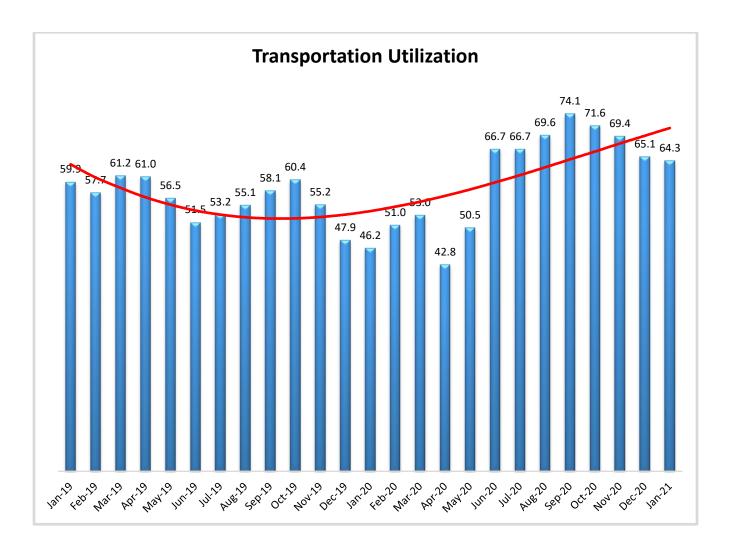
Future predictions suggest that respondents are expecting capacity to increase fairly significantly over the next year at a rate of 61.4, down slightly (-1.4) from December's future prediction of 62.8. Whether or not sufficient capacity will come online over the next year, to make this prediction a reality, remains to be seen.



Transportation Utilization

The Transportation Utilization Index registered 64.3 percent in January 2021. This number denotes a small .8 points decrease from the December reading of 65.1 and a 9.8 points drop from the recent high registered in September 2020. This fourth consecutive drop continues the slight downward trend in Transportation Utilization Index. While the Transportation Utilization Index remains above 50, indicating expansion in transportation utilization, the rate of expansion continues to decrease slightly.

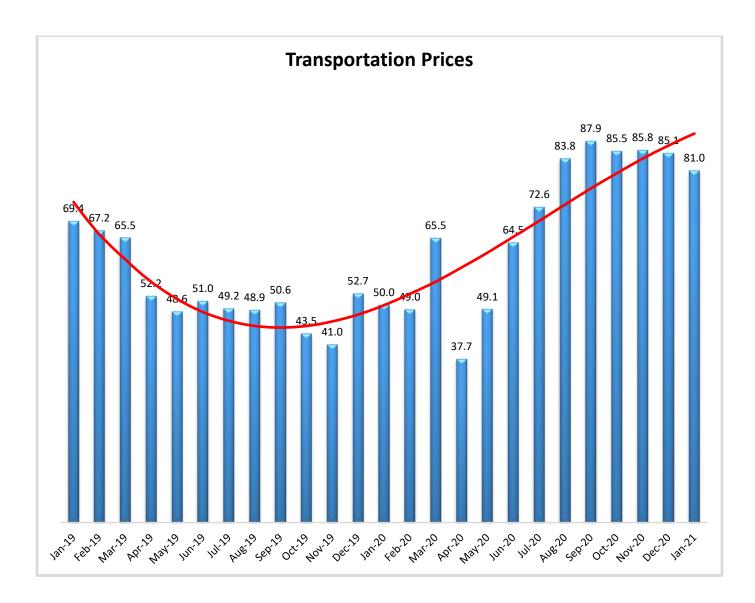
It should be noted that the future Transportation Utilization Index shows a value of 73.5, up (+5.5) from December's future prediction of 68.0. The anticipation of continued growth in utilization suggests that firms will continue to struggle to locate necessary capacity through the rest of the year.



Transportation Prices

The Transportation Prices Index registered 81.0 percent in January 2021. This constitutes a decrease of 4.1 percent from the December transportation prices reading of 85.1, continuing to indicate increasing transportation prices. This indicates that the strong upward pressure on transportation prices that gained momentum in the fall months of 2020 is still relatively strong, with the last six months having the highest Transportation Prices Index levels recorded over the last two years. It would be interesting to see if the slight downward trend continues in the next few months or if the pressure on transportation prices stays elevated.

Transportation Prices will likely remain elevated in the near future. When asked to predict Transportation Prices one year from now respondents reported a growth rate of 79.9, up (+2.3) from December's future prediction of 77.6. Even with more capacity coming online over the next year respondents continue to predict strong price growth 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, Diffusion Index = 0.0 * 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. It is authored by Zac Rogers Ph.D., Steven Carnovale Ph.D., Shen Yeniyurt Ph.D., Ron Lembke Ph.D., and Dale Rogers Ph.D.