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FOR RELEASE: Tuesday, June 1st, 2021

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May 2021 Logistics Manager's Index Report®

LMI® at 71.3

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

Warehousing Capacity and Transportation Capacity are CONTRACTING

(Fort Collins, Colorado) — The tightness that has been observed in the logistics industry over the last 10 months continued unabated in May 2021. This month's LMI comes in at 71.3. While this is down (-3.2) from April's reading of 74.5, it still indicates a significant rate of growth. This is the seventh of the last nine to reach the 70's, all of which have been well above the all-time average of 63.3. The strains of this continued rate of growth is being felt most acutely on price metrics, which continue to grow at a meteoric pace. There is also

significant evidence that these prices are being keenly felt by consumers, who are currently experiencing high prices in everything from electronics, to lumber, to food, and gasoline¹. This is a far cry from this time last year, when available capacity was high, prices were low, and the LMI registered in at 54.5.

This hard shift in economic activity is akin to going from standing still to a full sprint, and as would be expected, it has put tremendous pressure on supply chains. Many supply networks are currently suffering from the phenomenon known as the “bullwhip effect” in which smaller variations in demand at the consumer level lead to wild swings further up the chain. The effects of this are apparent in the ongoing lack of warehouse capacity reported by respondents in May, as inventory rushes in and retailers struggle to keep products on shelves².

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 May 2021. As we have seen for most of the last year, May’s LMI displays continued expansion in the logistics industry. Overall, the LMI is up down slightly (-3.2) from April’s reading of 74.5 (which was the second-highest in the history of the index). It is important to point out that because the LMI is a change index, this does not mean the logistics industry is slowing down, merely that the rate of growth has slightly decreased. This continued rate of growth is largely due to the ongoing tightness in capacity, growth in utilization of what capacity is available, and the subsequent increase in costs across the board.

The demand for products in-store has increased significantly as the economy has reopened. At the same time, the COVID-fueled spike in ecommerce has shown little sign of abating. This has led to a heightened first quarter for parcel carriers: UPS saw volumes up 12.8% year-over-year in Q1, and domestic carriers like LaserShip and OnTrac saw 58% and 34% annual revenue increases respectively. Previously, FedEx had predicted that 100 million packages would ship every day in the U.S. starting in 2026, that timeline has now

¹ Egan, M. (2021, May 25). Inflation is back. Biden should be worried. *CNN Business*.

<https://www.cnn.com/2021/05/25/business/inflation-economic-growth-biden/index.html>

² Maidenberg, M. (2021, May 27). Retailers Race to Keep Kayaks and TVs in Stock. *Wall Street Journal*.

<https://www.wsj.com/articles/retailers-race-to-keep-kayaks-and-tvs-on-shelves-11622135459>

been moved up to 2022³. Predictably, this has put a strain on available Transportation Capacity. May 2021's Transportation Capacity reads in at 32.7, down slightly (-0.5) from April's already-low rates of 33.2. As one would expect given the pressure on parcel delivery, this number is even lower for downstream respondents, registering in at 26.0. The lack of capacity has let the FreightWaves' outbound tender rejection index to hover around 25%, (reefer rejection rates are even higher reading in at 41%)⁴. The capacity crunch has proven difficult to shake as carriers are constrained both by a lack of trucks and a lack of drivers to operate them. As reported last month, the backlog of class-8 trucks remains at a record level. This is largely due to a lack of materials needed to manufacture trucks.

Semiconductors are at the top of the list of missing components. Unfortunately, Intel CEO Pat Gelsinger recently told a trade show that it may be "a couple of years' before production can adequately handle demand⁵. This is especially tough on auto-manufacturers are "at the back of the line" for chips and semiconductors, which will likely delay production even further⁶. Truck drivers remain difficult to hire for a number of reasons, including the lack of students coming out of truck driving schools during COVID, the crackdown on drivers through the Drug & Alcohol Clearinghouse, ongoing unemployment benefits and heightened levels of savings built up during COVID⁷. The desperation for truck drivers is getting to the point where multiple carriers are offering salaries well-above \$200 thousand⁸. All of this has led Transportation Utilization and Transportation Prices to continue increasing. The rate of growth for Transportation Utilization has slowed (-5.8) to 66.1, but remains well above the all-time average of 63.4. Transportation Prices are down very slightly (-1.4), but continue their torrid rate of growth at 91.2. The average rate of growth for Transportation Prices is 70.4, and any number in the 90's indicates a furious rate of change. This growth is partially due to the increased reliance on the spot-market, and the high prices (up 50% for flat-bed, dry van, and reefer year-over-year) that come with it⁹.

³ Frantz, G. (2021, May 27). The new parcel reality: Record volumes, tight capacity, higher costs, inconsistent service. *DC Velocity*. <https://www.dcvelocity.com/articles/51028-the-new-parcel-reality-record-volumes-tight-capacity-higher-costs-inconsistent-service>

⁴ Cox, A. (2021, May 28). *Tender rejections moving atypically prior to holiday*. FreightWaves. <https://www.freightwaves.com/news/tender-rejections-moving-atypically-prior-to-holiday>

⁵ Reuters. (2021, May 31). *Intel reiterates chip supply shortages could last several years*. Reuters. <https://www.reuters.com/technology/intel-reiterates-chip-supply-shortages-could-last-several-years-2021-05-31/>

⁶ Shein, E. (2021, May 28). *The global chip shortage: What caused it, how long will it last?* TechRepublic. <https://www.techrepublic.com/article/the-global-chip-shortage-what-caused-it-how-long-will-it-last/>

⁷ Cox, A. (2021, May 28). *Tender rejections moving atypically prior to holiday*. FreightWaves. <https://www.freightwaves.com/news/tender-rejections-moving-atypically-prior-to-holiday>

⁸ FreightWaves. (2021, May 31). *Driver Jobs in Fort Collins, CO*. FreightWaves.Careers. <https://freightcareers.freightwaves.com/jobs/search/driver?d=&l=Fort+Collins%2C+CO&lat=40.5447&long=-105.1069&q=>

⁹ DAT. (2021, May 31). *Trucking Industry Trends: May 17-23, 2021*. DAT. <https://www.dat.com/industry-trends/trendlines>

The increase in transportation prices and strain in capacity is being felt across almost every mode of transportation. International shipping continues to be a bottleneck. Only 40% of ships are now arriving “on-time” at ports. Much of this is due to traffic at the ports, Vincent Clerk of Maersk recently stated that the time from port-to-port from Shanghai to Los Angeles has increased from 14 days to 33 days, with the entirety of the increase due to port congestion. This congestion is extending to other modes of transportation, delaying intermodal shipments and causing a chain reaction throughout supply chains¹⁰. The delays in intermodal shipments are combined with a continued recovery as total volume for Class I railroads is up 27.5% year-over-year. This is driven largely by intermodal volumes as well as some commodities like coal¹¹.

The strain in capacity is felt throughout the supply chain. Available Warehousing Capacity continues to contract at a rate of 48.3. The pressure to meet consumer demands when it comes to ecommerce, both on the forward and reverse logistics side, has led firms to both increase worker pay¹², as well as invest heavily in automation – sales of robotics are up 20% year-over-year – to increase productivity¹³. This has resulted high Warehousing Prices, with May’s reading of 83.1 second only to April’s record 83.5. As we observed with transportation, Warehousing Utilization is down (-2.8) from last month, but at 68.1, still growing at a significant rate. The building of new warehouses is constrained by available space in urban areas, as well as increased cost of building materials. Due to production delays and issues with transportation (at a 25% tender rejection rate low-value commodities are less appealing to ship), the cost of construction materials are up 30% year-over-year¹⁴, making the development of new warehouses an expensive proposition. Once again, we see the lack of logistics capacity directly influencing our ability to bring further logistics capacity online.

By far the most significant drop we see in May is in Inventory Levels, which are down (-8.0) to 58.7 – a rate that indicates growth but is actually below the all-time average of 60.9. This is the inverse of this time last year, when transportation and warehousing were slow, but inventories continued to build up due to COVID lockdowns. Today, with the economy opening up, consumer and industrial goods are moving quickly, and the rate of

¹⁰ Paris, C. (2021, May 18). Shipments Delayed: Ocean Carrier Shipping Times Surge in Supply-Chain Crunch. *Wall Street Journal*. <https://www.wsj.com/articles/shipments-delayed-ocean-carrier-shipping-times-surge-in-supply-chain-crunch-11621373426>

¹¹ Stifel. (2021). *Stifel Rail Weekly: 1% Sequential Decline No Cause for Concern* (pp. 1–17). Stifel. <https://stifel2.bluematrix.com/sellside/EmailDocViewer?encrypt=99021a80-a53c-45ce-bc1a-bdd57853849e&mime=pdf&co=Stifel&id=null&source=mail>

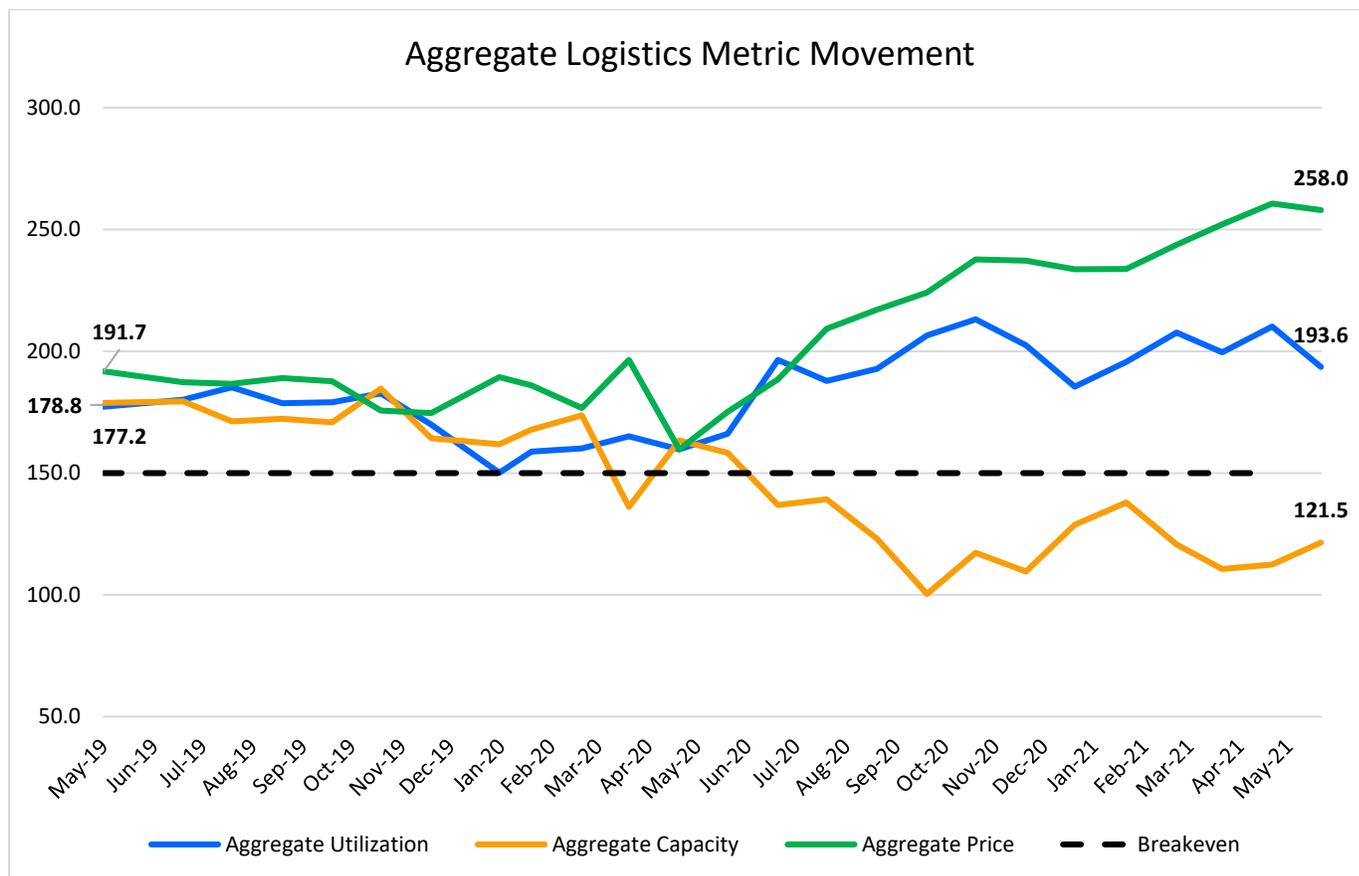
¹² Tappe, A., & Meyersohn, N. (2021, May 27). *Best Buy CEO: These 4 challenges are why it’s hard to hire workers right now*. CNN. <https://www.cnn.com/2021/05/27/economy/retail-workers-child-care-best-buy/index.html>

¹³ DC Velocity Staff. (2021, May 6). Robot sales soared in first quarter to second-best mark yet. *DC Velocity*. <https://www.dcvelocity.com/articles/50670-robot-sales-soared-in-first-quarter-to-second-best-mark-yet>

¹⁴ Grant, P. (2021, May 25). *Lumber Prices Are Through the Roof, Punishing Apartment Builders—WSJ*. *Wall Street Journal*. <https://www.wsj.com/articles/lumber-prices-are-through-the-roof-punishing-apartment-builders-11621944001>

inventory growth is decreasing. There is evidence that the inventory is turning over quickly as Inventory Costs are just off (-0.8) April's record high of 84.6, coming in at 83.8 in May. The increased costs throughout the supply chain are primary contributors to the increase rate of inflation currently being observed in the U.S. At this point, the spikes in price seem to have had little impact on the ongoing economic recovery. Publicly, the Biden administration is expecting these inflationary pressures to be a temporary "blip"¹⁵ (Egan, 2021). If this is correct then growth will likely continue; if it is incorrect then we might eventually see a slowdown in the recovery. At this stage however it is too early to know either way.

In the chart below, we attempt to tie this all together to better understand the big picture. This chart displays the aggregate readings of the price (green line), utilization (blue line), and capacity (orange line) readings, normalized on a scale of 0-300 (300 would be the max if all three price metrics came in at 100).



It is interesting that two years ago at this time there was not much daylight between our aggregate measures. Prices were at 191.7, capacities at 178.8, and utilizations at 177.2 – a spread of only 14.5 points – and all growing at fairly moderate levels. However, over the last two years utilization has increased, while capacity has struggled to keep up with demand, all of this has conspired to drive up aggregate supply chain costs. Whereas two

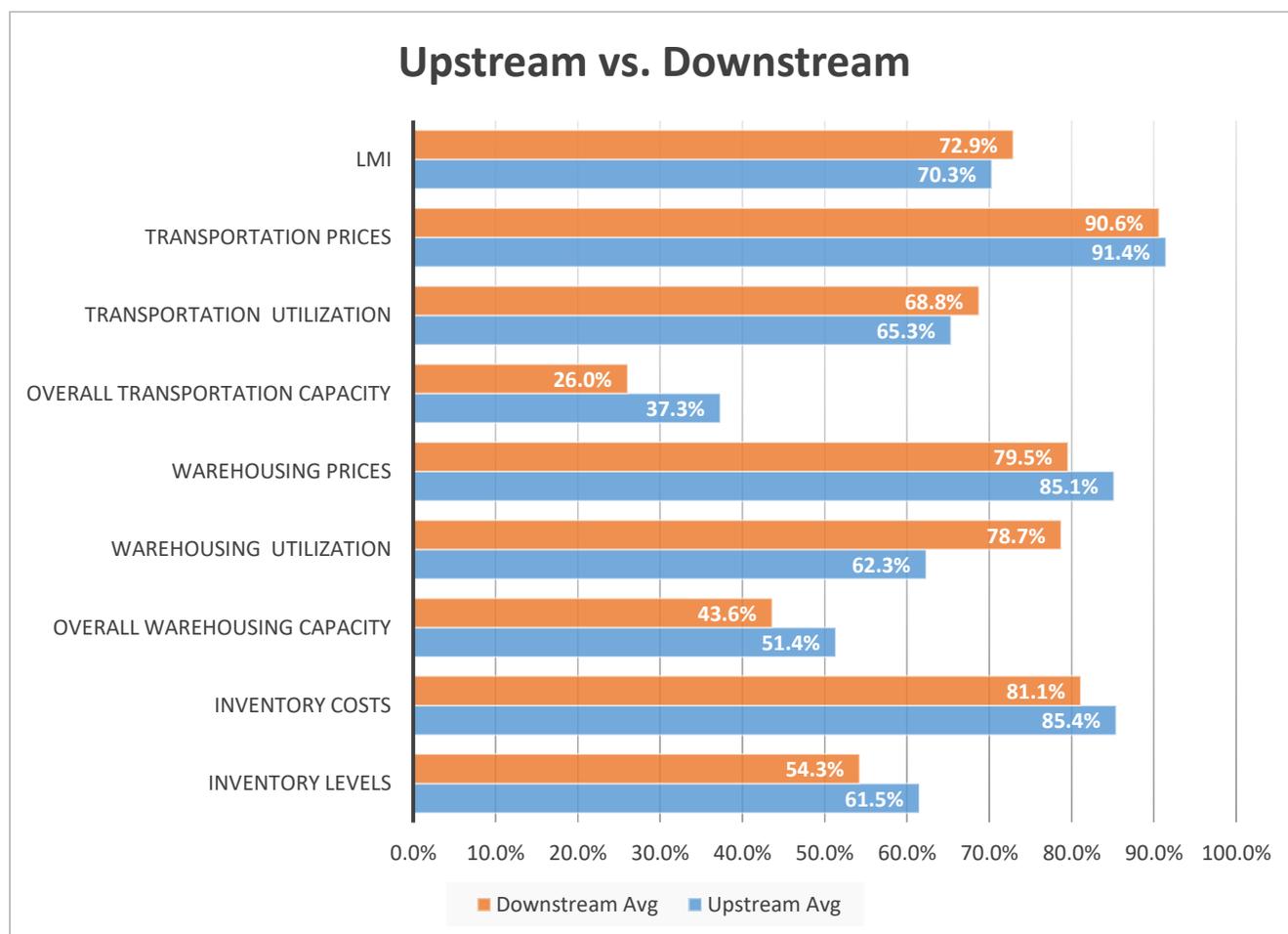
¹⁵ Egan, M. (2021, May 25). Inflation is back. Biden should be worried. *CNN Business*.
<https://www.cnn.com/2021/05/25/business/inflation-economic-growth-biden/index.html>

years ago we saw a 14.5-point spread between aggregate metrics, today it sits at 136.5 points between the furious growth of aggregate price, and the rapid contraction of available capacity. As long as the trends in this chart continue, there will be little relief for the pressures currently facing the logistics industry.

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, albeit at declining rates, while both capacity metrics continue their runs of contraction. The logistics industry remains tight, and based on future predictions and industry experts, seems likely to stay that way through the rest of the year.

LOGISTICS AT A GLANCE					
Index	May 2021 Index	April 2021 Index	Month-Over-Month Change	Projected Direction	Rate of Change
LMI®	71.3	74.5	-3.2	Growing	Decreasing
Inventory Levels	58.7	66.7	-8.0	Growing	Decreasing
Inventory Costs	83.8	84.6	-0.8	Growing	Decreasing
Warehousing Capacity	48.3	41.8	+6.5	Contracting	Increasing
Warehousing Utilization	68.7	71.6	-2.8	Growing	Decreasing
Warehousing Prices	83.1	83.5	-0.4	Growing	Decreasing
Transportation Capacity	32.7	33.2	-0.5	Contracting	Decreasing
Transportation Utilization	66.1	71.9	-5.8	Growing	Decreasing
Transportation Prices	91.2	92.6	-1.4	Growing	Decreasing

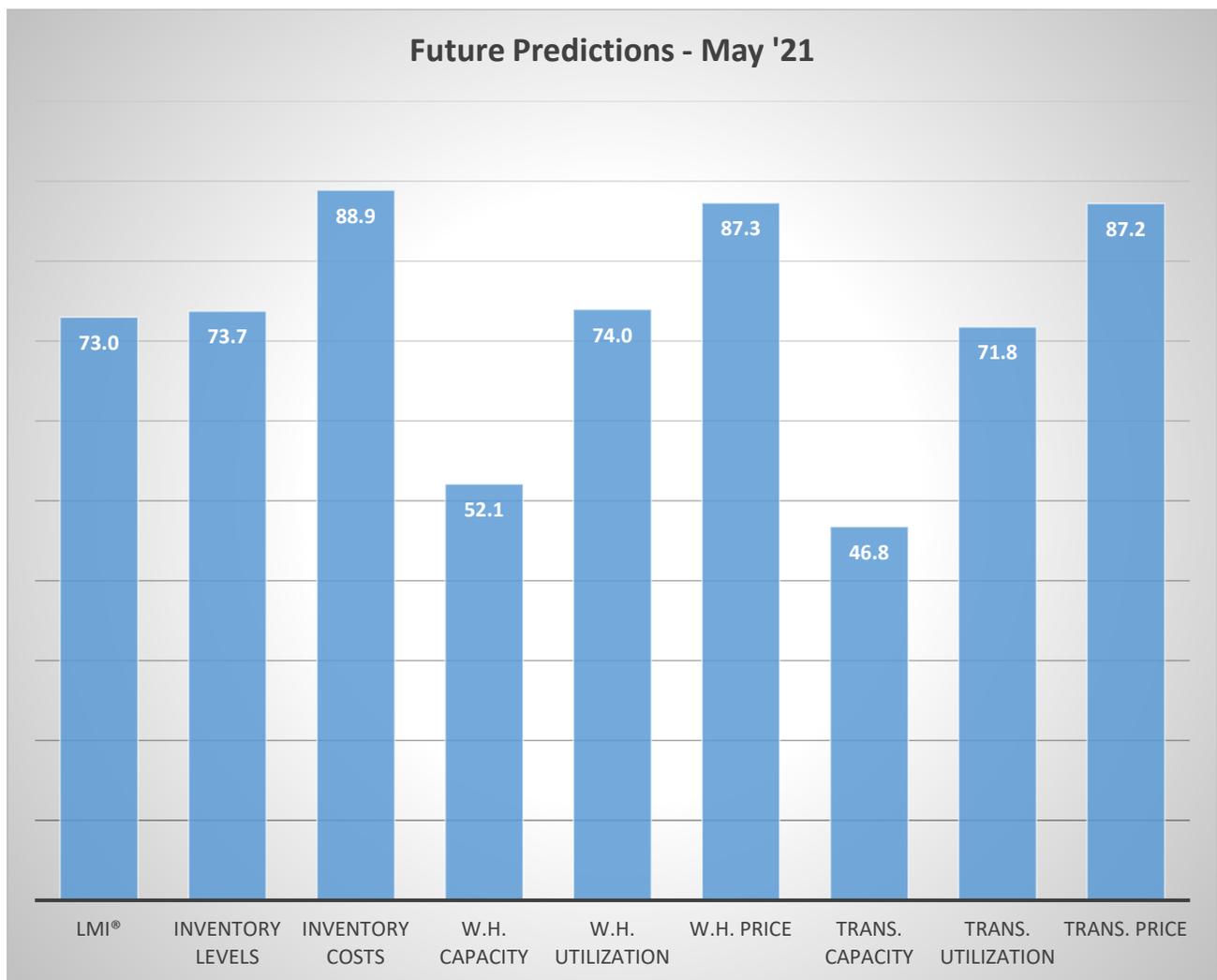
This month, both upstream (blue bars) and downstream (orange bars) firms reported significant continued growth in utilization of logistics services. We observed some differences in both available Transportation Capacity and Warehousing Utilization.



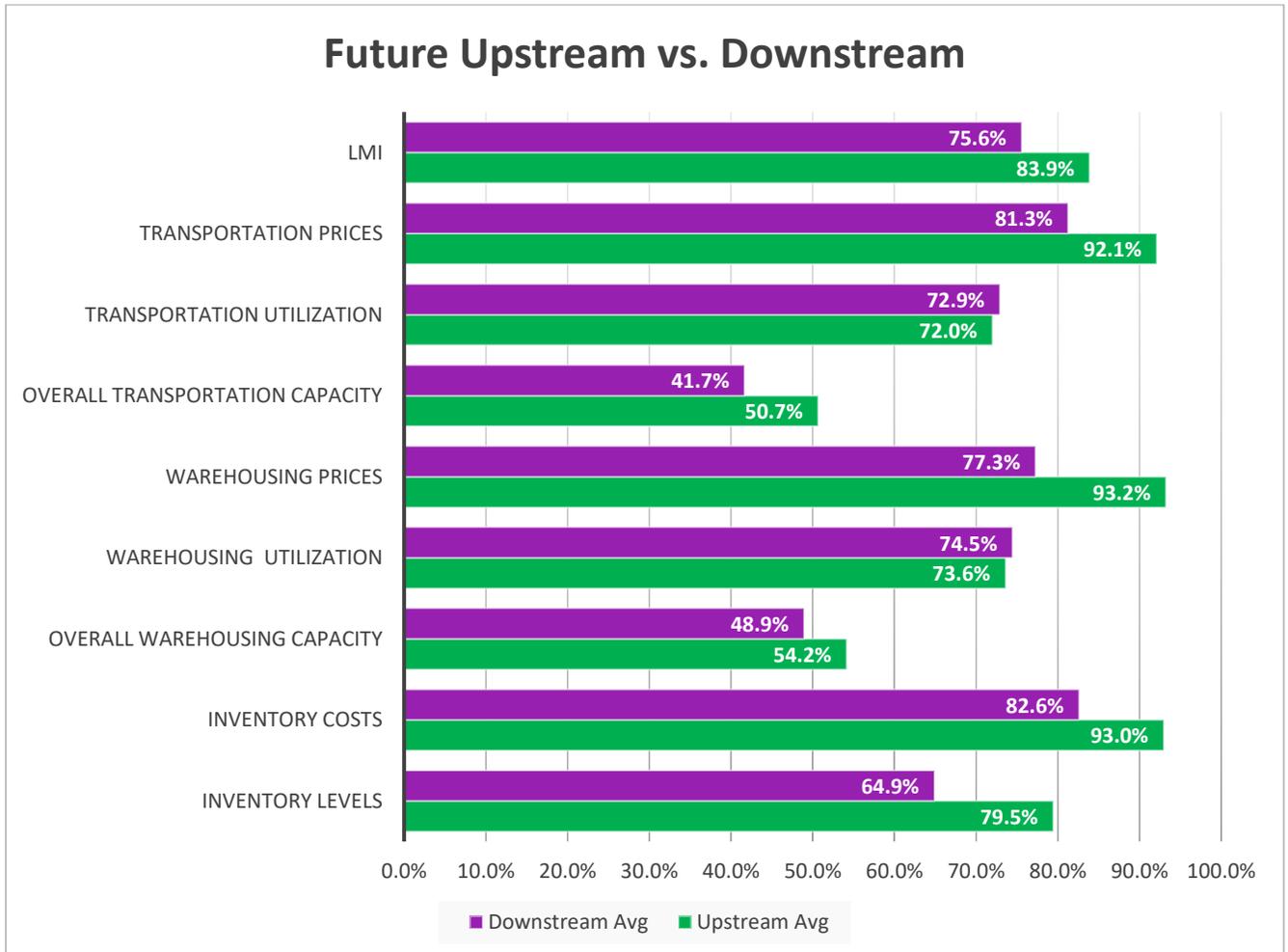
T-tests demonstrate that, for the second month in a row, downstream firms (orange bars) are reporting significantly lower rates of growth for Transportation Capacity (by 11.3 points). This likely reflects the difficulty caused by the overall shortage of drivers and class-8 trucks for delivery. On its own, the reading of 26.0 would be the second-lowest in the history of the LMI. Relatedly, downstream firms are also reporting significantly higher (+16.4) levels of Warehousing Utilization, as they are using more and more of the limited space available (particularly urban space that is close to consumers) as they deal with elevated demand.

May '21	Inv. Lev.	Inv. Costs	WH Cap.	WH Util.	WH Price	Trans Cap	Trans Util.	Trans Price
Downstream	54.3	81.1	43.6	78.7	79.5	26.0	68.8	90.6
Upstream	61.5	85.4	51.4	62.3	85.1	37.3	65.3	91.4
Delta (abs)	7.2	4.3	7.7	16.4	5.6	11.3	3.4	0.8
Significant?	No	No	No	Yes	No	Yes	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. For the next year, respondents predict a growth rate of 73.0 for the overall LMI. This is nearly 10 points above the all-time growth rate of 63.3 and if it comes to pass will represent a staggering rate of growth. As we have seen over the last few months, respondents are not optimistic about the level of capacity due to come online in the next year, predicting marginal growth in Warehousing Capacity (52.1) and contraction in available Transportation Capacity (46.8) – this does not mean there will be less trucks on the road, there will be more, just not enough to keep up with growth in demand. Reflecting this, respondents also predict significant levels of prices growth. In particular, their predictions for future growth rates for Inventory Costs (88.9) and Warehousing Prices (87.3) are the highest in the nearly 5-year history of the index. When combined with the prediction for Transportation Price growth (87.3) it is the highest predicted increase in the history of the LMI. This suggests that the trends displayed in the aggregate logistics metrics chart above may continue over the next 12 months.



Interestingly, we see some divergence from our upstream and downstream respondents when asked to predict future movements, as can be seen in the figure below:



Upstream firms (green bars) are predicting significantly higher levels of both Inventory Levels and Costs that their downstream counterparts (purple bars) over the next 12 months, potentially reflecting the issues we're currently seeing with firms struggling to move products and materials downstream towards customers. This is reflected in Upstream firms also predicting significantly high Warehousing and Transportation Prices. All three price metrics are in the 90's for Upstream firms representing significant rates of growth. Essentially, it seems that Upstream firms will bear the burden of the inventory that is currently congesting supply chains – and will apparently continue to – and are predicted to carry the load of much of the subsequent price growth.

Future Readings	Inv. Lev.	Inv. Costs	WH Cap.	WH Util.	WH Price	Trans Cap	Trans Util.	Trans Price
Downstream	64.9	82.6	48.9	74.5	77.3	41.7	72.9	81.3
Upstream	79.5	93.0	54.2	73.6	93.2	50.7	72.0	92.1
Delta (abs)	14.6	10.3	5.2	0.9	16.0	9.0	0.9	10.9
Significant?	Yes	Yes	No	No	Yes	Marginal	No	Yes

Historic Logistics Managers' Index Scores

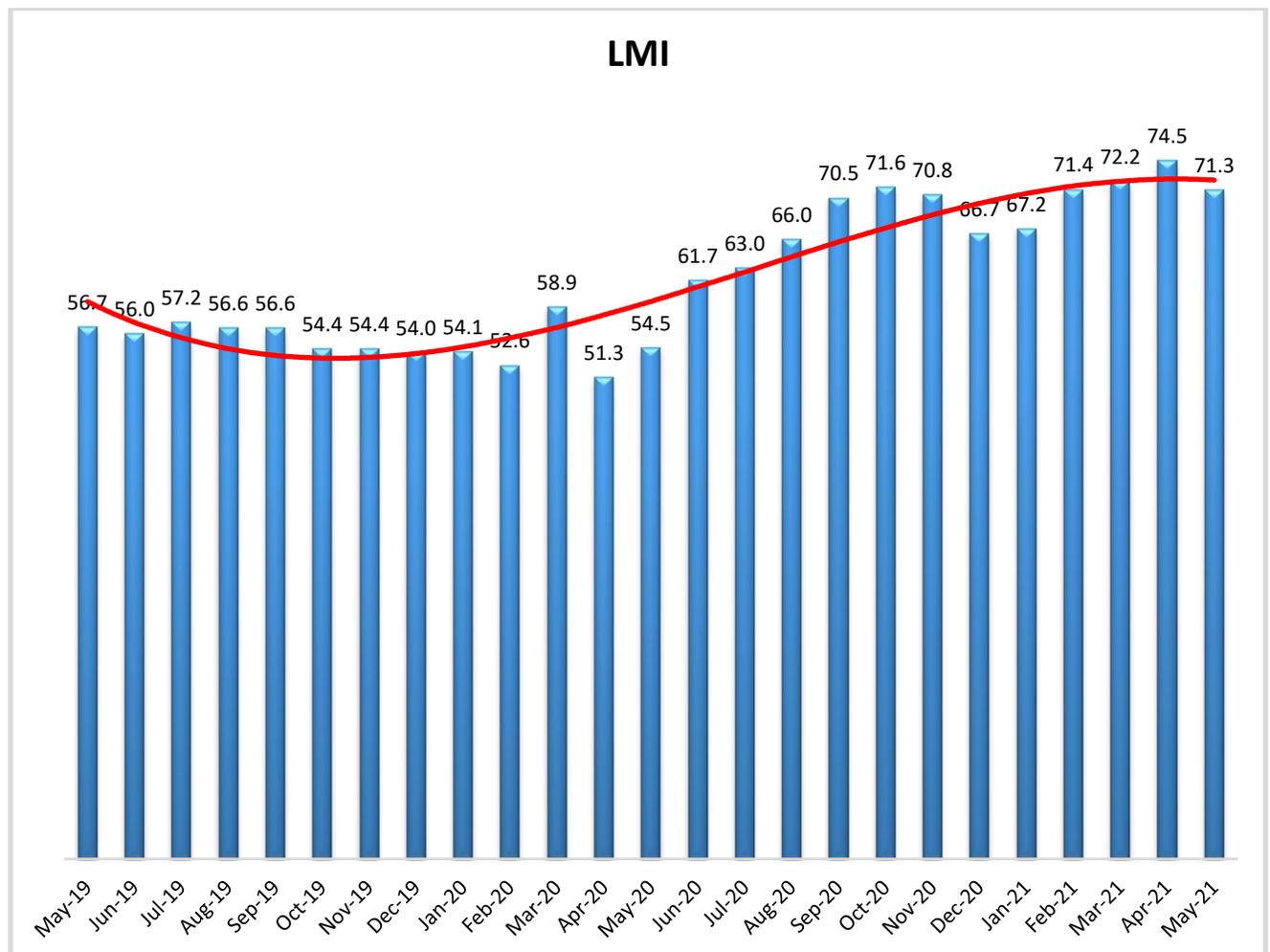
This period's along with prior readings from the last two years of the LMI are presented table below. The values have been updated to reflect the method for calculating the overall LMI:

<i>Month</i>	<i>LMI</i>	Average for previous readings – 63.3
May '21	71.3	High – 75.7
Apr '21	74.5	Low – 51.3
Mar '21	72.2	Std. Dev – 6.72
Feb '21	71.4	
Jan '21	67.2	
Dec '20	66.7	
Nov '20	70.8	
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	

LMI®

The overall LMI index is 71.3, down (-3.2) from April's reading of 74.5 – which was the second-highest reading in the history of the index. It is important to point out that because the LMI is a change index, this does not mean the logistics industry is slowing down, merely that the rate of growth has slightly decreased. The reading of 71.3 is still well-above the all-time average of 63.3, indicating that we are still in a state of elevated growth in the logistics industry. , up (2.3) from March's reading of 72.2. This is the highest score for the overall index in the last two years, and the second highest overall score in the history of the index. This represents a 16.8-point increase from May 2020's reading and is the fourth consecutive, and seventh out of the last nine reading in the 70's indicating an extended period of significant growth rates. As discussed above, the effects of this extended growth are being felt by nearly every sector of the U.S. economy.

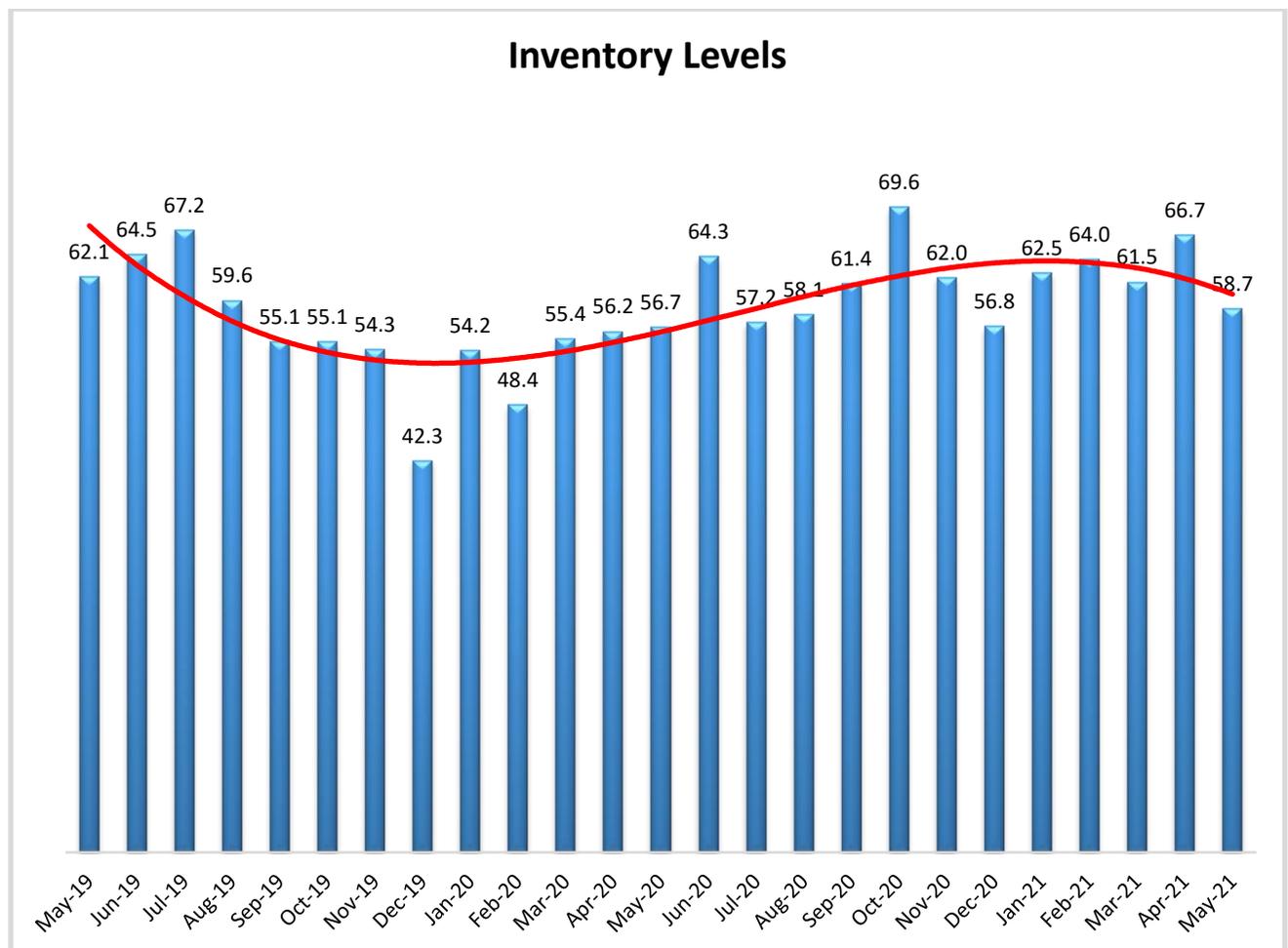
Respondents are not expecting much relief over the next 12 months, predicting a growth rate of 73.0, up slightly (+0.6) from April's future prediction. If this rate of growth does come to pass, there will be little price relief in the logistics industry over the next 12 months.



Inventory Levels

The Inventory Level value is 58.7, although this still indicates growth it is down significantly (-8.0) from April's reading of 66.7. This is 2.0 points higher than the same time last year, and 3.5 points lower than two years ago. The current reading is also above the all-time average value for this metric of 60.9. Since November of 2016, there has been a consistent trend of inventory growth (50 or higher), with only two values indicating a contraction in inventory levels.

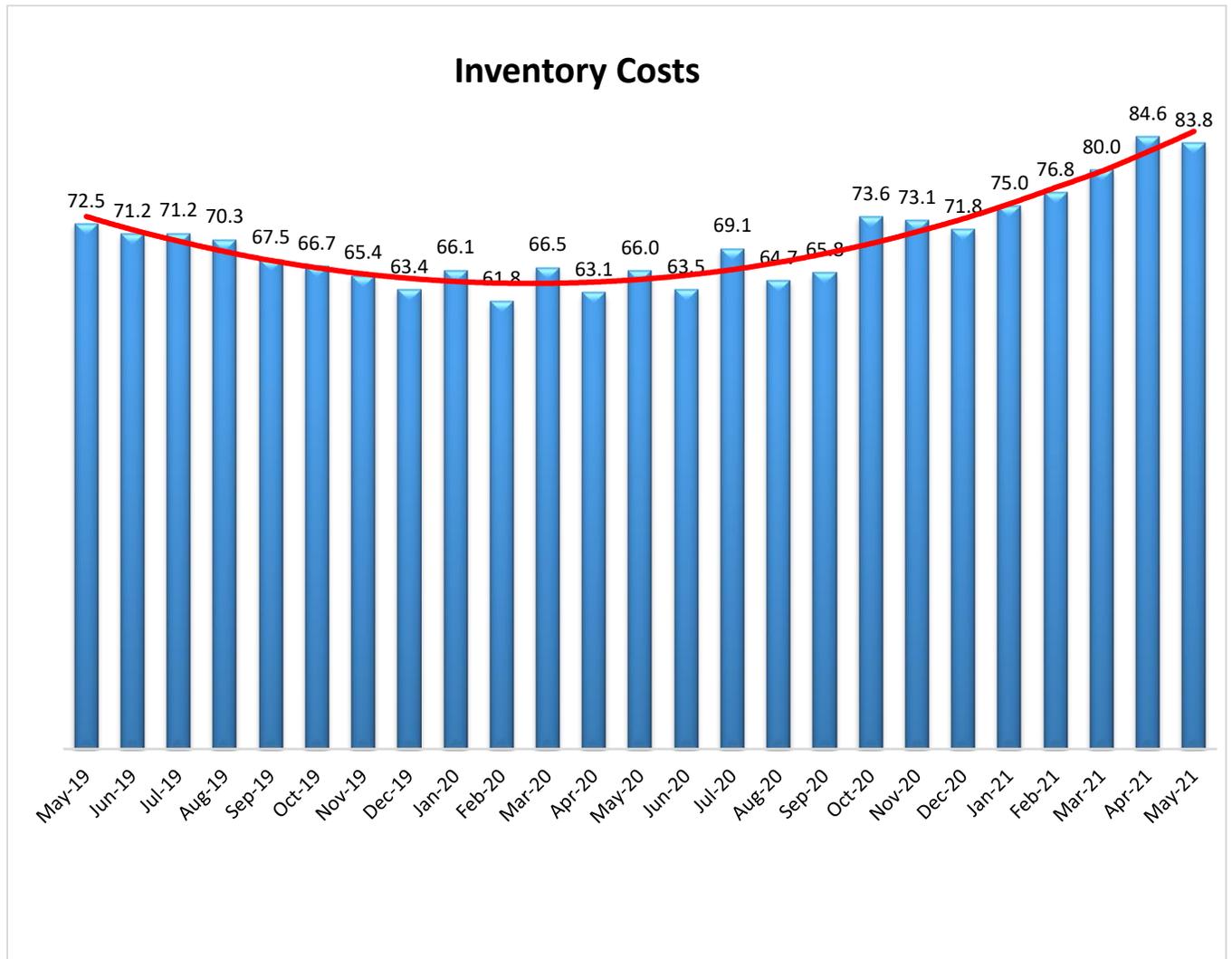
When asked to predict what conditions will be like 12 months from now, the average value is 73.7, a slight increase compared to last month's value of 73.2. This is also well above the current inventory index value of 58.7. Respondents expect inventory values to continue increase significantly over the next year. Upstream (79.5) are experiencing much faster increases in inventory than downstream (64.9) respondents.



Inventory Costs

Given the continued increases in inventory levels, it is not surprising that inventory costs have continued to increase. The current value is 83.8, down very slightly (-0.8) from April's value of 84.6. This month's reading is the second-highest of all time for this metric, second only to April's reading. In general, recent readings have been much higher than the long-term average of 70.8. The current value is 17.7 points above the value last year at this time, and 11.2 points above the value two years ago at this time, indicating significant change in the rates of growth over the last year.

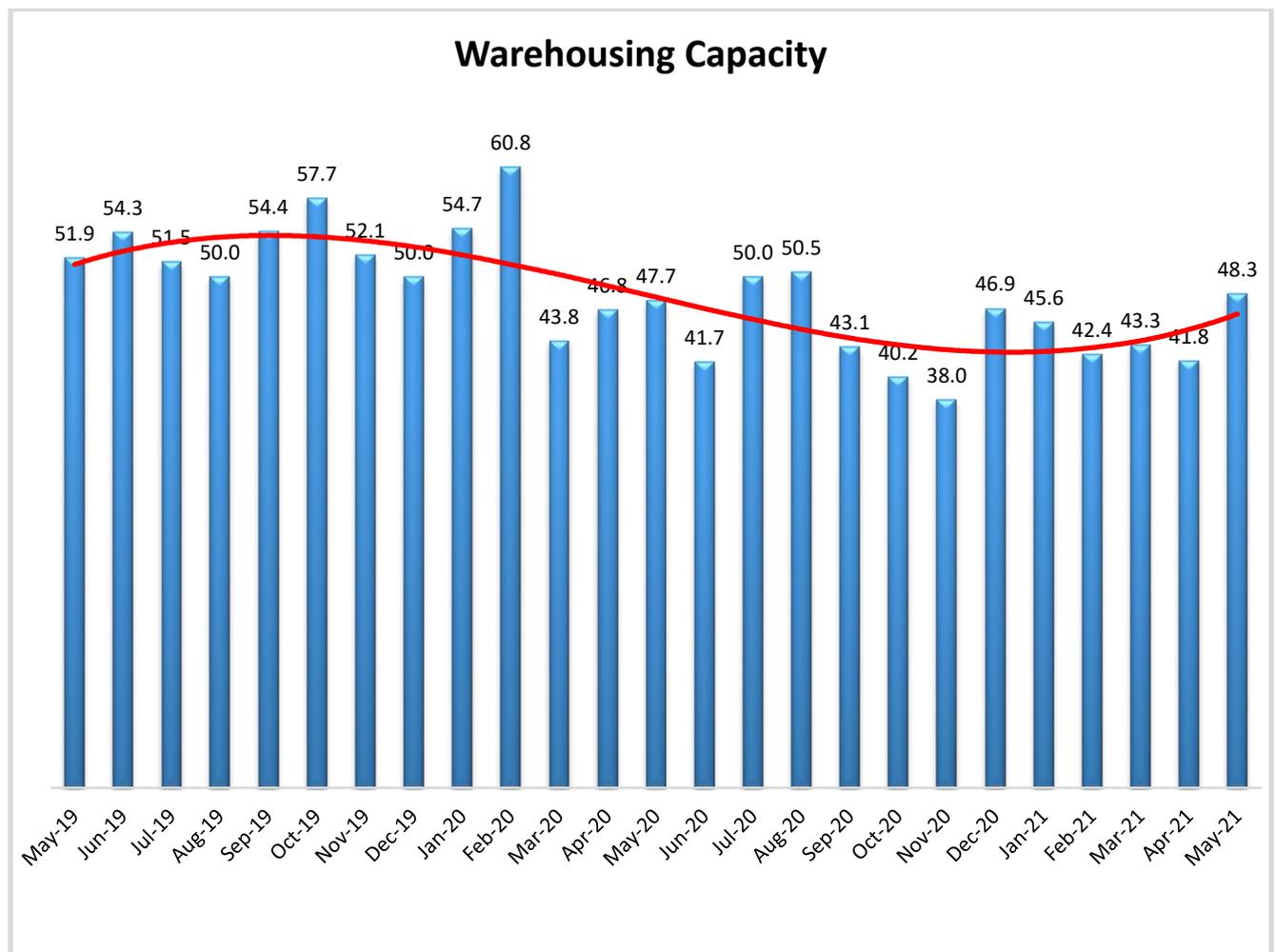
Responses from participants are consistent with this prediction. When asked about what they expect inventory costs to be like 12 months from now, the index value is 88.9, an increase from last month's value of 84.6. Upstream respondents (93.0) gave a higher expected growth rate than their downstream (82.6) counterparts. This value reflects expected continued inventory cost growth, and is significantly higher than the current inventory cost index value of 83.8. Respondents clearly expect inventory costs to continue to grow for the next 12 months.



Warehousing Capacity

May 2021's warehousing capacity registered in at 48.3 and reflects an increase from the previous month, though overall still in decline (still below the 50 percent mark, now for the 9th month in a row). Furthermore, it represents a break from last month's decline, which could be foreboding of increased capacity coming online. This result is down negligibly (<1 point) from the reading one year ago (May 2020 registered in at 47.7). Previous reports warned that pricing would be subject to continued increases unless additional capacity came online, and future months reading will indicate whether this warning was heeded or whether there is a decrease to the utilization overall on the network.

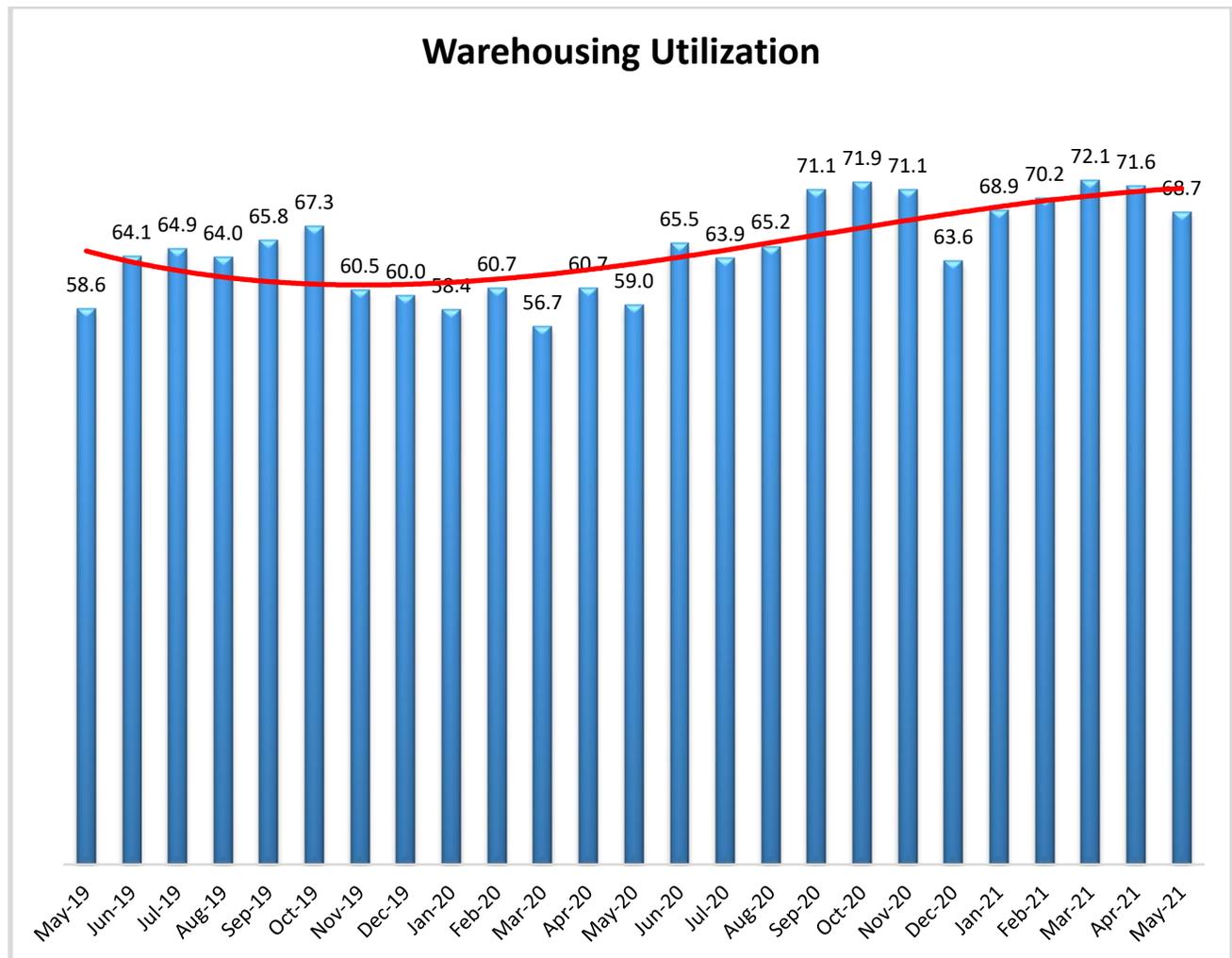
Looking forward at the next 12 months, the predicted Warehousing Capacity index is predicted to increase at a rate of 52.1, down slightly (1.1) from April's reading of 53.2. This indicates that respondents are not particularly hopeful regarding new storage facilities coming online.



Warehousing Utilization

The Warehousing Utilization Index registered 68.7 percent in May 2021. This represents a 2.9 percentage point decrease from last month, and is up dramatically by nearly 10 percentage points from the May 2021 reading of 59.0. This also represents a continuation of last month's decline in the warehousing capacity numbers. The decrease in the utilization may account for the increase in the capacity, but future data is necessary to tease out whether this is a factor of increased capacity coming online in the network. The interplay between utilization and capacity will be interesting to see in the coming months, particularly as it relates to pricing.

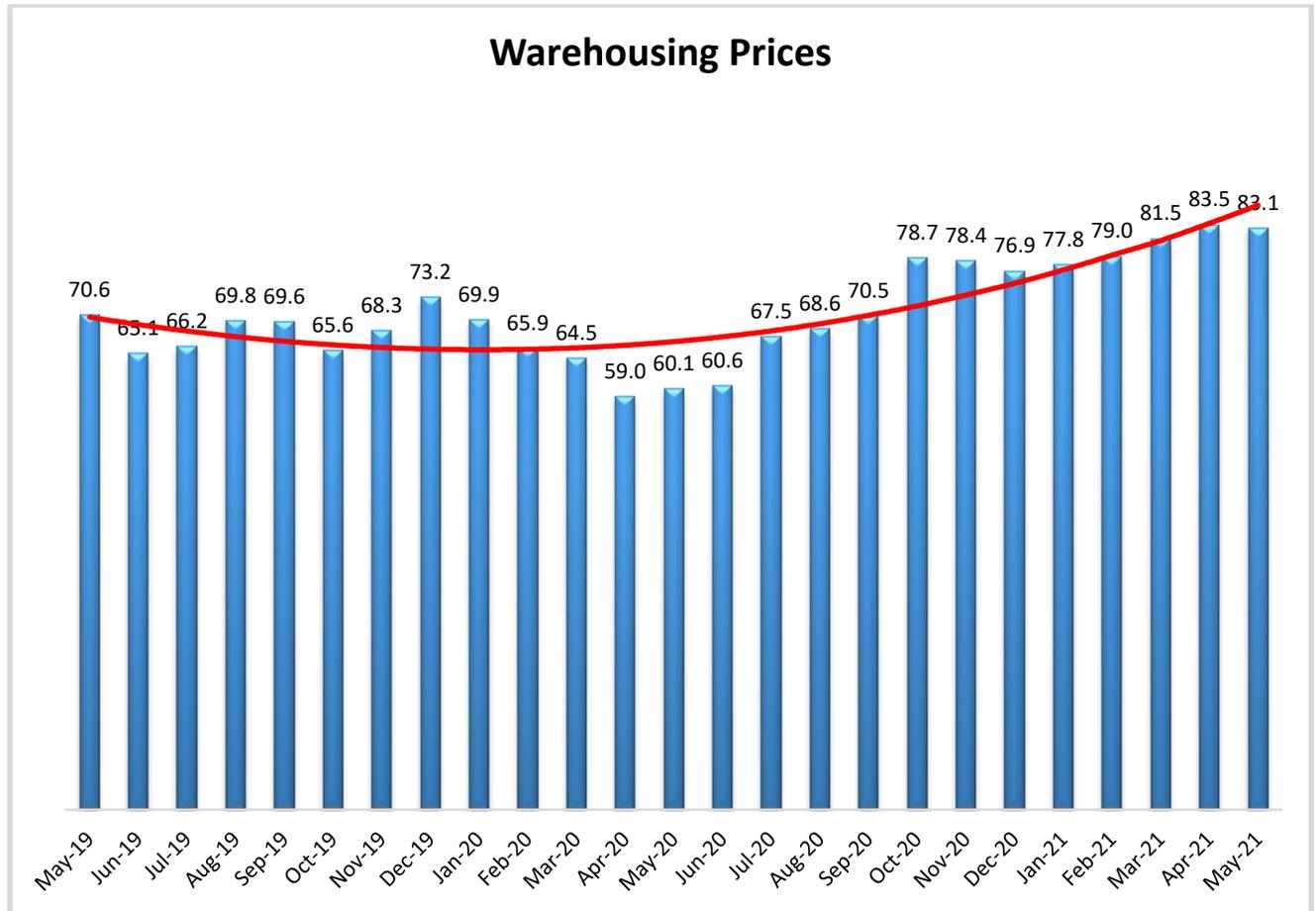
Looking forward at the next 12 months, the predicted Warehousing Utilization index is 74.0, down very slightly (-0/3) from April's future prediction of 74.3. Respondents expect to utilize increasingly greater amounts of available warehouse space throughout the year as supply struggles to keep up with demand.



Warehousing Prices

Warehousing Prices Index registered 83.1 percent in May 2021. This reading represents a minor decrease of .4 percentage points from last month, and breaks the trend in the (previously unrelenting) increased growth rate in warehousing prices amid the COVID-19 disruption(s). This reading, while effectively unchanged from last month, is up by an incredible 23 percentage points from the reading one year ago. Previous predictions boiled down to the decreased capacity, and in conjunction with the increases to the utilization, as being the primary drivers of such massive pricing increases. Effectively, more capacity coming online (or demand for e-commerce declining) is needed in order to have prices decline. While this month reflects the first sign of this potential market shift, more data is needed in order for our team to confirm that prices will be heading in the downward direction.

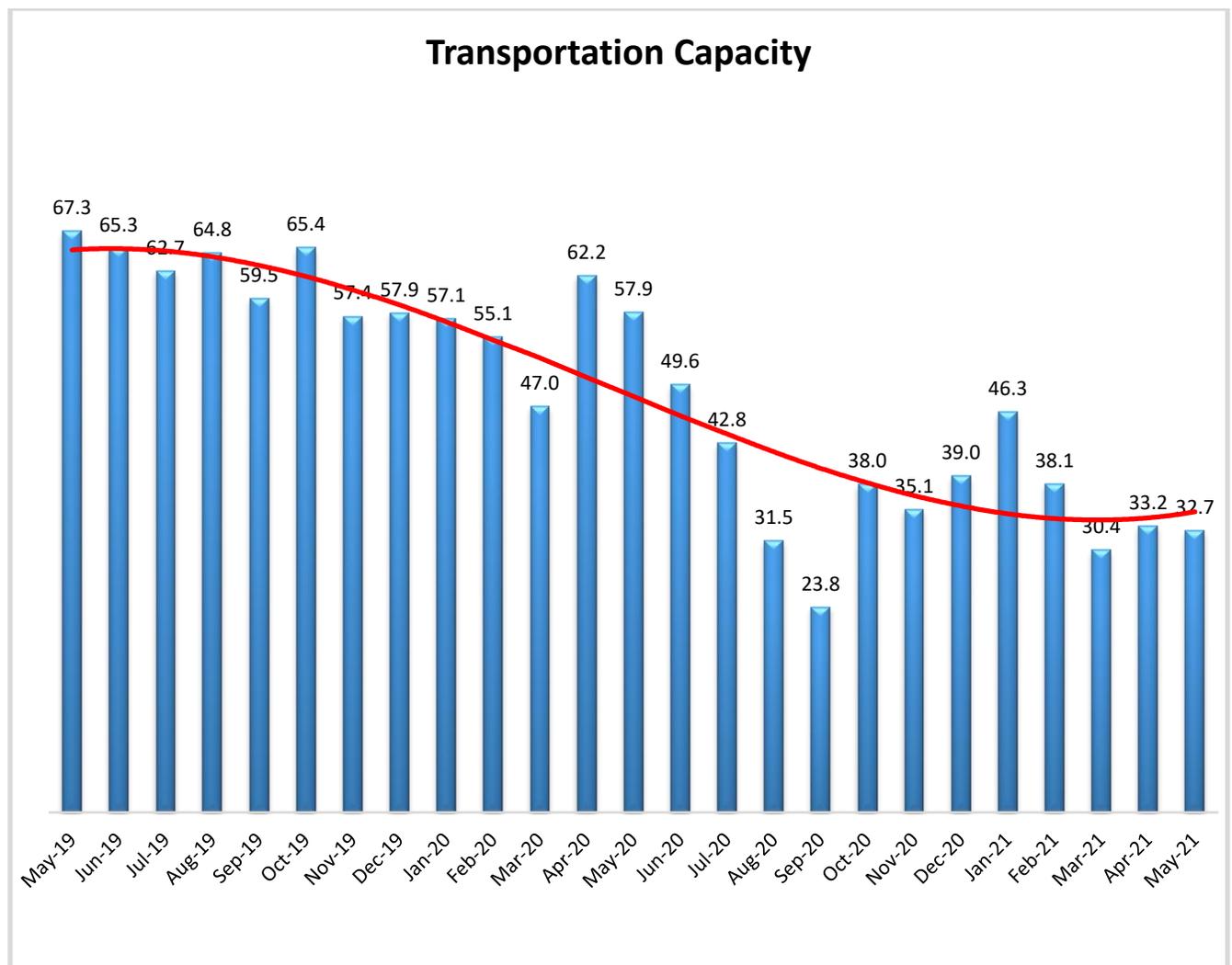
Future predictions suggest that respondents are expecting prices to continue to grow at a rate of 87.2, up (+3.1) from April’s future prediction of 84.1. It seems that given the low anticipated increase in capacity, respondents do not expect much relief through the rest of 2021



Transportation Capacity

The Transportation Capacity Index registered 32.7 percent in May 2021. This constitutes a slight decrease (-0.5) from April's reading of 33.2. The Transportation Capacity Index remains historically low, indicating continued downward pressure on transportation capacity. Our data parallels recent media reports that indicate transportation capacity shortages on multiple fronts, from containers to truck drivers.

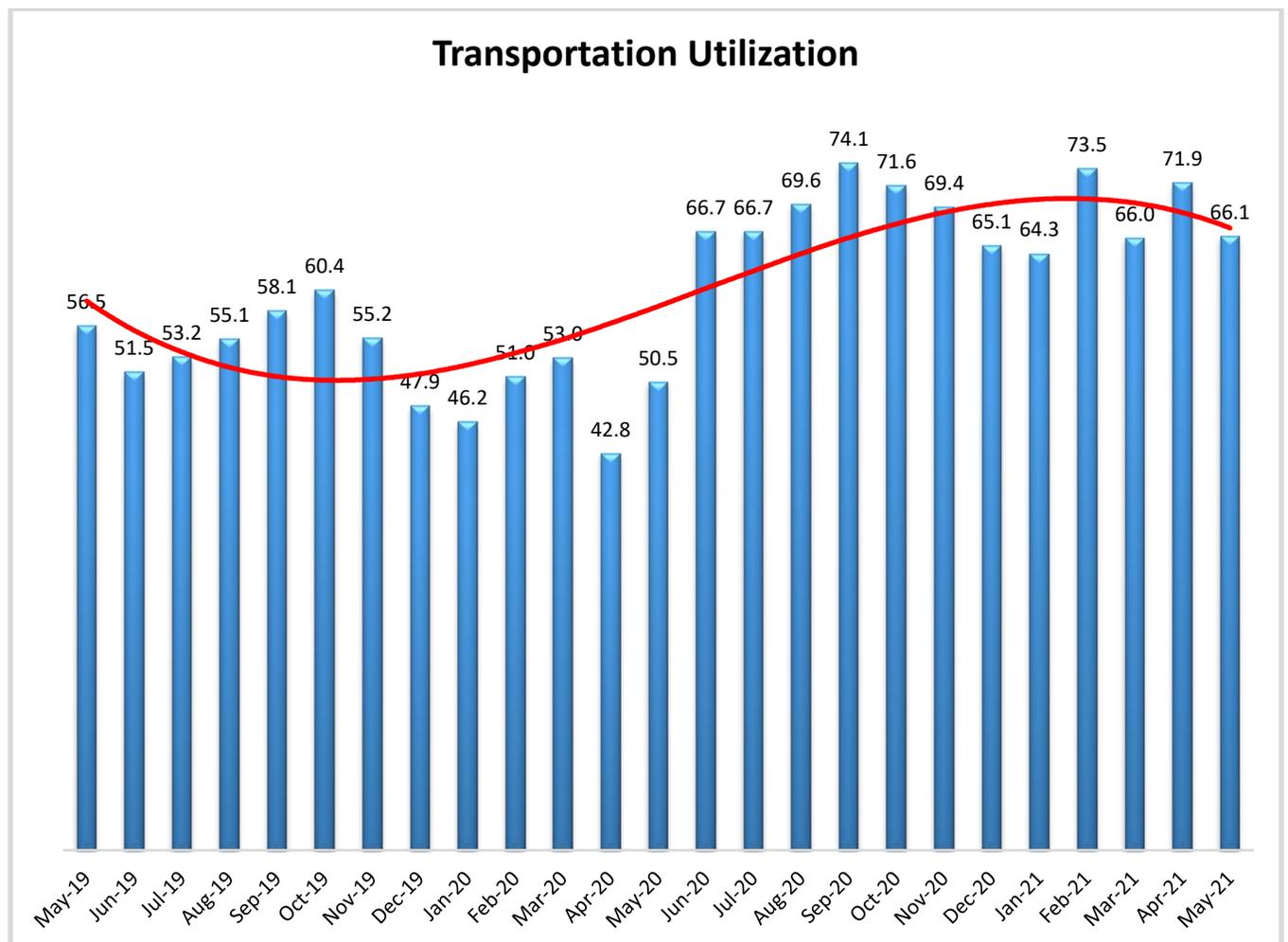
The future Transportation Capacity Index increased slightly from the previous reading, indicating 46.8 for the next year. Although this denotes an increase of 2.8 points, the index remains below the critical threshold of 50 and indicating expectations of slight contraction in Transportation Capacity for the next 12 months.



Transportation Utilization

The Transportation Utilization Index registered 66.1 percent in May 2021. This number denotes a decrease (-5.8) from the April reading of 71.9, bringing it back to a level that is close to the one registered in March 2021. Despite this drop, the Transportation Utilization Index remains elevated, indicating continued expansion in transportation utilization. The drop in utilization could be due to the shortage in transportation capacity and the historically high prices.

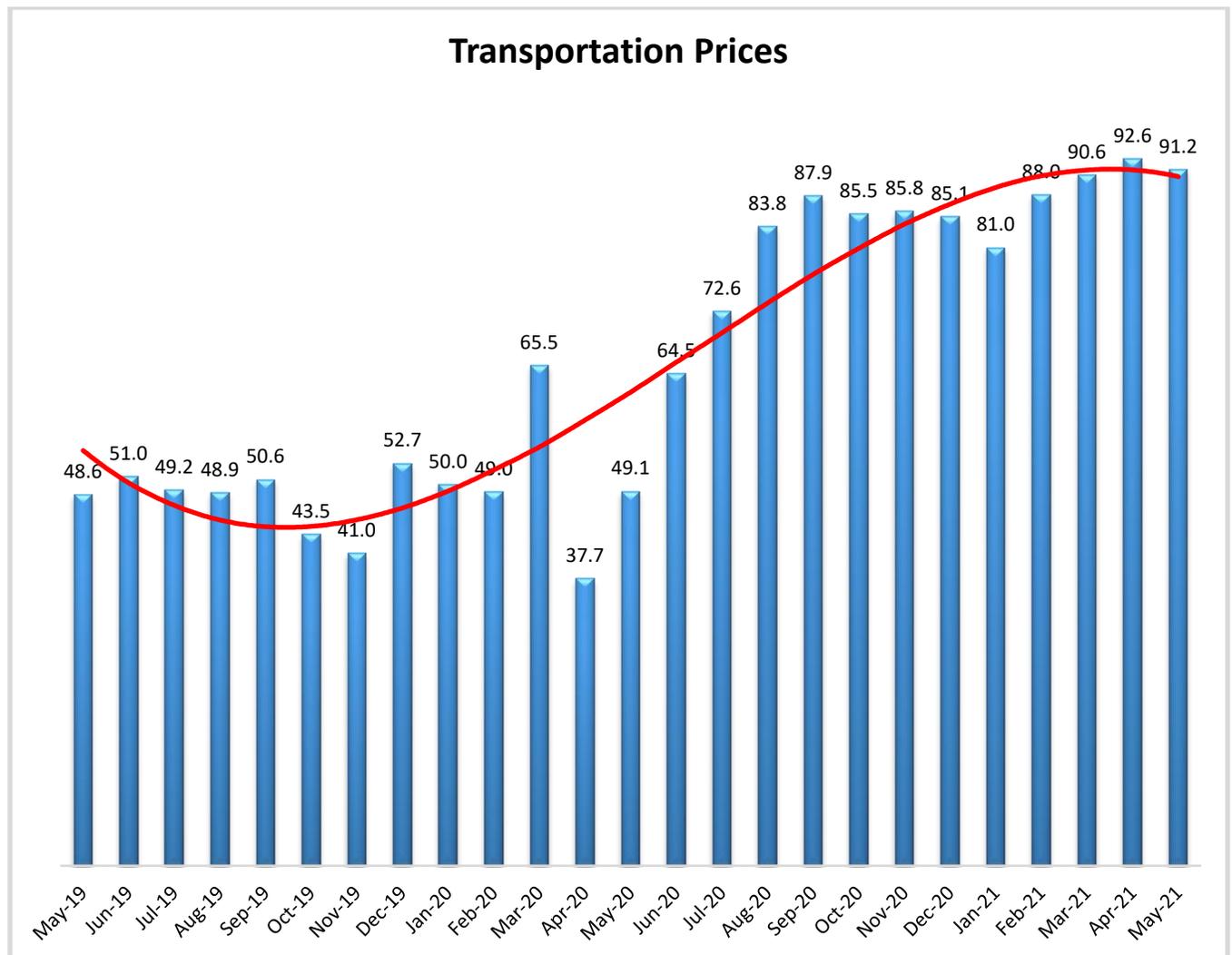
It should be noted that the future Transportation Utilization Index is also down 4.7 points from the previous month indicating a 71.8 percent level for the next 12 months. Despite this decrease, the future index is still substantially above 50, expectations of continued growth in Transportation Utilization remain very strong.



Transportation Prices

The Transportation Prices Index registered 91.2 percent in May 2021. This corresponds to a slight decrease (-1.4) from the April Transportation Prices reading of 92.6. The upward pressure on Transportation Prices that gained momentum in the Fall months of 2020 continues to remain very strong.

It looks like the strong upward pressure on transportation prices is here to stay, with the future index for transportation prices indicating a value of 87.2, which is slightly higher than the previous month's expectations of 86.2. Hence, the expectations of continued transportation price increases for the next 12 months remain very strong.



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 Yenyurt Ph.D., Ron Lembke Ph.D., and Dale Rogers Ph.D.