



FOR RELEASE: Tuesday, December 7th, 2021

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November 2021 Logistics Manager's Index Report®

LMI® at 73.4

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

Growth is INCREASING AT AN INCREASING RATE for: Inventory Costs, Warehousing Prices, Transportation Utilization, and Transportation Prices, Warehousing Capacity and Transportation Capacity are CONTRACTING.

(Fort Collins, Colorado) — November's reading of 73.4 is up (+0.8) from October's index score of 72.6 continues the extended run of logistics expansion we have been tracking throughout the year. Overall growth has now been over 70.0 – a level we would classify as significant expansion – ten months in a row and 13 of the last 15 (only dipping down in December and January read in the mid-60's which was partially a function of inventories being sold off during

Q4). This month's number is driven by many factors, Warehousing Prices are up (+4.5) over 90.0 for the first time in the history of the index. This increase is representative of costs as a whole as we also see the highest Aggregate Logistics Price level in the history of the index. These high prices are due to the rapid movement of a significant volume of inventory from upstream storage (e.g., docks, wholesalers, distributors) to downstream retailers. In October, upstream respondents reported rates of growth 10.3 points *higher* than their downstream respondents. In November this flipped, and upstream respondents reported inventory growth was 10.9 points *lower* than downstream respondents. The shortages of retail goods this holiday season have not been as severe as they were predicted to be. This seems to have been largely achieved by firms spending heavily on warehousing and transportation to get goods downstream.

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 November 2021. As we have seen for most of the last year, this month's LMI displays continued expansion in the logistics industry. Overall, the LMI is up slightly (+0.8) from October's reading of 72.2. The growth in this month's index is fueled by metrics from across the index, primarily those involving capacity, cost and downstream inventories. The transportation crunch remains particularly pronounced, with Transportation Prices reading in above 90.0 for the eighth time in the last nine months, and Warehousing Prices reaching a new record high for the sixth time in nine months. For the fourth consecutive month we observe an all-time high reading for Warehousing Prices, coming in this month at 89.3. Interestingly, this still comes in behind Transportation Prices, which read in at an astronomical rate of 92.7 – it's sixth out of seven readings to breach 90.0.

Supply chains were busy in November as the traditional start to the holiday shopping season got into full swing. Interestingly, the lack of logistics capacity seems to have incentivized firms to work to shift traditional shipping patterns. For instance, ecommerce retailers registered \$10.7 billion in sales on Cyber Monday. This is down 1.4% from 2020. For Black Friday, online sales were down slightly as well, falling from \$9 billion on Black Friday 2020 to only \$8.9 billion a year later – marking the first decrease ever in year-over-year online sales for the holiday – But these decreases appear to have been intentionally engineered. Retailers have been “spreading out” of to avoid huge spikes in demand where they would miss sales due to the lack of logistics capacity. National Retail Federation CEO Matt Shay stated that given the way retailers have pushed sales forward and consumers have bought early to stay ahead of potential shortages that Black Friday weekend is “closer to halftime now than the kickoff”¹. Despite the slight drop in the peak shopping days, sales are still predicted to be up with the National Retail Federation

¹ Repko, M., & Thomas, L. (2021, December 1). *Retailers need to stoke the Christmas spirit to hit lofty holiday sales targets*. CNBC. <https://www.cnbc.com/2021/12/01/holiday-shopping-2021-weeks-ahead-will-test-retailers-lofty-expectations.html>

forecasts U.S. retail sales to increase between 8.5-10% in November and December year-over-year (the average increase over the last 5 years has been 4.4%)².

The overall U.S. economy continues to grow. Jobless claims fell to the lowest level in 52 years in the last week of November after controlling for seasonality and the unemployment rate is down to 4.2% (from 4.6%)^{3 4}. The US economy added 210,000 jobs in November – which was significantly less than the 550,000 that were predicted. However, in a sign of the increasing importance of supply chains to the economy, of these 210,000 jobs, nearly 50,000 – or 25% - were in the transportation and warehousing sectors. This comes after October in which 10% of the U.S. jobs added warehousing/transportation^{5 6}.

These jobs are being added to bolster the capacity that has had difficulty keeping up with demand over the last 18 months. Warehousing Capacity was down (-3.6) to 44.0, marking the 15 consecutive months of contraction. This is partially due to the high volume of inventory flowing through supply chains. According to a Whitehouse update, 849k containers were imported through the Southern California ports in October. This brings the total containers imported from January through October to 8.6 million – up 18% from the previous all-time high mark set in 2018⁷. To free up dock capacity, the Southern California ports had threatened fines for idle containers⁸. This seemed to have provided an incentive, since the fee was announced on October 25th, there has been a 40% decrease in “aging cargo” in the Southern California ports⁹. Supply chains have been creative in moving cargo out of ports, many containers are now

² Nassauer, S. (2021b, November 28). Black Friday Brought Shoppers Back to Stores. *Wall Street Journal*. <https://www.wsj.com/articles/black-friday-brought-shoppers-back-to-stores-11638111602>

³ Guilford, G. (2021, November 24). U.S. Jobless Claims Reach 52-Year Low. *Wall Street Journal*. <https://www.wsj.com/articles/weekly-jobless-claims-11-24-2021-11637701570>

⁴ Schwartz, N. D., & Smith, T. J. (2021, December 3). U.S. employers added 210,000 jobs in November. *The New York Times*. <https://www.nytimes.com/live/2021/12/03/business/jobs-report-stock-market>

⁵ Chinkarenko, P. (2021, November 5). *Over 10% of U.S. jobs added in October were in warehousing, transportation: Professor*. <https://ampvideo.bnnbloomberg.ca/video/over-10-of-u-s-jobs-added-in-october-were-in-warehousing-transportation-professor~2316369>

⁶ Franck, T. (2021, December 3). *Here's where the jobs are—In one chart*. CNBC. <https://www.cnbc.com/2021/12/03/heres-where-the-jobs-are-for-november-2021-in-one-chart.html>

⁷ The White House. (2021, November 17). *Recent Progress at Our Ports: Moving Cargo and Filling Shelves*. The White House. <https://www.whitehouse.gov/briefing-room/blog/2021/11/17/recent-progress-at-our-ports-moving-cargo-and-filling-shelves/>

⁸ Miller, G. (2021, October 28). *Shippers fear 'catastrophic' fallout from 'crazy' California port fees*. FreightWaves. <https://www.freightwaves.com/news/shippers-fear-catastrophic-fallout-from-crazy-california-port-fees>

⁹ Sanfield, P. (2021, November 15). *San Pedro Bay Ports Postpone Consideration of Container Dwell Fee Until Nov. 22 | References | Port of Los Angeles*. The Port of LA. https://www.portoflosangeles.org/references/2021-news-releases/news_111521_dwelpostpone

being stored across hundreds of plots of private land throughout Southern California¹⁰. This comes despite the record number of empty containers being exported back to China from the U.S. This has led to continued expansion in Warehousing Utilization (reading in at 68.2) and increased Warehousing Prices (+4.5) to 90.3, their highest rate of growth in the history of the index.

Warehousing space is in particularly high demand downstream, where capacity is contracting 9.2 points more quickly than upstream. This is due to the high levels of inventory being moved downstream (expanding 10.9 points more quickly than upstream) as firms work to meet customer demand. The price of storing this inventory is reflected in increasing Inventory Costs, up (+1.7) to 87.6. Large chains who were able to pour money into their supply chains – with some of them even going as far as to charter their own ships – have been able to avoid many of the prognosticated shortages and ensure the availability of inventory. For example, Walmart's third quarter inventory levels were up 11.5% from the same time last year. This allowed their digital sales to increase by 9.2% in Q3 y-o-y while also absorbing increased in-store traffic. On the other hand, smaller firms such as The Gap, Victoria's Secret, and Abercrombie & Fitch that did not have the resources to chart their own ships may still- be short on inventory, lacking the supply to keep up with consumer demand. This has forced some firms to turn to expensive methods like air shipping – a practice that would usually be considered much too expensive for the apparel industry. The Gap is an exemplar of these issues revising its financial outlook from by \$550-\$650 million¹¹. Despite the focus on keeping up with consumer demand, out-of-stock messages on ecommerce websites are up 124% from pre-COVID levels. This has particularly impacted items like appliances and electronics – possibly reflecting the continued semiconductor shortage¹².

The speed with which this inventory is moving is demonstrated by the modest rate of growth for Inventory Levels, down (-3.0) to 58.8. More inventory has passed through the ports than ever before, but it is moving to consumers at such velocity that inventory growth rates have been relatively constrained. Moving this inventory has been difficult as well. Transportation Capacity continues to contract (+5.6) at a rate of 39.7, marking the 14 out of 16 readings with a rate of contraction in the 30's. This is despite the significant efforts firms have made to increase capacity. In an interview with Face The Nation, Fred Smith of FedEx forecasted they will deliver 100 million more shipments over the holiday season than they did in 2019¹³. Some additional capacity is eaten up by inefficient practices designed to satisfy customers. For example,

¹⁰ Berger, P. (2021b, November 28). Labor Talks to Start in 2022 at Congested West Coast Ports. *Wall Street Journal*. <https://www.wsj.com/articles/labor-talks-to-start-in-2022-at-congested-west-coast-ports-11638104401>

¹¹ Scott, C. L. (2021, November 23). Gap's Sales Suffer From Supply-Chain Problems Before Holidays. *Wall Street Journal*. <https://www.wsj.com/articles/gaps-sales-suffer-from-supply-chain-problems-11637704298>

¹² Thomas, L. (2021, November 27). *Black Friday shopping in stores drops 28% from pre-pandemic levels as shoppers spread spending throughout the season*. CNBC. <https://www.cnbc.com/2021/11/27/black-friday-shopping-in-stores-drops-28percent-from-pre-pandemic-levels.html>

¹³ Brennan, M. (2021, November 7). Face The Nation. In *Interview with Fred Smith of FedEx*. CBS. <https://twitter.com/FaceTheNation/status/1457386195466457093>

Walmart is delivering single items out of large multi-item orders to improve service times¹⁴. Bringing new trucks online continues to be a hurdle as well. Class 8 truck orders placed last month for the lowest for any November since 1995. A truck ordered in November would not be delivered until February 2023, likely frustrating potential orders¹⁵. The lack of capacity is driving Transportation Utilization up (+5.1) to 72.6. Utilization was significantly higher for Upstream firms (14.7 points higher), likely representing their push to get goods downstream quickly to customers. This has had the expected effect on Transportation Prices, which are up (+2.6) to 93.2. The high costs haven't been bad for everyone. Ocean carriers continue to benefit from the crunch, reporting \$37.24 billion in operating profits in Q3 alone, pushing the total for the year so far to \$80 billion. This doubles the profit margins achieved in the previous decade, meaning that carriers have made as much in the first 9 months of 2021 as they did from 2010-2020¹⁶. Finally, it is important to note that demand for long-haul transportation capacity is up, driving the length of haul for proposed truck tenders up by 10% over the last 5 months. This likely reflects increased inventory replenishment relative to shorter consumer deliveries. This sort of dynamic is more common in the early Spring or Fall during traditional replenishment seasons when replenishment outstrips sales¹⁷. To see it now during what should be the height of consumer shopping suggests that either retailers are still scrambling to replenish inventories, that they have over-ordered, or some combination of the two. It will be important to monitor this going forward to check for potential aftereffects from a bullwhip effect.

We add Inventory Costs, Warehousing Price, and Transportation Price together to generate Aggregate Logistics Prices. The aggregate prices function on a scale of 0-300, and in November 2021 they read in at an all-time high of 271.1 – up (+8.8) from last month and up (+2.8) from September's previous all-time high. The all-time average for this combined metric is 192.2. A reading over 250.0 would be 3.5 standard deviations above this mean, we would consider such a reading to represent highly significant levels of expansion. Aggregate Logistics Price has now been over 250.0 in nine consecutive months. This metric had never been above 250.0 before March 2021 but has exceeded that level in every month since. This recent growth is driven primarily by spiking Warehousing Price, which as discussed above, has reached a new all-time high in six of the last nine months. There have been more products on shelves and coming out of fulfillment centers during the holiday shopping season than prognosticators had anticipated. This was accomplished through a herculean (and expensive) to build up inventories ahead of time. Large chains who were able to pour money into their supply chains – with some of them even going as far as to charter their own ships – have been able to avoid many of the forecasted shortages. For example, Walmart's third quarter inventory levels were up 11.5% from

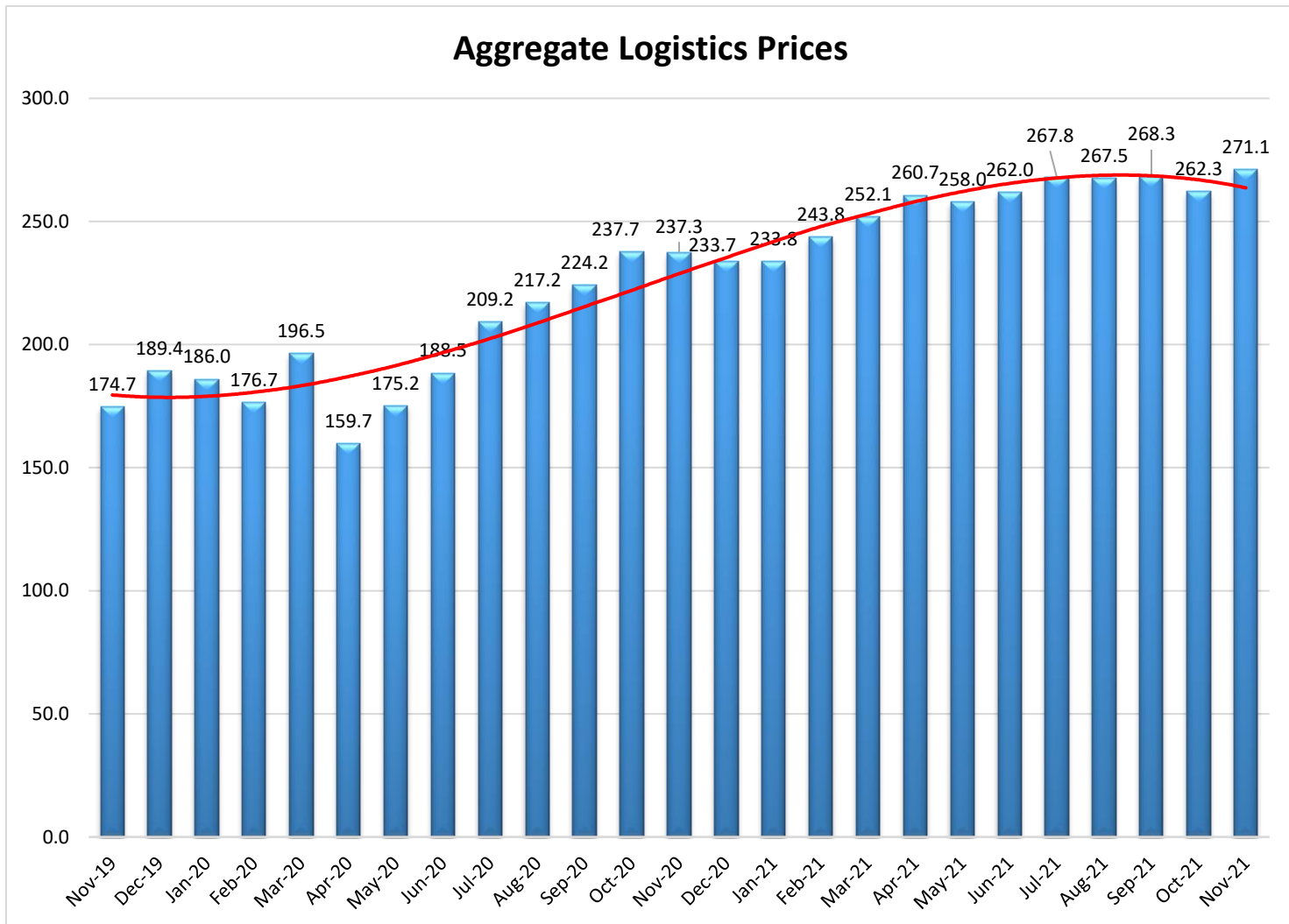
¹⁴ Marcelis, D., & Nassauer, S. (2021, November 28). Walmart Delivers Your Stuff—One Small Item at a Time. *Wall Street Journal*. <https://www.wsj.com/articles/walmart-delivery-online-christmas-shopping-order-supply-chain-uber-11638124477>

¹⁵ Adler, A. (2021, December 4). *Inability to produce pushes Class 8 orders to lowest November in 26 years*. FreightWaves. <https://www.freightwaves.com/news/inability-to-produce-pushes-class-8-orders-to-lowest-november-in-26-years>

¹⁶ Donnelly, J. (2021, December 1). *Ocean lines making near \$80 billion in operating profit for year so far*. Port Technology International. <https://www.porttechnology.org/news/ocean-lines-making-near-80-billion-in-operating-profit-for-year-so-far/>

¹⁷ Strickland, Z. (2021, November 28). *Increasing truckload length of haul suggests shippers have overordered*. FreightWaves. <https://www.freightwaves.com/news/increasing-truckload-length-of-haul-suggests-shippers-have-overordered>

the same time last year. This allowed their digital sales to increase by 9.2% in Q3 y-o-y while also absorbing a 5.7% increase in-store traffic ¹⁸. It is also likely that firms became more willing to bear higher warehousing and inventory storage costs to avoid the container dwell fees that had been threatened by the Ports of LA and Long Beach. While there is still a significant level of “aging cargo” sitting on the docks in Southern California, it is down by approximately 40% since mid-October¹⁹. As was observed in the upstream/downstream breakdown above, downstream retailers are packing in more inventory and using more warehousing space, while upstream firms utilize all available transportation to move goods through the system. This effort has done a lot to get goods to consumers, but it came at a significant cost.



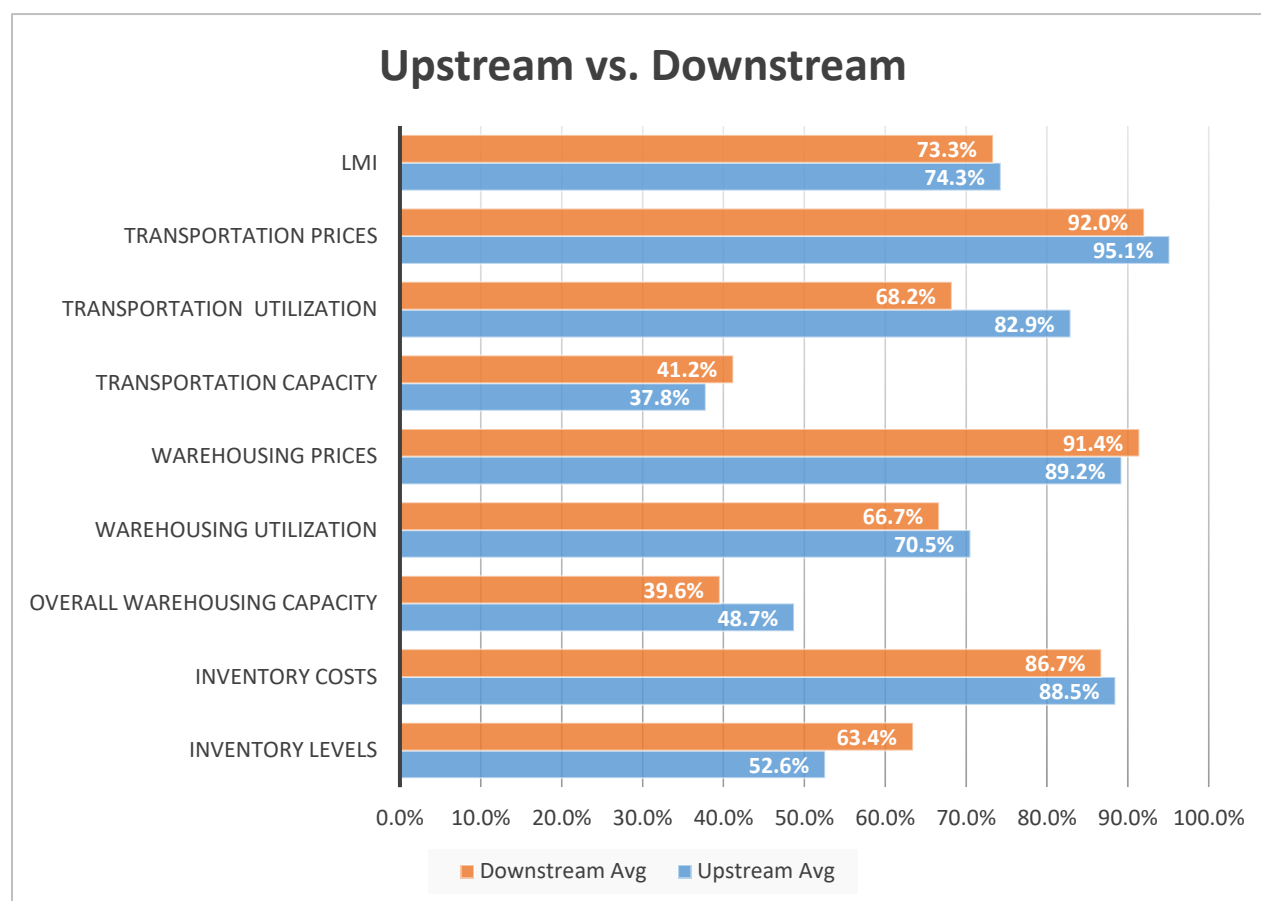
¹⁸ Nassauer, S. (2021a, November 16). Walmart Raises Forecast and Says Shelves Are Stocked for Holiday Shoppers. *Wall Street Journal*. <https://www.wsj.com/articles/walmart-raises-forecast-and-says-shelves-are-stocked-for-holiday-shoppers-11637066985>

¹⁹ Sullivan, K. (2021, December 1). Biden says “shelves are going to be stocked” for the holiday season. FOX10 News. https://www.fox10tv.com/news/us_world_news/biden-says-shelves-are-going-to-be-stocked-for-the-holiday-season/article_e99ec30d-9fb1-5d97-8bba-f4f53d5d9c95.html

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, 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, the next, and throughout next year as well.

LOGISTICS AT A GLANCE					
Index	November 2021 Index	October 2021 Index	Month-Over-Month Change	Projected Direction	Rate of Change
LMI®	73.4	72.6	+0.7	Growing	Increasing
Inventory Levels	58.8	61.8	-3.0	Growing	Decreasing
Inventory Costs	87.6	85.9	+1.8	Growing	Increasing
Warehousing Capacity	44.0	47.6	-3.6	Contracting	Decreasing
Warehousing Utilization	68.2	71.4	-3.1	Growing	Decreasing
Warehousing Prices	90.3	85.8	+4.5	Growing	Increasing
Transportation Capacity	39.7	34.1	+5.6	Contracting	Decreasing
Transportation Utilization	72.6	67.5	+5.2	Growing	Increasing
Transportation Prices	93.2	90.7	+2.6	Growing	Increasing

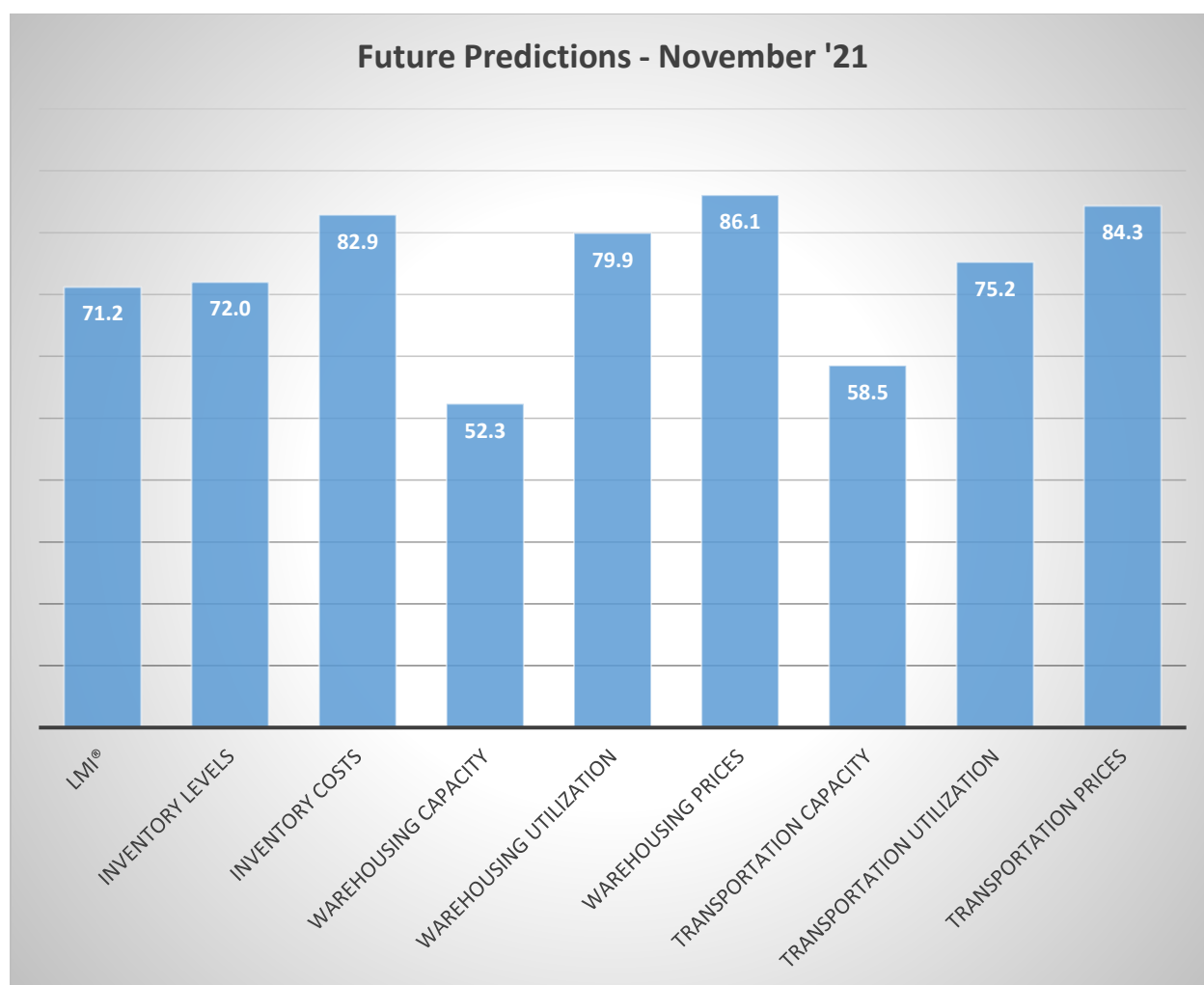
This month, both upstream (blue bars) and downstream (orange bars) firms reported considerable rates of continued growth in utilization of logistics services. We see significant differences between the utilization of different aspects of logistics services depending on supply chain position.



T-tests demonstrate Inventory Levels are 10.9 points higher for downstream respondents than for their upstream counterparts. This is a reverse from October when Inventory Levels were 10.3 points higher for upstream firms. This suggests that the inventory glut that was being held upstream has now flowed down towards retailers. We find additional evidence for this in the 9.2-point faster rate of contraction in available Warehousing Space for downstream firms and the 14.7-point quicker rate of growth for upstream firms in Transportation Utilization. Essentially, upstream firms are utilizing every square inch of available transportation capacity to move inventory into the warehouses, fulfillment centers, and store shelves of downstream retailers. The differences we observed in Transportation Prices and Capacity in October have also dissipated, with upstream firms now seeing slightly faster price growth and capacity contraction than their downstream counterparts.

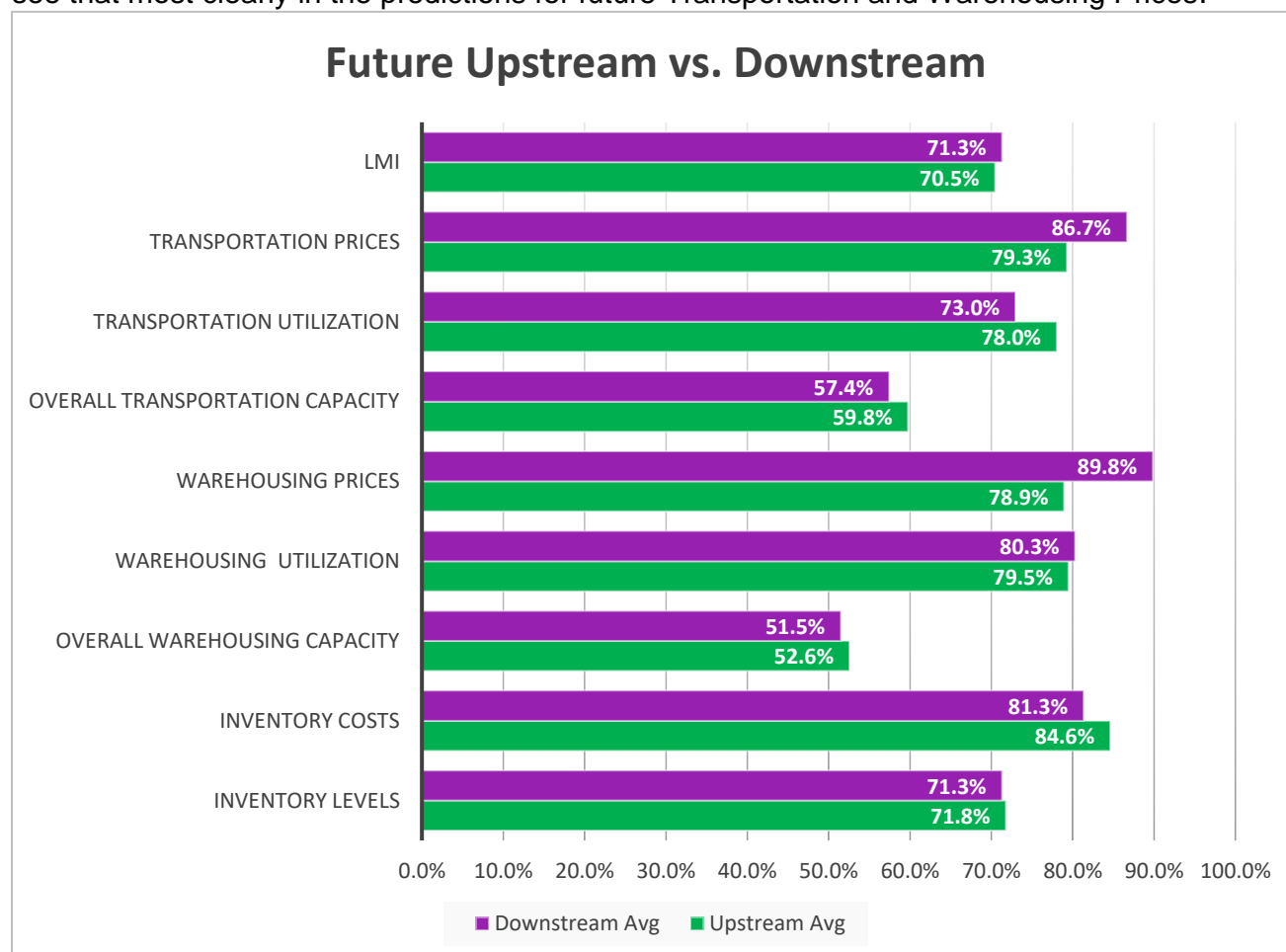
November '21	Inv. Lev.	Inv. Costs	WH Cap.	WH Util.	WH Price	Trans Cap	Trans Util.	Trans Price	LMI
Upstream	52.6	88.5	48.7	70.5	89.2	37.8	82.9	95.1	74.3
Downstream	63.4	86.7	39.6	66.7	91.4	41.2	68.2	92.0	73.3
Delta	10.9	1.7	9.2	3.8	2.2	3.4	14.7	3.1	1.0
Significant?	Marginal	No	Marginal	No	No	No	Yes	No	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 71.2 for the overall LMI, up slightly (+0.6) from October's future prediction of 70. Respondent optimism for increased Warehousing Capacity has cooled somewhat, dropping from 60.2 down to 52.3. This would still represent some growth, but not the levels we would hope to see as supply chain capacity struggles to keep up with consumer demand and high Inventory Levels (predicted to grow at a rate of 72.0). We see a similar story with the moderate predicted growth in Transportation Capacity (58.5). There have been some predictions that supply chains will begin to return to normal (or whatever normal is post-COVID)²⁰. However, based on the three cost metrics all registering in the 80's, LMI respondents appear to be dubious that logistics costs will stop their rapid increase within the next 12 months.



²⁰ Paris, C. (2021, November 15). Ocean Shipping Rates Fall but Ports Are Still Jammed. *Wall Street Journal*. <https://www.wsj.com/articles/ocean-shipping-rates-fall-but-ports-are-still-jammed-11636972201>

The exact nature of the future predictions varies by supply chain position. This month we see that most clearly in the predictions for future Transportation and Warehousing Prices.



T-tests show that Downstream firms expect Transportation Prices to increase at a higher rate over the next 12 months than their Upstream counterparts. Downstream firms also predict higher growth (by 10.9 points) in Warehousing Prices. This may be a reflection of the continued growth in ecommerce and customer expectations, with the increased focus on last-mile delivery as a key differentiator. Despite these differences, it should be noted that both Upstream and Downstream firms are predicting significant levels of price growth across the supply chain, suggesting that firms may have to wait through 2022 and into 2023 to see any real cool down in costs.

Futures	Inv. Lev.	Inv. Costs	WH Cap.	WH Util.	WH Price	Trans Cap	Trans Util.	Trans Price	LMI
Upstream	71.8	84.6	52.6	79.5	78.9	59.8	78.0	79.3	70.5
Downstream	71.3	81.3	51.5	80.3	89.8	57.4	73.0	86.7	71.3
Delta	0.5	3.3	1.1	0.8	10.9	2.3	5.1	7.4	0.9
Significant?	No	No	No	No	Yes	No	No	Marginal	No

Historic Logistics Managers' Index Scores

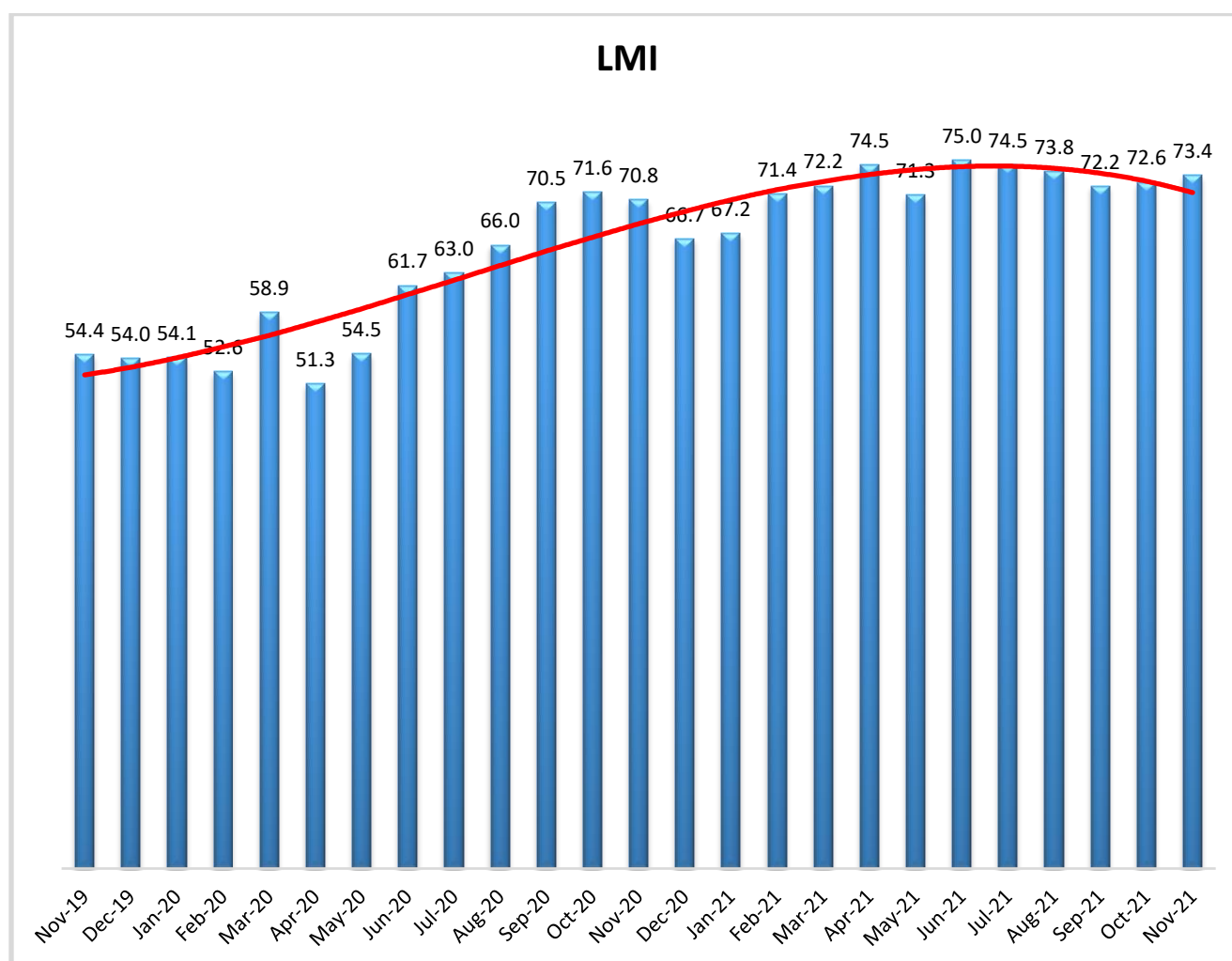
This period's along with prior readings from the last two years of the LMI are presented table below. The values have been updated to reflect the method for calculating the overall LMI:

<i>Month</i>	<i>LMI</i>	Average for last 3 readings – 72.8 All-time Average – 64.5 High – 75.7 Low – 51.3 Std. Dev – 7.1
Nov '21	73.4	
Oct '21	72.6	
Sep '21	72.2	
Aug '21	73.8	
July '21	74.5	
June '21	75.0	
May '21	71.3	
Apr '21	74.5	
Mar '21	72.2	
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	

LMI®

The overall LMI read in at 73.4 in November, up slightly (+0.8) from October's reading of 72.6. This is driven largely by increased costs – particularly Warehousing Costs which registered an all-time high this month. Upstream firms continue to struggle to find transportation to move goods forward, while downstream firms hold significant levels of inventory. It will be interesting to observe whether these pressures subside in early 2022 with the traditional post-holiday slowdown and Chinese New Year. There was not much relief in early 2021, but perhaps this year will be different.

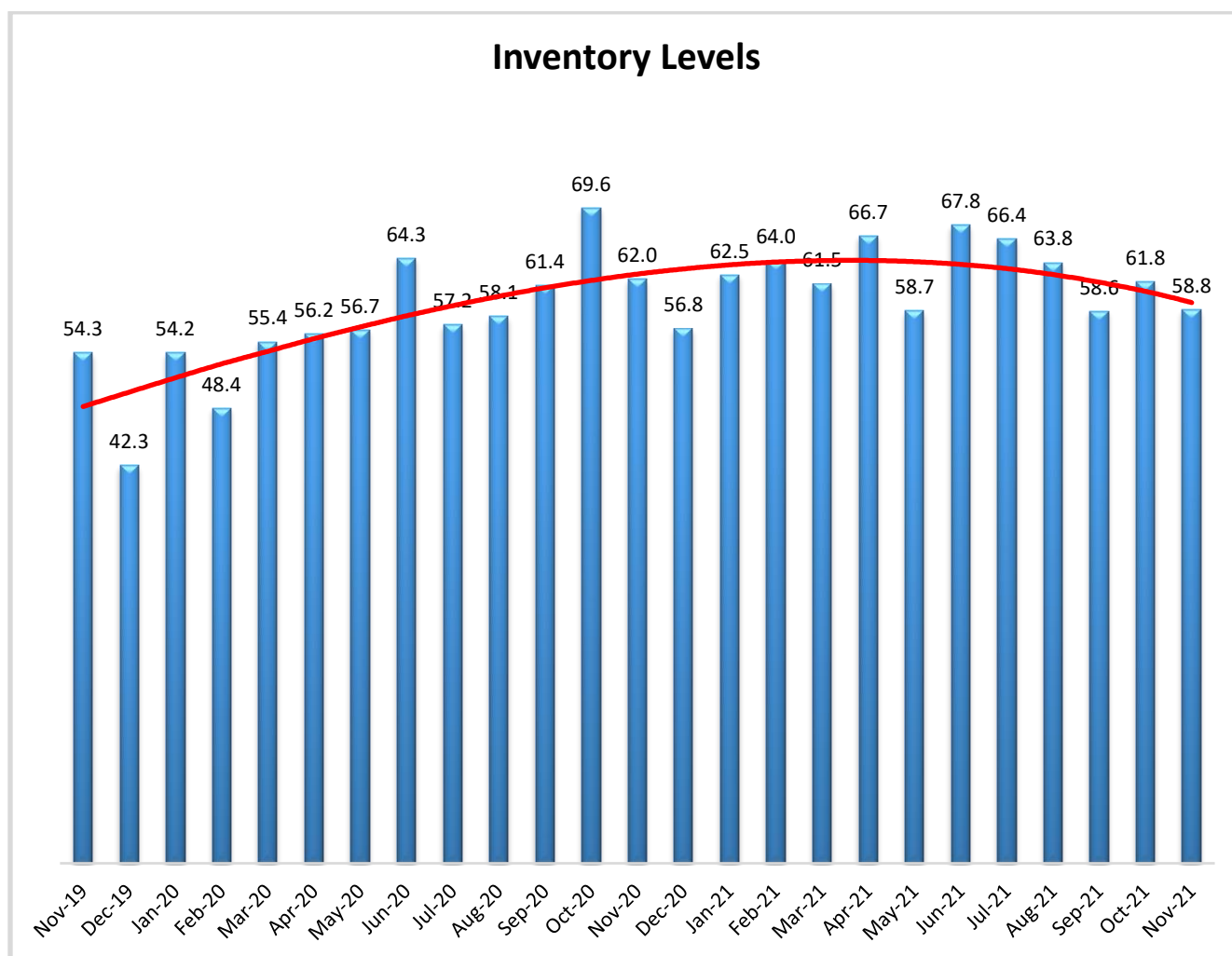
Respondents are not anticipating any significant relief over the next 12 months, predicting a growth rate of 71.2, up (+1.6) from October's future. This is well above the all-time average of 64.5. The LMI has read in over 70.0, which we consider an elevated level of expansion in 10 consecutive months. If these future predictions hold up, the overall index may stay above that level for another year.



Inventory Levels

The Inventory Level value is 58.8, down (-3.0) from October's reading of 61.0, potentially representing the speed at which inventory continues to move through supply chains. This hypothesis seems supported by the difference in inventory growth for upstream and downstream respondents. In November, upstream respondents returned a lower value (52.6), than downstream (63.4) by 10.8 points. This is the opposite of last month when the upstream value was 10.3 points higher. This dramatic shift seems to represent inventory moving from distribution networks to consumer-facing retailers building up inventories ahead of the holiday shopping season.

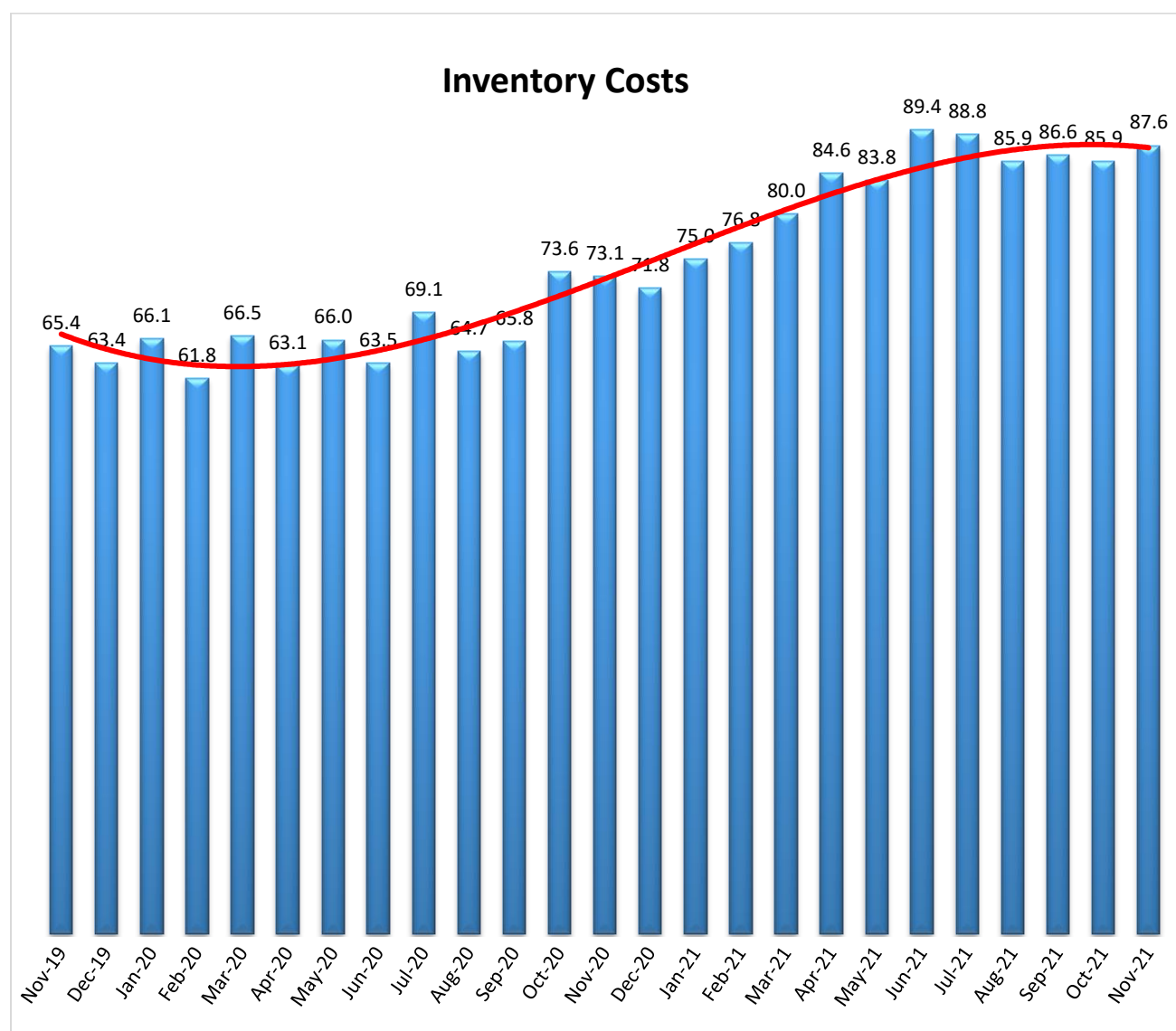
When asked to predict what conditions will be like 12 months from now, the average value is 72.0. This is much higher than the current inventory index value of 58.8, meaning inventory levels are expected to grow even more over the next year. Respondents expect inventory values to continue increase significantly over the next year. Upstream (71.8) are expecting greater increases in inventory than downstream (71.3) respondents.



Inventory Costs

The current value of Inventory Costs is 87.6 up (+1.8) from October's reading of 85.9, this is also up 14.5 points above the value last year, and up 22.2 points compared to two years ago. This rapid cost growth is unsurprising given the increased costs throughout the supply chain, as well as the pressure of firms to avoid stockouts in the face of anticipated record levels of consumer demand. The readings for this metric continue to be well above the long-term average of 72.7. Inventory cost values have never fallen below 50, over the life of the index.

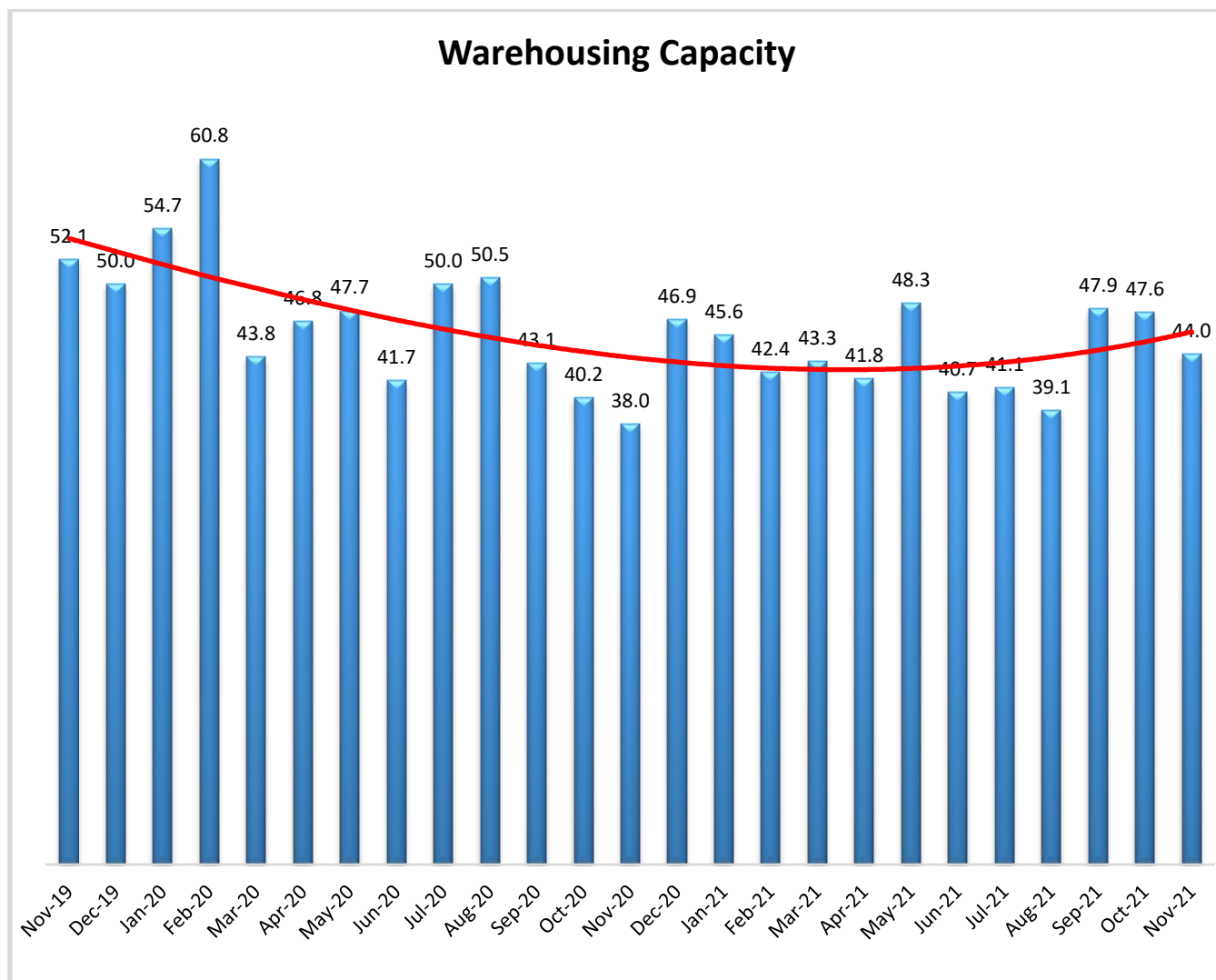
Looking forward at the next 12 months, the predicted Inventory Costs are 82.9, down (-4.6) from October's future prediction of 87.5. While this would be a decreased rate of growth, it represents a growth in costs nonetheless.



Warehousing Capacity

Warehousing Capacity for the month of November 2021 registered in at 44.0 percentage points, which represents a modest 3.6-point departure from last month's value of 47.6 and marks 15 consecutive months of contraction in available capacity. The decreased value for warehousing capacity likely reflects two distinct challenges that global supply chains are facing: Preparation for Black Friday and Cyber Monday, which generally mark the beginning of the holiday season and thus an increased demand for the need to store product and subsequently fulfill online and in person orders; and overall supply chain capacity and staffing demand, which has led to shortages systemwide. This hypothesis is corroborated by the significantly lower levels of Warehouse Capacity available to downstream firms (39.6) relative to their upstream counterparts (48.7).

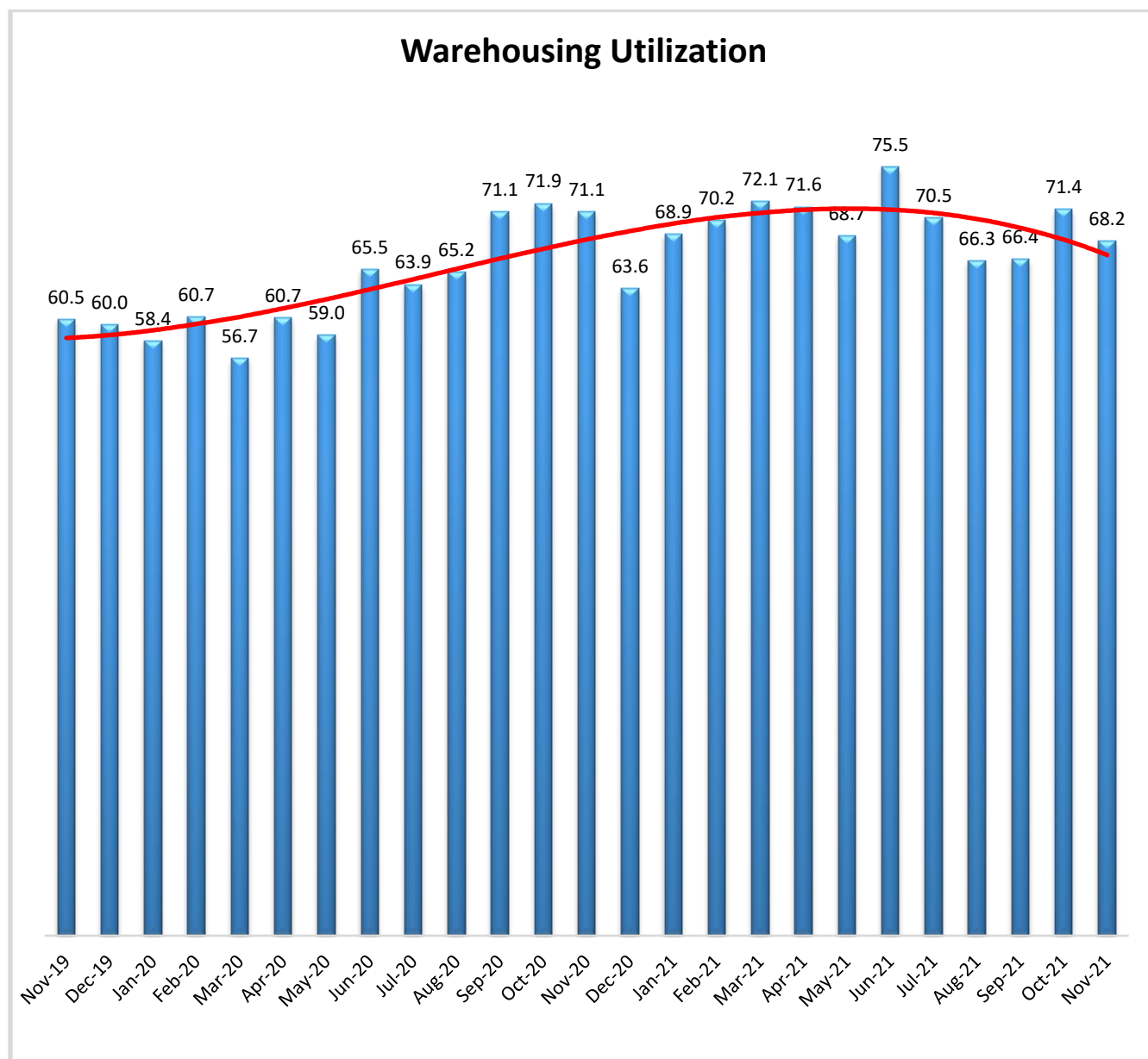
Looking forward at the next 12 months, the predicted Warehousing Capacity index is predicted to increase at a rate of 52.3, down (-7.9) from October's future prediction of 60.2. This less-optimistic prediction of growth suggests that, while capacity will increase over the next 12 months, it will be difficult to keep up with demand and the high levels of inventory moving through supply chains.



Warehousing Utilization

The Warehousing Utilization Index registered in at 68.2, down slightly (-2.2) from October's reading of 71.4. This is closer to values from September and August. This metric continues to increase as firms struggle to move inventory through supply chains. It will be interesting to see if the rate of utilization slows down after the holiday season. Many firms have build up larger-than-usual inventories this year, and warehouses may remain fuller post-holiday than they would in normal years.

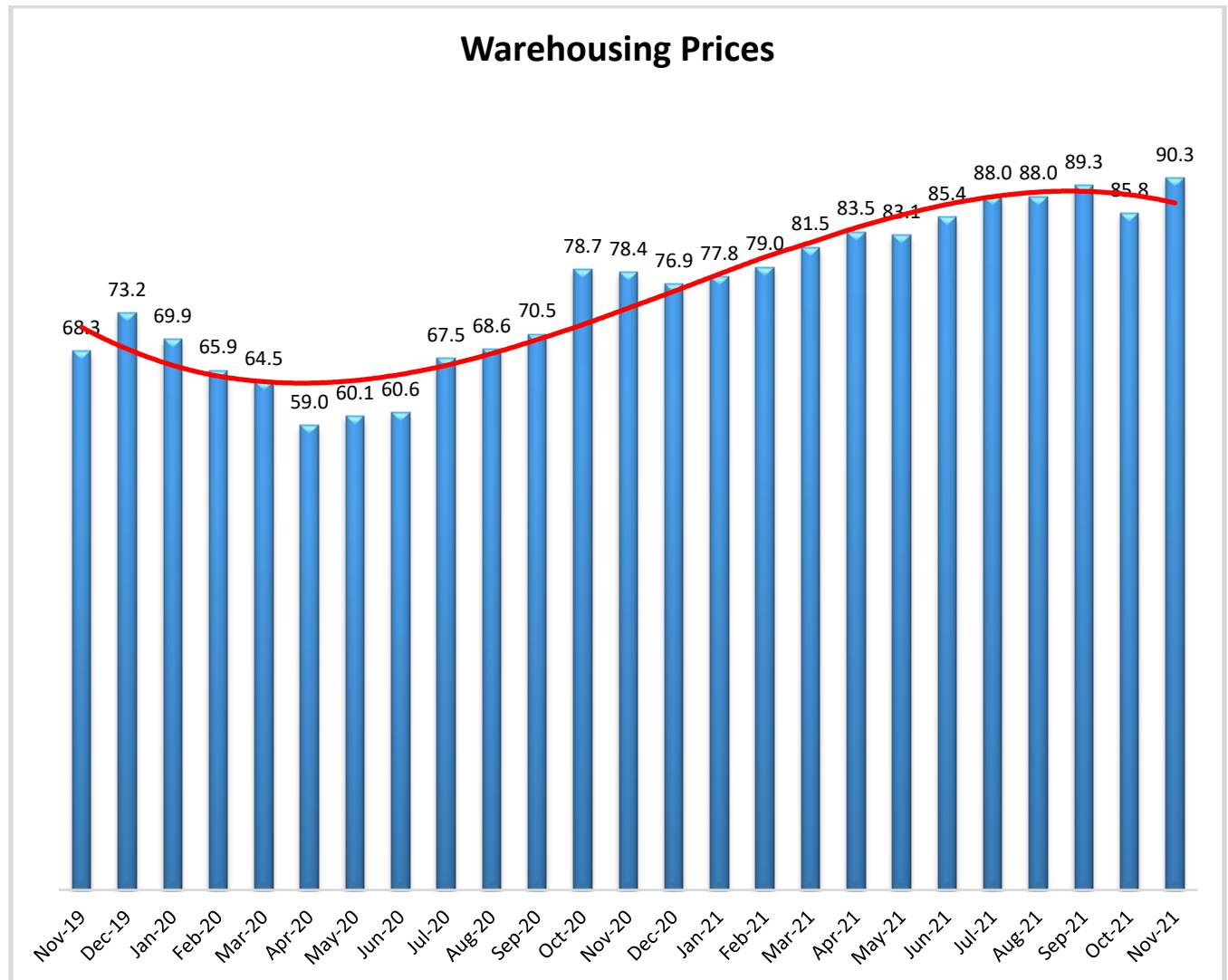
Looking forward at the next 12 months, the predicted Warehousing Utilization index is 79.9, up (+3.1) from October's future prediction of. 76.5. Respondents continue to expect to utilize increasingly greater amounts of available warehouse space throughout the year as supply struggles to keep up with demand.



Warehousing Prices

In past reports we had anticipated that we would see Warehousing Prices cross 90.0 for the first time. The prediction came true in November with the Warehousing Prices index reading in at 90.3, up (+4.8) from October. This is the highest ever recorded since the index's inception. This reading is up 13 points from this time a year ago, and up 22 points from 2019, representing the unrelenting toll that the COVID-19 disruption(s) and consumer demand echo have taken on supply chains. It may also be representative of the new-found motivation to move goods off of docks more quickly to avoid the threatened idle container fees. The next few months will be telling for how this segment will behave moving forward, particularly the January and February 2021 readings when inventories should theoretically be lower post-holiday.

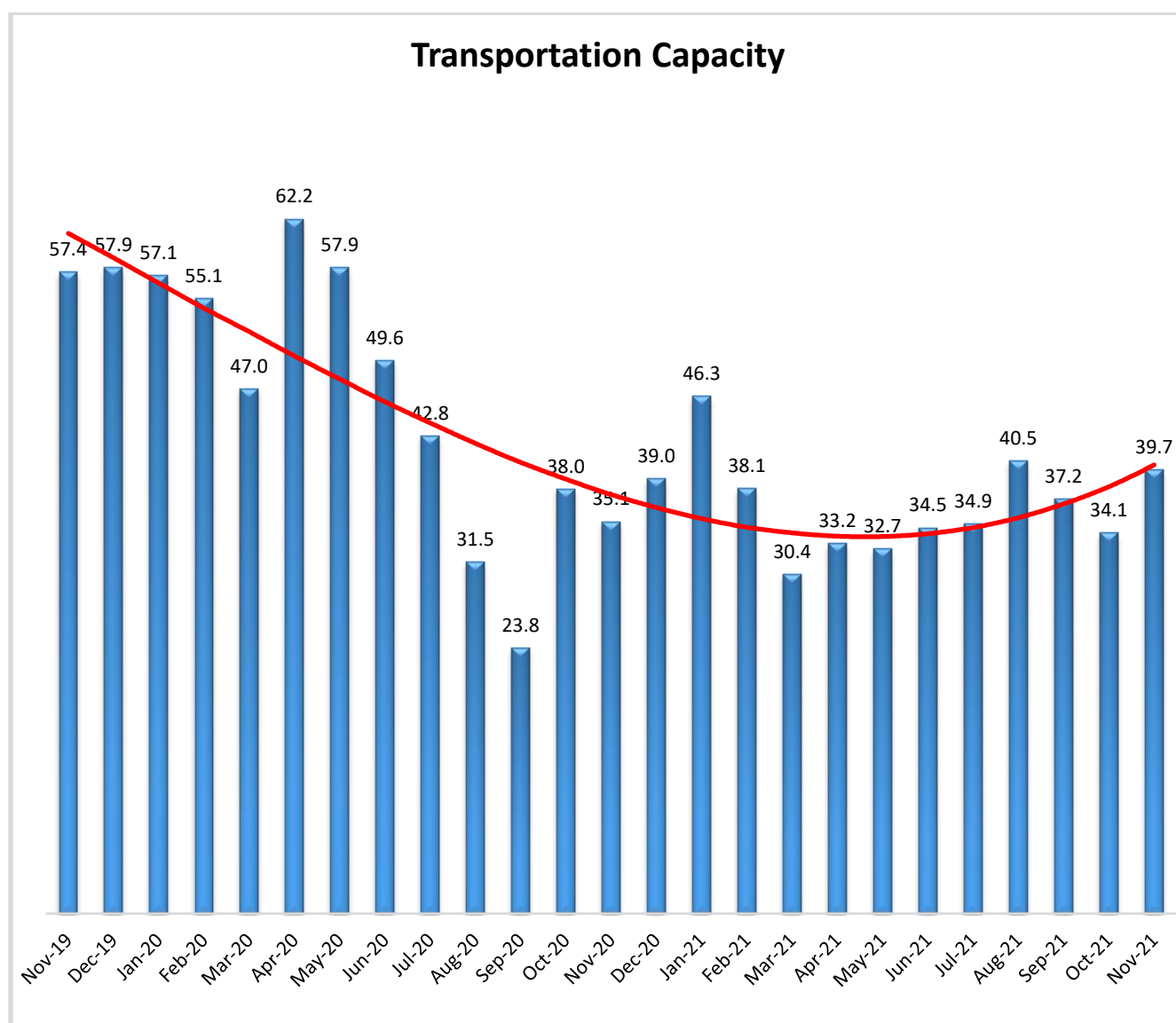
Future predictions suggest that respondents are expecting prices to continue to grow at a rate of 86.1, up slightly (+1.6) from October's future prediction of 84.5. Even with some potential Warehousing Capacity coming online over the next 12 months, respondents expect to be paying higher prices through the rest of the year and well into 2022.



Transportation Capacity

The Transportation Capacity Index registered 39.7 percent in November 2021 a slower decline (+5.6) than the October reading of 34.1. The Transportation Capacity Index remains well below the 50 benchmark, indicating continued downward pressure on transportation capacity. Transportation capacity constraints seem to be easing somewhat for downstream firms (downstream Transportation Capacity Index is now at 41.2). Meanwhile, the upstream Transportation Capacity Index is now at 37.8.

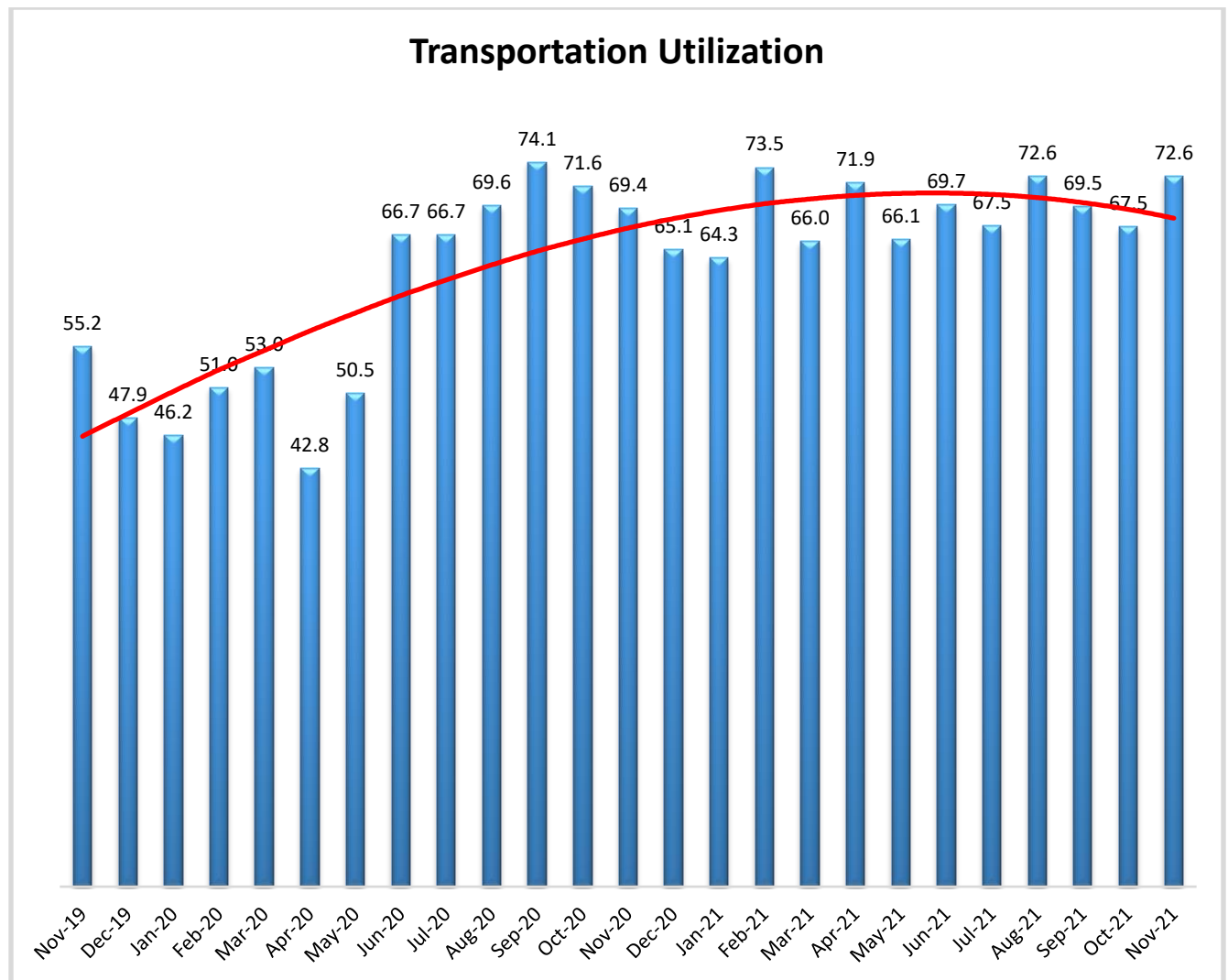
The future Transportation Capacity Index increased slightly from the previous reading, indicating 58.5 for the next year. The future Transportation Capacity Index remains above the critical threshold of 50, indicating expectations of expanding transportation capacity for the next 12 months.



Transportation Utilization

The Transportation Utilization Index registered 72.6 percent in November 2021, up (+5.1) from October's reading of 67.5. As such, the Transportation Utilization Index is back to historically high levels, particularly for upstream firms. Upstream firms read in at 82.9, 14.7-points higher than their downstream counterparts who reported a growth rate of 68.2. It is interesting that inventory is higher downstream, and that downstream firms have less available Warehousing Capacity, yet upstream firms are utilizing a significantly greater rate of the available transportation. This suggests that upstream suppliers are heavily utilizing any available transportation to fill up the fulfillment centers and shelves of their downstream customers.

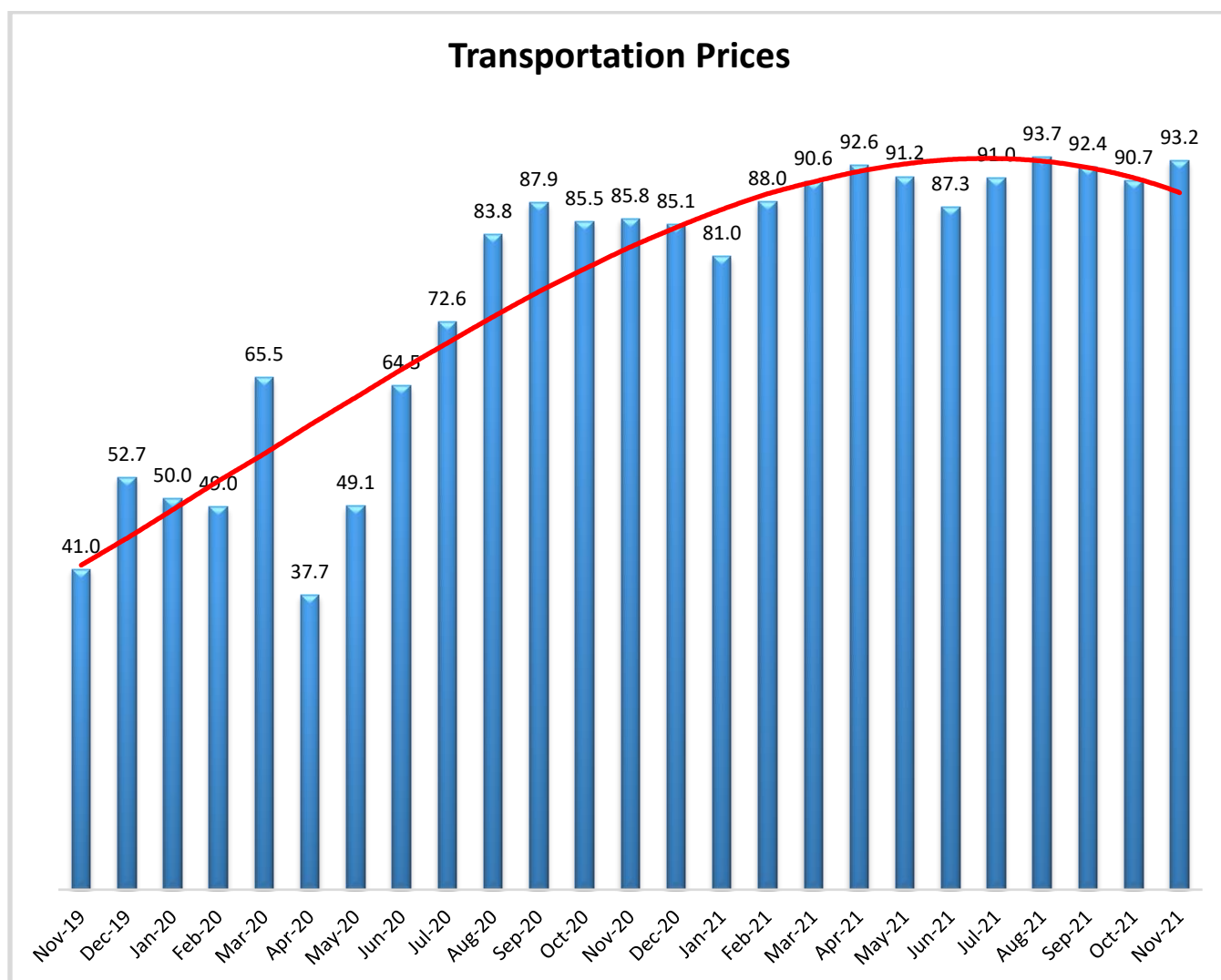
It should be noted that the future Transportation Utilization Index read in at 75.2, up (+4.3) from October's future prediction of 71.9. This level of growth would suggest that the future utilization will remain historically high, indicating very strong expectations of continued strong growth in transportation utilization.



Transportation Prices

The Transportation Prices Index registered 93.2 in November 2021, up (+2.5) from October's reading of 90.7. As such, the Transportation Prices Index is back to historically high levels, indicating extreme upward pressure on Transportation Prices. The price pressure is even higher for upstream firms where the index is registering a 95.1 (relative to downstream firms' 92.0). This is consistent with the notion that upstream firms are utilizing transportation at a higher rate in November in an attempt to quickly move goods downstream.

The future index for Transportation Prices indicates a value of 84.3, up (+1.3) from October's future prediction of 83.0. So, the expectations of continued transportation price increases for the next 12 months remain very strong. It will be interesting to observe how long readings stay in the upper 80's to 90's range, and whether they'll begin to normalize in the new year.



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,
 $\text{Diffusion Index} = 0.0 * PD + 0.5 * PU + 1.0 * PI$

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.