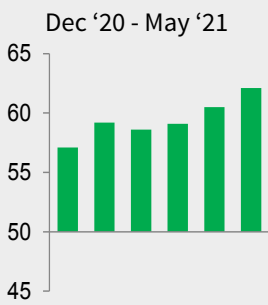




U.S. Manufacturing PMI



Output expands at faster rate as growth in new order inflows strengthens

Supply chain disruption leads to soaring cost pressures

Backlogs of work rise at quickest pace on record

May PMI™ data from IHS Markit indicated a substantial improvement in the health of the U.S. manufacturing sector, with the rate of overall growth accelerating to a fresh record high. The upturn was supported by stronger expansions in output and new orders, with the pace of the latter reaching the fastest on record. Nonetheless, constraints on production capacity were exacerbated further during the month, as severe supply-chain disruptions led to a marked accumulation of backlogs of work and one of the fastest rises in input prices since data collection began in May 2007.

Although firms were able to partially pass on higher cost burdens, supply shortages and the potential for future strain on capacity pushed output expectations down to their lowest for seven months.

The seasonally adjusted IHS Markit U.S. Manufacturing Purchasing Managers' Index™ (PMI™) posted 62.1 in May, up from

60.5 in April and from the earlier release 'flash' estimate of 61.5. The increase in business activity signalled among U.S. manufacturers was among the strongest in the 14-year series history.

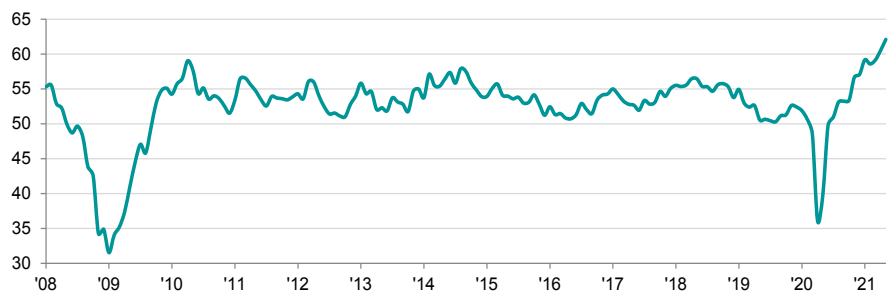
Contributing to the uptick in the headline figure was a significant expansion of production during May. The increase in output was widely attributed to stronger client demand and a further marked rise in new order inflows. The accelerated pace of growth in production was the second-strongest since late-2014. That said, component shortages and supplier delays reportedly continued to limit operating capacity, and stymied the upturn. Although the extent to which lead times for inputs lengthened softened slightly, it was among the most marked on record.

New orders increased at the fastest pace on record in May, as both domestic and foreign client demand ticked higher. The

continued...

U.S. Manufacturing PMI

sa, >50 = improvement since previous month



Contents

[Overview and comment](#)

[Output and demand](#)

[Business expectations](#)

[Employment and capacity](#)

[Purchasing](#)

[Prices](#)

[Reported items](#)

[Manufacturing sub-sectors](#)

[International PMI](#)

[Survey methodology](#)

[Further information](#)

upturn was often linked to the loosening of COVID-19 restrictions and successful vaccine rollouts, which led to stronger demand conditions. Similarly, new export order growth quickened, and was the sharpest since the first month of data collection in May 2007.

As a result of the combination of strong demand and supply constraints, supplier prices were hiked once again, leading to the sharpest rise in cost burdens since July 2008. Greater demand for inputs across the sector, in addition with higher logistics fees, were commonly cited as factors driving the rise in input prices.

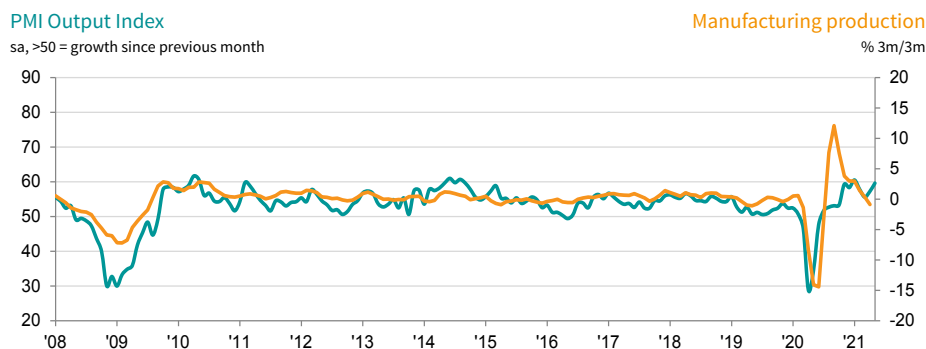
Firms sought to pass on higher cost burdens to their clients amid favourable demand conditions, with the rate of charge inflation quickening to a fresh series high.

Meanwhile, backlogs of work rose at an unprecedented pace. Despite a further

expansion in employment, firms noted that efforts to process work-in-hand were stymied by input shortages. As such, the rate of job creation slowed to the softest since December 2020. Others also stated that the slower rise in employment was linked to difficulties finding suitable candidates and struggles to fill available vacancies, exacerbating capacity constraints.

In an effort to protect against future supply shortages, firms increased their input buying activity markedly. Pre-production inventories were built at the fastest rate on record, but stocks of finished goods fell further as holdings were used to supplement production.

Finally, supply issues weighed on business confidence in May. The degree of optimism remained upbeat on average, but dipped to a seven-month low amid concerns regarding future supply flows.



Sources: IHS Markit, U.S. Federal Reserve.

Comment

Chris Williamson, Chief Business Economist at IHS Markit said:

“US manufacturers are enjoying a bumper second quarter, with the PMI hitting a new high for the second month running in May. Inflows of new orders are surging at a rate unsurpassed in 14 years of survey history, buoyed by reviving domestic demand and record export sales as economies reopen from COVID-19 restrictions. However, elevated levels of other survey indicators are less welcome: prices charged by manufacturers are also

rising at an unprecedented rate, linked to soaring input costs and unparalleled capacity constraints.

“Not only is operating capacity being curbed by record supply chain delays so far in the second quarter, but firms have also been increasingly unable to hire sufficient staff. Hence backlogs of work are building up at an unprecedented rate, as firms struggle to meet demand.

“These backlogs of orders should support further production growth in the next few

months, adding to signs of impressive economic expansion over the summer. But manufacturers’ expectations further ahead have moderated, hinting that the growth rate is peaking, linked to worries about capacity limits being reached, rising prices hitting demand and a peaking of stimulus measures.”

Output and demand

Output

U.S. manufacturing firms indicated a marked expansion in production during May, with the rate of growth accelerating to the fastest for four months. The pace of the upturn was close to the series high (seen in April 2010), having quickened for the second month running. Anecdotal evidence suggested the increase in output was due to notably stronger client demand. Firms did, however, continue to note that supplier shortages and delays constrained production potential.

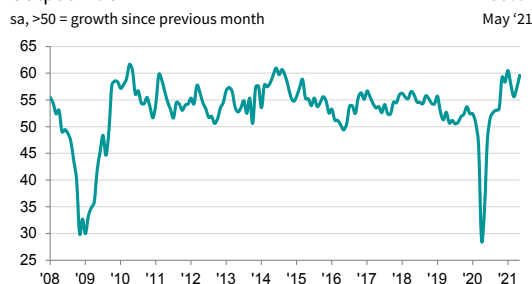
New orders

May data signalled a marked uptick in new order growth among goods producers. The rate of expansion reached a fresh series high, as customers reportedly increased their order volumes in an effort to mitigate against future component shortages. Many firms also stated that greater client confidence following successful vaccine roll-outs spurred higher spending during the month.

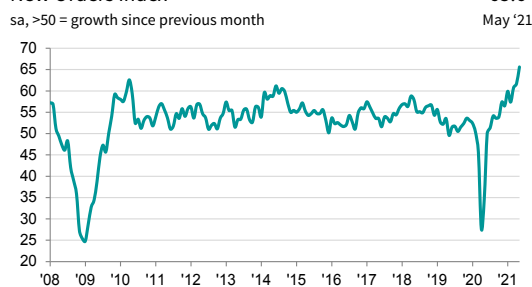
New export orders

In line with the trend for total sales, foreign client demand for U.S. goods picked up during May. The rate of growth was the second-fastest on record, slower only than that seen during the first month of data collection in May 2007. Companies stated that greater new export orders were due to stronger foreign client demand following the loosening of COVID-19 restrictions in key export markets.

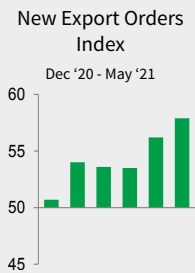
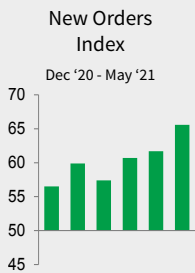
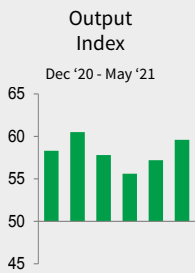
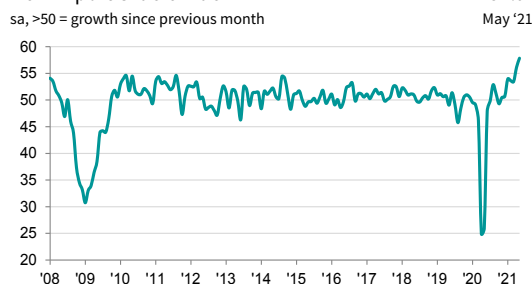
Output Index



New Orders Index



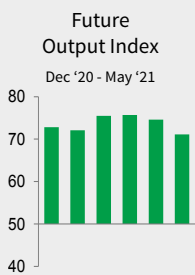
New Export Orders Index



Business expectations

Business confidence among manufacturing firms slipped slightly during May, with the degree of optimism falling to a seven-month low. Upbeat expectations were often linked to hopes of a further boost to new sales. Although still historically elevated, positive sentiment was reportedly weighed down by concerns regarding supply of components over the year to come.

Future Output Index



Employment and capacity

Employment

Manufacturing firms continued to register an expansion in employment in May, thereby extending the current sequence of job creation to ten months. Greater workforce numbers were often attributed to a stronger rise in new order inflows and a need for additional help processing mounting backlogs of work. That said, the rate of employment growth softened to the slowest since December 2020, as some firms struggled to find suitable candidates for available positions.

Backlogs of work

Goods producers indicated a marked rise in backlogs of work, with the rate of growth accelerating to the fastest on record in May. Firms widely mentioned that the increase in outstanding business was due to greater new order inflows and strain on capacity following component shortages.

Stocks of finished goods

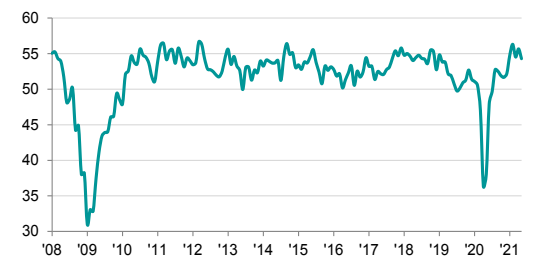
Adjusted for seasonal factors, the Stocks of Finished Goods Index continued to signal a contraction in pre-production inventories during May. Stocks reportedly dwindled due to raw material shortages and the use of current holdings of finished goods to fulfil new orders. Nonetheless, the rate of decline was the slowest for three months and only modest overall.

Employment Index

sa, >50 = growth since previous month

54.3

May '21

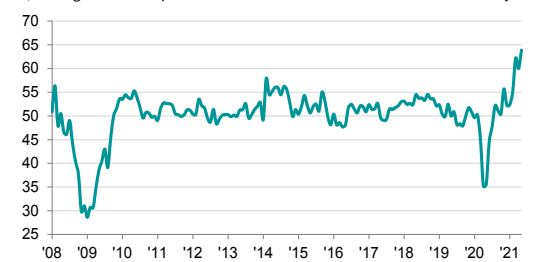


Backlogs of Work Index

sa, >50 = growth since previous month

63.9

May '21

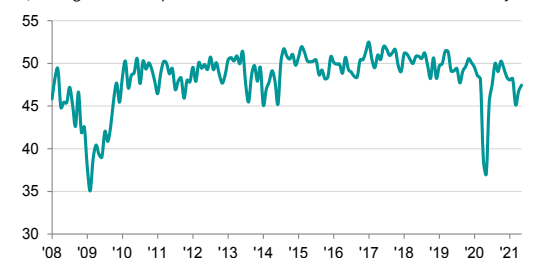


Stocks of Finished Goods Index

sa, >50 = growth since previous month

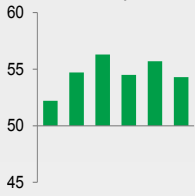
47.5

May '21



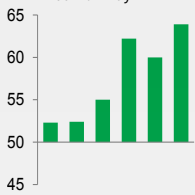
Employment Index

Dec '20 - May '21



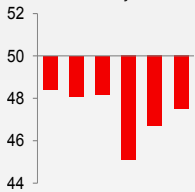
Backlogs of Work Index

Dec '20 - May '21



Stocks of Finished Goods Index

Dec '20 - May '21



Purchasing and inventories

Quantity of purchases

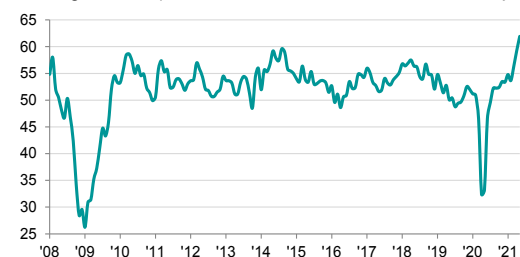
Purchasing activity across the manufacturing sector increased at a substantial pace in May, with the rate of growth accelerating for the third month running. Moreover, the pace of expansion was the quickest on record. Anecdotal evidence stated that the rise in buying activity was due to supplier delays and shortages, with firms stepping up their safety stock building, alongside greater production requirements.

Quantity of Purchases Index

sa, >50 = growth since previous month

61.9

May '21



Suppliers' delivery times

Vendor performance continued to deteriorate midway through the second quarter, as supplier delivery times lengthened significantly. The extent to which delays were extended was among the most marked on record. Firms commonly highlighted that longer lead times were due to component shortages and logistical issues stemming from the ongoing pandemic.

Suppliers' Delivery Times Index

sa, >50 = faster times since previous month

25.5

May '21



Stocks of purchases

In line with efforts to build safety stocks amid supplier shortages, manufacturers registered a strong expansion in pre-production inventories in May. The rate of accumulation was the fastest on record and sharp, as firms sought to protect against input delivery delays.

Stocks of Purchases Index

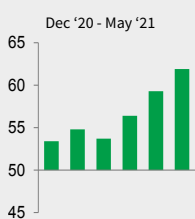
sa, >50 = growth since previous month

54.9

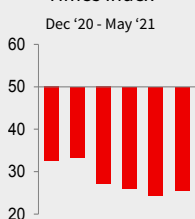
May '21



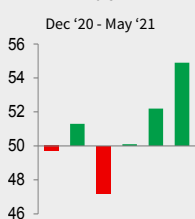
Quantity of Purchases Index



Suppliers' Delivery Times Index



Stocks of Purchases Index



Prices

Input prices

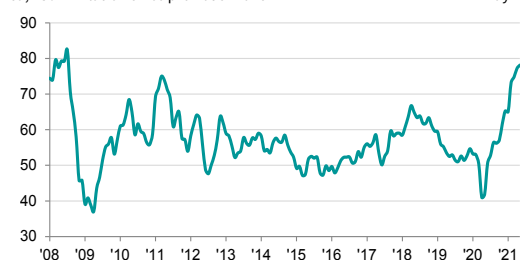
May data signalled a substantial increase in cost burdens across the manufacturing sector. The rate of inflation was marked and among the quickest seen since the series began in May 2007. Companies overwhelmingly attributed the rise in input prices to supplier price hikes and additional transportation fees.

Input Prices Index

sa, >50 = inflation since previous month

78.1

May '21



Output prices

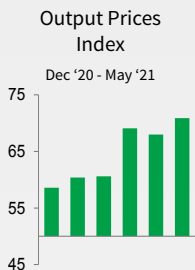
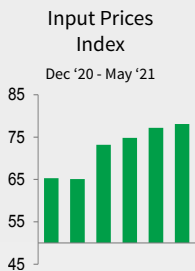
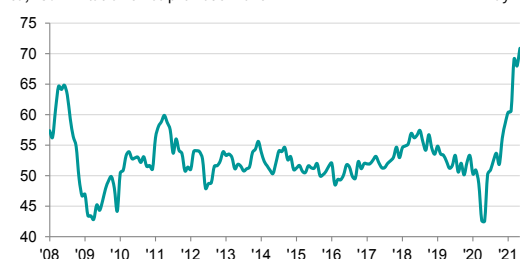
U.S. goods producers indicated a marked rise in output charges during May. The rate of increase was the quickest on record, as firms widely mentioned efforts to partially pass-through higher costs to clients. The pace of cost inflation continued to far outstrip that of charges, however.

Output Prices Index

sa, >50 = inflation since previous month

70.9

May '21



Reported items

The following lists show items reported as being up in price, down in price or in short supply during the latest survey period. Items may be listed as having both risen and fallen in price. This may reflect alternative supply sources (e.g. domestic versus imported), or differences in unit prices due to differing volumes ordered. The lists also show the reporting industry sector for each item, according to Standard Industry Classification codes (SIC) codes.

SIC codes			
15 Food and beverages	21 Paper and paper products	27 Basic metals	33 Medial, precision and optical instruments
16 Tobacco products	22 Printing and reproduction of recorded media	28 Fabricated metal products	34 Motor vehicles, trailers and semi-trailers
17 Textiles	23 Coke and refined petroleum products	29 Machinery and equipment n.e.c.	35 Other transport equipment
18 Wearing apparel	24 Chemicals and chemical products	30 Office machinery and computers	36 Other manufacturing
19 Leather and related products	25 Rubber and plastic products	31 Electrical equipment	
20 Wood and wood products	26 Other non-metallic mineral products	32 Communication equipment	

Up in price

Metals	SIC
Aluminium	22, 24, 29, 31, 35, 36
Brass	28, 35
Carbon Steel	24, 31
Cobalt	27
Cold Rolled Steel	27
Copper	22, 24, 27, 29, 31, 35
Hot Rolled Metal Plate	28
Metal Sheet	36
Metals	20, 23, 25, 27, 28, 29, 35, 36
Stainless Steel Sensors	24
Stainless Steel	27, 31
Steel	22, 24, 25, 26, 28, 29, 31, 34, 35, 36
Steel Sheet	28
Zinc	22
Metal Manufactures	SIC
Cable	29
Castings	36
Copper Wire	24
Fasteners	36
Hot Rolled Coil	28
Metal Coil (Cold Rolled)	28
Metal Products	29
Saw Blades	29
Electrical/Electronic	SIC
Connectors	28, 31, 35
Electrical Components	22, 24
Electronic Meter	24
Electronics	24, 28, 29
Hardware	20
Integrated Circuits	30
Semiconductors	34
Small Electronic Parts	15, 17, 20, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36
Chemicals	SIC
ABS	24

Base Oil	24
Chemicals	24, 31, 34, 36
Glue	24
Maleic Acid	24
Oleic Acid	24
Oleochemicals	24
Polyphenyl Ether	25
Sodium Hydroxide	24
Solvents	24
Plastics	SIC
Acrylic	29
Plastic	22, 24, 25, 33, 35, 36
Plastic Components	23
Plastic Pipe	24
Plastic Resins	24, 25
Polyester	35
Polypropylene	28
Propylene	24
PVC	24
Resin	24, 25, 29, 36
Resin Based Products	31
Silicone	35
Water Based Resins	22
Paper/Timber	SIC
Cardboard	20, 24, 26, 33
Dimensional Lumber	29
Lumber	20, 22, 24, 25, 27, 29, 31, 34, 35, 36
Oriented Strand Board	20
Pallets	15, 24
Paper	22, 24, 33
Paper (Corrugated)	35
Paper Products	30
Plywood	20, 26
Wood	20, 23, 24, 31, 35
Wood Pallets	24, 25, 35
Packaging	SIC
Boxes (Corrugated)	24
Cartons	24
Packaging	24, 31, 35
Packaging (Corrugated)	29
Packaging (Plastic)	24
Tape	24

Rubber	SIC
EPDM	25
Rubber	29, 36
Tyres	24
Textiles/Fabrics	SIC
Fabric	17
Nylon	28, 35
Food	SIC
Chicken	15
Cooking Oil	15
Eggs	15
Grains	24
Oil	34, 35
Pork	15
Protein	15
Energy	SIC
Electricity	24
Fuel	23
Gas	24
Natural Gas	24
Oil	24
Propane	24
Miscellaneous	SIC
Commodities	34
Corrugated Materials	17, 24, 25, 31, 35
Fibreglass	28
Freight	20, 25, 35
Glass	29
Labels	30
Laminate	36
Materials	35
Ocean Freight	35
Plates	23
Raw Materials	24, 25, 27, 34
Transport	25, 29
Down in price	
Metals	SIC
Nickel	35
Steel	35

Electrical/Electronic	SIC
Small Electronic Parts	25, 28, 36
Chemicals	SIC
2EH	24
Biocides	24
Plastics	SIC
Propylene	24
Short supply	
Metals	SIC
Aluminium	20
Axles	29
Copper	35
Gearboxes	28
Metals	24
Stainless Steel	24, 35
Steel	22, 25, 33, 34, 35, 36
Metal Manufactures	SIC
Cable	33
Electrical/Electronic	SIC
Connectors	35
Electrical Components	22, 24
Electronic Chip	30
Electrical Connectors	28
Electronic Meter	24
Electronics	28, 35
Memory	31
Microchips	33
Processors	33
Semiconductors	34
Small Electronic Parts	15, 20, 22, 23, 24, 25, 27, 28, 29, 31, 33, 34, 35, 36
Chemicals	SIC
2EH	24
Acrylates	24
Adhesive	34
Amines	24
Base Oil	23
Lithium	31

Maleic Acid	24
Methacrylic Acid	24
Plastics	SIC
Acrylic	29
Plastic	24, 29, 33, 34
Polyester	35
Polypropylene	25
Resin	24, 25, 29, 36
Silicone	35
Unsaturated Polyester Resin	25
Paper/Timber	SIC
Cardboard	34
Lumber	20, 24, 27, 29, 34, 35
Oriented Strand Board	20
Pallets	15, 24, 35
Plywood	20
Wood	20, 36
Wood Pallets	35
Packaging	SIC
Foam	33
Packaging	25, 27, 28
Rubber	SIC
EPDM	25
Textiles/Fabrics	SIC
Nylon	35
Food	SIC
Chips	35
Vegetable Oil	24
Miscellaneous	SIC
Burners	29
Corrugated Materials	24, 35
Cylinders	29
Drums	24
Engines	28
Epoxy	22
Fibreglass	25
Freight	20
Hydraulic Valves	28
Raw Materials	25, 33
Welding	23

Manufacturing sub-sectors

PMI data are available for producers of consumer, intermediate and investment goods, allowing targeted analysis of these sub-sectors of manufacturing.

Consumer goods

Stronger expansions in output and new orders

Input prices increase at fastest rate on record

Output expectations fall to seven-month low

Intermediate goods

Output growth quickens to fastest since June 2014

Sharpest rise in new orders since data collection began in October 2009

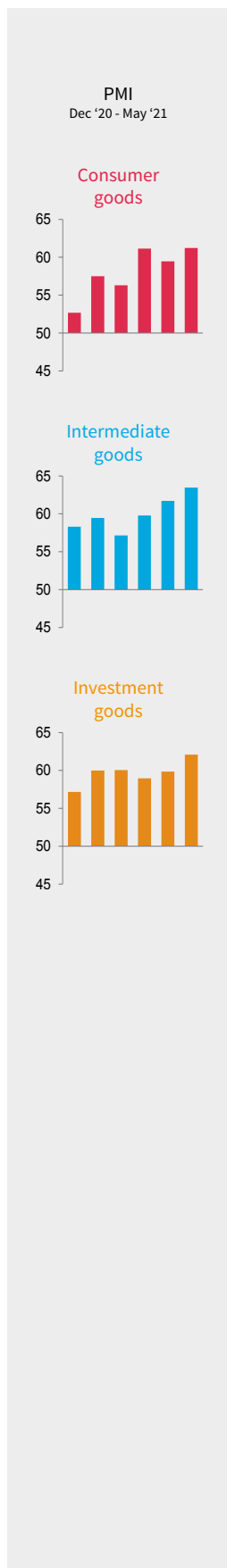
Delivery times lengthen to one of the greatest extents on record

Investment goods

Production rises at steepest pace for four months, as new order growth accelerates

Employment growth quickest since October 2018

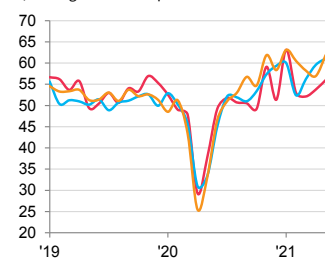
Cost inflation ticks higher, with firms also increasing selling prices



Consumer Goods / Intermediate Goods / Investment Goods

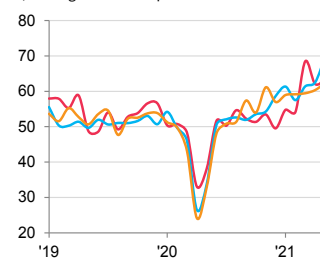
Output Index

sa, >50 = growth since previous month



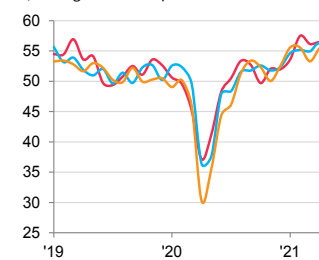
New Orders Index

sa, >50 = growth since previous month



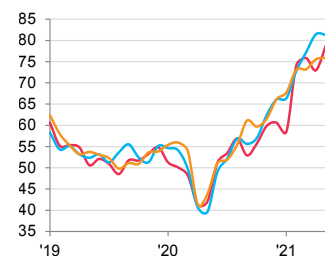
Employment Index

sa, >50 = growth since previous month



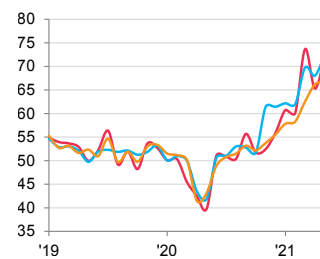
Input Prices Index

sa, >50 = inflation since previous month



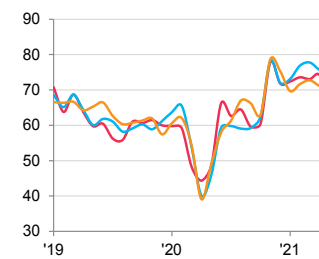
Output Prices Index

sa, >50 = inflation since previous month



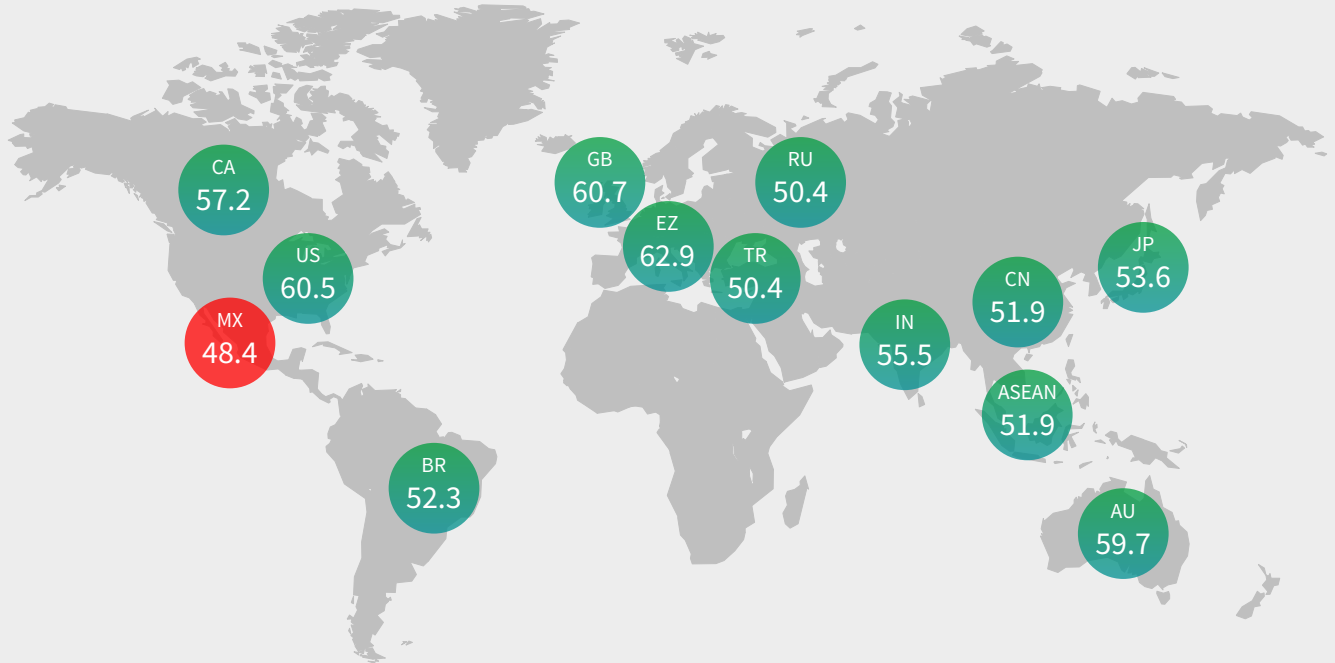
Future Output Index

>50 = growth expected over next 12 months

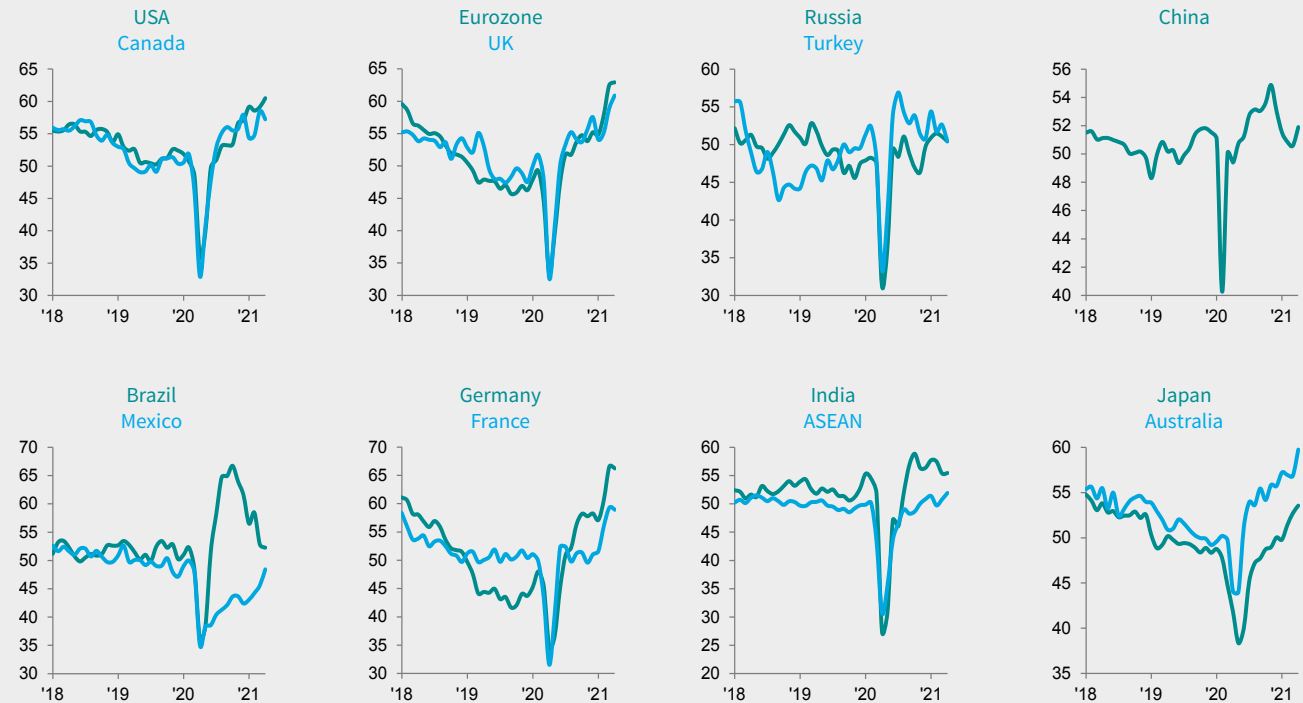


International PMI

Manufacturing PMI, Apr '21
 sa, >50 = improvement since previous month



Manufacturing PMI
 sa, >50 = improvement since previous month



Survey panel size

800

manufacturers

Index calculation

$$\begin{aligned}
 & \% \text{ 'Higher' } \\
 & + \\
 & (\% \text{ 'No change' }) / 2 \\
 & + \\
 & (\% \text{ 'Lower' }) \times 0
 \end{aligned}$$

Survey methodology

The IHS Markit U.S. Manufacturing PMI™ is compiled by IHS Markit from responses to questionnaires sent to purchasing managers in a panel of around 800 manufacturers. The panel is stratified by detailed sector and company workforce size, based on contributions to GDP.

Survey responses are collected in the second half of each month and indicate the direction of change compared to the previous month. A diffusion index is calculated for each survey variable. The index is the sum of the percentage of 'higher' responses and half the percentage of 'unchanged' responses. The indices vary between 0 and 100, with a reading above 50 indicating an overall increase compared to the previous month, and below 50 an overall decrease. The indices are then seasonally adjusted.

The headline figure is the Purchasing Managers' Index™ (PMI). The PMI is a weighted average of the following five indices: New Orders (30%), Output (25%), Employment (20%), Suppliers' Delivery Times (15%) and Stocks of Purchases (10%). For the PMI calculation the Suppliers' Delivery Times Index is inverted so that it moves in a comparable direction to the other indices.

Underlying survey data are not revised after publication, but seasonal adjustment factors may be revised from time to time as appropriate which will affect the seasonally adjusted data series.

For further information on the PMI survey methodology, please contact economics@ihsmarkit.com.

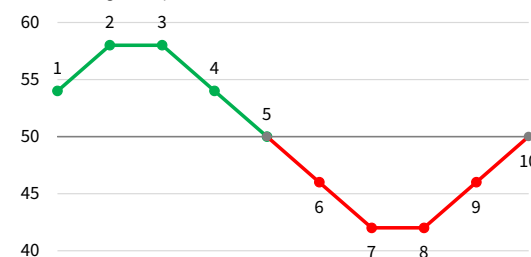
Survey dates and history

May 2021 data were collected 12-24 May 2021.

Data collection began in April 2004 from a survey panel of electronics manufacturers. In May 2007, the panel was expanded to cover manufacturers of metal products. In October 2009, the panel was expanded further to cover all manufacturing activity. Data from May 2007 to September 2009 are compiled from responses from manufacturers of electronics and metal products, while data from October 2009 are compiled from responses from all areas of manufacturing.

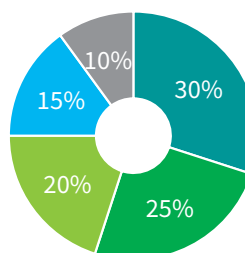
Index interpretation

50.0 = no change since previous month



1 Growth	6 Decline, from no change
2 Growth, faster rate	7 Decline, faster rate
3 Growth, same rate	8 Decline, same rate
4 Growth, slower rate	9 Decline, slower rate
5 No change, from growth	10 No change, from decline

PMI component weights



New Orders
Output
Employment
Suppliers' Delivery Times
Stocks of Purchases

Sector coverage

Manufacturing PMI data include responses from companies operating in the entire manufacturing sector, including the following ISIC Rev.4 codes:

C10 - Food Products	C22 - Rubber and Plastic Products
C11 - Beverages	C23 - Other Non-Metallic Mineral Products
C12 - Tobacco Products	C24 - Basic Metals
C13 - Textiles	C25 - Fabricated Metal Products, Except Machinery and Equipment
C14 - Wearing Apparel	C26 - Computer, Electronic and Optical Products
C15 - Leather and Related Products	C27 - Electrical Equipment
C16 - Wood and of Products of Wood and Cork, Except Furniture; Articles of Straw and Plaiting Materials	C28 - Machinery and Equipment N.E.C.
C17 - Paper and Paper Products	C29 - Motor Vehicles, Trailers and Semi-Trailers
C18 - Printing and Reproduction of Recorded Media	C30 - Other Transport Equipment
C19 - Coke and Refined Petroleum Products	C31 - Furniture
C20 - Chemicals and Chemical Products	C32 - Other Manufacturing
C21 - Basic Pharmaceutical Products and Pharmaceutical Preparations	C33 - Repair and Installation of Machinery and Equipment

Index summary

sa, 50 = no change over previous month. *50 = no change over next 12 months.

	PMI	Output	New Orders	New Export Orders	Future Output*	Employment	Backlogs of Work	Stocks of Finished Goods	Quantity of Purchases	Suppliers' Delivery Times	Stocks of Purchases	Input Prices	Output Prices
Dec '20	57.1	58.3	56.5	50.7	72.8	52.2	52.3	48.4	53.4	32.5	49.7	65.3	58.6
Jan '21	59.2	60.5	59.9	54.0	72.1	54.7	52.4	48.1	54.8	33.4	51.3	65.1	60.4
Feb '21	58.6	57.8	57.4	53.6	75.5	56.3	55.0	48.2	53.7	27.1	47.2	73.2	60.6
Mar '21	59.1	55.6	60.7	53.5	75.7	54.5	62.2	45.1	56.4	26.0	50.1	74.8	69.1
Apr '21	60.5	57.2	61.7	56.2	74.6	55.7	60.0	46.7	59.3	24.3	52.2	77.2	68.0
May '21	62.1	59.6	65.6	57.9	71.1	54.3	63.9	47.5	61.9	25.5	54.9	78.1	70.9

By sector, May '21

sa, 50 = no change over previous month. *50 = no change over next 12 months.

	PMI	Output	New Orders	New Export Orders	Future Output*	Employment	Backlogs of Work	Stocks of Finished Goods	Quantity of Purchases	Suppliers' Delivery Times	Stocks of Purchases	Input Prices	Output Prices
Consumer	61.2	56.0	63.4	57.4	65.3	55.2	60.5	50.3	59.6	26.8	61.9	78.8	72.2
Intermediate	63.5	61.1	69.7	58.2	74.4	52.3	67.8	44.6	64.5	23.3	53.3	81.2	72.6
Investment	62.1	61.9	62.3	57.4	70.1	56.0	62.7	50.1	62.6	23.9	53.1	75.9	66.8

About IHS Markit

IHS Markit (NYSE: INFO) is a world leader in critical information, analytics and solutions for the major industries and markets that drive economies worldwide. The company delivers next-generation information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions. IHS Markit has more than 50,000 business and government customers, including 80 percent of the Fortune Global 500 and the world's leading financial institutions.

IHS Markit is a registered trademark of IHS Markit Ltd. and/or its affiliates. All other company and product names may be trademarks of their respective owners © 2021 IHS Markit Ltd. All rights reserved.

About PMI

Purchasing Managers' Index™ (PMI™) surveys are now available for over 40 countries and also for key regions including the eurozone. They are the most closely watched business surveys in the world, favoured by central banks, financial markets and business decision makers for their ability to provide up-to-date, accurate and often unique monthly indicators of economic trends.

ihsmarkit.com/products/pmi.html

Disclaimer

The intellectual property rights to the data provided herein are owned by or licensed to IHS Markit. Any unauthorised use, including but not limited to copying, distributing, transmitting or otherwise of any data appearing is not permitted without IHS Markit's prior consent. IHS Markit shall not have any liability, duty or obligation for or relating to the content or information ("data") contained herein, any errors, inaccuracies, omissions or delays in the data, or for any actions taken in reliance thereon. In no event shall IHS Markit be liable for any special, incidental, or consequential damages, arising out of the use of the data. Purchasing Managers' Index™ and PMI™ are either registered trade marks of Markit Economics Limited or licensed to Markit Economics Limited. IHS Markit is a registered trademark of IHS Markit Ltd. and/or its affiliates.