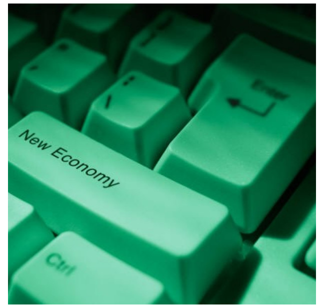

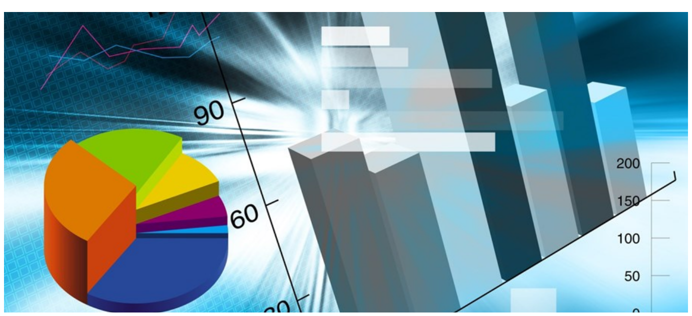

npta National Paper Trade Association

Economic Report

August 2020

ITR ECONOMICS

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Click Here for a Brief Explanation of How to Read This Report

overview

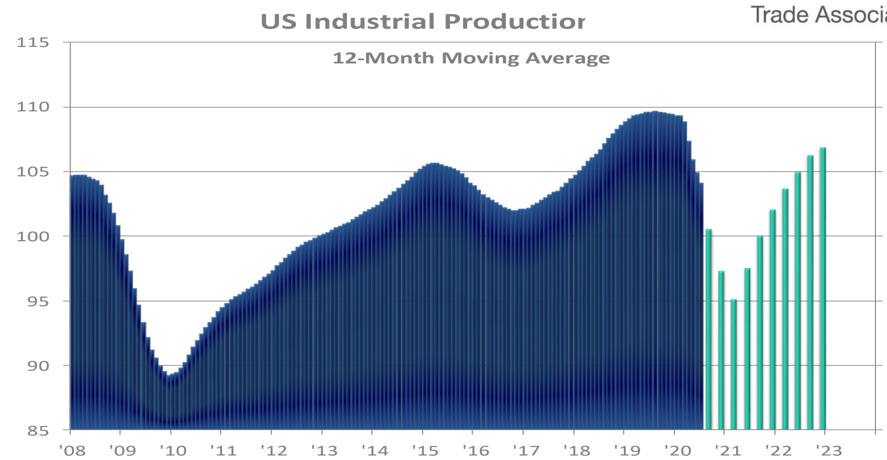
Many tough lessons were learned in the first half of 2020, and vulnerabilities were laid bare. Navigating the global COVID-19 shutdowns required ingenuity, leadership, and focus. Although some companies prospered, the majority were negatively impacted. As we move farther into the second half of the year, the US is at least partially open for business, and monthly data has ticked up for the industrial and retail sectors. The economy is not out of the woods yet, but there are some encouraging signs.

Rate-of-change signals have tentatively ticked up for numerous leading indicators, including:

- US ISM PMI (Purchasing Managers Index)
- JPM Global Purchasing Managers Index
- ITR Financial Leading Indicator™
- OECD's US and G7 Leading Indicators
- US Total Industry Capacity Utilization Rate

In addition to monthly leading indicators, we are analyzing weekly data. Weekly US Intermodal Rail Traffic for the week of August 10 came in 1.9% higher than the same week one year ago, a marked improvement from the 20.0% contraction in the week of April 6. On the consumer side, the Johnson Redbook Retail Index shows that year-over-year contraction has eased, from 9.7% in mid-June to 2.8% in mid-August. Although recent upward movement in these indicators is heartening, the rising trends are still in their infancy, so we are watching for sustained rise.

The current downturn was caused by a natural disaster and not by economic fundamentals, which has important implications for the subsequent recovery trend. US consumers were in a better position pre-pandemic than they were before the Great Recession. The US Unemployment Rate was at a nearly 50-year low before spiking up to double digits due to government-mandated business closures. US Disposable Personal Income was at a record high in April, assisted by government stimulus measures; during a recession we usually see decline in Income. Even more encouraging is that the US Personal Savings Rate spiked to record highs, signaling that consumers were able to set aside part of the stimulus money.



Taken together, the aforementioned evidence is cause for measured optimism. Recovery will be gradual as uncertainty fades and budgets rebalance. We expect peak-to-trough decline in annual Industrial Production to come in at about 13.3%, slightly less than what we saw in the Great Recession. Annual Production will reach a low in early 2021 and then rise through at least 2022. Production in 2022 is expected to come in about 2.5% lower than the August 2019 peak, meaning we likely will not have a full recovery until 2023 or later. However, a full recovery is expected to come faster this cycle relative to the Great Recession, which took about five years. The most significant risk factor to our forecasts is delayed reopenings.

It can be easy to get lost in the (often conflicting) data points reported in the news. Use our forecasts as a guiding light as you craft your plan for the future. Successful businesses plan at least a half business cycle ahead. Ask yourself: What can I be doing now to be ready for recovery next year? Look for ways to boost employee productivity; the ROI on discounted capital goods and acquisitions can be most favorable at the bottom of the business cycle. Take a close look at the resiliency of your supply chain both upstream and downstream – Should you find new suppliers, or branch out into new end markets? The current downturn poses a considerable challenge, but, with careful planning, your company can emerge even stronger

Terminology & Methodology

Data Trends:

Monthly Moving Total (MMT) vs Monthly Moving Average (MMA):

Totals are used when it makes sense to add the data together, as with units sold or total dollars spent. Averages are used when the data cannot be compounded, such as with an index, percent, price level, or interest rates.

3MMT/A and 12MMT/A:

A 3-month or 12-month moving total/average is the total/average of the monthly data for the most recent 3 and 12 months, respectively. The 3MMT/A illustrates the seasonal changes inherent to the data series. The 12MMT/A removes seasonal variation in order to derive the underlying cyclical trend. It is also referred to as the annual total or annual average.

Rates-of-Change:

A rate-of-change figure is the ratio comparing a data series during a specified time period to the same period one year ago. **Rates-of-change** are expressed in terms of the **annual percent change in a 12MMT/A, 3MMT/A, and actual monthly data.**

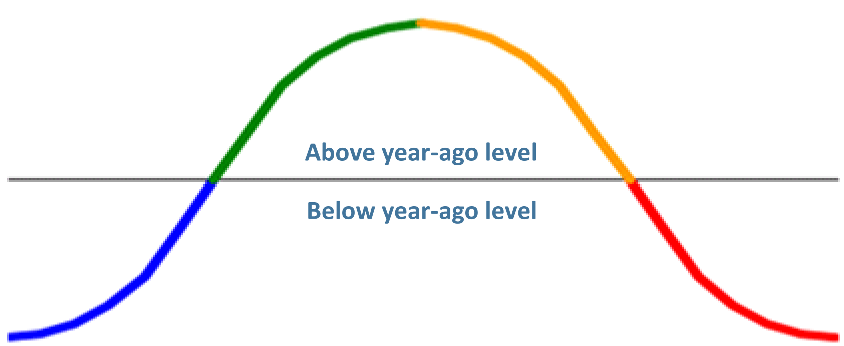
Rates-of-change reveal whether activity levels are rising or falling compared to last year. A rate-of-change trend illustrates and measures cyclical change and trends in the data.

ITR Economics' three commonly used rates-of-change are the **1/12**, **3/12**, and **12/12**, which represent the year-over-year percent change of a single month, 3MMT/A, and 12MMT/A (respectively).

A rate-of-change above 0 indicates the data is higher than one year prior, while a rate-of-change below 0 indicates the data is below one year earlier.

Business Cycle:

The data trends and rates-of-change identify positions in the business cycle. Those positions are:



Accelerating Growth (B): 12/12 is rising and is above zero; the data trend is accelerating in its ascent and is above the year-ago level. This is the second positive phase of the business cycle.

Recovery (A): 12/12 is rising but is below zero; the data trend is below the year-ago level and is either heading toward a low or is in the early stages of rise. This is the first positive phase of the business cycle.

Slowing Growth (C): 12/12 is declining but remains above zero; the data trend ascent is slowing or has stopped its rise, but it is still above the year-ago level. This is the first negative phase of the business cycle.

Recession (D): 12/12 is declining and is below zero; the data trend is below the year-ago level and the rate of decline is increasing. This is the second and final negative phase of the business cycle.

Business Cycle

Industry	Current	Phase	2020	2021	2022
US Paper and Paper Products Production Index	-2.7%	D	-5.6%	-1.9%	0.5%
US Pulp, Paper, and Board Mills Production Index	-3.8%	D	-6.2%	-3.4%	0.4%
US Commercial Printing Production Index	-9.1%	D	-18.3%	-2.9%	1.6%
US Paper Bags and Treated Paper Products Production Index	-9.9%	A	-6.4%	-3.5%	0.0%
US Periodical, Book, and Other Publishers Production Index	-11.1%	D	-14.7%	-5.5%	-3.9%
US Media Spending on Print Advertising	-19.1%	D	-24.0%	-8.1%	-11.7%
US Durable Goods New Orders (without Aircraft)	-4.2%	D	-14.6%	1.3%	7.6%
US Paper Producer Price Index*	-3.7%	D	-4.7%	0.5%	5.2%

*All growth rates are year-over-year except the US Paper Producer Price Index, which quotes the quarterly growth rate (ex. 4Q20 relative to 4Q19), since it is a measure of pricing.

A RECOVERY

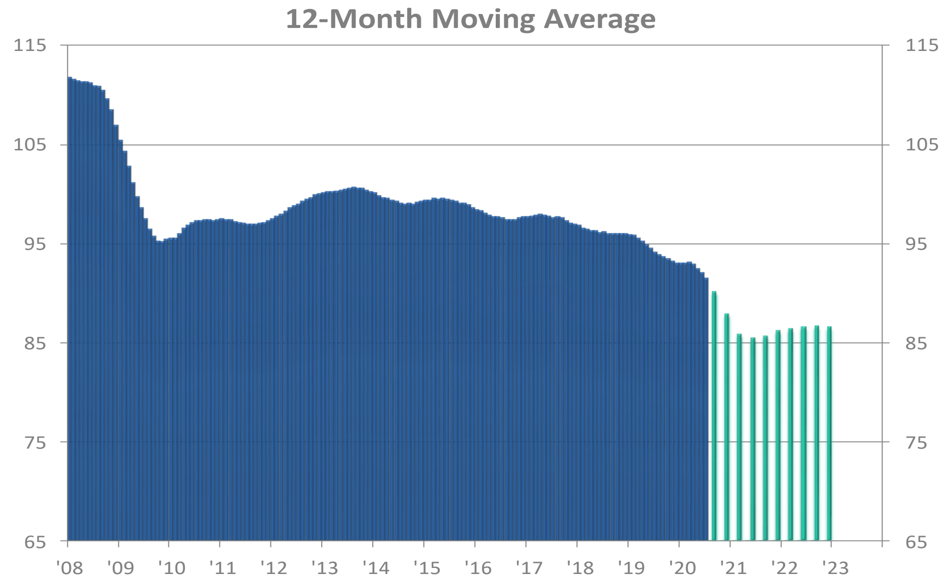
B ACCELERATING GROWTH

C SLOWING GROWTH

D RECESSION

US Paper and Paper Products Production Index

Production to Decline Into Mid-2021; Recovery Will Not Approach Pre-Pandemic Levels



Industry Outlook

2020: -5.6%

2021: -1.9%

2022: 0.5%

Outlook & Supporting Evidence

- US Paper and Paper Products Production was down 2.7% for the 12 months through July and is trending in line with our expectations. The forecast is unchanged. Expect annual Production to decline into the middle of 2021 before rising mildly into late 2022.
- Quarterly activity in US Wholesale Trade of Paper and Paper Products is trending below the Great Recession level. Historically low levels of activity in this sector suggest demand for paper and paper products will remain low in the near term.
- Look for ways to be profitable at or below current activity levels; Production will not surpass the current level throughout the length of the forecast.

Phase & Amplitudes

Phase D

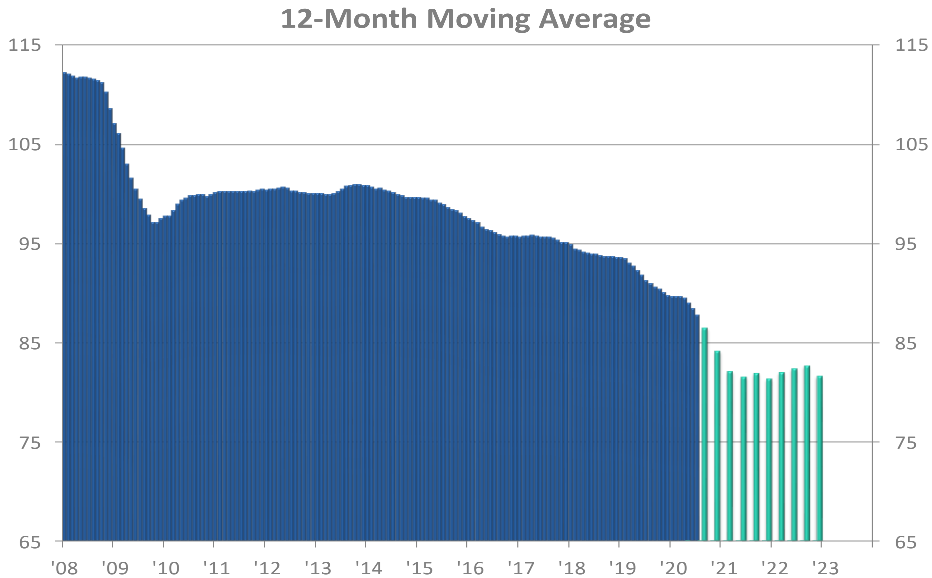
Recession

July 2020 Annual Growth Rate (12/12): -2.7%

July 2020 Annual Average (12MMA): 91.6

US Pulp, Paper, and Board Mills Production Index

Annual Production to Decline Into Mid-2021 Before Stabilizing in the Second Half of the Year



Industry Outlook

2020: -6.2%

2021: -3.4%

2022: 0.4%

Outlook & Supporting Evidence

- Annual US Pulp, Paper, and Board Mills Production was down 3.8% from one year ago and trending in line with the forecast. The outlook is unchanged. Annual Production will decline into mid-2021 before leveling off into the latter half of 2022.
- Declining activity in both industrial and consumer activity is reducing demand for pulp, paper, and board mills products. We expect macroeconomic recovery and eventual expansion in 2021 will mitigate the general decline in Production that began in 2013 next year.
- Stay-at-home orders and health concerns have resulted in consumers shifting further toward online shopping during the pandemic. This could boost demand for paper and board products and poses an upside risk to the forecast.

Phase & Amplitudes

Phase D

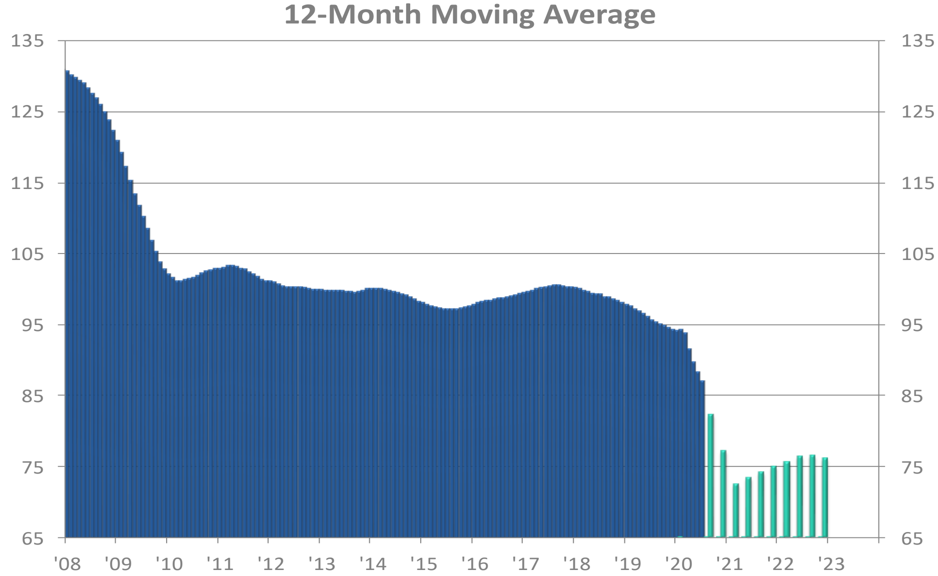
Recession

July 2020 Annual Growth Rate (12/12): -3.8%

July 2020 Annual Average (12MMA): 87.8

US Commercial Printing Production Index

High Unemployment to Reduce Consumer Spending in Relevant Markets Into Mid-2021



Industry Outlook

2020: -18.3%

2021: -2.9%

2022: 1.6%

Outlook & Supporting Evidence

- US Commercial Printing Production is suffering more acutely from COVID-19-related market strains than most markets included in this report. The forecast is unchanged. Expect annual Production to decline into early 2021 before rising into the second half of 2022. Annual Production will trend, on average, 17.1% below the current level throughout the length of the forecast.
- Steep decline in quarterly US Apparel Production and US Wholesale Trade of Apparel, Piece Goods, and Notions, two major drivers of commercial printing, suggest that weak demand in the apparel industry is contributing to the precipitous decline in US Commercial Printing Production.
- We expect the US Unemployment Rate to remain relatively high into the middle of 2021, which will keep consumer spending on commercial items low during the same time period.

Phase & Amplitudes

Phase D

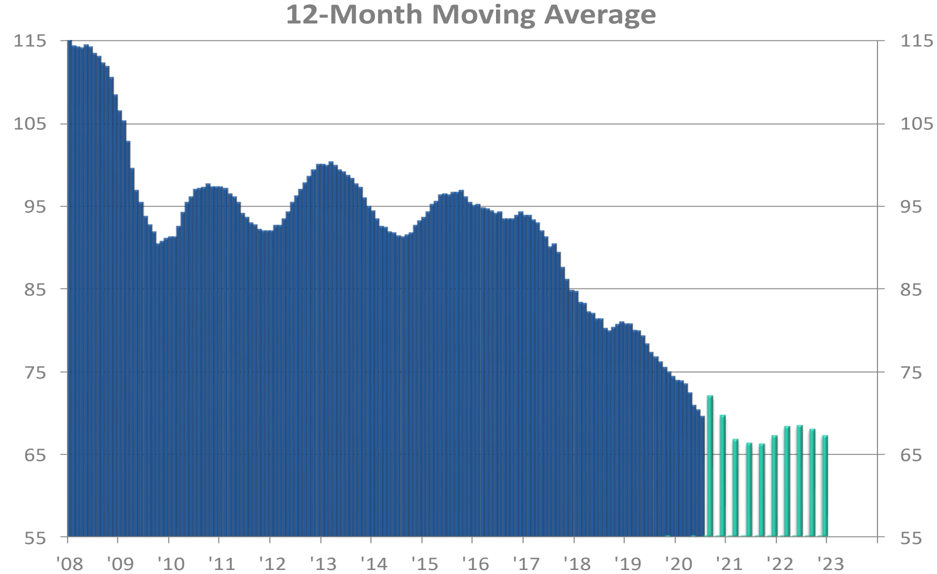
Recession

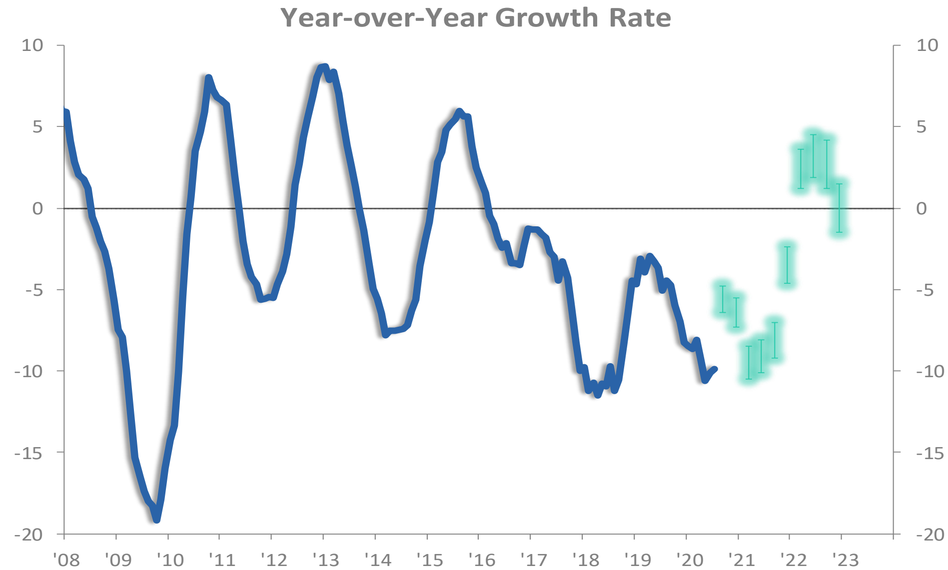
July 2020 Annual Growth Rate (12/12): -9.1%

July 2020 Annual Average (12MMA): 87.0

US Paper Bags and Treated Paper Products Production Index

Annual Production Will Generally Decline Into the Latter Half of 2021





Industry Outlook

2020: -6.4%

2021: -3.5%

2022: 0.0%

Outlook & Supporting Evidence

- Annual Production was 2.5% below the forecast range in June. Our projections suggest that anticipated near-term rise for annual Production may be more mild than expected but Production is likely to return to the forecast range by year-end 2020. Analysis of the most recent data (July) suggests that the forecast represents the most likely outcome for the next 10 quarters. The forecast is therefore unchanged.
- Annual Production will generally decline into the second half of 2021 before rising to around the current level in mid-2022. Decline will resume in the latter half of 2022.
- We expect robust recovery in the US consumer sector by the second half of 2021. A return to pre-COVID, in-person shopping habits will ward off decline in annual Production in the latter half of 2021 and into 2022.

Phase & Amplitudes

Phase A

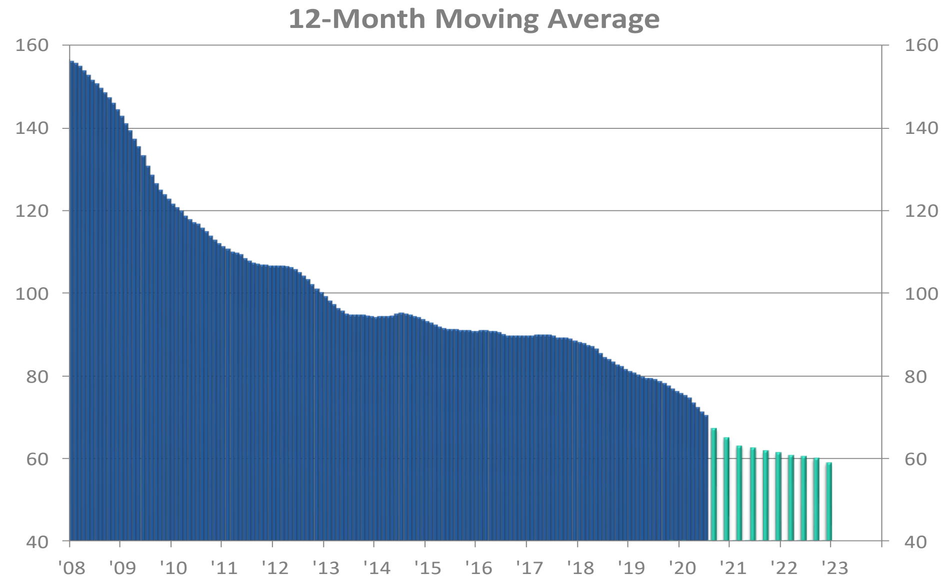
Recovery

July 2020 Annual Growth Rate (12/12): -9.9%

July 2020 Annual Average (12MMA): 69.6

US Periodical, Book, and Other Publishers Production Index

Do Not Expect Annual Production to Rise at All Through at Least Year-end 2022



Industry Outlook

2020: -14.7%

2021: -5.5%

2022: -3.9%

Outlook & Supporting Evidence

- Annual US Periodical, Book, and Other Publishers Production was down 11.1% in July, trending in line with our outlook. The forecast is unchanged. Annual Production is expected to decline into at least late 2022.
- As more consumers shift toward getting their reading materials via electronic devices, the New York Times reports that one in five newspapers has shut down in the last 15 years (roughly 2000 newspapers). This is impacting local print-only news organizations in particular and is contributing to the long-term decline in annual Production.
- We do not expect annual Production to rise during at least the next 10 quarters.

Phase & Amplitudes

Phase D

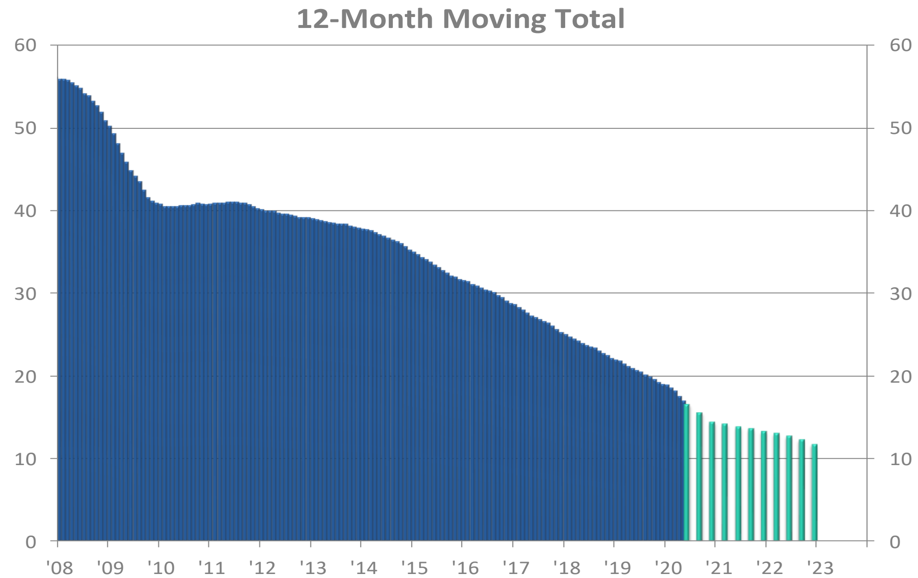
Recession

July 2020 Annual Growth Rate (12/12): -11.1%

July 2020 Annual Average (12MMA): 70.2

US Media Spending on Print Advertising

Annual Media Spending Will Decline Through at Least Year-End 2022



Industry Outlook

2020: -24.0%

2021: -8.1%

2022: -11.7%

Outlook & Supporting Evidence

- Annual US Media Spending on Print Advertising was 1.2% above the forecast range in March. Our analysis of the latest data (May) suggests the forecast represents the most likely outcome for Media Spending through 2022. Projections indicate the annual data trend will return to forecast range by early 2021. The forecast is therefore unchanged. Annual Media Spending will generally decline through at least year-end 2022, though the pace of decline will ease during 2021.
- Quarterly US Real Gross Domestic Product (GDP) will reach a business cycle low imminently and is expected to then rise at an accelerating pace into 2021. We expect recovery and expansion in GDP to mitigate downside pressure on annual Media Spending, easing the pace of decline next year. However, the long-term fundamentals of this industry suggest there will be no significant growth in this market through at least 2022.

Phase & Amplitudes

Phase D

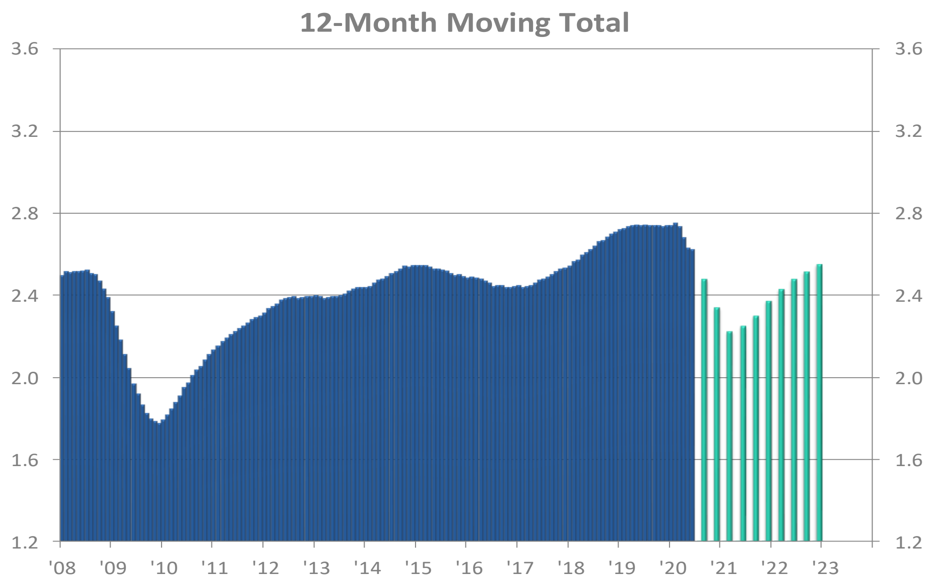
Recession

May 2020 Annual Growth Rate (12/12): -19.1%

May 2020 Annual Total (12MMT): $16.9 billion

US Durable Goods New Orders (without Aircraft)

Annual New Orders Expected to Begin Rising Around Mid-2021



Industry Outlook

2020: -14.6%

2021: 1.3%

2022: 7.6%

Outlook & Supporting Evidence

- Annual US Durable Goods New Orders (without Aircraft) was down 4.2% in the second quarter and within the forecast range. The forecast is unchanged. Annual New Orders will decline into early 2021 due to pandemic-related disruptions before rising through at least year-end 2022. Annual New Orders will not return to pre-pandemic levels during that time.
- Trends in a number of leading indicators, including the ITR Leading Indicator™ and the US ISM (PMI) Purchasing Managers Index, suggest that New Orders will reach a business cycle low in early 2021 and that recovery should begin in the first half of that year.
- If states resume shutdown orders in the wake of COVID-19 case spikes on a wide scale, it would be a downside risk to this outlook.

Phase & Amplitudes

Phase D

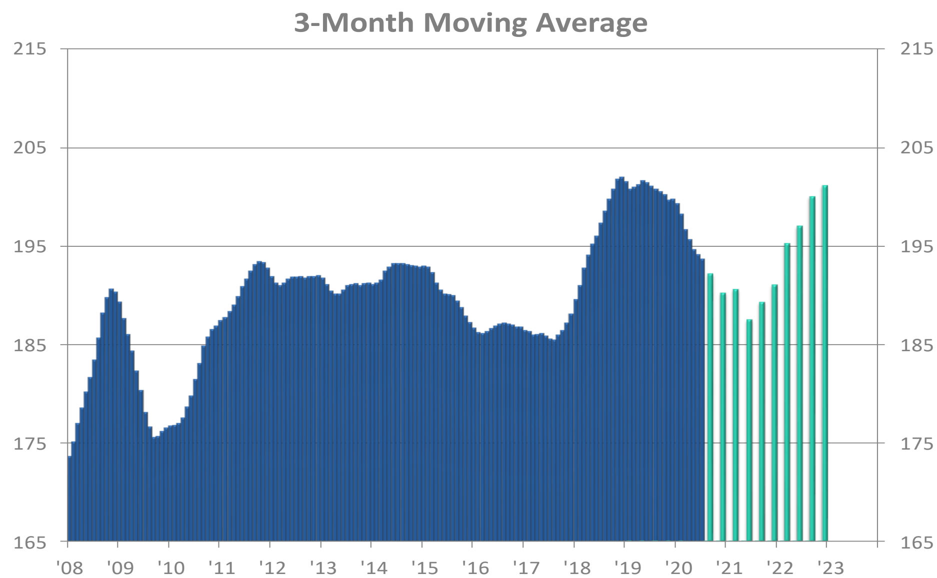
Recession

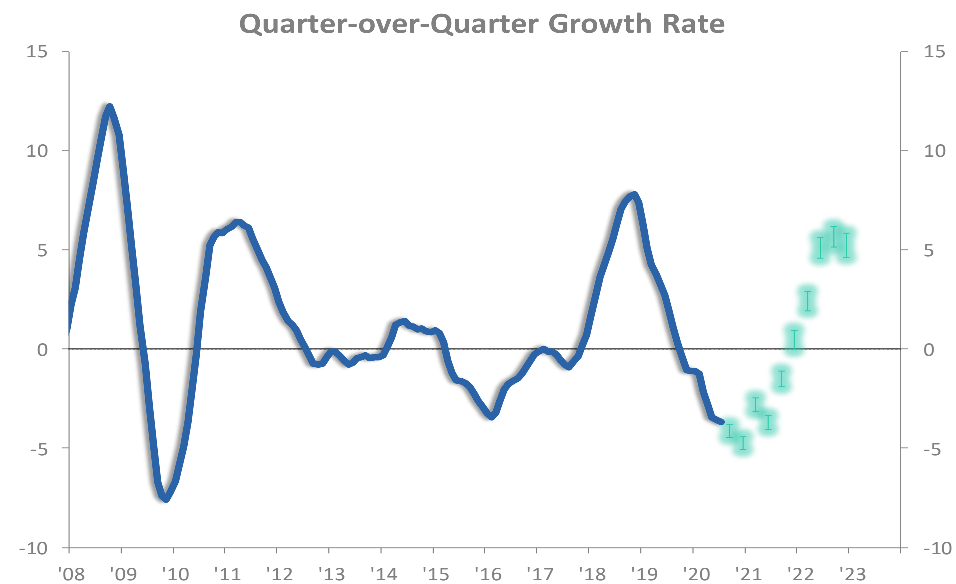
June 2020 Annual Growth Rate (12/12): -4.2%

June 2020 Annual Total (12MMT): $2.622 trillion

US Paper Producer Price Index

Expect Prices to Decline Further Into the Middle of 2021





Industry Outlook

4Q20: -4.7%

4Q21: 0.5%

4Q22: 5.2%

Outlook & Supporting Evidence

- Quarterly US Paper Producer Prices were down 3.7% in July and trending in line with our expectations. We expect quarterly Prices to decline into the middle of 2021 before rising through at least year-end 2022.
- Decline in the US industrial sector will keep producer prices low into next year. We expect recovery in US Industrial Production, and more specifically in US Paper and Paper Products Production, during the latter half of 2021 and into 2022 will drive price inflation during that time. Projected general rise for US Producer Prices in 2021 and 2022 informs our expectation for price inflation in the paper industry during the same time period.

Phase & Amplitudes

Phase D

Recession

July 2020 Quarterly Growth Rate (3/12): -3.7%

July 2020 Quarterly Average (3MMA): 193.7

INDICATORS

US Leading Indicators

Indicator	Direction		
	3Q20	4Q20	1Q21
ITR Leading Indicator™	🔴	🔴	N/A
ITR Retail Sales Leading Indicator™	🔴	🔴	🔴
The Conference Board's US Leading Indicator	🔴	🔴	N/A
US ISM PMI (Purchasing Managers Index)	🔴	🔴	🟢
US Total Capacity Utilization Rate	🔴	🟢	N/A

Green denotes that the indicator signals cyclical rise for the economy in the given quarter. Red denotes the opposite.

What it means for the US economy

- Four of the five leading indicators in this dashboard – the ITR Leading Indicator™ is the exception – are exhibiting at least nascent signs of rise. This bodes well for our forecast for an early-2021 trough in US Industrial Production's business cycle.
- We will need more data – especially given the reopening reversals in major states such as California, Texas, and Florida – to confirm these tentative leading indicator lows and turn more dots green on the table.
- However, our analysis suggests lows are likely to hold in at least some of the indicators, such as the US ISM PMI (Purchasing Managers Index). Additional leading indicators not included in this table are also exhibiting signs of rise.

The leading indicators suggest US Industrial Production will decline into early 2021, informing our outlook. However, recent spikes in COVID-19 cases and renewed shutdowns could pose a downside risk to this outlook. ITR is monitoring the leading indicators carefully for any further developments that may warrant a forecast change.

Appendix — Market Definitions

US Industrial Production Index — Index of total industrial production in the United States; includes manufacturing, mining, and utilities. Source: Federal Reserve Board (FRB). 2012 = 100, not seasonally adjusted (NSA).

US Paper and Paper Products Production Index — NAICS 322. Industries in the Paper Manufacturing subsector that make pulp, paper, or converted paper products. Source: FRB. Index, 2012 = 100, NSA.

US Pulp, Paper, and Board Mill Production Index — NAICS 3221. This industry group comprises establishments primarily engaged in manufacturing pulp, paper, or paperboard. Source: FRB. Index, 2012 = 100, NSA.

US Commercial Printing Production Index — NAICS 32311. This industry comprises establishments primarily engaged in printing on apparel and textile products, paper, metal, glass, plastics, and other materials, except fabric (grey goods). The printing processes employed include, but are not limited to, lithographic, gravure, screen, flexographic, digital, and letterpress. Establishments in this industry do not manufacture the stock that they print, but may perform post printing activities, such as folding, cutting, or laminating the materials they print, and mailing. Source: FRB. Index, 2012 = 100, NSA.

US Paper Bags and Treated Paper Products Production Index — NAICS 32222. This industry comprises establishments primarily engaged in one or more of the following: (1) cutting and coating paper and paperboard; (2) cutting and laminating paper, paperboard, and other flexible materials (except plastics film to plastics film); (3) manufacturing bags, multiwall bags, sacks of paper, metal foil, coated paper, laminates, or coated combinations of paper and foil with plastics film; (4) manufacturing laminated aluminum and other converted metal foils from purchased foils; and (5) surface coating paper or paperboard. Source: FRB. Index, 2012 = 100, NSA.

US Periodical, Book, and Other Publishers Production Index — NAICS 51112-9. This industry comprises establishments known either as magazine publishers or periodical publishers. These establishments carry out the operations necessary for producing and distributing magazines and other periodicals, such as gathering, writing, and editing articles, and selling and preparing advertisements. These establishments may publish magazines and other periodicals in print or electronic form. Source: FRB. Index, 2012 = 100, NSA.

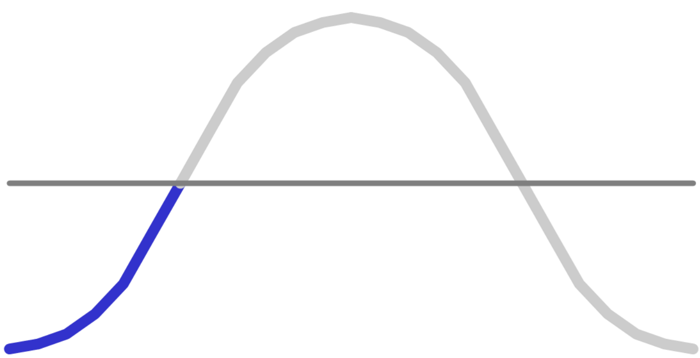
US Media Spending on Print Advertising — Media spending in the US on print advertising. Includes magazine and newspaper advertising. Source: Kantar Media. Measured in billions of dollars, NSA.

US Durable Goods New Orders (without Aircraft) — New orders for durable goods (excluding aircraft) in the US. Includes wood products, nonmetallic mineral products, primary metals, fabricated metals, machinery, computers and electronic products, electrical equipment, appliances and components, transportation equipment except for aircraft, furniture and related products, etc. Source: US Census Bureau. Measured in trillions of dollars, NSA.

US Paper Producer Price Index — Producer Price Index for paper in the US. Includes writing and printing papers, ground wood paper, newsprint, packaging and converting paper, coated and laminated paper, film, gift wrap papers, and other miscellaneous papers. Source: US Bureau of Labor Statistics. Index, 1982 = 100, NSA.

Management Objectives™

Phase



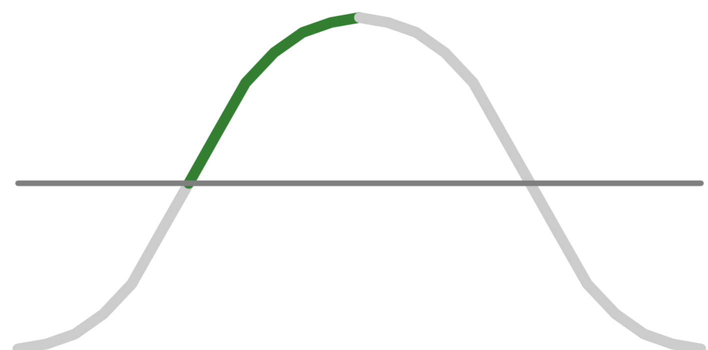
A

1 Model positive leadership (culture turns to behavior)
2 Establish tactical goals that lead to strategic achievement
3 Develop a system for measurement and accountability re: objective 2
4 Align compensation plans with objectives 2 and 3
5 Be keenly aware of the BE (Break Even) point and check it regularly
6 Judiciously expand credit
7 Check distributions systems for readiness to accommodate increased activity
8 Review and uncover competitive advantages
9 Invest in customer market research (know what they value)
10 Improve efficiencies with investment in technology and software
11 Start to phase out marginal opportunities
12 Add sales staff
13 Build inventories (consider lead time and turn rate)
14 Introduce new product lines
15 Determine capital equipment needs and place orders
16 Begin advertising and sales promotions
17 Hire "top" people
18 Implement plans for facilities expansion
19 Implement training programs

Management Objectives™

1 Accelerate training
2 Check the process flow for possible future bottlenecks
3 Continue to build inventory
4 Increase prices
5 Consider outside manufacturing sources if internal pressures are becoming tight
6 Find the answer to "What is next?"
7 Open distribution centers
8 Use improved cash flow to improve corporate governance
9 Use cash to create new competitive advantages
10 Watch your debt-to-equity ratio and ROI
11 Maintain/pursue quality; don't let complacency set in
12 Stay in stock on A items, and be careful with C items
13 Consider selling the business in a climate of maximum "goodwill"
14 Penetrate new selected accounts
15 Develop plan for lower activity in traditional, mature markets
16 Freeze all expansion plans (unless related to "What is next?")
17 Spin off undesirable operations
18 Consider taking on subcontract work if the backside of the cycle looks recessionary
19 Stay realistic – beware of linear budgets
20 Begin missionary efforts into new markets
21 Communicate competitive advantages to maintain margins

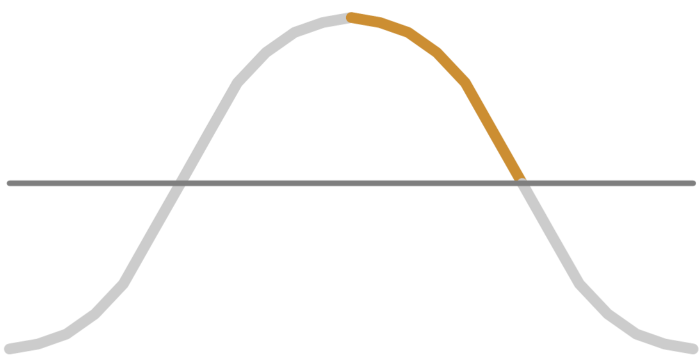
Phase



B

Management Objectives™

Phase C



1 Cross train key people to prepare for workforce reduction if the cycle looks recessionary

2 Set budget reduction goals by department

3 Avoid long-term purchase commitments late in the price cycle

4 Concentrate on cash and balance sheet

5 Reduce advertising and inventories

6 De-emphasize commodity/services in anticipation of diminishing margins

7 Weed out inferior products (lose the losers)

8 Encourage distributors to decrease inventory

9 Identify and overcome any competitive disadvantages

10 Make sure you and the management team are not in denial

11 Cross train key people

12 Watch Accounts Receivable aging

13 Increase the requirements for justifying capital expenditures

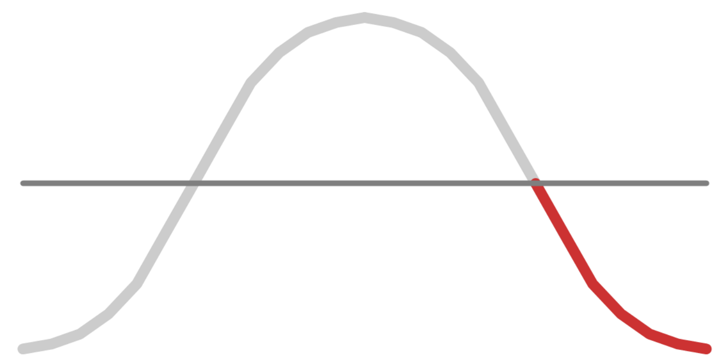
14 Evaluate vendors for strength (don't get caught honoring their warranties with no one to accept returned goods)

15 Manage the backlog through pricing and delivery; try to fill the funnel

Management Objectives™

1. Continue force reduction
2. Reduce advertising – be very selective
3. Continue to avoid long-term purchase commitments
4. Review all lease agreements
5. Increase the requirements for justifying capital equipment
6. Eliminate all overtime
7. Reduce overhead labor
8. Combine departments with like capabilities and reduce management
9. Select targets of opportunity where price will get the business
10. Tighten credit policies – increase scrutiny
11. Look for opportunistic purchases
12. Grab market share as your competitor dies
13. Prepare training programs
14. Negotiate union contracts, if possible
15. Develop advertising and marketing programs
16. Enter or renegotiate long-term leases
17. Look for additional vendors
18. Consider capital expenditures and acquisitions in light of market-by-market potential
19. Make acquisitions – use pessimism to your advantage
20. Lead with optimism and "can do" attitude to mitigate employee anxiety

Phase



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