

Printing Outlook 2020



Includes
COVID-19
update

A survey of printing and communications executives about their business outlook and the industry's print and service offerings.

WhatTheyTh!nk

Printing Outlook 2020

WhatTheyThink's Overview of the Current Economic State of the Industry

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Table of Contents

THIS JUST IN: COVID-19 UPDATE..... 6

 COVID-19 Survey 6

 Expected Severity..... 8

 Impact on Revenues..... 8

 Impact on Jobs/Orders 10

 Impact on Operations..... 11

 Hiring and Investment Plans..... 12

 What They Think..... 13

 Macroeconomic Updates..... 16

 GDP 16

 Employment..... 16

 Consumer Sentiment 17

 Printers as Essential Businesses 19

 What We Think—Printing Shipments Forecast Update 19

INTRODUCTION: MINOR POINTS 23

 Remember the Game..... 23

 Pleasure..... 24

 Luck..... 24

 Pain..... 24

 Skill 24

 Concentrated Power of Will 24

 How This Report Is Organized..... 25

 For More Information..... 26

1. BUSINESS CONDITIONS 27

 Revenues 27

 2019 Revenues..... 27

 2020 Revenues..... 29

 Jobs/Orders..... 30

 2019 Jobs/Orders 30

 2020 Jobs/Orders 32

Profitability 33

 2019 Profits..... 33

 2020 Profits..... 35

Business Conditions Summary 37

The WhatTheyThink Business Conditions Index..... 37

Looking Ahead 38

2. CHALLENGES, OPPORTUNITIES, AND INVESTMENTS 39

 Top Business Challenges..... 39

 Business Opportunities 43

 Planned Investments 46

 Looking Forward 49

3. NEW PRODUCTS AND SERVICES 50

 High-Speed Production Inkjet..... 51

 Wide-Format Printing 52

 Textile Printing for Soft Signage..... 53

 Textile/Fabric Printing for Garment Printing/Decorating..... 54

 Direct-to-Garment Printing..... 55

 Specialty Printing..... 56

 Corrugated Packaging Printing 57

 Folding Carton Printing/Converting..... 58

 Flexible Packaging Printing/Converting 59

 3D Printing 60

 Printed Electronics 61

4. HIRING PLANS..... 62

 Specific Positions 63

5. GRAPHIC COMMUNICATIONS INDUSTRY ECONOMIC TRENDS 65

 Printing Establishments..... 65

 Births/Deaths..... 67

 Printing Shipments..... 69

 Monthly Shipments..... 69

 Year-to-Date Shipments..... 70

| | |
|-------------------------------------|-----|
| Annualized Shipments..... | 71 |
| Industry Profits..... | 73 |
| Capital Expenditures..... | 75 |
| Graphic Arts Employment..... | 76 |
| Employees Per Establishment..... | 77 |
| Productivity..... | 78 |
| Producer Price Index..... | 79 |
| Publishing and Advertising..... | 83 |
| Looking Forward..... | 85 |
| 6. MACROECONOMIC DATA..... | 86 |
| GDP..... | 86 |
| Proprietors' Income..... | 88 |
| Corporate Cash Flow..... | 90 |
| Industrial Production Index..... | 91 |
| Durable Goods..... | 92 |
| NFIB Small Business Index..... | 93 |
| Personal Income..... | 94 |
| Personal Income..... | 94 |
| Disposable Personal Income..... | 95 |
| Consumer Confidence..... | 96 |
| Consumer Sentiment Index..... | 96 |
| Consumer Price Index..... | 97 |
| Employment Cost Index..... | 98 |
| Employment and Unemployment..... | 99 |
| Full-Time Employment..... | 99 |
| Part-Time Employment..... | 100 |
| Multiple Jobholders..... | 101 |
| Unemployment Rate..... | 103 |
| Employment-to-Population Ratio..... | 103 |
| Labor Force Participation Rate..... | 105 |
| Not In Labor Force..... | 107 |

Self-Employment..... 108

The Economic Landscape..... 108

7. INDUSTRY TRENDS AND FORECAST 110

Technology and Other Trends Affecting the Industry..... 110

Hot Trends 111

Lukewarm Trends 116

The Only Trend That Matters 117

Industry Shipments Forecast..... 117

Inflation Multipliers 119

The Last Word..... 119

APPENDIX A. METHODOLOGY AND QUESTIONNAIRE 120

Questionnaire..... 120

APPENDIX B. SURVIVOR BIAS..... 127

THIS JUST IN: COVID-19 UPDATE

The *Printing Outlook 2020* report that follows this update section was prepared in January. In our 20+-year history of producing annual industry forecasts, we have never had a seismic event that rendered virtually (although not entirely) moot all the data we collected in the fall—or even in January and February.

But in March 2020—February in some countries—the world turned upside-down.

The impact of the COVID-19 crisis on the economy and thus the industry was so swift and intense that we have taken to referring to the world pre-March 15 as “The Before Times.” Almost all of the charts in our original report, be they industry-specific or macroeconomic (or indeed any chart of pre-March 2020 data), will be the equivalent of showing pictures of puppies—calming, consoling, and heartwarming.

As we prepare this update in mid-April, we have no clear sense of what the ultimate impact will be on the economy as a whole, much less on the printing industry, other than generally “not good” (although we will speculate in a bit more detail later in this section). In late March, we launched a quick survey to get a sense of what the *expected* impact will be on the printing industry, the results of which we present in this update section. We have left the rest of the original report untouched, to save the reader the trouble of paging through and seeing what has changed. Regardless of the opening paragraph in this section, there is value in the original report because the overall trends that had been affecting the industry—be they macroeconomic, technological, or cultural—still apply, and will continue to impact the industry even after the current crisis has abated.

This section also includes updates to other portions of the larger outlook report, both qualitatively or quantitatively. Most data series have yet to catch up to real-world events—the most recent printing shipments we have are from February, industry profits are only through Q4 2019, and even GDP is only through Q4. Later in this update section, we will look at a handful of macroeconomic data: GDP (forecasts for Q1 and beyond have been appearing), employment (the monthly employment reports lag reality a little, but the weekly unemployment claims have been literally off the chart—we have had to play with y-axis scaling to get it all in), and some other indicators like consumer sentiment.

We also update our industry forecast—since we have no idea how long the crisis will continue, we offer a couple of scenarios.

So first, let’s dive into our COVID-19 survey.

COVID-19 Survey

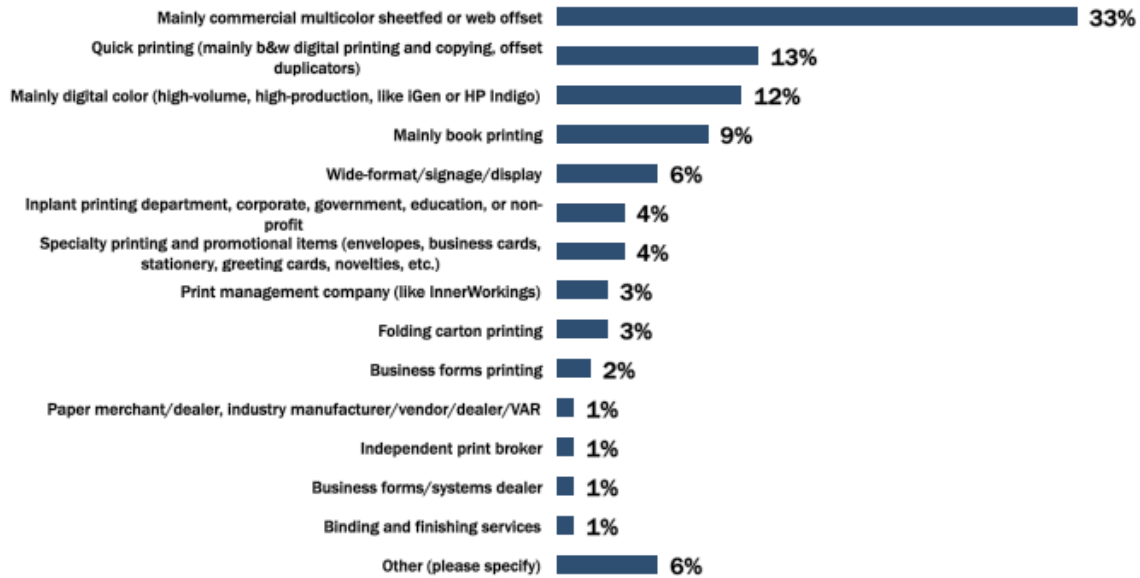
We launched this quick survey in mid-March, just as the crisis exploded, and kept it open for 4–5 weeks. We received 95 responses, mostly from commercial multicolor sheetfed or web offset shops (33%), quick printers (13%), digital color shops (12%), and book printers (9%), with a smattering of other business classes. These were not the same sample as our Fall Business Outlook Survey, the results of which comprise the bulk of the original Outlook report (although there is some overlap of respondents). This COVID-19 update survey was not, and was not really intended to be, as rigorous as our regular surveys, and

the first thing you may notice is that we did not break respondents down by employee size; with such a small sample, the cross-tabulations would not have been the most projectable data in the world.

We included an open-ended question, and we present those responses throughout this section of this report update. They offer a good lens through which to view the survey data.

Our response base comprised:

What is the primary business at this location?



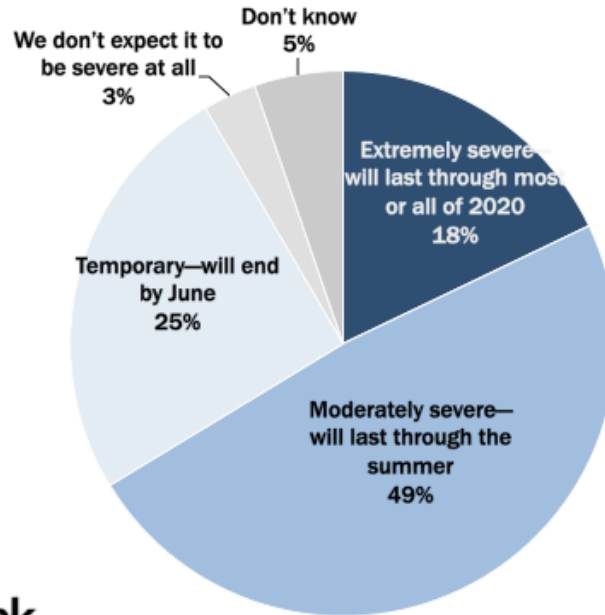
In Their Own Words...

It’s been absolutely disgusting to see that some printing companies have declared themselves as “core infrastructure” in certain states, taking advantage of loopholes in certain places, going after my customers in my state where my governor has shut down non-essential/non-life-supporting companies. I’m sorry, but 95% of the printing companies out there not doing food packaging are Not Life Critical for a 14 or 21 day period of time and yet I’ve got competitors trying to poach my customers! Life Critical right now at the moment is not printing Direct Mail postcards for lawn care services or pizza doorhangers! Absolutely disgusting in terms of what’s going on out there right now!!! So do I play along? Risk my plant production employees’ lives so someone gets some printed piece that we all think is “Life Saving?” And trust me, I will do everything in my power to expose those competitors and shame them in every possible way, online and print! —Disgusted in Michigan

Expected Severity

First of all, how severe do print business owners think the COVID-19 crisis will be? One-half (49%) of our survey respondents expect that it will be moderately severe and persist through the summer. One-fourth (25%) lean to the optimistic side and think it will be over by June (ah, but if only wishing made it so). Eighteen percent lean to the pessimistic side and think it will last through the end of the year, and perhaps beyond.

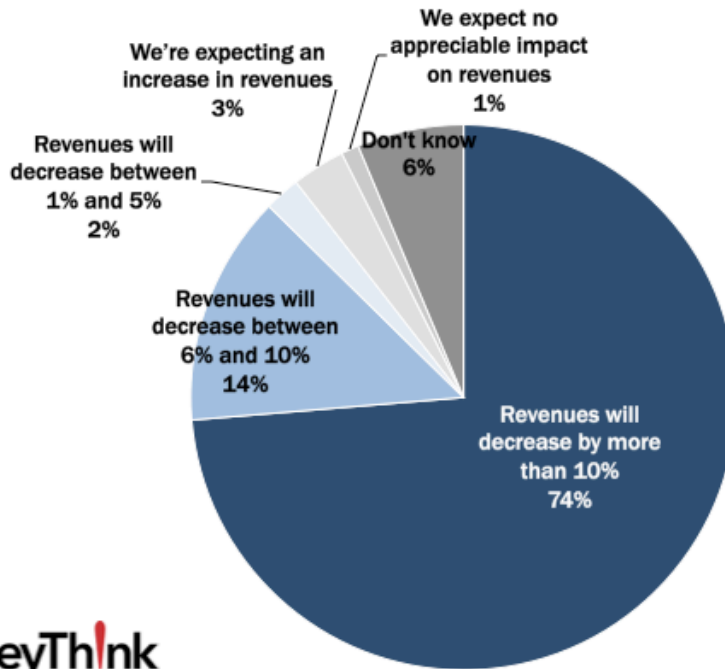
How severe do you expect the COVID-19 crisis will be?



Impact on Revenues

Here is where we underestimated the impact of the crisis when we drew up our survey. Indeed, as one write-in response put it, “Your range of decreased sales should be 1–10%, 10–20%, 20–30%...everyone is over 10% decrease.” And that’s a fair point; a whopping three-fourths (74%) said that they were expecting a 10+% drop in revenues for 2020. Still, 14% expected revenues to drop by 6–10%, and 2% were expecting a slight (1–5%) decrease in revenues. We don’t know who the 3% who expect an increase in revenues are, but nice work if you can get it.

What do you expect the impact of COVID-19 will be on 2020 revenues?



In Their Own Words...

Your range of decreased sales should be 1–10%, 10–20%, 20–30%...everyone is over 10% decrease.

98% drop in revenue for now.

Revenue is down >50% from this time last year...

50% reduction in typical weekly A/R revenue. Immediate impact to cash flow.

We've already had lost sales as early as March 12th because customer provides biotech supplies for schools, and we expect more lost sales from other customers.

Sales down 40%. Clients are helping provide work, though.

Transactional sales have been impacted. Our core business has not.

Right now, revenue in general is down. Hopeful that it will build back up after quarantine restrictions are no longer enforced.

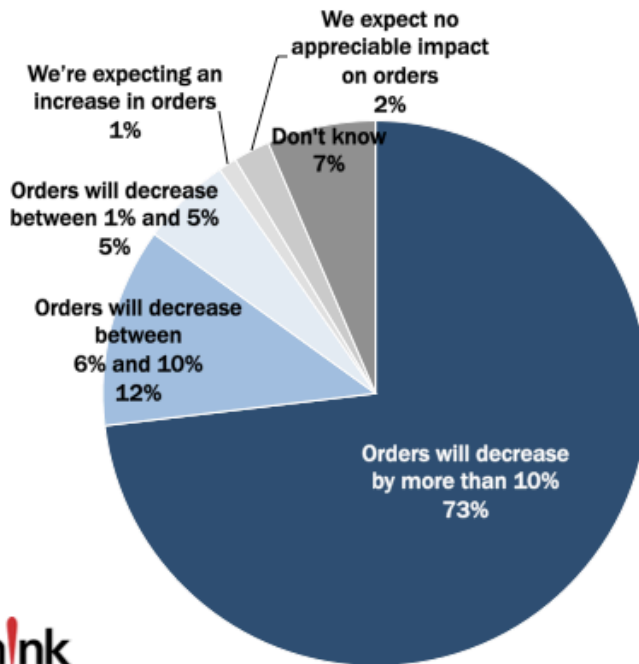
New York City closure has resulted in an 90% decrease in sales starting mid-March, with no end in sight. We have laid off 25% of staff and reduced hours for the rest.

85% reduction in sales.

Impact on Jobs/Orders

Likewise, 73% are expecting a 10%+ decrease in jobs/orders compared to 2019, and as the write-in responses indicate, a fair number of shops have already seen the number of jobs plummet. And 12% are expecting a 6–10% drop in jobs/orders, while 5% are expecting a slight (1–5%) drop in orders. A scant 1% expect an *increase* in jobs, and 2% expect the COVID-19 crisis will have no appreciable impact on orders. So...the party is at their place (masks required).

What do you expect the impact of COVID-19 will be on 2020 jobs/orders?



In Their Own Words...

Although traditional print work has seen a significant decline, and will likely continue for the foreseeable future. Our transactional print volumes are skyrocketing in the government sector.

Major drop in orders. Layoff of employees.

Order cancellations and no new orders.

Schools closed. K-12 business in limbo. We are seeing orders on hold.

Amount of orders has slowed tremendously. More cautious on who's coming into our shop. Different protocols for delivery and pickup of jobs. No issues with getting needed supplies at this point.

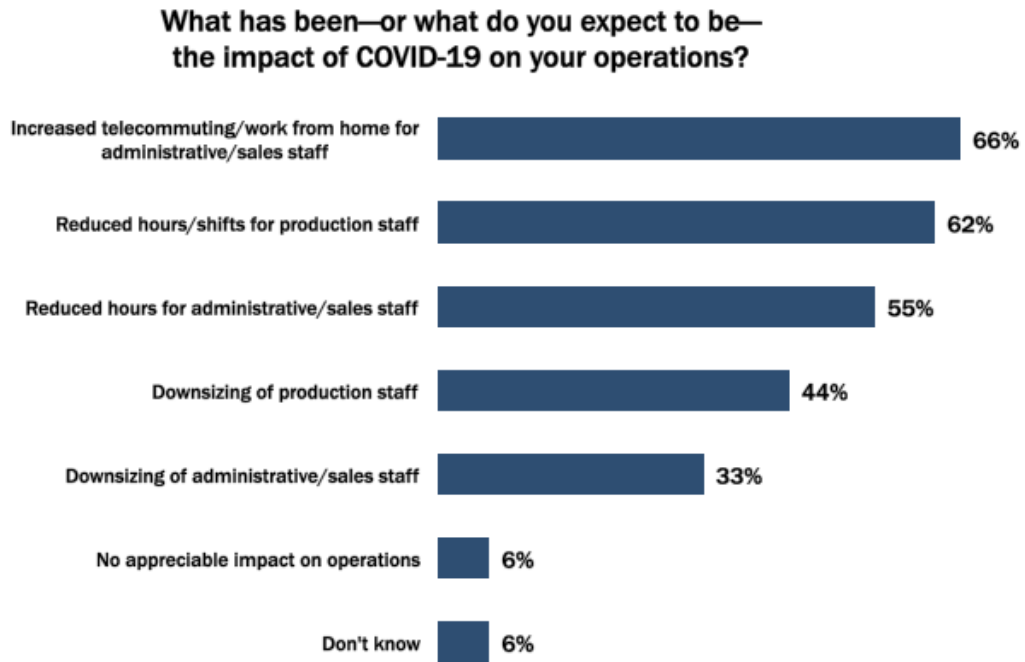
Our orders are already down 20–30% from trends and we've already experienced 6 employees having to self-quarantine for 14 days.

Orders have reduced by more than half.



Impact on Operations

Two-thirds of respondents said that their administrative and/or sales staff have been working from home, 62% have reduced hours/shifts for production staff, and 55% have reduced hours for administrative/sales staff. Nearly one-half have downsized their production staff (or are expected to) and one-third have downsized their administrative/sales staff (or expect to). Six percent expect no appreciable impact on operations.



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In Their Own Words...

Significant and dramatic reduction in number of orders (jobs) and revenue. Already implemented workforce reduction of +20% and admin staff and production work hours of +25%.

Job intake during the last couple weeks have been down 50% or more. We have done layoffs and pay cuts. We expect the pain to continue for quite some time.

Our ability to perform administrative functions remotely has been a blessing.

Reduced revenue and orders, reduced staff by 50%, the unknown of how long it will be to things get back to normal, projecting a huge spike in sales once things get better as publishers will need to catch up on sales revenues.

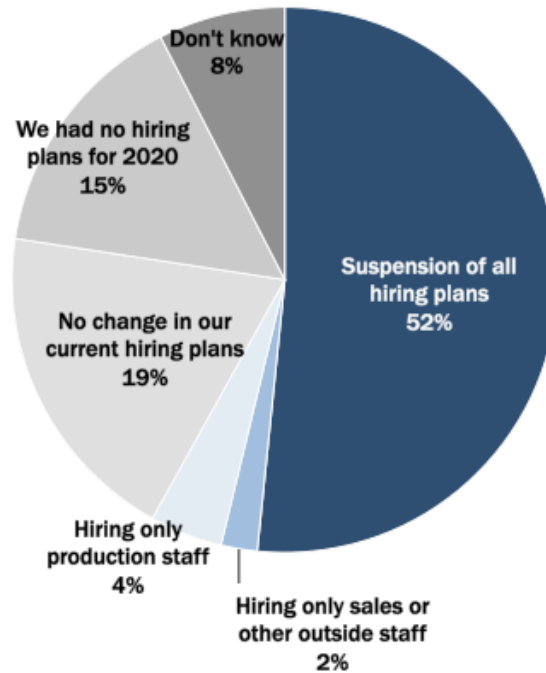
Incoming work is less than half; laid off 35% of production and CSRs

Reduced hours across all depts. Sales/orders down by cancellation or postponement. I see two more months of declines.

Hiring and Investment Plans

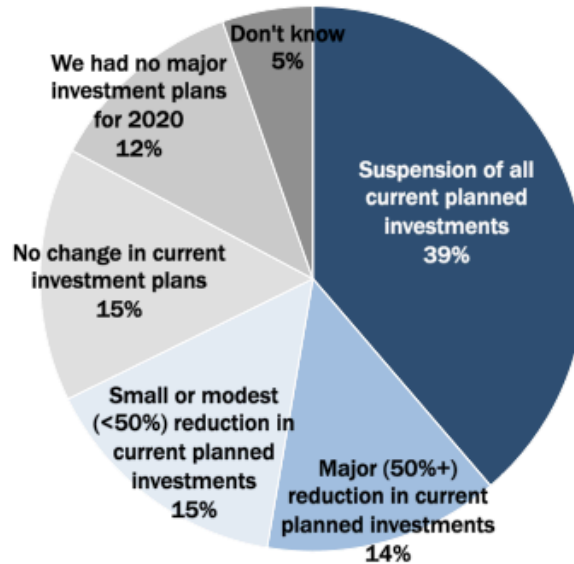
Not unexpectedly, both hiring and investment plans are on hold for the rest of 2020, if not beyond, although not as much as we would expect. One-half (52%) of survey respondents said they have suspended all their hiring plans. Nineteen percent said they had not changed their hiring plans and 15% said they hadn't had any hiring plans to begin with—we note that our Fall Business Outlook survey found that, pre-crisis, 36% of print businesses had no hiring plans for 2020. (See Section 4 of this report.)

What do you expect the impact of COVID-19 will be on your hiring plans for 2020?



Four out of 10 (39%) of survey respondents said they have suspended all their planned investments for 2020, 14% have made major reductions in their planned investments, 15% made minor reductions, and 15% made no change in their investment plans. Twelve percent had no investment plans to begin with. (We also note that in our Fall survey we found that 32% of respondents had no investment plans for 2020—see Section 2 of this report.)

What do you expect the impact of COVID-19 will be on your investment plans for 2020?



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What They Think

We asked an open-ended question, “What specific aspects of your business, if any, have been affected by the COVID-19 crisis so far?” We have peppered some of these responses throughout this section, but here is the bulk of their comments.

Surprisingly little change in demands from our customers to meet schedules given that so many businesses are closed. Visible stress by our employees that comes with the uncertainty in today environment.

Primarily controlling print for banks. With drive through and web being the only means of using the bank....displays and take away items are useless. New account opening kits will not be needed.

Sales volume, staffing, business “mix” have all been affected.

Customers. No one is open. Everyone is conserving cash. No one is doing anything. Disaster of monumental size. Will affect business for 12–24 months. Likely lose a full tourism season in the summer. Will be catastrophic. Government can’t print enough money to bring the economy back. Must do gradual reopening as fast as possible.

We are experiencing an almost 80% reduction in sales. We provided services to grocery retailers throughout the Northeast and at present they have no control over the supply stream and therefore cannot advertise products they may or may not have. Ads often release 14 or more days in advance of a sale. That compounded by the fact that consumers are binge shopping out of fear have retailers scrambling to keep the shelves stocked.

Cash management is the key to make it through this. The pandemic has pushed us to clean up some areas that were challenged previously as well as better manage our resources. We are fortunate in that we have work and are able to continue to operate at a

high level. I am typically an optimist, but reality is this is a pandemic and the financial crisis can't be appropriately addressed until the health crisis is addressed properly. Clients will not pull the trigger on marketing plans until we get through this first iteration of the virus and their marketing plans will be drastically reduced. We do have opportunity for growth due to others demise.

Most of our clients are not working so they are not ordering. Our wide format is still doing OK, better than offset.

More general than specific—it has affected every part of our business. Hopefully that is short-term but depending on how long it lasts...

Increase in our Wide Format Division

We've stepped up our offering to the medical community and industries that are now serving the needs for COVID-19 supply fulfillment. We are an industrial safety signs and labels, floor marking provider. We also sell the printers that print messages on those supplies.

We do a lot of work for the UN and they have all but closed down. We do a lot of work for conferences which have all been cancelled. On the upside, we do a lot of work for hospitals and ended up having to produce thousands of signs at the beginning of the virus outbreak.

None.

Only phone interaction with clients, miss face to face, longer lead times to mail proofs instead of go over proof together, longer up front process time spent, slower pay as well.

Reduction, holds, and cancellation of: fundraising projects, conference and meeting materials, programs, publications, direct mail, and newspaper inserts for retail.

Reduced total number of orders.

Come on, Richard, this is a disaster—I know multiple printers that have already closed, and others that have sales off 90% and more. [*Hey, don't shoot the messenger! —Ed.*]

Customers not sending orders, cash flow down, line of credit up, and DSO rising.

Significant decrease in sales.

Unable to go into customer locations. If they are even still open they are not allowing visitors. We're doing the same, though.

Estimating is extremely slow, as well are new orders coming in...our sales team is stuck working from home and not many bid requests are being sent out.

Hospital/Education/Magazine clients reducing spend for remainder of the year.

Our clients are suspending many of their POP/POS campaign but they will be re-activating those programs at the later date. We are also pivoting our business to start to make face shields as a response to the COVID-19 pandemic

No travel and resistance to communicate at all.

Direct mail.

Sales are down. Sales reps do not make personal calls. Many businesses have reduced or no productions. Event producers have been particularly hit hard. Some event producers are shifting to protective partition screens, face shields and other personal protection devices.

All areas have been affected in one way or another.

Reduced workforce due to not feeling safe at work (LOA, no pay vacation, vacation), jobs moving into futures, shipping challenges, work canceling, no work for certain industries—restaurants, conventions, sports, travel.

Morale of our workforce.

Sales slowdown and manufacturing delays.

Decrease in overall orders, but an increase in COVID-19-specific orders.

Retail in-store promotions have ground to a halt.

All depends how long the lockdown is and how confident the people will be in spending when it starts back up. Could be a huge boost or a huge bust.

Decreased sales and unhappy employees due to cut in hours.

We will probably be at an extremely low production level for two to three months. Do we have enough capital to prevent business extinction? I do not know, it depends on how long it lasts.

Small business orders.

Sales and profit!

Sales is taking a hit, very slow.

Direct mail has been impacted the most.

Everything—very few orders, customers scared to go anywhere. Orders have dropped by 90%, walk-in traffic by 100%.

Transactional work has remained fairly constant while DM activities seem to be uncertain.

Business is down to almost a halt!!

Press purchase cancelled.

All production is reduced by 50%. Communication with clients continues at a high level. Large numbers of quotes.

We are diverse, litho, digital, grand format, web development, mailing, fulfillment and distribution. All aspects of our business are affected.

One week suspension of operations.

Most of our customers are shut down or slowed down. Sales about 50% of what they were a month ago.

All aspects.

Orders cancelled, usage down.

Employee attendance and missed shipments.

We make hotel keycards and school identification badges. Orders cancelled or held.

Macroeconomic Updates

GDP

GDP for the first quarter of 2020 (January to March) comes out on April 29, and it will be largely a moot point.

The Atlanta Fed's [GDPNow](#) says:

The GDPNow model estimate for real GDP growth (seasonally adjusted annual rate) in the first quarter of 2020 is -0.3 percent on April 24, unchanged from April 16 after rounding. There are no subjective adjustments made to GDPNow—the estimate is based solely on the mathematical results of the model. In particular, it does not capture the impact of COVID-19 beyond its impact on GDP source data and relevant economic reports that have already been released. It does not anticipate the impact of COVID-19 on forthcoming economic reports beyond the standard internal dynamics of the model. [Apr 24 estimate]

The [NY Fed](#) is anticipating -0.4% for Q1, Goldman Sachs -4.8%, and Merrill Lynch -7%.

So Q1 GDP will be somewhere in the -4–5% range. That's not great, but whatever. It's Q2 that is going to be the killer. The forecasts change regularly, but on March 31, Goldman Sachs weighed in with [their forecast](#):

Goldman is now forecasting a real GDP sequential decline of 34% for the second quarter on an annualized basis, compared with its earlier estimate for a drop of 24%....The firm now sees the unemployment rate rising to 15% by mid-year compared with its previous expectation for 9%.

Then there is the [Congressional Budget Office's forecast](#):

- Inflation-adjusted **gross domestic product** (real GDP) is expected to decline by about 12 percent during the second quarter, equivalent to a decline at an annual rate of 40 percent for that quarter.
- The **unemployment rate** is expected to average close to 14 percent during the second quarter.

The CBO adds that after a miserable Q2, GDP growth in Q3 will be +24% and in Q4 will be +11%.

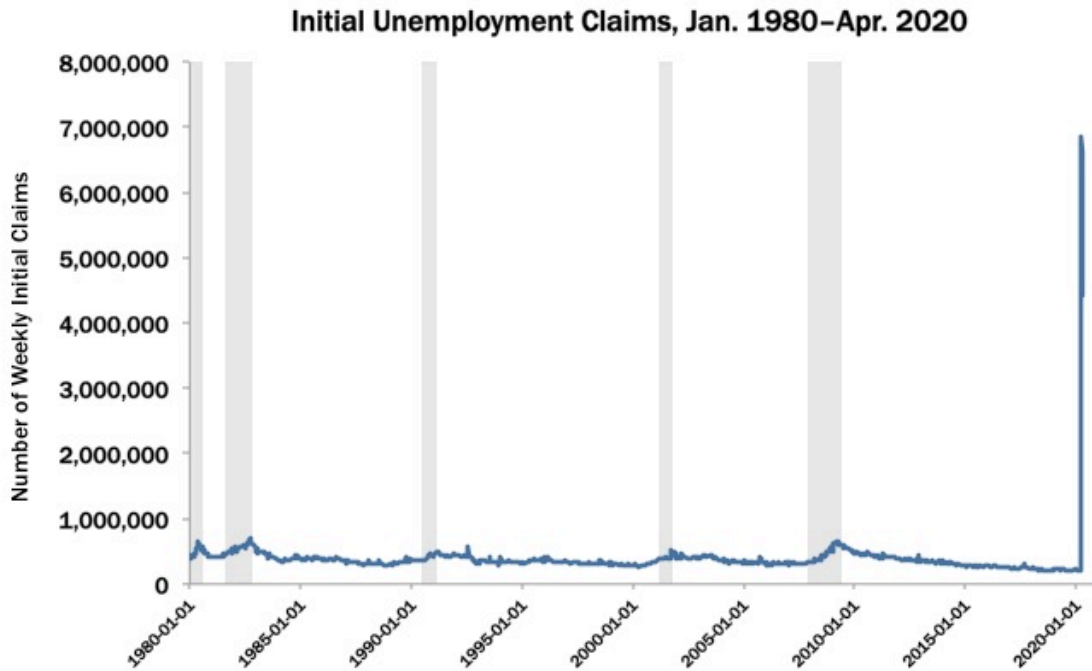
So the good news is that everyone is anticipating Q2 to be the big, bad quarter and once/if we make it through the summer, Q3 will see the economy start to climb out of the hole. This is based on a “best-case scenario” which we will detail below in our own forecast of the printing industry.

Employment

The monthly employment figures also lag reality; as of the BLS's [April 27 report](#), which only included up through March, the unemployment rate was 4.4% (up from 3.5% in February). Economists expect the number to get even higher—20% has been bandied about, although a consensus is around 15%, and, as we saw above, the CBO expects it to average 14% during Q2.

In terms of employment, though, the real story has been the weekly initial unemployment claims numbers, which have been the highest they have been since the BLS started

tracking unemployment claims in 1967 (the previous record high was a “mere” 695,000 back in October 1982):



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Source: Department of Labor. Shaded areas indicate recessions.

It was the week of March 27 that initial claims shot off into the stratosphere, from the previous week’s 282,000 to 3.28 million. A week later, initial unemployment claims doubled to 6.65 million. The most recent report as of this writing—April 23—sees initial claims “ebb” to 4.45 million.

But then there are *continued* unemployment claims, which shot up from 1.78 million (around its “normal” level) the week of March 14 to 3.06 million the next week and is currently at 15.98 million. It is expected that continued claims will continue to rise over the next few weeks until the crisis starts to improve.

Consumer Sentiment

The University of Michigan [Surveys of Consumers](#) is a longstanding tracking of consumer sentiment, and the Index of Consumer Sentiment for April 2020 is 71.8, down from 89.1 in March and 97.2 in April 2019. The Index of Current Economic Conditions for April 2020 is 74.3, down from 103.7 in March and 112.3 in April 2019. [Says Richard Curtin, Director of the University of Michigan Surveys of Consumers:](#)

The full restoration of consumer confidence will be more difficult and will take longer to complete than following any other recession since the Great Depression. While the collapse in confidence reflects assessments of personal finances and the national economy, the primary cause of the crash in confidence was the coronavirus rather than some economic event. Correspondingly, the first glimmer of the restoration in confidence

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will not be due to an improving economy, but when consumers become convinced the spread of COVID-19 has been effectively contained.

Despite some high-profile, but extremely limited “anti-quarantine” protests, a [Reuters/Ipsos poll](#) conducted the week of April 15-21 found that “72% of adults in the United States said people should stay at home ‘until the doctors and public health officials say it is safe.’”

The essential key to restoring this confidence is going to be improved testing. Once businesses do start to reopen, we as consumers are going to have to get used to being tested to gain access to a restaurant or retail establishment. We may need to wear masks in public as often as is practical (it may be difficult in restaurants and bars)—as in fact is the case in many places already. At least one UPS Store in upstate New York is only allowing a few people in the store at a time, and a face mask is mandatory.

It has been suggested that taking people’s temperatures (either using actual thermometers or some kind of thermal imaging) will also be part of this “testing for admission” and while this is a start, the fact that carriers of the virus can be asymptomatic makes this an incomplete solution.

In the parts of the country that are taking this seriously...people are taking it seriously and even if businesses are forced to reopen, good luck getting customers to venture out until they are comfortable with the idea. *Printing News* contributing editor Tom Crouser identifies a three-phase “reopening” of business¹:

Phase one’s broad strokes include continued social distancing, fewer than 10 people gathering, non-essential travel avoided, and vulnerable individuals should stay home. Employers will continue to encourage remote work, common areas will be closed, and, again, non-essential travel avoided. Schools, daycares, and camps will remain closed, and visits to nursing homes and hospitals will still be prohibited. Some large venues, as well as some gyms, could reopen under physical distancing protocols, but bars will remain closed.

During phase two, vulnerable people will remain home, social distancing will continue, gatherings of up to 50 are permitted, and non-essential travel may resume. Additionally, remote work will still be encouraged, common areas will remain closed, and schools, daycares, and camps could reopen. Bars with reduced standing-room occupancy may reopen.

In phase three, vulnerable people may emerge from hibernation, but should practice social distancing and limit exposures in close social settings and crowded environments. Employers may allow all workers to return. Movie theaters and sports venues may open with physical distancing. Bars may increase their standing room occupancy.

Because here’s the thing: there is a historical precedent. The Spanish Flu pandemic of 1918 came in two waves. The first wave in early 1918 was virulent, but not appreciably worse than a normal flu. So when new cases waned as the weather warmed, everyone let down their guard. Then the virus mutated, and the second wave, which hit in fall 1918, was the deadly one. The death toll is estimated to have been anywhere from 17 to

¹ Crouser’s article “When Do We Open the Country?” was not published as this report was being finalized; it is scheduled to run on WhatTheyThink on April 29.

50 million—and possibly as high as 100 million. The key to keeping it from being even worse was quarantining. Cities that instituted lockdowns early in the crisis and kept them in place longer had fewer deaths than cities that instituted them later. And evidence from the current pandemic shows that the self-quarantining and social distancing are actually working. What is not yet clear from the health data is whether we are likely to face another lockdown later in the year if COVID-19 pulls a 1918 on us—and that would be far worse, both for the economy and for the industry.²

Printers as Essential Businesses

One early impact the crisis has had on the printing industry is in the case of closing “nonessential businesses.” Whether a business is essential or not is determined at the state level, and in some states, printing is not considered an essential business, and thus printing companies are not allowed to remain open. In some states, printers—particularly those that produce signage—have been considered essential because they serve hospitals and other medical centers. Some print businesses opted to close anyway, even if they were allowed to remain open, out of safety concerns. (Printing Industries of America has since been successful in lobbying the Federal Government to consider print an essential business.) Sign shops especially proved their “essential” nature early on by printing CDC signage for health care and other facilities, and wayfinding signage for virus testing centers. If you have been to a supermarket or other open retail location lately, you know that floor graphics have been a big application—all those six-feet-apart indicators, and some supermarket chains have instituted one-way traffic aisles with arrows on the floor indicating the flow of traffic (which people on occasion obey). These aren’t long-term business opportunities, but depending on how long the crisis lasts, we may only really need short-term, stopgap projects.

A number of print businesses have been doing *pro bono* work for their communities, making masks and other personal protection equipment (PPE). This much-needed assistance may not bring in immediate revenue, but it is good PR and may yield new business once things return to normal (someday.)

Regardless, as the survey data show, print businesses have been seeing declines in work, which will likely continue until the economy starts to pick up again.

What We Think—Printing Shipments Forecast Update

In our original forecast (see Section 7), we estimated that shipments for 2020 would come in at \$83.1 billion, and then we forecast shipments through 2028. These forecasts were uncertain enough given that a lot can happen in eight years—although we were thinking more about technology disruptions and perhaps a mild recession, not the apocalypse.

So, in our revised forecast, we are going to provide two scenarios:

- Best Case—The curve flattens by mid-June, reopening starts in June and July, and things are getting back to something approaching normal by the end of August. In

² To those who insist we should go full *Soylent Green* and sacrifice a certain number of lives to get the economy going again, we say: “You first.”

this scenario, there is no major resurgence in the fall, testing is widespread and effective, and even if a vaccine is still forthcoming, there is at least effective treatment. We are out of the woods and we can all think of 2020 as a collective nightmare from which we have finally awakened.

- Worst Case—Everyone gets impatient, the economy reopens too soon, the curve “unflattens,” there is a massive resurgence of coronavirus cases in the fall, and October is the new March.³

The best case scenario is based on a 30% net decline of shipments in 2020—a good first 2.5 months at the beginning of the year and a good, resurgent 2.5 months at the end of the year compensating for a dismal middle of the year. The next several years see the industry slowly climbing out of that hole—but, remember, there are also all the other technology and cultural trends that were driving down even the original forecasts. These forces, which we identify in the Section 7, include:

- A potentially slowing economy (negative)
- Growth of specialty/industrial/textile printing (positive)
- Flexo renaissance and growth in packaging (positive)
- Further industry consolidation (negative)
- Election years (positive)
- NAICS 323 flight (negative)
- The coming of 5G (negative)

The worst-case scenario is based on a 60+% decline in shipments for 2020, a hole which only gets worse as a global recession is triggered, unemployment remains high, businesses close by the score, and the bad times continue through 2021 and 2022. In 2023, we (perhaps overoptimistically) see the clouds starting to part and in 2024 return to normal. Also remember the “baseline” technology and cultural trends identified above, although a massive global recession will have an impact on some of those positive and negative trends (i.e., less growth in specialty printing, perhaps less growth in 5G deployment).

**NAICS 323 Forecast Value of Shipments, 2020–2028
(2019 \$US million)**

| | WTT “Before Times” Forecast | Best Case Forecast | Worst Case Forecast |
|------|-----------------------------|--------------------|---------------------|
| 2020 | \$83,100 | \$58,170 | \$33,240 |
| 2021 | \$82,900 | \$62,175 | \$24,870 |
| 2022 | \$82,200 | \$65,760 | \$24,660 |
| 2023 | \$81,500 | \$69,275 | \$27,710 |
| 2024 | \$82,200 | \$73,980 | \$27,948 |
| 2025 | \$81,300 | \$69,105 | \$32,520 |
| 2026 | \$79,500 | \$71,550 | \$32,595 |
| 2027 | \$75,400 | \$67,860 | \$33,930 |
| 2028 | \$76,800 | \$69,120 | \$34,560 |

³ It should be pointed out that this is probably not the worst-case scenario; an even worse one is if the virus mutates (as it did in summer 1918) and the new strain is even deadlier than the original.

We also don't know what long-term cultural trends will come out of the lockdown period. Will events (that is, conferences, conventions, trade shows, etc.) return to the same level that existed pre-crisis, in our own and other industries? Will people and businesses remain skittish about getting on airplanes or staying in hotels, much less clustering in crowded convention centers?⁴ Will there be liability issues? That is, what if someone comes down with the virus while traveling for business? Can they sue their employer? Or the show organizer? Or an airline? (As of this writing, Congress has been toying with legislation that is designed to protect businesses whose customers contract the virus after reopening, but this is still very much a legal gray area.) Since a lot of print business serve the events industry, these are not idle questions, and will have serious impacts on these printers.

Then there is retail, which had been on the ropes even before the crisis. What of shopping malls? True, they had been transforming more into entertainment destinations than shops, but are those going to be appealing destinations post-crisis? If movie theaters survive, will anyone go to them? We have quickly become used to, if not reliant on, ecommerce—even more than we had been. Will that continue?

There is one thing we can say for certain: anyone in the haircutting business is going to have an awesome autumn.

So the best-case scenario assumes that the majority of businesses—large and small—manage to weather the summer and then in the fall benefit from a massive surge of pent-up demand. Businesses will reopen, new businesses will be established to handle all this demand, and employment will need to ratchet up, as well. Retail businesses will also need extra employees to handle the virus testing of customers—kind of like bouncers.

The keys to the best-case scenario happening are:

1. The [CARES Act](#) keeps individuals and businesses afloat until the crisis passes. (A big “if.”)
2. Or, if more relief turns out to be necessary, the government acts in a timely manner to address the problem. (Yeah, you probably did a spit-take there.)
3. We don't jump the gun, attempt to return to normal too soon, and thus trigger a second wave *à la* 1918. Quarantining is working. It's boring and tedious and getting very old very fast, but it is having the intended results.
4. But, that said, we can't get so fearful that once the threat does appear to have passed, we keep quarantining and refrain from economic activity.
5. A treatment becomes readily—and affordably—available. A vaccine is not likely to be available in less than a year, even though a potential vaccine is about to go into clinical trials. What is more likely is that something mitigates the symptoms of the disease. At present, nothing has been conclusively proven to treat COVID-19 symptoms, despite anecdotal evidence to the contrary.
6. We listen to actual medical and science experts

⁴ Here's another sobering statistic, via [Calculated Risk](#), which looked at some TSA travel data: “On April 26th there were 128,875 travelers compared to 2,506,809 a year ago. That is a decline of 95%.”

Striking the balance between 3 and 4 is the tricky part, and 6 would be a nice change from science *à la* Twitter.

It's going to be a rough ride, but we as an industry are used to rough rides.

We now return you to our regularly scheduled *Printing Outlook 2020* report.

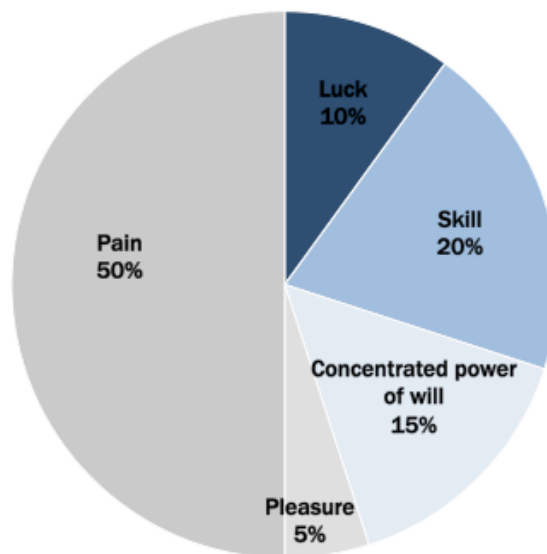
INTRODUCTION: MINOR POINTS

There is a song I often hear playing over the sound system at the gym. It has a chorus that goes:

*This is 10% luck, 20% skill
 15% concentrated power of will
 5% pleasure, 50% percent pain
 And 100% reason to remember the name*

I called it “The Pie Chart Song” for a while until someone told me that it was actually called [“Remember the Name,”](#) a 2005 single by hip-hop group Fort Minor. As I was looking at the results of our Fall Business Outlook Survey, I heard the track again and instinctively felt compelled to graph it:

100% Reason to Remember the Name



“The Pie Chart Song” could very well describe success in today’s printing industry. One-fifth of success is skill, 15% is the will to succeed, a little bit is luck, and, as any printer could probably tell you, at least half is pain, or at least solving problems and overcoming challenges.

In other words, welcome to WhatTheyThink’s *Printing Outlook 2020*.

Remember the Game

Or, rather, the name of the game, which is running a successful print business in a decidedly challenging marketplace. Those that have succeeded have followed the lead of “The Pie Chart Song.”

Pleasure

If you have been following our [tracking of printing shipments](#), you now that 2019 has been the best year the industry has had since 2016—and we may even surpass that year. (Spoiler alert: the Business Conditions data in Section 1 bear this out.) Anecdotally, we got a renewed sense of optimism at the fall trade shows, particularly PRINTING United, where we heard on more than a few occasions that in many respects it felt like 1997 again. The last two years have seen a bit of a printing renaissance, driven largely by new technologies such as inkjet and all the new applications it can enable. But let's also not forget new kinds of “enhancements”—finishing techniques such as those from the likes of Scodix, MGI, and Highcon—that are making even prosaic print applications something special.

So there's a lot to be pleased about.

Luck

It was fortuitous that these technologies came along when they did. The industry's climb out of the Great Recession was a tough slog, and 2017 and 2018 recorded some pretty dismal shipments data. If the status quo had continued, this would likely be a pretty bleak report.

Pain

That said, challenges still remain, and our survey respondents' expectations for 2020 are a bit more muted than current conditions would lead us to believe. After all, survey respondents are always bullish on the next year—even if it's not entirely warranted. Even during the Great Recession, surveys we conducted at the time found boundless optimism for the next year. So the industry is happy, but cautious. These may be the same folks who remember 1997—and what came only a few years later.

Skill

The fact that so many people in our industry remember 1997 is a telling demographic indicator: we need more people who don't remember—or were not yet born in—1997. Indeed, one of the major challenges the industry faces is a skills shortage, which is one of the reasons for a heightened interest in automation. Elsewhere in the economy, a lot of people fret over the thought that “the robots will take my job!”—which is a little unfounded, at least at the moment—but actually in our industry we kind of welcome the robots because we can't get humans to do the jobs that need to get done. Still, we're going to need at least *some* humans.

Concentrated Power of Will

A new trend we started seeing in the past couple of surveys was the seeming abandonment of many of the traditional challenges and opportunities, a shift away from print business owners and managers simply bemoaning economic conditions, their salespeople, or both. The top selections in both these categories had reflected a more proactive approach to running a print business. If there is one disappointment in this survey, it's that this change in attitude that we noted last year may have been a blip, as many of the old cares came back this survey. We'll need to wait until the next survey to

see if there is any definitive trend—if print business owners have the concentrated power of will to change their mindset.

Elsewhere in this survey, we detected a few recurring themes. The first is that print businesses had been on a bit of a binding/finishing equipment buying spree over the past few years which seems to be largely over. The second is that shops rely don't have too many investment plans—"we have no planned investments" was the top response to our investment question for the first time. A third theme is that the shift to wide-format printing is also largely done. What's the next great adventure for the industry? Textiles? Packaging? A little bit of the former, not so much the latter, at least according to our survey. A hiring-related theme is that print business owners seem to be having sales force issues, as finding qualified sales people and capabilities of sales people were top opportunities and challenges, and sales reps topped the list of positions businesses were looking to fill.

The survey—as well as our usual set of supplementary data—gives us a good picture of where the industry is as one decade comes to a close and another begins.⁵

How This Report Is Organized

Section 1 presents our Fall 2019 survey data about current (2019) and expected (2020) business conditions, specifically how print businesses fared *vis-à-vis* revenues, number of orders, and profits.

Section 2 presents our survey data on print businesses' top challenges, opportunities, and planned investments.

Section 3 presents the results of our survey question asking the extent to which commercial print businesses are looking to add new capabilities like wide-format printing, textile printing, specialty printing, 3D printing, and other new products and services—or if they have added them already.

Section 4 presents the results of our survey question about print businesses' hiring plans. Do they have any and, if so, for which positions?

Section 5 rounds up a variety of printing industry data—establishments, establishment births/deaths, shipments, profits, employment, and so on.

Section 6 provides the latest general macroeconomic data. These data are important to put industry data into the proper macroeconomic context.

⁵ We should point out that, despite all the lists, bests, worsts, etc., that people are compiling, the 2010s did not actually end on December 31, 2019. When the BC/AD (or BCE/CE)—aka *Anno Domini*—dating system was created in AD 525 by Dionysius Exiguus, there was no Year 0; 1 BC was immediately followed by AD 1. As a result, the first decade AD consisted of the years 1 to 10, the second decade 11 to 20, and so on. So the 2010s started January 2011 and will end in December 2020. Still, everyone else is celebrating the end of the decade and we'd rather not be party poopers (usually), so we'll take a tip from the late biologist Stephen Jay Gould who argued back in the 90s that 1999 was the end of a millennium (i.e., any 1,000-year period)—not necessarily *the* millennium. So we'll get into the spirit of things and commemorate the end of a decade, one that happened to begin in 2010. Call it the "Most-of-the-2010s."

Section 7 offers what we see as the hot, cold, and lukewarm trends for 2018, as well as WhatTheyThink's economic and printing industry forecast.

The survey methodology is detailed in Appendix A. Our—we admit, rather entertaining—explanation of survivor bias is presented in Appendix B.

For More Information

For more information on this report or other WhatTheyThink products and services, please contact Cary Sherburne at 603-430-5463 or cary@whattheythink.com, or visit www.whattheythink.com.

1. BUSINESS CONDITIONS

In October 2019, WhatTheyThink's Business Outlook Survey asked print business executives and owners about:

- perceptions of 2019 business conditions compared to 2018
- expectations of 2020 business conditions compared to 2019

Specifically, we asked about:

- revenues
- number of orders
- profits

Revenues

2019 Revenues

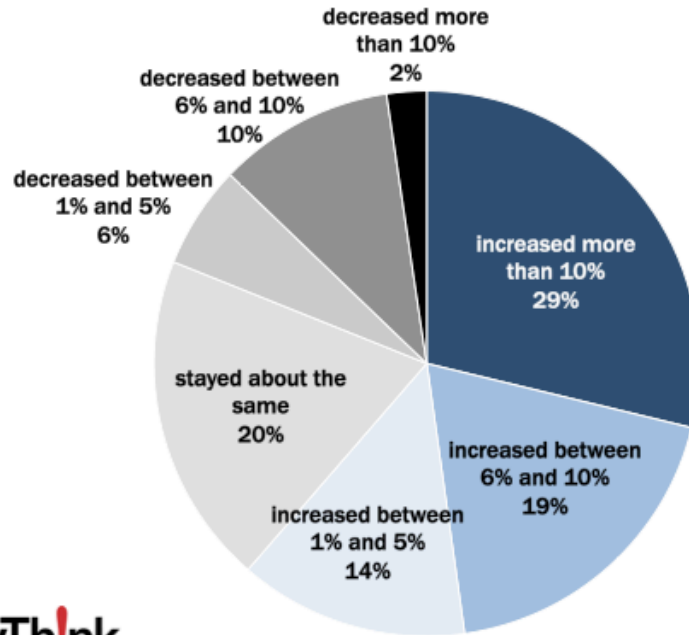
In terms of revenues, business in 2019 has been perceived by our survey respondents as pretty good: 48% said that revenues had increased by six percent or more compared to 2018 (up from 42% in last year's survey), while 12% said that they had *decreased* by six percent or more, substantially up from last year (4%). Twenty percent of respondents said that revenues for 2019 stayed roughly the same compared to 2018, up from 15% last year.

We calculated an average change of +4.1% in revenues from 2018 to 2019, compared to +3.8% last year, which is pretty good.⁶ We also adjusted the average change in revenues for inflation, backing -2.1% out of the average change in revenues.⁷ However, adjusted for inflation, revenues grew +2.0%, compared to +2.2% last year. As Dr. Joe used to often say, always account for inflation to see how your business is *really* doing.

⁶ The estimates were calculated using the mid-points of the percentage ranges, and using 12% for the "10% or more" categories.

⁷ Based on current CPI (<https://www.bls.gov/news.release/pdf/cpi.pdf>).

In terms of your 2019 revenues, how do they compare to 2018?



n=285

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|---------------------------------------|---------------|-----------------|-----------------|---------------|
| increased more than 10% | 27% | 26% | 17% | 28% |
| increased between 6% and 10% | 24% | 13% | 19% | 22% |
| increased between 1% and 5% | 13% | 10% | 15% | 21% |
| stayed about the same | 14% | 29% | 27% | 9% |
| decreased between 1% and 5% | 6% | 13% | 7% | 10% |
| decreased between 6% and 10% | 15% | 3% | 8% | 7% |
| decreased more than 10% | 1% | 6% | 7% | 3% |
| Average change | +3.9% | +3.0% | +2.3% | +4.5% |
| Average change adjusted for inflation | +1.8% | +0.9% | +0.2% | +2.4% |

If we look at survey results by establishment size, we find that the strongest businesses, at least in terms of revenues this year, are those at the low end (1-9 employees) and the high end (50+ employees), with the mid-size shops experiencing middling revenue growth, made even worse when you account for inflation.

For 1-9-employee shops, 51% said that revenues had increased six percent or more from 2018 to 2019 (up from 43% last year) while—yikes—16% said they had *decreased* six percent or more (up from 9%). The average revenue change for these folks was +3.8% (down from +4.0% last year) before inflation.

For 10-19-employee shops, on the other hand, 39% (up one tick from 38%) said that revenues had increased six percent or more, and 9% (down one tick from 8%) said they

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had decreased six percent or more. The average revenue change for these establishments was +3.0% before inflation, up from +2.5%.

Among 20–49-employee shops, 36% (up from 46%) said that revenues had increased six percent or more while only 15% (down from 13%) said they had decreased six percent or more. The average revenue change for these establishments was +2.3% before inflation, down from +3.7% last year.

For 50+-employee shops, one-half said that revenues had increased six percent or more while 10% (up from 6%) said they had decreased six percent or more. The average revenue change for these establishments was +4.5% before inflation, down slightly from +4.6%.

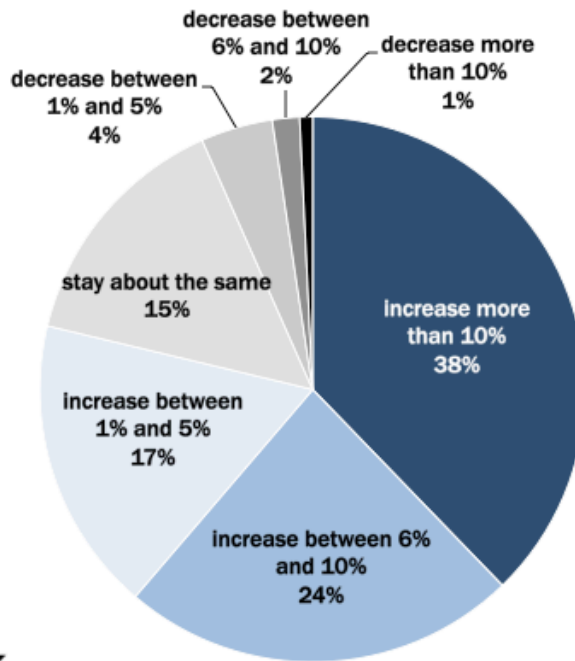
2020 Revenues

Asking about anticipated business conditions is always asking for trouble. Even during economic downturns, we find a lot of optimism, some of which is likely unwarranted.

Almost two-thirds (62%, about the same as last year’s survey) of respondents expect revenues to increase by six percent or more in 2020. Only 3% (up one percentage point) of respondents expect revenues to decrease by six percent or more. Overall, just over one-third (36%) expect revenues to hold steady, with minimal increase or decrease, if any.

Printing establishments on the whole expect a +6.6% change in revenues in 2020, up from +5.8% last year. If we adjust for inflation, that’s looking more like a +4.5% change.

How do you expect your 2020 revenues to compare to 2019?



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n=286

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| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|------------------|--------------------|--------------------|------------------|
| increase more than 10% | 44% | 23% | 19% | 19% |
| increase between 6% and 10% | 17% | 29% | 42% | 36% |
| increase between 1% and 5% | 18% | 23% | 14% | 27% |
| stay about the same | 15% | 16% | 15% | 13% |
| decrease between 1% and 5% | 3% | 10% | 8% | 4% |
| decrease between 6% and 10% | 1% | 0% | 0% | 2% |
| decrease more than 10% | 1% | 0% | 2% | 1% |
| Average change | +6.8% | +5.4% | +5.6% | +5.5% |
| Average change adjusted for inflation | +4.7% | +3.3% | +3.5% | +3.4% |

For 1–9-employee shops, 61% (down from 69% last year) expect revenues to increase six percent or more from 2019 to 2020 while 2% expect revenues to decrease six percent or more, unchanged from last year. These businesses expect an average revenue growth of +6.8% pre-inflation, compared to +6.1% last year. Interestingly, this year the “increase by more than 10%” and “increase between 6% and 10%” expectations are 44% and 17%, respectively. Last year, they were reversed at 17% and 52%, respectively. So more shops in this demographic expect revenues to increase by more than they did last year.

For 10–19-employee shops, 52% (up from 46%) expect revenues to increase six percent or more, although, just like last year, no one expects them to decrease six percent or more. These businesses expect an average revenue growth of +5.4% pre-inflation, up from +5.0% last year.

For 20–49-employee shops, 61% (up from 57%) expect revenues to increase six percent or more while 2% (way down from 13%) expect them to decrease six percent or more. These businesses expect an average revenue growth of +5.6% pre-inflation, up from +4.5% last year.

For 50+-employee shops, 55% (up from 49%) expect revenues to increase six percent or more, while 3% expect a similar decrease. These businesses expect an average revenue growth of +5.5% pre-inflation, down from +6.0%.

Jobs/Orders

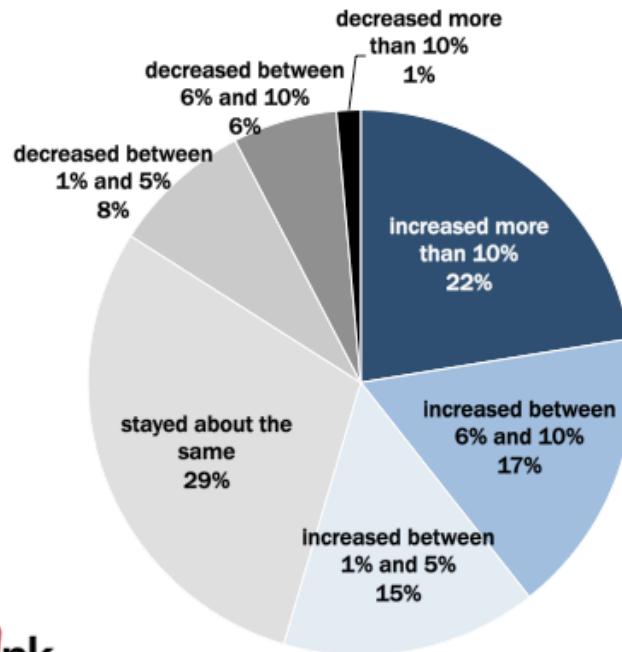
As we always remark in these reports, there tends to be a bit of a disconnect between the number of jobs/orders and revenues. (And of course profits, which is a whole other issue.)

2019 Jobs/Orders

Jobs/orders in 2019 were generally up over 2018: 39% of print businesses (up from 32% last year) reported that jobs increased six percent or more from 2018, although 7% (up from 3%) reported that jobs/orders had decreased by six percent or more over 2018.

Thus we find the average change in jobs/orders from 2018 to 2019 was +3.6%, compared to +3.0% from 2017 to 2018. (Note that we do not have to adjust jobs/orders for inflation.)

In terms of your 2019 jobs/orders, how do they compare to 2018?



WhatTheyTh!nk

n=285

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|------------------------------|---------------|-----------------|-----------------|---------------|
| increased more than 10% | 21% | 27% | 19% | 26% |
| increase between 6% and 10% | 19% | 3% | 25% | 24% |
| increase between 1% and 5% | 14% | 20% | 15% | 21% |
| stayed about the same | 26% | 33% | 25% | 13% |
| decreased between 1% and 5% | 8% | 10% | 3% | 12% |
| decreased between 6% and 10% | 10% | 3% | 8% | 2% |
| decreased more than 10% | 1% | 3% | 3% | 2% |
| Average change | +3.3% | +3.1% | +3.5% | +4.9% |

For 1–9-employee shops, 40% (way up from 28% last year) said that jobs/orders had increased six percent or more from 2018 to 2019, although 11% (way up from 2%) said they had decreased six percent or more. The positive outweighed the negative, so the average job/order change for these businesses was +3.3%, up from +2.6%.

For 10–19-employee shops, 30% (down from 38%) said that jobs/orders had increased six percent or more while 6% (up from 4%) said they had decreased six percent or more. The average job/order change for these businesses was +3.1%, unchanged from last year.

For 20–49-employee shops, 44% (down two percentage points) said that jobs/orders had increased six percent or more while 11% (up from no one last year) said they had decreased six percent or more. As a result, the average job/order change for these businesses was +3.5%, way down from +4.7%.

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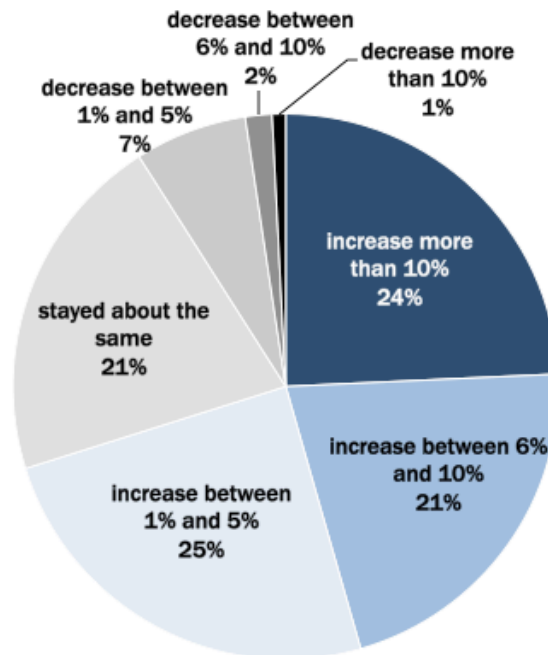
WhatTheyTh!nk

And for 50+-employee shops, 50% (up a few points from 46%) said that jobs/orders had increased six percent or more while 4% (up from 2%) said they had decreased six percent or more. The average job/order change for these businesses was +4.9%, up a little from +4.5%.

2020 Jobs/Orders

As for anticipated 2020 jobs/orders, 45% (up one percentage point from last year) expect jobs/orders to increase six percent or more in 2019, while only 3% (up one point) expect them to decrease by the same amount. As a result, the average expected change in jobs/orders of +4.9%, up from +4.3%, the increase largely driven by more responses in the “increased by more than 10%” range (13% last year, 24% this year).

How do you expect your 2020 jobs/orders to compare to 2019?



n=286

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|-----------------------------|---------------|-----------------|-----------------|---------------|
| increase more than 10% | 25% | 19% | 17% | 20% |
| increase between 6% and 10% | 19% | 23% | 32% | 26% |
| increase between 1% and 5% | 25% | 26% | 22% | 35% |
| stay about the same | 24% | 26% | 15% | 12% |
| decrease between 1% and 5% | 4% | 6% | 12% | 4% |
| decrease between 6% and 10% | 1% | 0% | 0% | 2% |
| decrease more than 10% | 1% | 0% | 2% | 1% |
| Average change | +4.9% | +4.7% | +4.7% | +5.2% |

Forty-four percent (up a tad from 43%) of 1–9-employee shops expect jobs/orders to increase six percent or more from 2019 to 2020, and only 2% (up from no one last year) expect them to decrease six percent or more. The expected change in jobs/orders for these businesses is +4.9%, up from +3.9%.

Forty-two percent (up from 38%) of 10–19-employee shops expect a job/order increase of six percent or more in 2019, while no one (down from 3%) expects a decrease of ten percent or more. The expected change in jobs/orders for these businesses is +4.7%, up from +4.5% last year.

Forty-nine percent (down from 59%) of 20–49-employee shops expect jobs/orders to increase six percent or more while 2% (down from 9%) expect them to decrease six percent or more. The expected change in jobs/orders for these businesses is +4.7%, down from +5.3%.

Forty-six percent (down from 50%) of 50+-employee shops expect jobs/orders to increase six percent or more and 3% (up from no one last year) expect a corresponding decrease. The expected change in jobs/orders for these businesses is +5.2%, down from +5.6%.

Profitability

And then there's Maude: profits. We can talk all we want about revenues and jobs, but is anyone making money? And do they expect to make more of it?

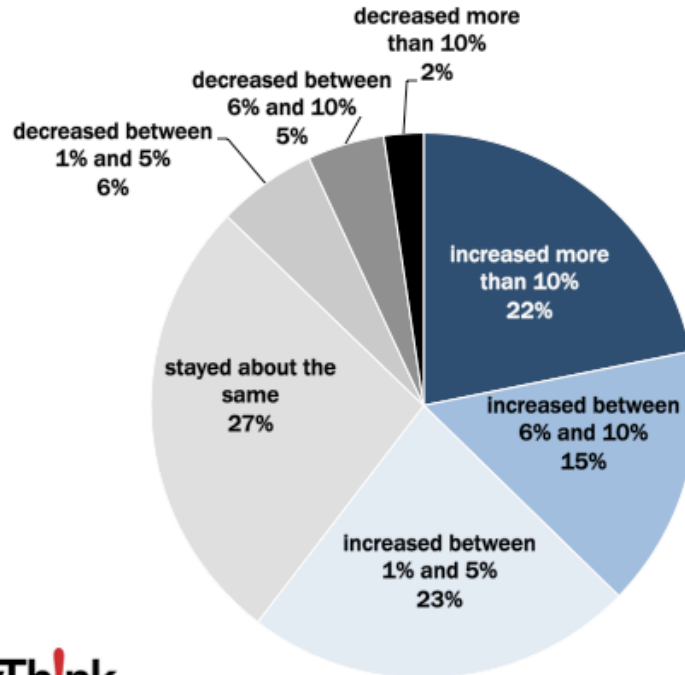
This is where we get to tell our “tale of two cities”: the profitability gap between large and small printers. We'll have more to say when we look at industry profits data in Section 5, but large printers (those with more than \$25 million in assets) are seeing much less profitability than small printers (those with less than \$25 million in assets), driving down overall industry profitability. We are seeing some signs of this in our survey's profits data.

2019 Profits

We can make the same inflation adjustment to average changes in profits (back 2.1% out, as we did with revenues) to get a sense of what the real change in profitability has been and is expected to be. (Also note that these data are not the *rates* of profitability, but are the change in the dollar value of total profits compared to the prior year.)

According to survey respondents, profits in 2019 were down over 2018; 37% (down from 42% last year) reported that profits increased six percent or more from 2018, and 7% (up from 4%) reported that profits had decreased by six percent or more over 2016. The average change in profits from 2018 to 2019 was +3.7%, down from +4.1% last year, or, adjusted for inflation, +1.6%.

In terms of your 2019 profits, how do they compare to 2018?



n=285

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|---------------------------------------|---------------|-----------------|-----------------|---------------|
| increased more than 10% | 21% | 26% | 16% | 22% |
| increased between 6% and 10% | 17% | 16% | 14% | 17% |
| increased between 1% and 5% | 19% | 13% | 29% | 27% |
| stayed about the same | 29% | 23% | 16% | 17% |
| decreased between 1% and 5% | 7% | 13% | 12% | 8% |
| decreased between 6% and 10% | 6% | 6% | 5% | 2% |
| decreased more than 10% | 1% | 3% | 9% | 6% |
| Average change | +3.6% | +3.5% | +2.0% | +3.6% |
| Average change adjusted for inflation | +1.5% | +1.4% | -0.1% | +1.5% |

For 1-9-employee shops, 38% (down from 43%) said that profits had increased six percent or more from 2018 to 2019 while 7% (up from 2%) said they had decreased six percent or more. The average pre-inflation-adjustment change in profits for these businesses was +3.6%, down from +4.4%.

For 10-19-employee shops, 42% (down from 51%) said that profits had increased six percent or more while 9% (up from 4%) said they had decreased six percent or more. The average pre-inflation-adjustment change in profits for these businesses was +3.5%, down from +5.1%.

The 20–49-employee shops, as we saw last year, continued to fare less well than other demographic breakdowns. Only 30% (down from 33%) said that profits had increased six percent or more while 14% (down one point from 15%) said they had decreased six percent or more. The average pre-inflation-adjustment change in profits for these businesses was +2.0%. But, adjusted for inflation, it goes negative.

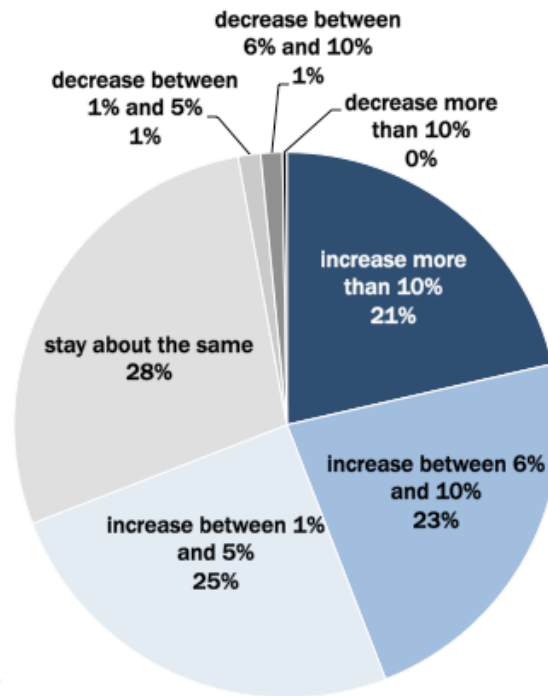
Things were slightly happier for 50+-employee shops: 39% (up from 35%) said that profits had increased six percent or more, while 8% (up from 5%) said they had decreased six percent or more. The average pre-inflation-adjustment change in profits for these businesses was +3.6%, unchanged from last year

2020 Profits

How do print businesses feel about profitability in 2020?

Overall, 44% (down from 46%) expect profits to increase six percent or more in 2020, while an unchanged 2% expect them to decrease by the same amount. We calculated an average pre-inflation expected change in profits of +5.0% from 2019 to 2020, (down from +5.1 last year) so optimism is about the same as last year.

How do you expect your 2020 profits to compare to 2019?



WhatTheyTh!nk

n=284

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|------------------|--------------------|--------------------|------------------|
| increase more than 10% | 25% | 13% | 19% | 11% |
| increase between 6% and 10% | 19% | 30% | 26% | 31% |
| increase between 1% and 5% | 24% | 23% | 28% | 31% |
| stay about the same | 31% | 23% | 22% | 19% |
| decrease between 1% and 5% | 1% | 3% | 2% | 4% |
| decrease between 6% and 10% | 0% | 7% | 2% | 3% |
| decrease more than 10% | 0% | 0% | 2% | 1% |
| Average change | +5.2% | +4.1% | +4.8% | +4.3% |
| Average change adjusted for inflation | +3.1% | +2.0% | +2.7% | +2.2% |

Forty-four percent (down one percentage point) of 1-9-employee shops expect profits to increase six percent or more from 2019 to 2020, while none (down from 2%) expect them to decrease six percent or more. The expected average increase in profits for 2019 is +5.2% (up a scosh from +5.1%), pre-inflation adjustment.

Forty-three percent (also down one percentage point) of 10-19-employee shops expect profits to increase by six percent or more, while 7% (up from no one) expects them to decrease six percent or more. The expected average increase in profits for 2019 is +4.1% (up from +4.8%), pre-inflation adjustment.

Forty-five percent (down from 57%) of 20-49-employee shops expect profits to increase six percent or more, while 4% (down from 14%) expect them to decrease six percent or more. The expected average increase in profits for 2020 is +4.8% (down from +5.3%), pre-inflation adjustment.

Forty-two percent (down from 47%) of 50+-employee shops expect profits to increase six percent or more, while 4% (up from none) expects a corresponding decrease. The expected average increase in profits for 2019 is +4.3%, down from +5.5%, pre-inflation adjustment.

Business Conditions Summary

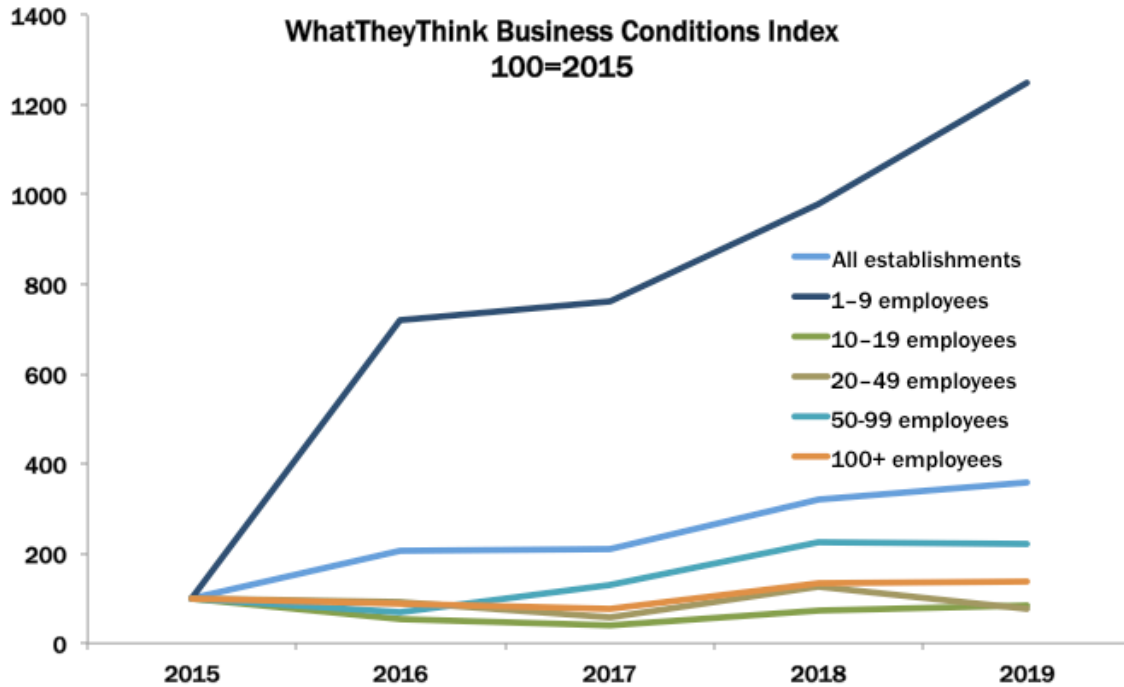
As we saw throughout this section, for each size classification, we took the survey responses and calculated an average change in revenues, jobs/orders, and profits, both for 2018 and 2019. We also adjusted these figures to account for inflation. In the table below, we summarize those average changes.

| 2019 | All responses | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|---------------------------------------|---------------|---------------|-----------------|-----------------|---------------|
| <i>Revenues</i> | | | | | |
| Average change | +4.1% | +5.2% | +4.1% | +4.8% | +4.3% |
| Average change adjusted for inflation | +2.0% | +3.1% | +2.0% | +2.7% | +2.2% |
| <i>Jobs/Orders</i> | | | | | |
| Average change | +3.6% | +3.3% | +3.1% | +3.5% | +4.9% |
| <i>Profits</i> | | | | | |
| Average change | +3.7% | +3.6% | +3.5% | +2.0% | +3.6% |
| Average change adjusted for inflation | +1.6% | +1.5% | +1.4% | -0.1% | +1.5% |
| | | | | | |
| 2020 | All responses | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
| <i>Revenues</i> | | | | | |
| Average change | +6.6% | +6.8% | +5.4% | +5.6% | +5.5% |
| Average change adjusted for inflation | +4.5% | +4.7% | +3.3% | +3.5% | +3.4% |
| <i>Jobs/Orders</i> | | | | | |
| Average change | +4.9% | +4.9% | +4.7% | +4.7% | +5.2% |
| <i>Profits</i> | | | | | |
| Average change | +5.0% | +5.2% | +4.1% | +4.8% | +4.3% |
| Average change adjusted for inflation | +2.9% | +3.1% | +2.0% | +2.7% | +2.2% |

We have started seeing revenues outpace jobs/orders (at least before adjusting for inflation) which is a good indication that shops have started to get pricing under control. Profitability is lagging somewhat, especially at the higher end of the industry. Looking forward, businesses are optimistic, but not overly so. Looking ahead to our challenges, opportunities, and investments data in the next section, there is a sense that the industry is hunkering down—not in the “inertial,” reactive way they tend to during economic downturns, but in an active, “getting down to business” kind of way.

The WhatTheyThink Business Conditions Index

We have been conducting these surveys long enough that we have enough data points to resurrect a metric that dates back to the old TrendWatch days: the Business Conditions Index (BCI).



WhatTheyTh!nk

First of all, we indexed business conditions⁸ to 2015, the first year we began these regular surveys. It was a pretty lousy year for the industry, so it’s easy to see improvement. The “tale of two cities” is pretty apparent, although the 1–9-employee firms appear to be a city unto themselves, leading the pack by far, at least in terms of revenues. The 2019 BCI for these smallest of print businesses is 1248.0, well above the industry average of 358.0. It seems that the mid-size businesses are picking up the rear in terms of our BCI.

Smaller print businesses are able to transition to new products and technologies much more nimbly than larger businesses and given that they are, for the most part, all-digital shops, helps them adapt to a changing product mix, as well as keep overhead low.

Looking Ahead

At the moment, business conditions are more than satisfactory for businesses just about across the board, and while optimism is a little muted compared to what we have seen in the past, the general tenor in the industry is fairly upbeat, supporting the anecdotal evidence we gleaned at recent shows like PRINTING United. It may not be 1997 again (in the industry or out of it), but at least it’s not 2015.

⁸ We used our revenues data to create this index.

2. CHALLENGES, OPPORTUNITIES, AND INVESTMENTS

In this section, we take a look at what print businesses see as their top challenges and their biggest business and/or sales opportunities in the next 12 months, as well as what they're planning on buying to meet those challenges or pursue those opportunities.

These kinds of questions help qualify the data obtained in the business conditions part of the survey. After all, it's one thing to know what current and expected business conditions are, but quite another to understand *why* they are what they are. These questions' responses also help verify or refute business conditions data which, as you have probably seen, are not entirely objective measures of a company's performance.

Top Business Challenges

There have been some interesting developments in the top business challenges reported by print businesses. Once upon a time, "economic conditions" was top of the heap, even when there wasn't a recession, but now that has taken a back seat to more important concerns.

The new number one challenge this survey is "pricing," which was the number one challenge two surveys ago. Last year, it dropped to number two, and this survey again rises to the top at 29% of respondents, although it's down from 31%. As printers move into new product and service areas, knowing how to price them—and price them competitively—is a challenge. But that this item is declining suggests that printers are getting a handle on these things.

The number two challenge is "competition from other print providers," selected by 25%, down from 39%. Let's face it: the capabilities of today's printing equipment gives just about anyone who can afford it the same abilities, making it harder to distinguish one's business. And as automation continues to remove the human factor—and the artisanal aspect—from printing, it's hard to fight commoditization of more and more print products, even in new areas like wide-format printing.

The number three challenge is an old chestnut in the annals of printing industry surveys: "capabilities of sales personnel," selected by 23% of respondents, up from 19%. Yep, when business is slow, it's always the sales guy's fault. That this challenge is number three—and that "adding/updating web-to-print/online storefront" is way down at 9%—smacks of retro thinking.

Tied at number four (22%) are a brace of economic challenges: "national" and "local economic conditions," up from 21% and 19%, respectively. Another bit of retro thinking, especially since the economy has been pretty good. Sure, this isn't 1998 again, but it's also not 2010. That said, local economic conditions can be a very real concern and we'll have more to say about that in Section 7.

Rounding out the top 5 is "managing workflow automation" at 21%, down one point from 22%. Automation is one of the hottest topics in the industry, driven by a variety of factors, such as the need to maximize efficiency and productivity ("increasing plant productivity" is a few slots lower at 18%), speed turnaround, and compensate for the fact

that it's getting harder and harder to find capable production staff (“finding qualified production personnel” is also at 19%).

Last year, we had remarked that some of the traditional challenges—especially those involving the search for or the capabilities of sales personnel and economic conditions—had fallen by the wayside. We wondered: was it the beginning of new long-term concerns for the industry or just an anomaly given the specific current environment? We're hopeful that the muted nature of some of these traditional challenges reflects a “changing of the guard” in print business ownership and management, with new leadership less inclined to focus on the concerns of the previous generation, but we still have concerns that the old mindset is creeping back in.

In the next 12 months, which of the following will be your biggest business challenges?



n=289

Looking at the challenges by shop size can give us a little better handle on these concerns:

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| increasing plant productivity | 12% | 29% | 31% | 51% |
| managing workflow automation | 19% | 29% | 41% | 40% |
| competition from other print providers | 25% | 26% | 31% | 33% |
| capabilities of sales personnel | 20% | 32% | 46% | 38% |
| capabilities of production personnel | 11% | 19% | 15% | 31% |
| understanding the needs of today's communications buyers | 13% | 19% | 10% | 14% |
| consumables and supplies prices | 23% | 19% | 20% | 15% |

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| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| national economic conditions | 23% | 23% | 20% | 29% |
| local economic conditions | 28% | 19% | 3% | 7% |
| financing costs of our equipment | 5% | 3% | 5% | 3% |
| finding capital for investments | 7% | 3% | 2% | 6% |
| need for employee training | 9% | 16% | 15% | 35% |
| finding qualified sales personnel | 8% | 23% | 41% | 23% |
| finding qualified production personnel | 13% | 23% | 41% | 49% |
| increasing employee benefit costs | 11% | 13% | 14% | 22% |
| profitably handling shorter runs | 9% | 3% | 7% | 16% |
| deciding whether to keep or discard our offset equipment | 9% | 6% | 7% | 6% |
| loss of print business to digital media | 11% | 16% | 8% | 6% |
| pricing | 31% | 23% | 32% | 27% |
| print MIS implementation | 4% | 6% | 15% | 19% |
| job tracking | 4% | 3% | 2% | 12% |
| migrating production to the cloud | 1% | 0% | 0% | 2% |
| migrating business functions to the cloud | 1% | 3% | 5% | 3% |
| migrating customer service and sales to the cloud | 3% | 3% | 5% | 2% |
| training employees to use cloud applications | 3% | 3% | 3% | 3% |
| keeping up with technological changes | 17% | 29% | 14% | 26% |
| owner/management retirement | 8% | 6% | 14% | 8% |
| retirement of key production personnel | 4% | 0% | 8% | 15% |
| selling our business | 12% | 3% | 8% | 4% |
| adding/updating web-to-print/online storefront | 9% | 19% | 14% | 11% |
| getting web-to-print to work on smartphones and other mobile devices | 5% | 0% | 3% | 2% |
| adding wide-format equipment/services | 5% | 10% | 7% | 5% |
| adding packaging printing equipment/services | 0% | 10% | 3% | 4% |
| transitioning jobs from offset to high-speed digital printing equipment | 5% | 10% | 8% | 8% |
| adding non-print media capabilities (web design, app development, social media management, etc.) | 9% | 3% | 7% | 9% |
| competing against digital media agencies | 8% | 3% | 2% | 4% |
| other | 8% | 10% | 3% | 2% |

- 1-9 employees: The top three challenges are “pricing” (31%, up from 27%), “local economic conditions” (28%, up from 19%), and “competition from other print providers” (25%, down from 40%).

- 10–19 employees: The top three challenges are “capabilities of sales personnel” (32%, down from 50%), “increasing plant productivity” (29%, up from 25%), and “keeping up with technological changes” (29%, up from 17%).
- 20–49 employees: The top challenges are “capabilities of sales personnel” (46%, down from 61%), “finding qualified production personnel” (41%, up from 39%), “finding qualified sales personnel” (41%, down from 43%), and “managing workflow automation (41%, up from 39%). So this demographic group is having the biggest problems with staffing issues.
- 50+ employees: The top three challenges are “increasing plant productivity” (51%, up from 45%), “finding qualified production personnel” (49%, up from 34%), and “managing workflow automation” (40%, down slightly from 42%). These folks also have acute staffing issues.

Business Opportunities

Some unusual items have taken precedence in our opportunities list.

One of them is *not* “improving economic conditions,” which, at 31%, is down from 41% the previous year and slips to number three.

In the number one position, for the second survey in a row, is “customers outsourcing more work to us,” selected by 34% of respondents, down from 43%. As we remarked last year, there is always the danger that customers will be able to do a substantial amount of their own printing in-house (a lot of “quick print” work was lost to desktop/network printers in the 2000s). The goal is to convince customers that they’ll save time and money in the long run by outsourcing work they might be considering doing in-house—this is especially the case when it comes to things like wide-format and other kinds of specialty printing. Granted, a bank or retail store is not going to pick up a superwide Durst or EFI machine (although some high-profile end users do), but they can pick up an entry-level Epson or Roland machine to handle modest sign and display needs. If this kind of work can be re-outsourced to a print provider that also handles other print work for the customer, it can be win-win. So that’s basically where this opportunity comes from.

Here’s an interesting number two: “partnering with other print providers” at 27%, up from 14%. Again, this is specialty printing in action. Don’t want to invest in wide-format, or textile-printing, or UV devices, but do want to offer the products that they produce? Find a partner and outsource it. And it works the other way as well: sign and display shops can outsource general commercial print work if they don’t want to invest in smaller-format machines, be they digital or offset. Us analyst types have been suggesting this strategy for ages—and the industry is finally listening to us!

The first two opportunities are the kinds we like to see: proactive, and indicative of an understanding of the current print marketplace. But then we come to number three, one of the old chestnuts: “improving economic conditions” at 24%, though down from 31%. When “economic conditions” charts high on the list of challenges, its corresponding opportunity charts accordingly. We’ve never been sanguine about this as a business opportunity—it’s really an excuse to not do anything—but we get where it’s coming from.

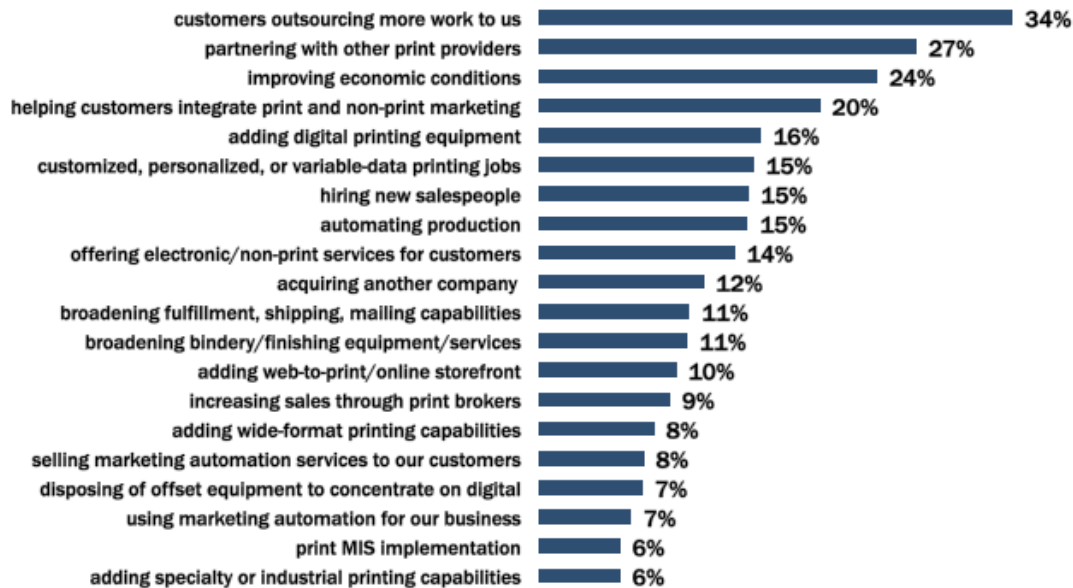
Happily, number 4 is back to a more proactive opportunity: “helping customers integrate print and non-print marketing” is at 20%, down from 37%. This was the number two opportunity last survey. Its complementary opportunity—“offering electronic, non-print services for customers”—is at 14%, down from 17%.

Rounding out the top five is a new one for the top of the opportunities chart: “adding digital printing equipment,” selected by 16%, up from 11%. This could be an indication that interest in production inkjet has finally hit critical mass. It could also refer to wide-format printing, but either way, it at least gives the impression of a planned investment. (But we’ll see if their money is where their mouth is in the next section.)

The past few surveys were highly binding/finishing-centric, but this time, “broadening bindery/finishing equipment/services” drops out of the top five and all the way down to 11% from 23%. It’s possible the “broadening” is largely done. As for “digital

enhancements,” that still has yet to appear on anyone’s radar in a major way: “adding “digital enhancement” finishing technologies (like Scodix, Highcon, MGI)” is at 2%. This is always touted as such a hot area, and these companies’ trade show booths are always packed, yet in survey after survey, it registers barely a blip. What gives? A likely explanation comes via Trish Witkowski, who, in a recent [video interview](#), said that people love embellishments, but are scared of them. There is the perception that “special effects” are only for special projects, and embellishment examples are often highly elaborate and aspirational. As a result, printers don’t often see how embellishments can be scaled down and used for more day-to-day print applications. (Pat McGrew offered some suggestions for [how to sell embellishments](#).) So the key is to show how embellishments can be used to improve more prosaic print projects, and the responsibility for doing this may be more a job for the equipment manufacturers than the printers. In a nutshell: stop being so impressive!

In the next 12 months, which of the following represent your best new business opportunities?



n=286

Looking at the opportunities by shop size can give us a little better idea of what’s going on:

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| improving economic conditions | 28% | 19% | 14% | 9% |
| customers outsourcing more work to us | 36% | 26% | 20% | 36% |
| increasing sales through print brokers | 13% | 10% | 12% | 6% |
| partnering with other print providers | 31% | 13% | 25% | 19% |

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| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|---|---------------|-----------------|-----------------|---------------|
| helping clients get their websites to work on mobile devices | 6% | 0% | 3% | 2% |
| offering electronic/non-print services for customers (web design, app development, social media management, etc.) | 15% | 13% | 17% | 19% |
| offering Augmented Reality (AR) services to customers | 6% | 0% | 5% | 5% |
| helping customers integrate print and non-print marketing campaigns | 19% | 13% | 24% | 34% |
| using marketing automation for our business (like HubSpot, Eloqua, Marketo) | 10% | 3% | 10% | 7% |
| selling marketing automation services to our customers | 10% | 3% | 7% | 12% |
| adding additional offset printing equipment | 0% | 3% | 5% | 6% |
| adding digital printing equipment | 14% | 16% | 19% | 30% |
| customized, personalized, or variable-data printing jobs | 14% | 26% | 27% | 21% |
| disposing of offset equipment to concentrate on digital printing | 7% | 10% | 7% | 2% |
| broadening bindery/finishing equipment/services | 13% | 13% | 15% | 13% |
| adding "digital enhancement" finishing technologies (like Scodix, Highcon, MGI) | 0% | 10% | 8% | 2% |
| adding wide-format printing capabilities | 11% | 6% | 12% | 13% |
| adding textile/fabric printing capabilities | 4% | 0% | 7% | 6% |
| adding packaging printing capabilities | 1% | 3% | 7% | 8% |
| adding digital label/wrapper printing capabilities | 4% | 6% | 5% | 6% |
| adding specialty or industrial printing capabilities | 4% | 10% | 8% | 6% |
| broadening fulfillment, shipping, mailing capabilities | 7% | 23% | 25% | 24% |
| automating production | 13% | 13% | 19% | 32% |
| adding web-to-print/online storefront | 10% | 13% | 10% | 10% |
| print MIS implementation | 4% | 6% | 12% | 18% |
| getting more customers using smartphones and other mobile devices | 6% | 0% | 2% | 2% |
| migrating production to the cloud | 3% | 0% | 0% | 2% |
| migrating business functions to the cloud | 1% | 6% | 0% | 4% |
| migrating customer service and sales to the cloud | 1% | 3% | 3% | 2% |
| training employees to use cloud applications | 3% | 6% | 2% | 2% |
| acquiring another company | 8% | 29% | 17% | 20% |
| selling our company | 7% | 0% | 3% | 4% |
| hiring new salespeople | 11% | 26% | 32% | 22% |

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|---------------------------|---------------|-----------------|-----------------|---------------|
| video production services | 3% | 0% | 5% | 3% |
| other | 4% | 3% | 3% | 4% |

- 1-9 employees: The top three opportunities are “customers outsourcing more work to us” (36%, down from 49%), “partnering with other print providers” (31%, up from 15%), and “improving economic conditions” (28%, down from 34%). Given that this demographic was especially challenged by “local economic conditions,” it’s likely they’re more concerned with their local or regional economy improving than any change in national economic conditions.
- 10-19 employees: The top opportunity is “acquiring another company” (29%, up from—whoa—8% last year). That’s an alternative way to expand one’s product and service offerings without buying the equipment and the needed skills (the skills and the customer base come with the equipment). It could also be referring to just tuck-ins. Tied at number two at 26% are “customers outsourcing more work to us” (up from 13%), “customized, personalized, or variable-data printing jobs” (up from 17%), and “hiring new salespeople” (down from 42%—this was their number one opportunity last year). Number three is “broadening fulfillment, shipping, mailing capabilities” (up from 17%).
- 20-49 employees: The top three opportunities are “hiring new salespeople” (32%, down from 35%), “customized, personalized, or variable-data printing jobs” (27%, down from 39%), and “broadening fulfillment, shipping, mailing capabilities (25%, down from 39%).
- 50+ employees: The top three opportunities are “customers outsourcing more work to us” (36%, unchanged from last year), “helping customers integrate print and non-print marketing campaigns” (34%, down from 36%), and “automating production” (32%, up from 20%).

Planned Investments

What are print businesses planning to buy in 2020? Well, not a great deal, or at least nothing that requires advanced planning and a more formal investment process.

The overwhelming response—selected by one-third of our respondents—was “we have no planned investments.”

The number one actual item is “finishing/bindery equipment for digital production” (16%, down from 25% last year). Then again, finishing equipment has been at the top of the list for the past few surveys; as we saw with less interest in “broadening our finishing capabilities” as an opportunity, it’s likely that binding and finishing have been broadened, and the opportunity and corresponding investment will languish until there is some new compelling product introduction (which is not to say that most product introductions are compelling in their own way), some new print product that requires new finishing capabilities, or after a shop upgrades its presses and new, compatible finishing equipment is required.

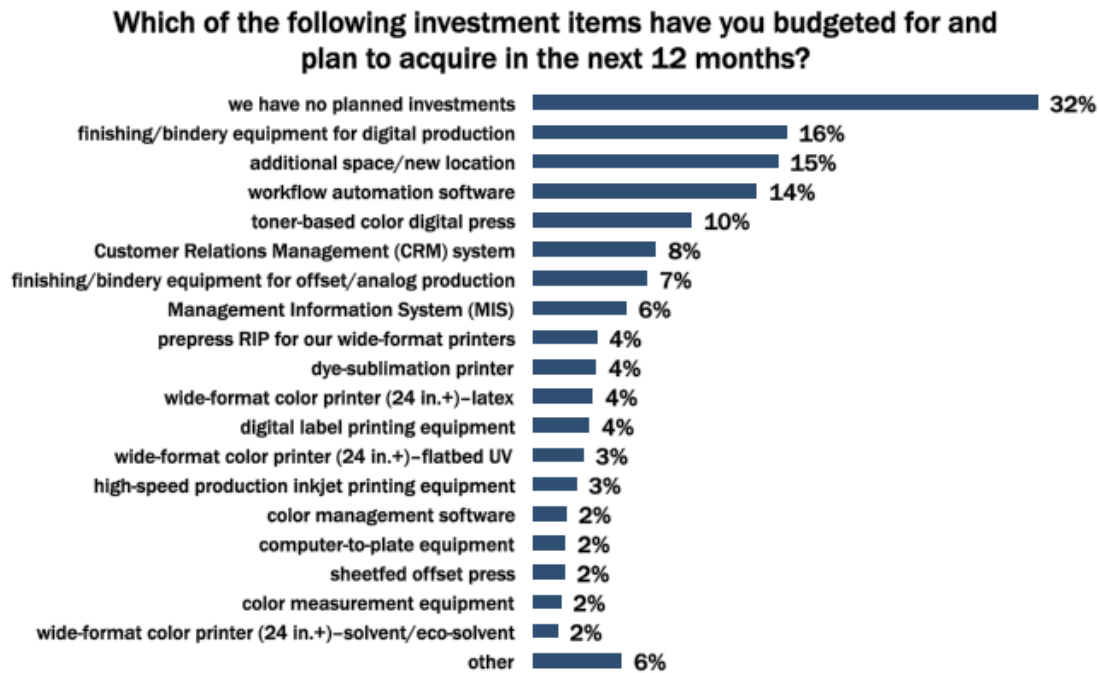
The number two item is “additional space/new location” (15%—up from 8%). That’s a good sign that businesses are expanding and adding capabilities—or, as the sense we get,

they’ve already added the capabilities and need a place, as George Carlin would say, for their stuff.

The number three item is “workflow automation software,” selected by 14%, up from 10%.

At number four is “toner-based color digital press (like HP Indigo, Xerox iGen) at 10%, up from 6%. Apparently they were serious in the last section when they saw “adding digital printing equipment” as an opportunity.

Rounding out the top five is “Customer Relations Management (CRM) system,” selected by 8%, down from 12%.



n=285

Let’s see who is specifically buying what:

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|---|---------------|-----------------|-----------------|---------------|
| additional space/new location | 15% | 23% | 7% | 18% |
| color measurement equipment (densitometer, spectrophotometer) | 0% | 6% | 3% | 9% |
| color management software | 0% | 3% | 10% | 10% |
| computer-to-plate equipment | 4% | 0% | 0% | 7% |
| finishing/bindery equipment for offset/analog production | 6% | 10% | 15% | 20% |
| finishing/bindery equipment for digital production | 14% | 29% | 24% | 26% |
| toner-based color digital press | 13% | 3% | 14% | 9% |

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| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|---|---------------|-----------------|-----------------|---------------|
| (like HP Indigo, Xerox iGen) | | | | |
| high-speed production inkjet printing equipment (like HP PageWide, Canon Océ ColorStream/ProStream) | 1% | 3% | 8% | 13% |
| sheetfed offset press | 1% | 0% | 7% | 10% |
| web offset press—new | 0% | 0% | 2% | 0% |
| rebuilding our web offset press | 1% | 3% | 0% | 4% |
| wide-format color printer (24 in.+)-solvent/eco-solvent (like Epson, Roland) | 3% | 0% | 2% | 3% |
| wide-format color printer (24 in.+)-latex (like HP Latex) | 4% | 3% | 5% | 4% |
| wide-format color printer (24 in.+)-flatbed UV (like EFI VUTEk, Canon Océ Arizona, HP Scitex) | 1% | 6% | 8% | 13% |
| digital label printing equipment | 4% | 0% | 7% | 5% |
| dye-sublimation printer (like Epson, Roland, Mimaki) | 3% | 3% | 10% | 7% |
| packaging press/printer—corrugated | 0% | 0% | 2% | 0% |
| packaging press/printer—folding carton | 0% | 0% | 5% | 6% |
| packaging press/printer—flexible packaging | 0% | 0% | 3% | 2% |
| prepress RIP for our wide-format printers | 6% | 6% | 0% | 2% |
| prepress RIP for other devices | 3% | 0% | 2% | 1% |
| Management Information System (MIS) | 4% | 6% | 12% | 17% |
| Customer Relations Management (CRM) system | 7% | 3% | 12% | 11% |
| workflow automation software | 15% | 13% | 22% | 21% |
| we have no planned investments | 32% | 29% | 14% | 11% |
| other (please specify) | 4% | 10% | 5% | 6% |

- 1-9 employees: The top response is “we have no planned investments” (32%, way up from 19%). The number one actual item is a tie at 15% between “additional space/new location” (up from 6%) and “workflow automation software” (up from 7%). The number two investment category is “finishing/bindery equipment for digital production” (14%, down from 22%) and number three is “toner-based color digital press (like HP Indigo, Xerox iGen)” (13%, up from 2%).
- 10-19 employees: The top response was a tie (at 29%) between “we have no planned investments” (up from 25%) and “finishing/bindery equipment for digital production” (down from 33%). The number two investment category is “additional space/new location” (23%, up from 8%) and number three is “workflow automation software” (13%, up from 8%).
- 20-49 employees: The top response was “we have no—” nope, wait, check that... The number one response was “finishing/bindery equipment for digital production” (24%, down from 39%). Number two was “workflow automation software” (22%, down

from 26%), and number three was “finishing/bindery equipment for offset/analog production” (15%, down from 17%).

- 50+ employees: The top three planned investments are “finishing/bindery equipment for digital production” (26%, up from 23%), “workflow automation software (21%, up from 20%), and “finishing/bindery equipment for offset/analog production” (20%, down from 21%).

Looking Forward

The low planned investment figures are not a surprise when we look at the next section: a lot of shop are not interested in adding new types of printing capabilities or, as in the case of wide format, they’ve already added them.

3. NEW PRODUCTS AND SERVICES

In each survey, we try to gauge the extent that print service providers are branching out into new product and service areas, such as wide-format printing and all the various applications that fall under that increasingly broad category. In this survey, we wanted to see the extent to which they had already added new products/services, and, if not, if they had a time frame for adding them—or if they were even on their radars at all.

For the following product areas...

- high-speed production inkjet (like HP PageWide, Canon Océ ColorStream/ProStream)
- wide-format printing (like signs, displays, banners)
- textile/fabric printing for soft signage
- textile/fabric printing for garment printing/decorating
- direct-to-garment printing
- specialty or industrial printing (like coffee mugs, golf balls, smartphone cases)
- corrugated packaging printing
- folding carton printing/converting
- flexible packaging printing/converting
- 3D printing
- printed electronics

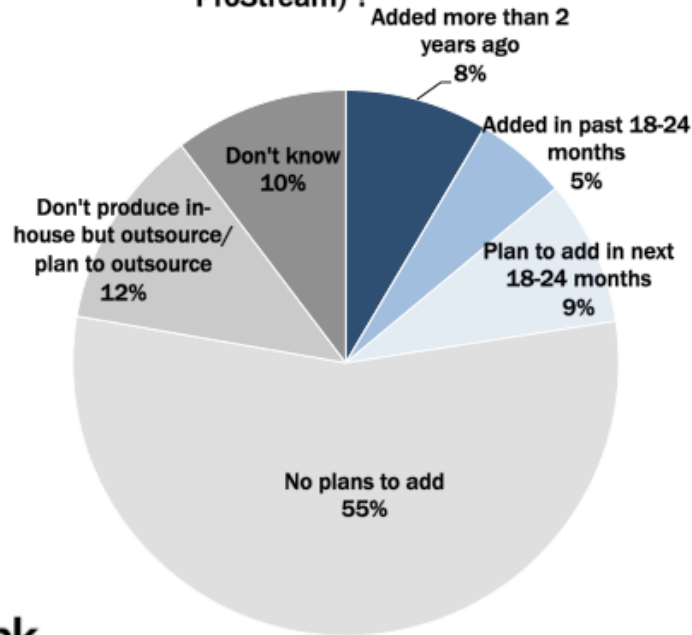
...we asked if they...

- added it more than 2 years ago
- added it in the past 18-24 months
- plan to add it in the next 18-24 months
- have no plans to add it
- don't produce it in-house but outsource/plan to outsource it
- don't know

High-Speed Production Inkjet

When it comes to high-speed production inkjet, 13% of our response base already added it, and a further 9% say they plan to add production inkjet in the next year or two. Twelve percent plan to outsource it, if they don't already. More than one-half (55%) say they have no plans to add production inkjet capabilities.

Have you added, or do you plan to add, high-speed production inkjet capabilities (like HP PageWide, Canon Océ ColorStream/ProStream) ?



n=223

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 3% | 16% | 12% | 20% |
| Added in past 18-24 months | 5% | 4% | 6% | 20% |
| Plan to add in next 18-24 months | 8% | 12% | 18% | 16% |
| No plans to add | 61% | 44% | 56% | 38% |
| Don't produce in-house but outsource/plan to outsource | 14% | 0% | 6% | 2% |
| Don't know | 8% | 24% | 2% | 3% |

The high percentage of “no plans to add” come from the smaller end of the industry—61% of shops with 1-9 employees. At the moment, this is pretty much a large-establishment technology—40% of 50+-employee establishments already added it, and another 16% plan to add it. Still, 20% of 10-19-employee establishments already added production inkjet, as did 18% of 20-49-employee establishments. Of interest is the one-fourth of 10-19-employee establishments that “don't know”—production inkjet has hit critical mass, but it hasn't hit all mass yet.

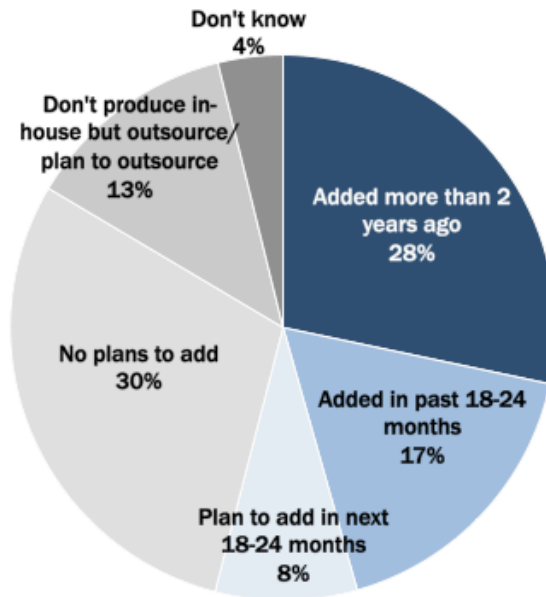
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Wide-Format Printing

When it comes to wide-format printing capabilities, nearly one-half (45%) have already added them, with a further 8% planning to add it in the next year or two. Thirteen percent plan to outsource it, if they don't already. Three out of 10 have no plans to add wide-format capabilities. As has been the case for the past couple of years, anyone who planned to move into wide-format has already done so. There may be a few stragglers, but the big shift to wide-format is generally over.

Have you added, or do you plan to add, wide-format printing capabilities (like signs, displays, banners)?



n=230

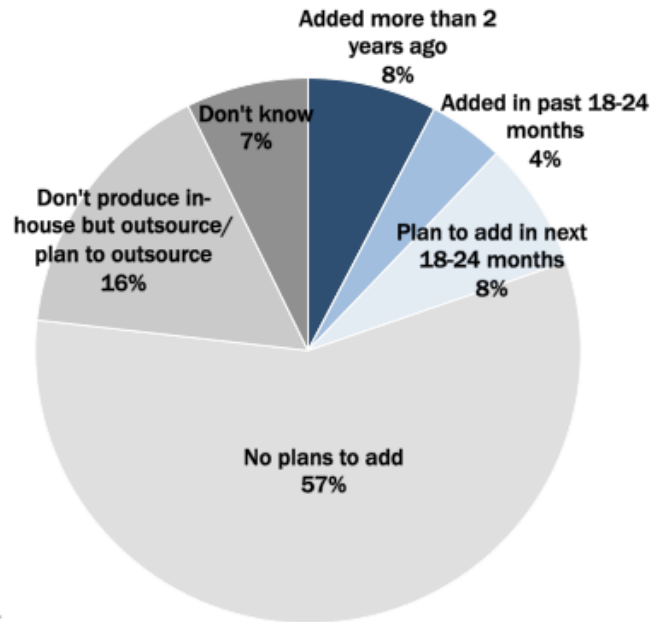
| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 28% | 42% | 37% | 38% |
| Added in past 18-24 months | 15% | 19% | 19% | 18% |
| Plan to add in next 18-24 months | 12% | 4% | 6% | 6% |
| No plans to add | 28% | 12% | 29% | 32% |
| Don't produce in-house but outsource/plan to outsource | 15% | 8% | 8% | 4% |
| Don't know | 2% | 15% | 0% | 2% |

More than one-half of 10-19-employee, 20-49-employee, and 50+ establishments have already added wide-format capabilities, and 1-9-employee shops are not far behind. The 10-19-employee establishments are the least likely to say they have no plans to add (only 12%)—the rest are in the 28-32% range.

Textile Printing for Soft Signage

Textile printing is not for everyone, but in terms of soft signage, only 12% of respondents have already added it, with 8% planning to add it in the next year or two. Interestingly, 16% plan to outsource it. (Remember how “partnering with other print providers” was a top sales opportunity? Here’s where that plays in.) Still, nearly six out of 10 (57%) have no plans to add textile printing for soft signage.⁹ The “no plans to add” folks may change their minds as the technology gets easier to work with—and they start losing work of their competitors who offer it.¹⁰

Have you added, or do you plan to add, textile/fabric printing for soft signage?



n=218

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 8% | 0% | 2% | 9% |
| Added in past 18-24 months | 4% | 8% | 4% | 5% |
| Plan to add in next 18-24 months | 8% | 16% | 4% | 12% |
| No plans to add | 53% | 60% | 55% | 65% |
| Don't produce in-house but outsource/plan to outsource | 25% | 0% | 23% | 6% |
| Don't know | 4% | 16% | 11% | 3% |

There are some pockets of interest in soft signage—we’ll be keeping our eye on it.

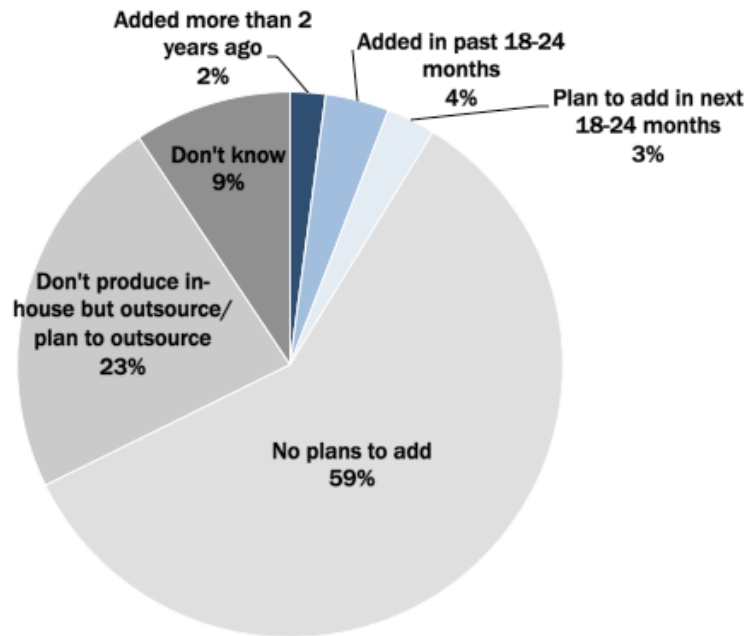
⁹ Just on a housekeeping note, respondents were only allowed to select one of these responses, so there is no overlap between “no plans to add” and “plan to outsource.”

¹⁰ Dr. Joe Webb used to often say that printers will generally ignore any new technology until they start losing work to it.

Textile/Fabric Printing for Garment Printing/Decorating

On the other hand, textile printing for garment decoration is probably even less for everyone. Only 6% of respondents have already added it, and only 3% plan to add it. And, even more interestingly, nearly one-fourth (23%) plan to outsource it if they don't already. (That "partnering with other print providers" opportunity again.) And, again, nearly six out of 10 (59%) have no plans to add it. The "no plans to add" folks are probably less likely to change their minds about garment printing than soft signage.

Have you added, or do you plan to add, textile/fabric printing for garment printing/decorating ?



n=212

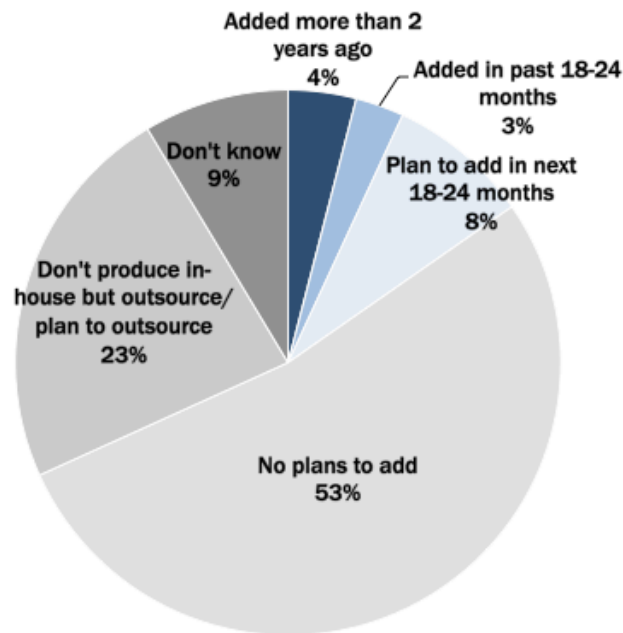
| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 2% | 0% | 0% | 0% |
| Added in past 18-24 months | 4% | 4% | 0% | 6% |
| Plan to add in next 18-24 months | 2% | 9% | 8% | 3% |
| No plans to add | 54% | 61% | 65% | 78% |
| Don't produce in-house but outsource/plan to outsource | 31% | 9% | 15% | 9% |
| Don't know | 8% | 17% | 12% | 4% |

There is some interest among mid-size printers in adding garment/fabric printing, even if only on an outsourced basis, but the biggest shops seem pretty meh about it.

Direct-to-Garment Printing

Direct-to-garment (DTG) printing is a different beast than garment printing/decorating. The latter typically refers to printing on raw fabric which is then cut and sewn into the actual garment. DTG, on the other hand, involves printing onto pre-made apparel, such as T-shirts, shorts, caps, and even related items like tote bags. It is (usually) an inkjet technology, not dye-sublimation, and inexpensive units from Ricoh (Anajet), Epson, and Roland, among others, are easy to set up and use. That said, only 7% of respondents have already added DTG printing, and 8% plan to add it. Nearly one-fourth (23%) plan to outsource it if they don't already. Just over one-half (53%) have no plans to add it.

Have you added, or do you plan to add, direct-to-garment printing capabilities?



n=209

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 4% | 0% | 0% | 0% |
| Added in past 18-24 months | 2% | 5% | 0% | 5% |
| Plan to add in next 18-24 months | 12% | 5% | 6% | 3% |
| No plans to add | 50% | 59% | 66% | 78% |
| Don't produce in-house but outsource/plan to outsource | 27% | 14% | 15% | 9% |
| Don't know | 6% | 18% | 13% | 5% |

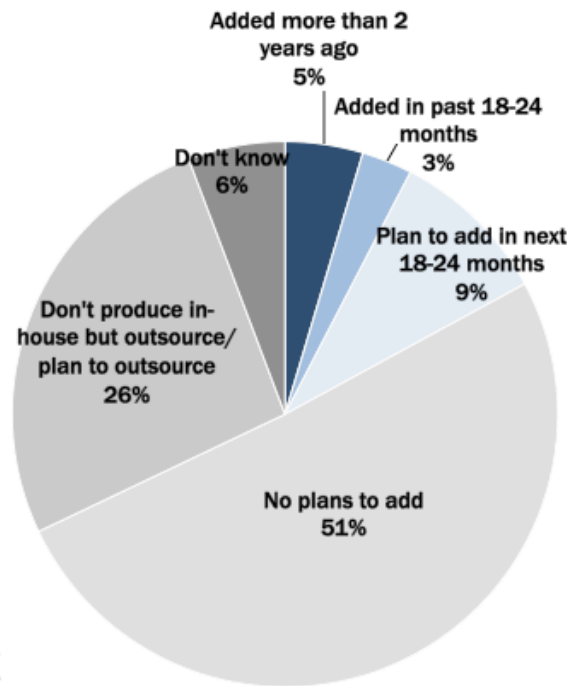
DTG printing finds its greatest favor among the small shops who can easily set up a T-shirt printing business. DTG is also popular in inplants, especially those in education, who can produce college swag for students, alumni, and parents.

Specialty Printing

By specialty printing, we mean printing on three-dimensional items like coffee mugs, golf balls, smartphone cases. UV inkjet devices from the likes of Mimaki, Roland, and LogoJet have made this kind of printing just about as easy as DTG printing, and these are in-demand items used for marketing and promotion.

Still, only 8% of respondents have already added specialty printing, and 9% plan to add it. More than one-fourth (26%) plan to outsource it if they don't already. (These items—also known as ad specialties—are often bought in bulk by end customers from distributors who have long specialized in these...specialties. Digital direct-to-item printing may be seen as a disruptive technology to this long-entrenched market.) At any rate, just over one-half (51%) have no plans to add specialty printing capabilities.

Have you added, or do you plan to add, or industrial printing capabilities (like coffee mugs, golf balls, smartphone cases)?



n=209

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 4% | 4% | 0% | 2% |
| Added in past 18-24 months | 4% | 9% | 0% | 7% |
| Plan to add in next 18-24 months | 9% | 9% | 7% | 4% |
| No plans to add | 47% | 48% | 59% | 71% |
| Don't produce in-house but outsource/plan to outsource | 32% | 17% | 23% | 11% |
| Don't know | 4% | 13% | 11% | 4% |

This kind of printing generally falls off the radar the larger a shop gets, but one-third of the smallest shops see it as at least outsourceable. (This is also popular among inplants.)

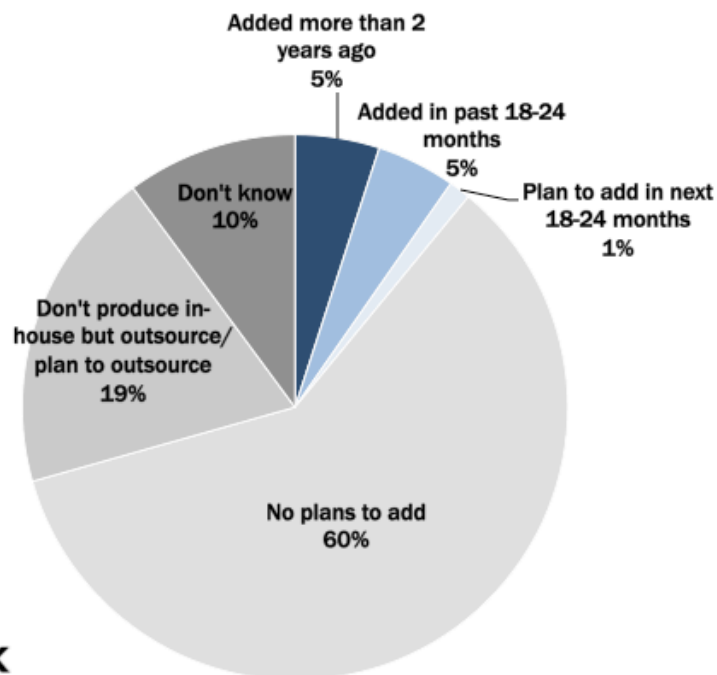
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Corrugated Packaging Printing

Packaging has been a much-ballyhooed print application—digital (and hybrid digital/flexo) technologies are helping packaging printers and converters keep pace with trends in packaging production (short runs, more customization/personalization, etc.). Packaging is seen as a great growth application for printers—although not necessarily by printers—recall that only 2% of our survey respondents saw “adding packaging printing capabilities” as a business opportunity. Corrugated in particular is receiving a great deal of attention, and 10% of respondents have already added corrugated packaging printing, although a scant 1% plan to add it. Just about one-fifth (19%) plan to outsource it if they don’t already. Six out of 10 have no plans to add corrugated packaging capabilities.

Have you added, or do you plan to add, corrugated packaging printing capabilities?



n=206

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 4% | 5% | 0% | 4% |
| Added in past 18-24 months | 4% | 10% | 2% | 8% |
| Plan to add in next 18-24 months | 2% | 0% | 0% | 6% |
| No plans to add | 62% | 57% | 66% | 63% |
| Don't produce in-house but outsource/plan to outsource | 21% | 10% | 14% | 13% |
| Don't know | 8% | 19% | 18% | 6% |

The high rates of “don’t know” among the mid-size shops suggest that they are still looking at corrugated printing. Corrugated doesn’t necessarily have to be solely for packaging; there is a lot of overlap with retail POP/POS graphics as well.

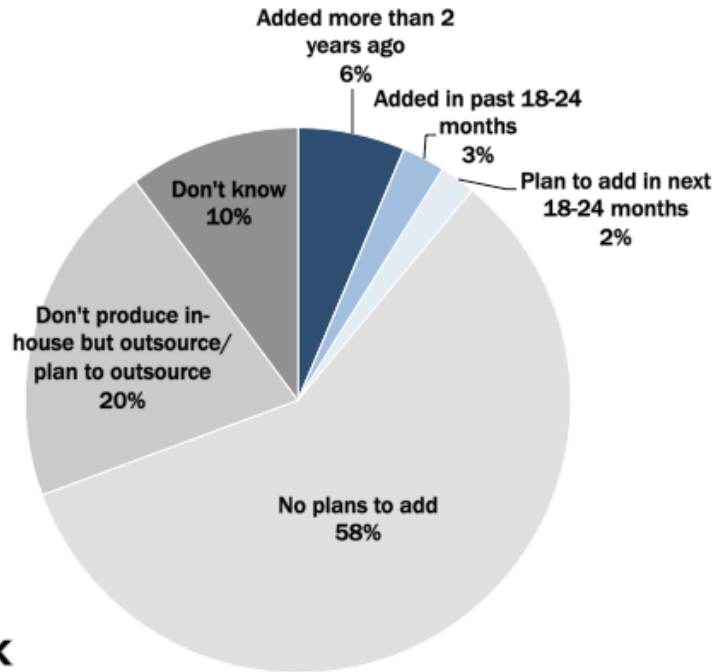
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Folding Carton Printing/Converting

Likewise, only 9% of respondents have already added folding carton printing/converting, and only 2% plan to add it. One-fifth plan to outsource it if they don't already. Nearly six out of 10 (58%) have no plans to add folding carton printing/converting capabilities.

Have you added, or do you plan to add, folding carton printing/converting capabilities?



n=211

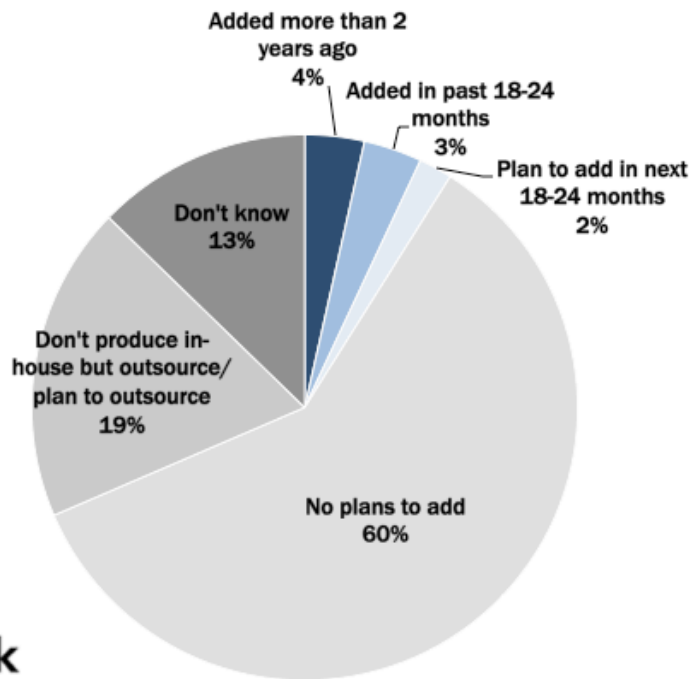
| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 4% | 9% | 6% | 8% |
| Added in past 18-24 months | 2% | 0% | 0% | 7% |
| Plan to add in next 18-24 months | 2% | 5% | 0% | 10% |
| No plans to add | 60% | 59% | 60% | 59% |
| Don't produce in-house but outsource/plan to outsource | 23% | 9% | 19% | 13% |
| Don't know | 10% | 18% | 15% | 3% |

Almost one-fourth of 1-9-employee shops say they outsource or plan to outsource folding carton printing, and 10% of 50+-employee establishments plan to add folding carton printing. With the advent of ecommerce and small boutique/craft product manufacturers/sellers, there is a greater and greater need for printed boxes in smaller and smaller runs. There is a great opportunity for shops that can serve these often small, local merchants.

Flexible Packaging Printing/Converting

Flexible packaging hasn't been quite as touted as corrugated/folding carton, but new digital technologies are also transforming flexible, creating new opportunities. However, only 7% of respondents have already added flexible packaging printing/converting capabilities, and only 2% plan to add it. About one-fifth (19%) plan to outsource it if they don't already and, as with other forms of packaging production, six out of 10 have no plans to add flexible packaging printing/converting capabilities.

Have you added, or do you plan to add, flexible packaging printing/converting capabilities?



n=204

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 2% | 5% | 7% | 4% |
| Added in past 18-24 months | 4% | 5% | 0% | 1% |
| Plan to add in next 18-24 months | 2% | 5% | 4% | 5% |
| No plans to add | 58% | 64% | 60% | 76% |
| Don't produce in-house but outsource/plan to outsource | 23% | 0% | 16% | 9% |
| Don't know | 12% | 23% | 13% | 5% |

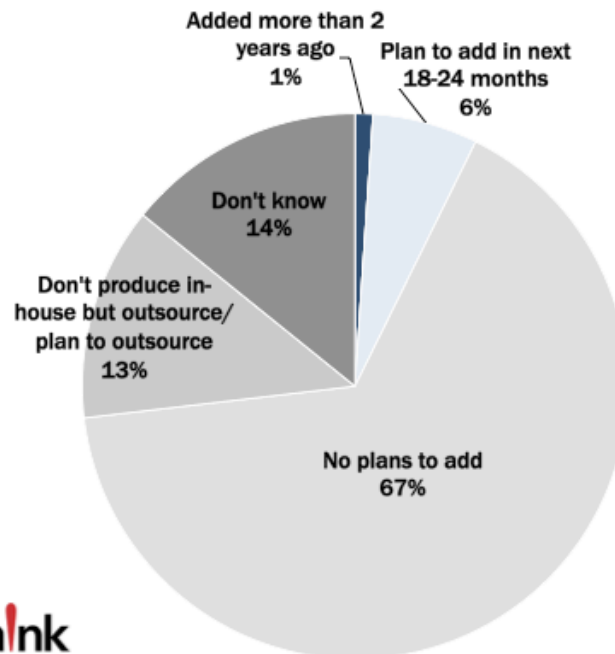
Again we see high outsource rates among the smallest shops, and high “don't know” rates among mid-size shops.

3D Printing

We didn't expect to see a lot of interest in these last two items (3D printing and printed electronics), and we didn't. There are more opportunities for general commercial printers in 3D printing than printed electronics—especially in retail display, as many of Massivit's customers are doing to complement 2D wide-format display graphics.

Only 1% of respondents have added 3D printing more than two years ago (none had added it in the past 18–24 months), although 6% plan to add it. Thirteen percent plan to outsource it if they don't already, but a full two-thirds have no plans to add 3D printing.

Have you added, or do you plan to add, 3D printing capabilities?



n=205

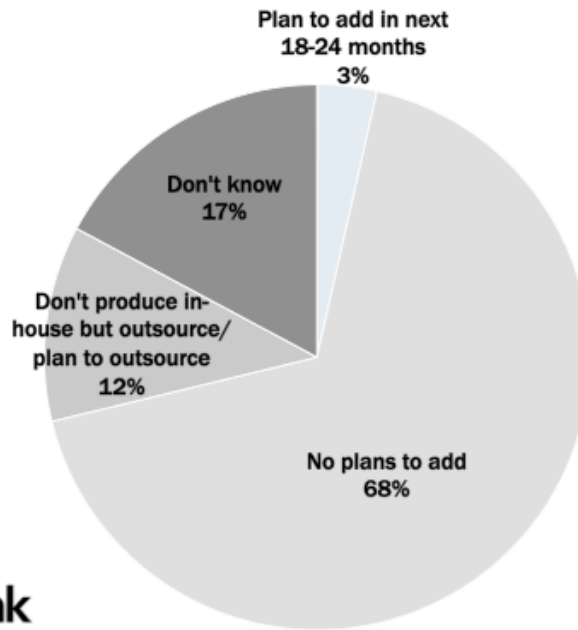
| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 0% | 5% | 2% | 6% |
| Added in past 18-24 months | 0% | 0% | 0% | 0% |
| Plan to add in next 18-24 months | 9% | 5% | 2% | 7% |
| No plans to add | 63% | 67% | 67% | 76% |
| Don't produce in-house but outsource/plan to outsource | 17% | 0% | 13% | 4% |
| Don't know | 11% | 24% | 15% | 7% |

Large shops decidedly have little interest in 3D printing, but the one-fourth of 10–19-employee shops that don't know suggests that they're looking at it.

Printed Electronics

Printed electronics has also been touted as a good opportunity for printers (remember when everyone was going to be raking it in by printing RFID chips?) but it requires a degree of engineering and technical skill far beyond ink on paper. Some printing companies have managed to successfully branch into printed electronics (usually by creating a separate business as a greenfield project rather than squeezing in new equipment next to the offset or digital press), but for rank-and-file commercial printers, it requires more time and due diligence than they may have. That’s likely why none of our respondents has added printed electronics capabilities, although 3% say they plan to add it. Twelve percent plan to outsource it if they don’t already, but more than two-thirds have no plans to add printed electronics—which actually seems a bit low. Seventeen percent don’t know which we suspect means they’ve thought about considering the possibility that some day they may consider adding it. We could be wrong, but we doubt that printed electronics is going to be the big growth area for the industry.

Have you added, or do you plan to add, printed electronics capabilities?



n=202

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|--|---------------|-----------------|-----------------|---------------|
| Added more than 2 years ago | 0% | 0% | 0% | 1% |
| Added in past 18-24 months | 0% | 0% | 0% | 0% |
| Plan to add in next 18-24 months | 5% | 0% | 0% | 1% |
| No plans to add | 65% | 68% | 82% | 88% |
| Don't produce in-house but outsource/plan to outsource | 15% | 0% | 7% | 5% |
| Don't know | 15% | 32% | 11% | 5% |

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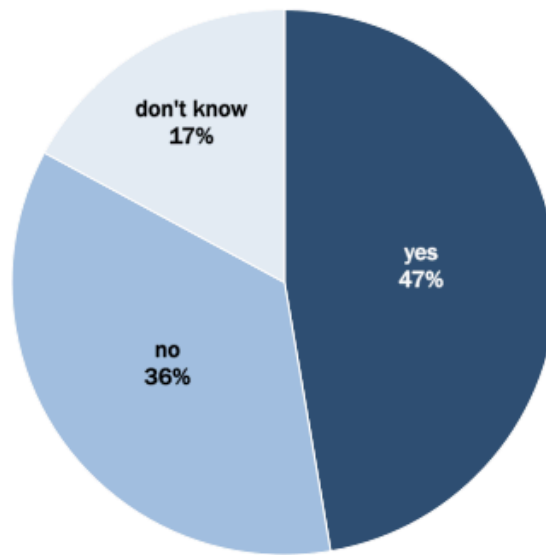


4. HIRING PLANS

One of the most discussed topics last year was that of staffing and the problems that print businesses have been having in attracting employees. Finding qualified employees has been one of the perennial challenges in recent years, and our recent surveys—including the current one—have confirmed this. (For decades, print business owners complained about not being able to find decent sales people—or at least those with good books of business—but now finding production people has become a major challenge.)

Forty-seven percent of print businesses are considering hiring staff in the next 12 months, and this is only down one percentage point from last year’s survey. (A year earlier, in our 2017 survey, 65% said they had planned to hire.) Thirty-six percent are not planning to hire (down from 40% last year), while the number of “don’t know”’s ticked up from 12% to 17%, which suggests that they are sufficiently staffed but may need to fill any vacancies that crop up over the course of the year.

Are you considering hiring/adding staff in the next 12 months?



n=254

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|------------|---------------|-----------------|-----------------|---------------|
| yes | 43% | 45% | 59% | 79% |
| no | 43% | 21% | 22% | 14% |
| don't know | 15% | 34% | 20% | 7% |

Plans to hire increase with shop size—with mid-size printers the most likely to respond “don’t know.”

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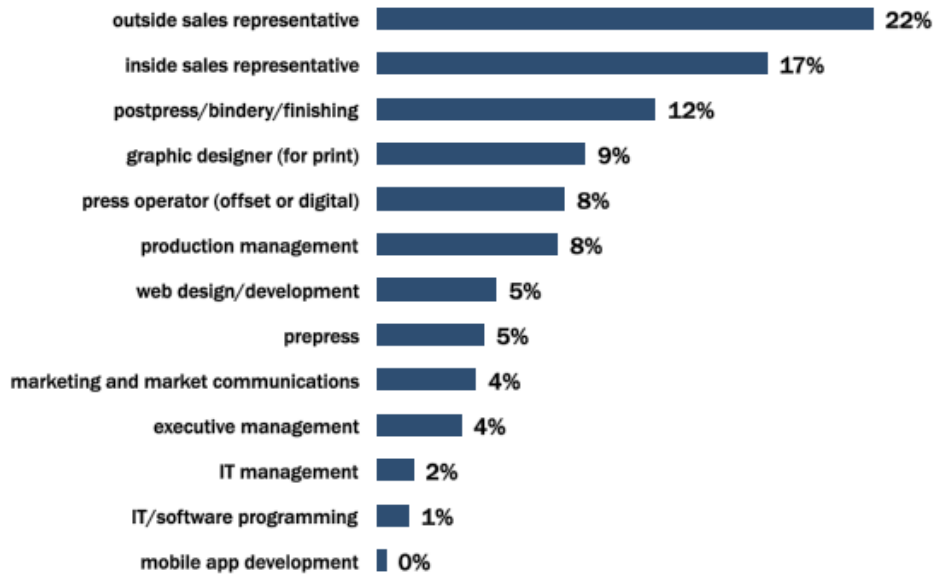


Specific Positions

As it turns out, maybe the production staff crisis has been overblown: the top two specific positions for which print businesses plan to hire are “outside sales representative” (22%, down from 25%) and “inside sales representative” (17%, up from 10%).

“Postpress/bindery/finishing” staff are at 12%, down one point, and “graphic designer (for print)” is wanted by 9%, unchanged from last year. Last year, “prepress” was a top position for which printers were hiring, but this year it has dropped to 5%.

If yes, for what positions are you looking to hire?



n=286

| | 1-9 employees | 10-19 employees | 20-49 employees | 50+ employees |
|-------------------------------------|---------------|-----------------|-----------------|---------------|
| executive management | 3% | 6% | 5% | 8% |
| inside sales representative | 14% | 19% | 20% | 18% |
| outside sales representative | 19% | 23% | 32% | 31% |
| marketing and market communications | 3% | 6% | 8% | 12% |
| prepress | 3% | 3% | 12% | 16% |
| production management | 4% | 13% | 10% | 17% |
| press operator (offset or digital) | 4% | 10% | 20% | 37% |
| postpress/bindery/finishing | 10% | 10% | 24% | 43% |
| IT management | 3% | 0% | 0% | 7% |
| IT/software programming | 0% | 0% | 5% | 12% |
| graphic designer (for print) | 14% | 0% | 5% | 8% |
| web design/development | 4% | 3% | 5% | 13% |
| mobile app development | 0% | 0% | 2% | 2% |

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Different size establishments have different hiring/staff needs. This year, the top two positions shops for which shops are looking to hire, broken down by size classification, are:

- 1–9 employees: Outside (18%, down one point) and inside (14%, up from 6%) sales representatives.
- 10–19 employees: Outside (23%, down from 38%) and inside (19%, up from 17%) sales representatives.
- 20–49 employees: Outside sales representative (32%, down from 39%) and postpress/bindery/finishing (24%, down from 26%).
- 50+ employees: Postpress/bindery/finishing (43%, up from 34%) and press operator (offset or digital) (37%, up from 29%).

Except for the largest establishments, it appears that hiring for anything other than a sales position is pretty low. There could be a few reasons for this. They could have had the hiring crisis in previous years and have managed to hire everyone they need, at least for the time being. Or they may have used automation to compensate for lack of human staff. It's worth checking out [some video interviews](#) we captured at last November's [Think Smart Factory Conference](#). The “smart factory” is a concept by which production is as automated as it can possibly be, from prepress (or even earlier) all the way through to finishing. Replacing skilled human staff with technology means that human intervention is only required for things like loading and unloading machines (if even that—robotic arms have come to flatbed wide-format printers and cutting tables). After all, the challenge is finding *skilled* production staff (be it printing or finishing); employees are easier to find if they don't need to be highly skilled, especially if those skills involve running an offset press. Digital equipment and digital shops may be more attractive since the equipment more closely resembles office equipment and the environment is more like an office rather than a loud (and not always clean) factory. If the only skill required is to push a button, employees are much easier to find.

Indeed, as digital printing continues to take over, the staff required may not be production at all but software programming-related (for variable-data printing applications)—which will also help attract younger talent to print businesses. Unfortunately, software programming and other IT-related positions were at the bottom of the above chart, and then only among the largest print businesses.

5. GRAPHIC COMMUNICATIONS INDUSTRY ECONOMIC TRENDS

Let's pull back from our own survey and round up other industry data from our usual suspects (Bureau of the Census and other government sources). We will look at:

- Commercial printing establishments
- Births and deaths
- Printing industry shipments
- Printing industry employment

Remember, these are aggregate industry data, a combination of industry leaders, laggards, and everyone in between. When you see the trends, it's a baseline or an average. Always keep in mind that there are many profitable, healthy, and growing companies that are performing exceptionally well, and that underperforming businesses tend to drag down the average. Think of it as the opposite of survivor bias.

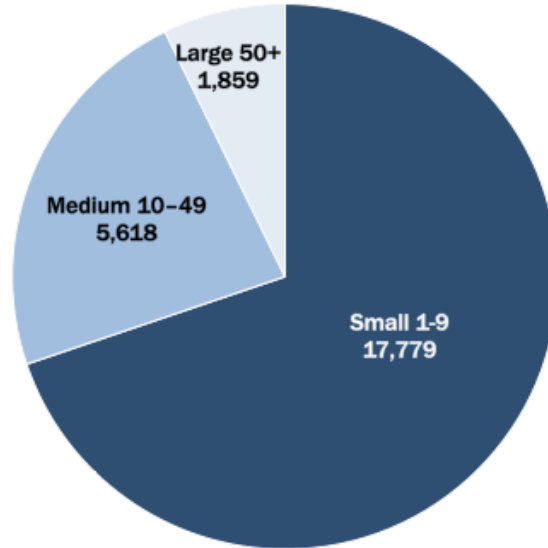
Printing Establishments

The composition of the printing industry today—NAICS 323¹¹—is predominantly small businesses; 70% of the 25,256 establishments counted in 2017 were those that had under 10 employees. Just under one-fourth (22%) are “medium” printers (10–49 employees), and only 7% are 50+employee plants. Those 7% are very important: they still represent a large portion of industry revenues, and about 70% of the industry's capital investment. The two charts below have been updated with 2017 *County Business Patterns* data, which was just released in November 2019, as well as estimates from our own forecasts.

By the way, a complete demographic resource is available through APTEch called [PrintStats](#). WhatTheyThink also provides [summaries of industry data](#).

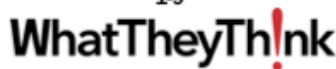
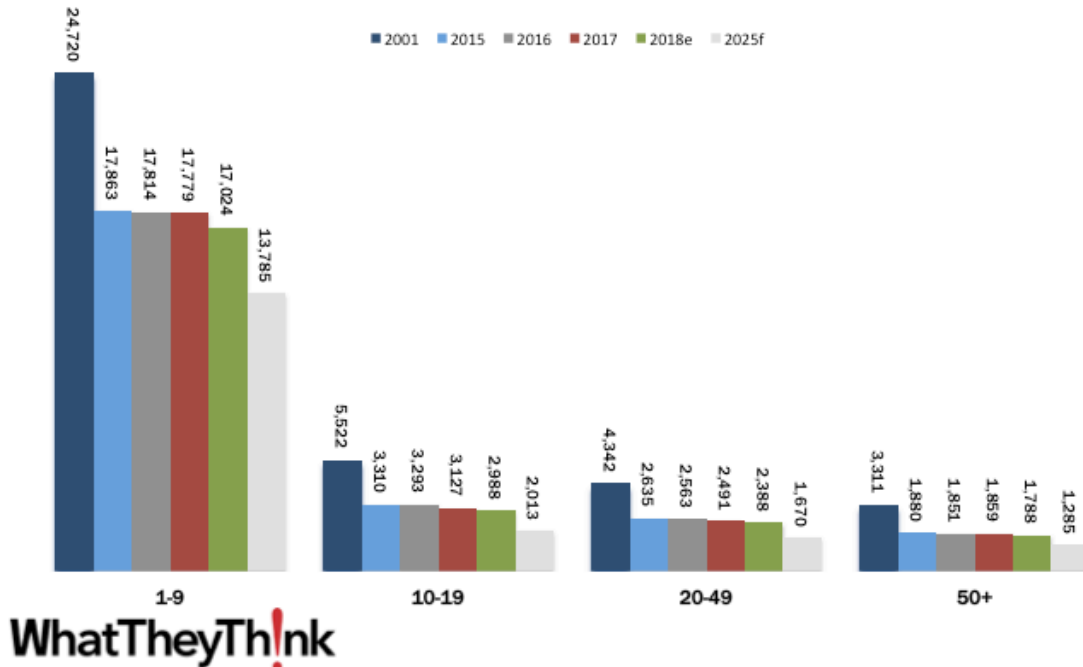
¹¹ “The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy” (<http://www.census.gov/eos/www/naics/>). NAICS 323 is “Printing and Related Support Activities.”

US Commercial Printing Establishments by Number of Employees, 2017
 Total Establishments: 25,256



The historical chart below includes a 2025 forecast:

Change in US Commercial Printing Establishments by Number of Employees, 2001–2025



Between 2017 and 2025, we are looking to continue to consolidate the smaller end of the industry by about 4,000 establishments, while at the higher end, we're looking at a decline of another 500 or so establishments.

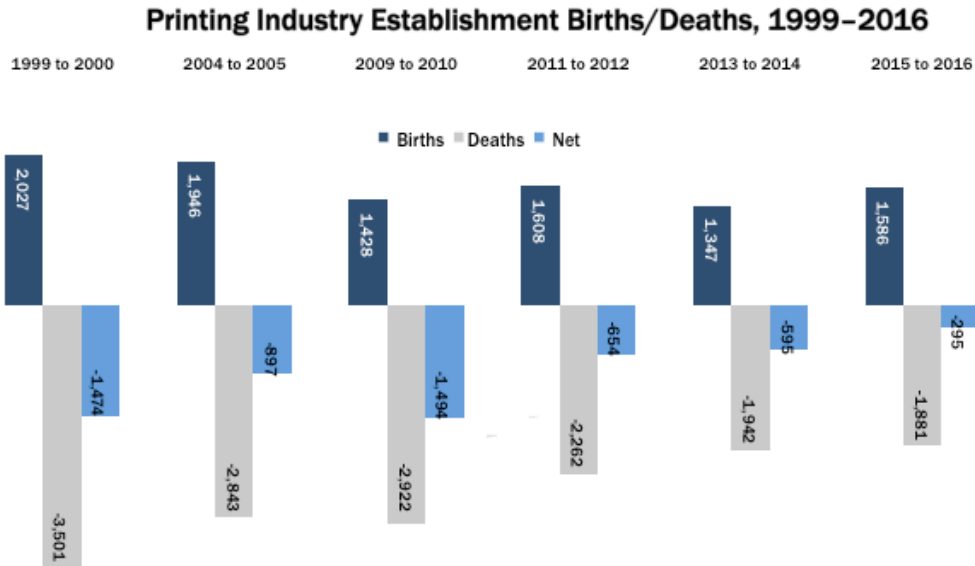
There is one other trend worth mentioning when we consider changes in numbers of printing establishments. We have been seeing a kind of printing industry diaspora. As we mentioned above, all the government data we have historically tracked is from NAICS 323—Printing and Related Activities. However, not all businesses that we would consider printing today—or, more importantly, what *those* businesses would consider printing—are classified in 323. Sign manufacturers, for example, are largely in NAICS 339. Sign lettering and painting are classified in NAICS 541. Manufacturing and printing advertising specialties are classified in the Manufacturing sector according to the products made. Manufacturing die-cut paperboard displays are classified in NAICS 322. Packaging converters are in 322. You get the picture.

We also did some playing around with Dun & Bradstreet data, looking up some of the print businesses we have profiled over the past couple of years, and while most are in 323, some threw us for a loop. One is classified in 517410 (Telecommunications Services), while another is 811111 (Consumer Services). We suspect these are outliers, but remember that it's the printers—and their tax accountants—who classify themselves and we doubt that the government goes out of its way to verify that the self-selected NAICS fits perfectly. Maybe if “Joe's Printing” selected Automobile Manufacturing someone at the Census may throw a flag, but beyond that we doubt there is too much vetting going on. At any rate, our project for 2020 is to get a better handle on where the printers have gone, if anywhere. Specifically, to what extent have print businesses left NAICS 323. This may sound incredibly wonky—and it is—but it is important when we look at things like value of printing shipments, profits, or even establishment counts. When we see poor shipments data, is that an accurate reflection of the state of the industry, or is that just because some of the better-performing businesses identify themselves elsewhere?

At the moment, we think the effect is negligible at most, but we do need to determine if we're in for a bigger shift that will skew our traditional industry metrics in a more negative direction than is warranted.

Births/Deaths

The chart below tracks establishment birth and death data from 1999 to 2016. We look at industry birth and death data to get a sense of how the industry is stabilizing to some degree. From 2015 to 2016, there had been an increase of 1,586 establishments, but a decrease of 1,881 establishments, for a net loss of 295 establishments. That's a much smaller percentage change than previous years, which reflects somewhat of a deceleration in industry consolidation. However, the initial number of establishments is contracting so every year's percent change represents a smaller number of establishments.



WhatTheyTh!nk

We’re still looking at an attrition of the printing industry. Our M&A expert Mark Hahn of Graphic Arts Advisors [estimates that](#) three out of every four transactions in the commercial printing business are “tuck-ins”: “The buyer folds the acquired customers into their existing production capacity, hires selected qualified employees, with special focus on those people that touch the customer, and maybe cherry-picks some of the equipment. The seller is left to close up shop, sell off the remaining equipment and wind down the business entity.”

In September 2019, Hahn provided his [annual recap of merger and acquisition activity](#) and calculated that “[b]ased on the number of transactions, the past 12 months were a bit quieter than the 12 months ended last August, with approximately 8% fewer transactions. Last year at this time, our year-over-year analysis showed that the trends were amazingly consistent to the prior year. M&A activity in our industry has slowed down, but not by much.” According to Hahn’s data, 24% of commercial printing industry consolidation from August 2018 to August 2019 was due to bankruptcies, 25% due to non-bankruptcy-related closures (owner retirement, just closing up shop, etc.), and 51% to mergers/acquisitions. Both bankruptcies and non-bankruptcy closures are down from the previous August-to-August period, so that’s good.

At the same time, births and deaths don’t always represent brand-new businesses or pushing-up-the-daisies dead ones—or even M&As. Rather, businesses often change their corporate structure. A corporation closes, a proprietorship opens. So it is often the same people just changing their tax structure. There is also occasionally a “poor man’s consolidation”: two struggling print businesses decide over coffee to combine their businesses, but find it is cheaper to close each of them and then open as a single new

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business, without dealing with the legalities and complicated details of a merger or acquisition. (Sorry, Mark.)

Also, as we have been dwelling on, we can't discount the fact that some healthy printing businesses may classify themselves as something other than "commercial printing" (NAICS 323). Those that, for example, decided to become "marketing services providers" may have chosen to classify themselves in a services NAICS like 541 rather than a manufacturing NAICS like 323.

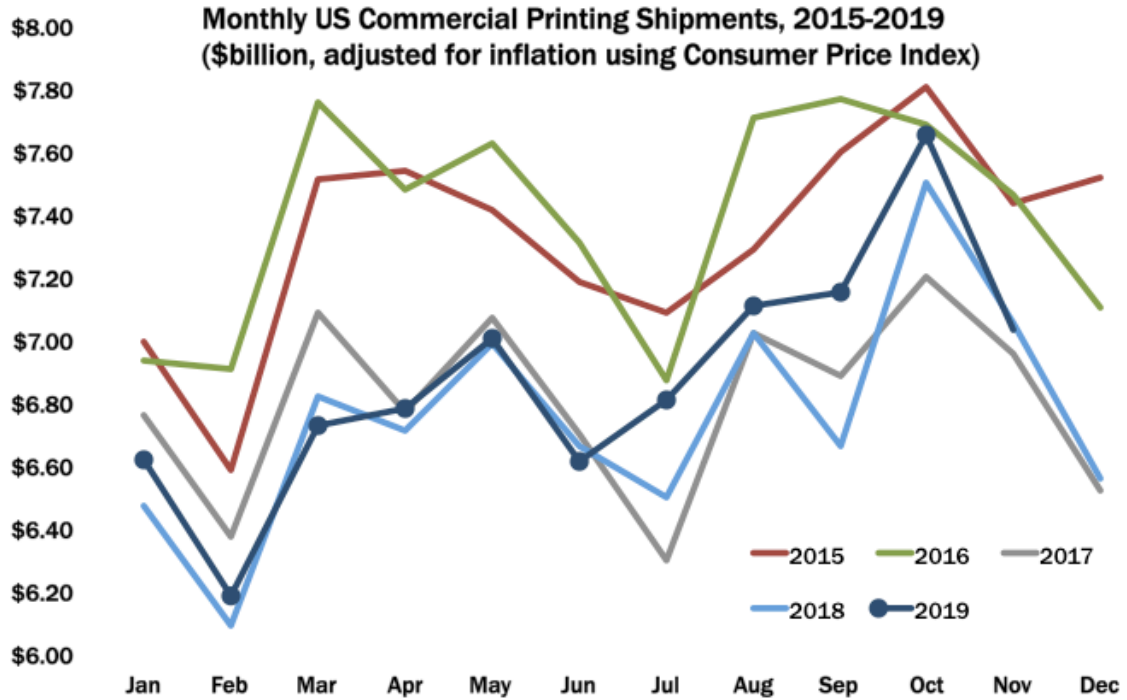
So there can be a lot of stuff happening beneath the surface of these birth and death data.

Printing Shipments

If you have been following our monthly tracking of printing shipments, you know that 2019 is shaping up to be best year for the industry in a long time. (And, as we saw earlier, our survey results bear this out as well.) It could be said that we're experiencing something of a "Printing Renaissance."

Monthly Shipments

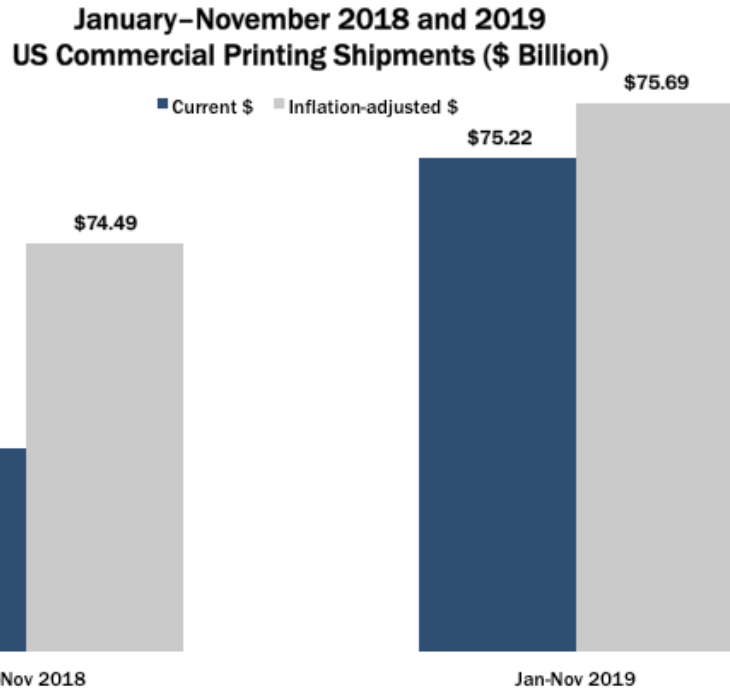
To our utter amazement, October printing shipments took an expected but surprisingly large upward turn, coming in at \$7.65 billion, a substantial increase from September's \$7.14 billion and above October 2018's \$7.51 billion. In fact, October's shipments are only a hair's breadth below October 2016's \$7.69 billion. November shipments (the most recent as this report was being finalized) took an expected downward turn, coming in at \$7.03 billion—even dipping below November 2018's \$7.06 billion, albeit slightly. So we're a little disappointed, but not abundantly so. We'll probably see a further decline in December, as business slowed down for the holidays.



WhatTheyTh!nk

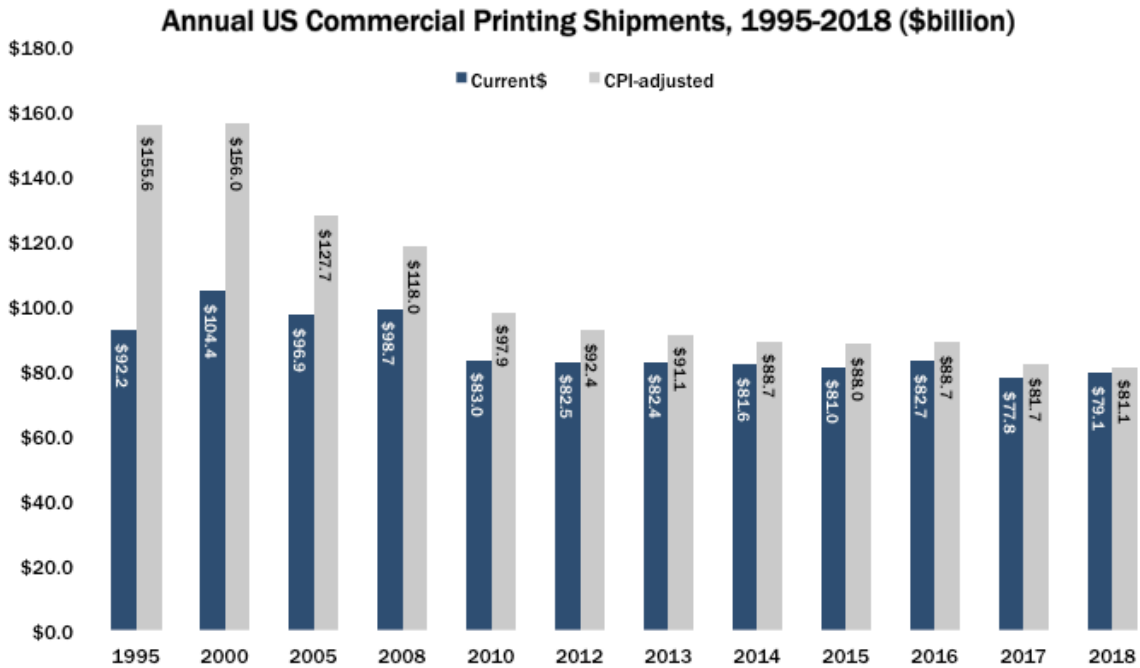
Year-to-Date Shipments

As a result, year-to-date shipments for 2019 outpaced 2018—January-to-November shipments for 2019 are at \$75.69 billion compared to 2018’s \$74.49. Unless December is a complete dumpster fire, we will finish 2019 higher than 2018, and indeed higher than any recent year. If December 2019 shipments are at least as good as last December’s, we’re looking at an \$82.3 billion dollar 2019—our best year since 2016.



Annualized Shipments

Looking at annualized shipments for selected years since 1995, we can see where we’ve been, and why a Y/Y increase in shipments is such good news. It was 20 years ago today that the industry had a \$156 billion year (in inflation-adjusted dollars). Just 10 years later, we had lost one-third of the industry. If the trend continues, the industry in 2020 would be around one-half what it was in 2000. We don’t expect to be a \$150 billion industry again—or even a \$100 billion—but we’d rather not be a \$75 billion industry.

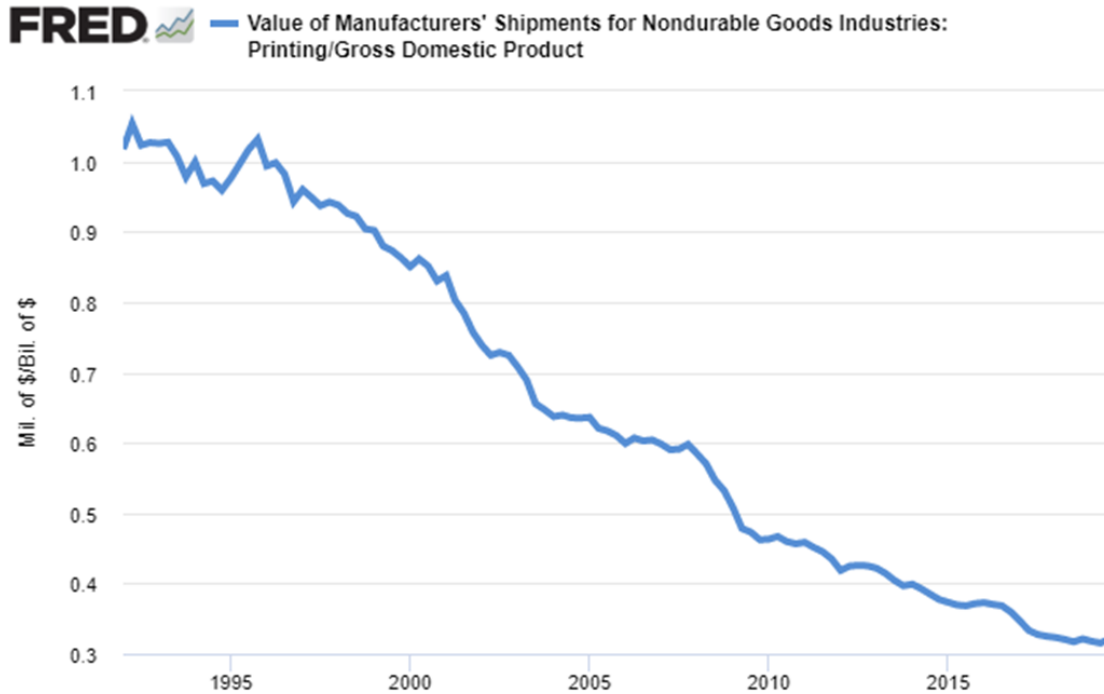


If we look at printing shipments as a percentage of GDP, since 1997 (see the chart on the next page), the value of printing shipments went from around 1% of GDP all the way down to just over 0.3%. (These figures are not inflation-adjusted so as to avoid disagreements about which inflation adjustment to use, but we’re just looking for an overall pattern.) If there is good news in this chart, it’s the teeny tiny uptick in the most recent quarter. It may be a transient uptick, but it’s there. We probably won’t be getting back to anywhere close to 1% again (and if we do it might only be because the US economy completely tanked except for printing, which would just be weird), but it does represent—even if only in a very small way—the Print Renaissance.

Still, there is some danger on the horizon because this chart is essentially the story of technology. Printing shipments as a percentage of GDP started to plummet when the Internet truly arrived circa 1996 and while we can blame the recession for some of the drop after 2008, remember also that this was also the period that saw the advent of social media, the smartphone, and mobile media. Every major advancement in electronic media has disrupted print’s standing in the overall scheme of media.

So the imminent danger is the coming of 5G, which will happen—it has been said—in earnest toward the end of 2020. “5G” stands for fifth-generation cellular wireless, and [will offer](#) “greater speed (to move more data), lower latency (to be more responsive), and the ability to connect a lot more devices at once (for sensors and smart devices).”

Printing Shipments as a Percentage of Current-Dollar GDP, 1992–2019



Sources: U.S. Bureau of Economic Analysis, U.S. Census Bureau

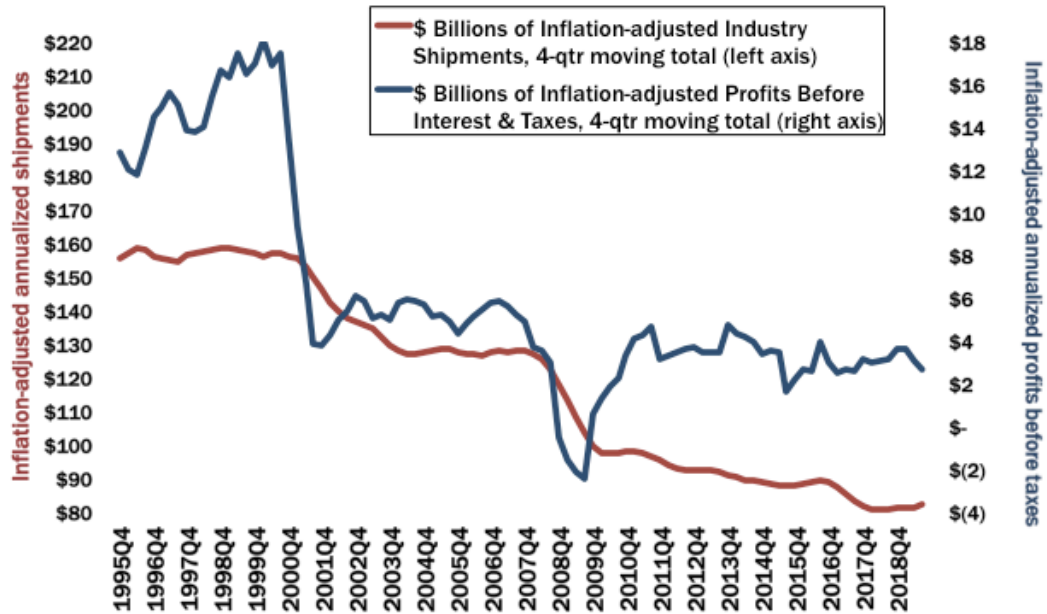
Industry Profits

We have been calling it “a tale of two cities,” and, indeed, it is the best of times, and the worst of times.¹² For Dickens, it was London and Paris, for us, it’s large printers and small/mid-size printers. The two cities—and the gap between them—refer to the profitability gap.

For the third quarter of 2019, annualized profits were down from \$3.05 billion to \$2.65 billion. That sounds bad, and it is. (Someday, we’d love for profits to crack the \$4 billion mark but that goal has eluded us for about seven years.) For the industry on average, profits before taxes were 1.97% of revenues, and for the last six quarters, they’ve averaged 3.86% of revenues.

¹² At least it’s not “Bleak House.”

Printing Industry Shipments & Profits



WhatTheyTh!nk

Where the plot thickens is the profitability gap between large printers (those with more than \$25 million in assets) and small (or smaller) printers (those with less than \$25 million in assets). For small printers, profits before taxes rose from 6.83% of revenues in Q2 to 9.70% in Q3. However, for large printers, profits before taxes dropped from 0.59% of revenues to -5.33% of revenues. It’s not the first time that this went negative. So it’s the large printers that are dragging down overall industry profitability.

Printing Profits by Assets, Q2 2018–Q3 2019

| Net Income Before Taxes | 2Q 2018 | 3Q 2018 | 4Q 2018 | 1Q 2019 | 2Q 2019 | 3Q 2019 | Simple average, last six quarters |
|-------------------------|---------|---------|---------|---------|---------|---------|-----------------------------------|
| All commercial printers | 6.27% | 4.05% | 4.14% | 3.26% | 3.49% | 1.97% | 3.86% |
| <\$25 million in assets | 9.17% | 8.06% | 3.44% | 9.62% | 6.83% | 9.70% | 7.80% |
| >\$25 million in assets | 3.51% | 0.41% | 4.73% | -2.69% | 0.59% | -5.33% | 0.20% |

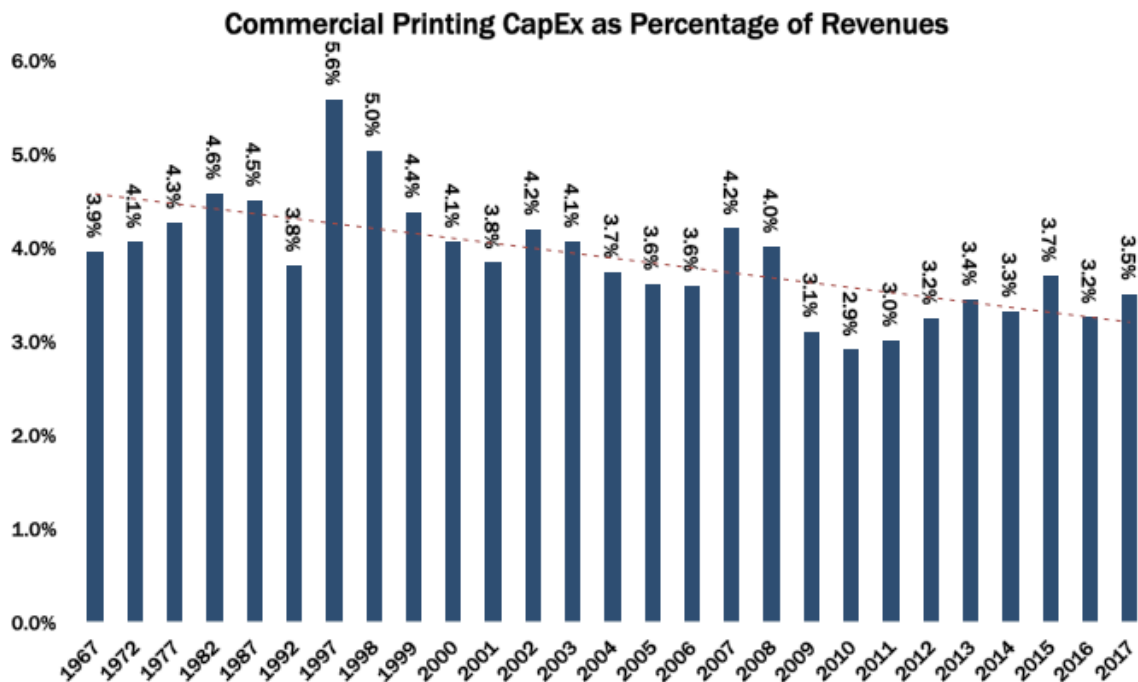
NOTES: Approximate breakpoint for \$25 million is 100 employees; Q1-2018 had \$1.8 billion of "writedowns," defined as "nonrecurring items, including gain (loss) on sale of assets, restructuring costs, asset writedowns, etc." and Q3-2018 had \$1.34 billion

What’s behind this tale of two cities? Not the French Revolution, but there are a few factors. Big printing companies are still writing down assets that don’t match market needs, while smaller companies have been able to be a little more agile and adopt digital printing, as well as absorb the volume of less successful companies that have closed.

Capital Expenditures

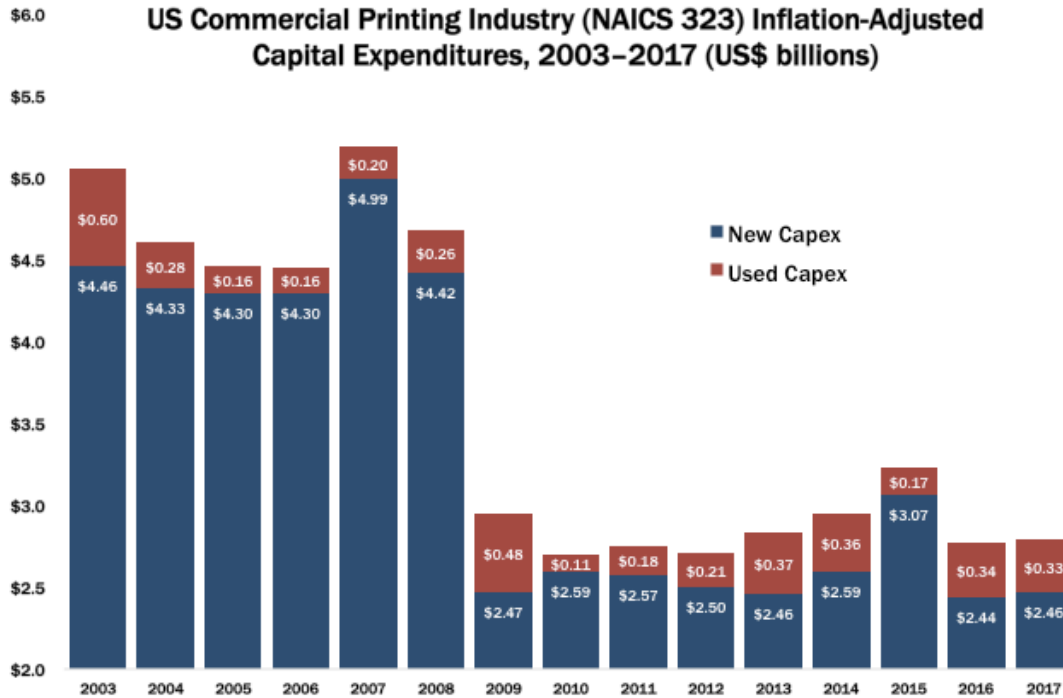
As we saw in Section 2, print businesses don't have many big investment plans. There was a smattering of interest in buying binding/finishing equipment (especially that which is compatible with digital presses) and some software, but recall that number one on the Planned Investment list was "we have no planned investments."

According to the Census Bureau's *2017 Annual Capital Expenditures Survey*, about 3.5% of revenues are being spent on capital expenditures—which, by the way, can also include things like moving or expanding their location (which also came in higher than expected this survey). The big spike in 1997 and 1998 represents the effect of PRINT 97, the show where a slew of digital, Direct Imaging, and computer-to-plate systems was introduced. Interestingly, at PRINTING United 2019, people said that it reminded them of PRINT 97, maybe not in terms of revolutionary product introductions but in terms of people being excited to be in the printing industry. And the popular buzz at PRINTING United from exhibitors was that people were buying—and they seemed to mean it this time. It will be interesting to see what this chart looks like in a couple of years when we get the 2019 data. We wouldn't expect a huge spike because the late 90s CapEx fever was also fueled by the euphoria of the dot-com bubble. So it will be interesting to see what effect the current Printing Renaissance will have on capital expenditures.



Source: U.S. Census Bureau, 2017 Annual Capital Expenditures Survey

But then what gets bought often gets sold—or ditched. Looking at capital expenditures in terms of money spent shows us that the Great Recession caused a CapEx crash from which we never really recovered. It also led to a glut of used equipment on the market.



Graphic Arts Employment

November 2019 employment numbers from the Bureau of Labor Statistics came out in December, and overall printing employment dropped -0.2% from October. On a year-over-year basis, though, it is down -2.5%. We can see where the declines are: production employment was down -1.1% from October to November—and year-over-year was down -5.5%—while non-production employment was *up* +1.6% from September to October—and year-over-year was up +1.6%. This is not a new story, and the anecdotal tales of the difficulty of hiring production personnel are to some extent borne out by the data, but as we saw in the hiring section of our survey, print businesses are mostly looking for salespeople, with some of the larger establishments looking for bindery/finishing staff. There appears to be very little demand for production personnel, or at least that they are planning to hire in advance (this doesn't take into account unintended vacancies when an employee leaves or is fired). Hence the emphasis on production automation.

In publishing, employment dropped -0.01% from October to November, but year-over-year grew +1.0%. Newspapers continued to take a hit employment-wise: down -8.7% from October 2018 to October 2019. Periodicals were not as bad, with only a -3.0% decline in employment from October to October.

The creative markets, as is the fashion, are doing better than printing and publishing, although the traditional hotspot, public relations, was only up +3.6% from October 2018 to October. (Early last year, PR employment had been up +6.7% from March 2018 to March 2019. That level of employment growth in PR has not been repeated since.) Among agencies, employment was up +0.6%, but if we back out PR, agency employment

was only up +0.1%. Graphic design employment was up +2.7%, and direct mail advertising was down -1.7%.

| Employment in thousands of workers | October 2018 | October 2019 | Y/Y Change | November 2018 | November 2019 | Y/Y Change |
|------------------------------------|--------------|--------------|------------|---------------|---------------|------------|
| Printing, all | 429.5 | 419.4 | -2.4% | 429.4 | 418.6 | -2.5% |
| Printing, production | 293.1 | 279.3 | -4.7% | 292.4 | 276.3 | -5.5% |
| Printing, less production | 136.4 | 140.1 | 2.7% | 137.0 | 142.3 | 3.9% |
| Publishing | 734.5 | 744.7 | 1.4% | 737.2 | 744.8 | 1.0% |
| Periodicals | 87.2 | 84.6 | -3.0% | 86.7 | | |
| Newspapers | 142.9 | 130.4 | -8.7% | 142.6 | | |
| Publishing, ex-newspaper | 591.6 | 614.3 | 3.8% | 594.6 | | |
| Graphic design | 63.6 | 65.3 | 2.7% | 63.1 | | |
| Public relations | 63.2 | 65.5 | 3.6% | 63.1 | | |
| Ad agencies, includes PR | 490.8 | 493.5 | 0.6% | 492.7 | 494.8 | 0.4% |
| Ad agencies, less PR | 427.6 | 428.0 | 0.1% | 429.6 | | |
| Agency (incl PR) + design | 554.4 | 558.8 | 0.8% | 555.8 | | |
| Direct Mail Advertising | 40.8 | 40.1 | -1.7% | 40.2 | | |

Overall, the employment situation in the economy has been OK to good. (We’ll take a closer look at the general employment data in the next section.)

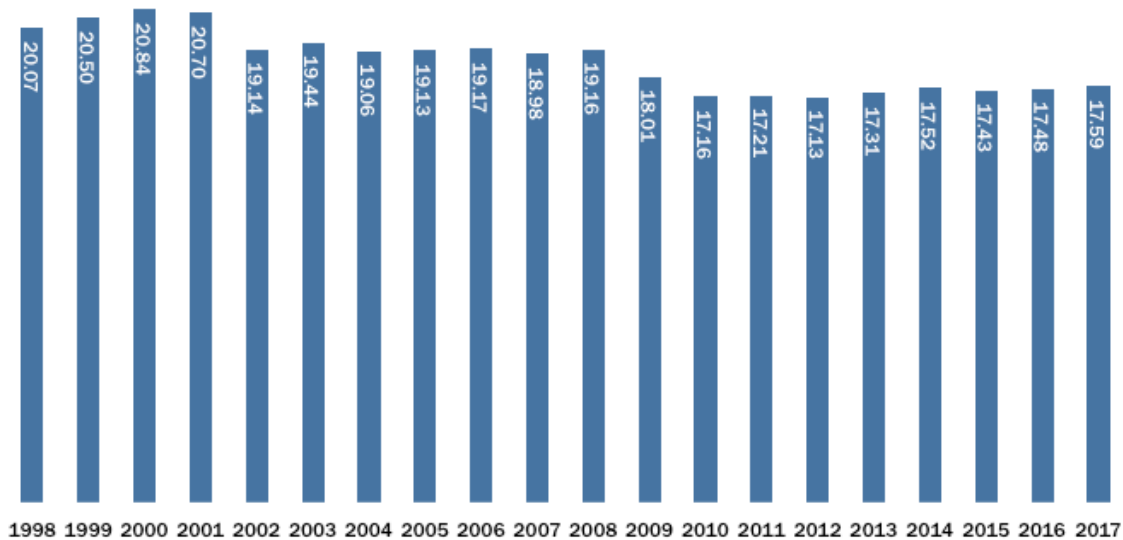
Automation may be a solution to the problem of finding elusive employees—if it’s production employees they’re really looking for—but it is also being implemented (in our industry and elsewhere) primarily to reduce costs and improve quality. We probably don’t have to worry about “the robots are taking my job!”—the fact is, as we have been saying, we may need the robots.

Employees Per Establishment

Every 10 years, there is a sharpish decline in the average number of employees per establishment, and then a period of relative stability. The story behind these periodic declines is one of technology—and the gradual elimination of prepress as discrete stages of production. Shops still have one or two prepress experts, but they don’t need strippers, separators, and platemakers like they used to. Computer-to-plate helped reduce the staff, and then digital printing continued that trend. We have also started to see the same kind of thing happening in postpress; not that it is being absorbed into the printing process (although for inline finishing, that can be the case) but rather it is increasingly being done in-house instead of outsourced to a specialty finishing house. This is a reflection of the fast-turn nature of today’s jobs: who has time to send out finishing work any anymore? So as we have seen in the investments and opportunities data, shops have been adding binding and finishing and, as we saw in recent surveys (and to a slight extent in the current one), need people to run this equipment. However, as finishing becomes more and more automated, fewer finishing staff are required—and in fact in highly digital shops, one employee can run the press and run the finishing equipment.

There has also been a shift in the kinds of employees print businesses are looking for; as we saw in previous years’ survey data, IT and programming employees were highly sought-after. That shifted last year to sales people and some production staff, and now this year to mostly sales people. As automation continues—and as production staff become harder to find—we may not find average number of employees per establishment go down, but the composition of those staffs will likely change from being production-centric to sales/marketing/business development- and IT-centric.

**Average Number of Employees per Establishment
US Commerical Printing (NAICS 323) 1998-2017**



Productivity

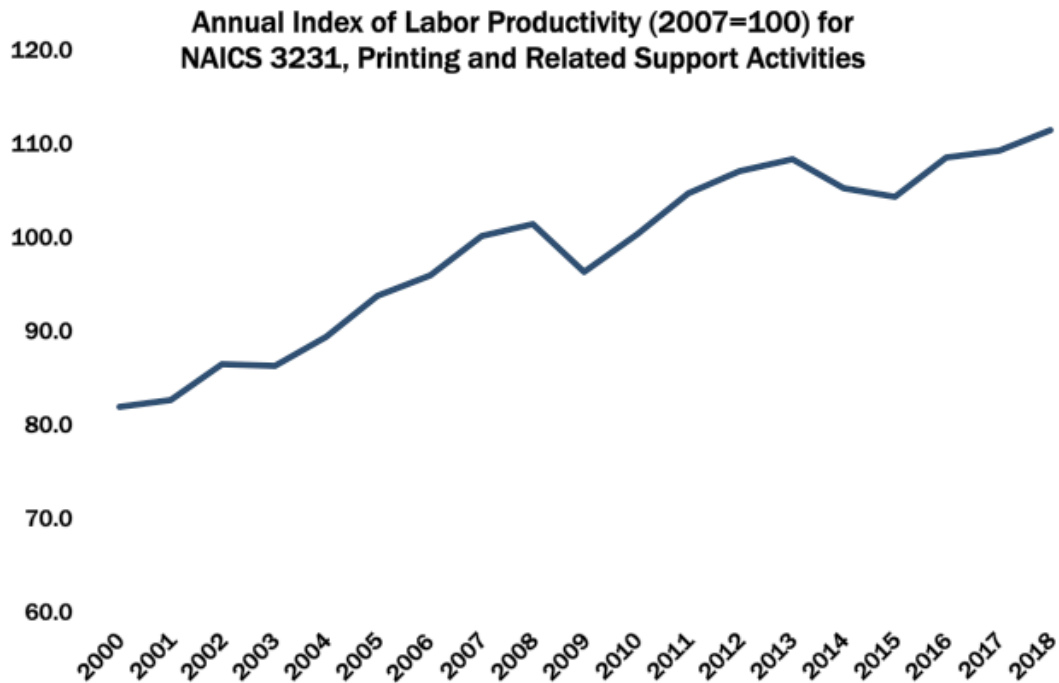
A traditional challenge for the industry has been “increasing productivity” and if we look at the BLS’s productivity data for NAICS 3231 (Printing and Related Activities), we see that productivity has indeed been on the rise in the industry. Productivity can also be somewhat of a gauge of automation, although not a 100% reliable one. If we look at the period from 2015 to 2017/2018, we saw productivity rise even as the average number of employees per establishment remained relatively stable.

There is a worry in the general economy that automation will displace workers, although [some economists](#) think that is an overblown worry. In the printing industry, as we have remarked, we have the opposite problem: we need automation because we can’t find humans, at least for production jobs.

Automation can have some negative effects; remember when “color separators” was an entire business class? It even had its own NAICS and everything. But the entire color separator business was eliminated by a single command in Photoshop. Trade typography also used to be a business class; now anyone can use InDesign or QuarkXPress



(or...shudder...even Word) for typesetting. But today, it may be a good thing, or at least a better one than it had been.



WhatTheyTh!nk

Source: Bureau of Labor Statistics

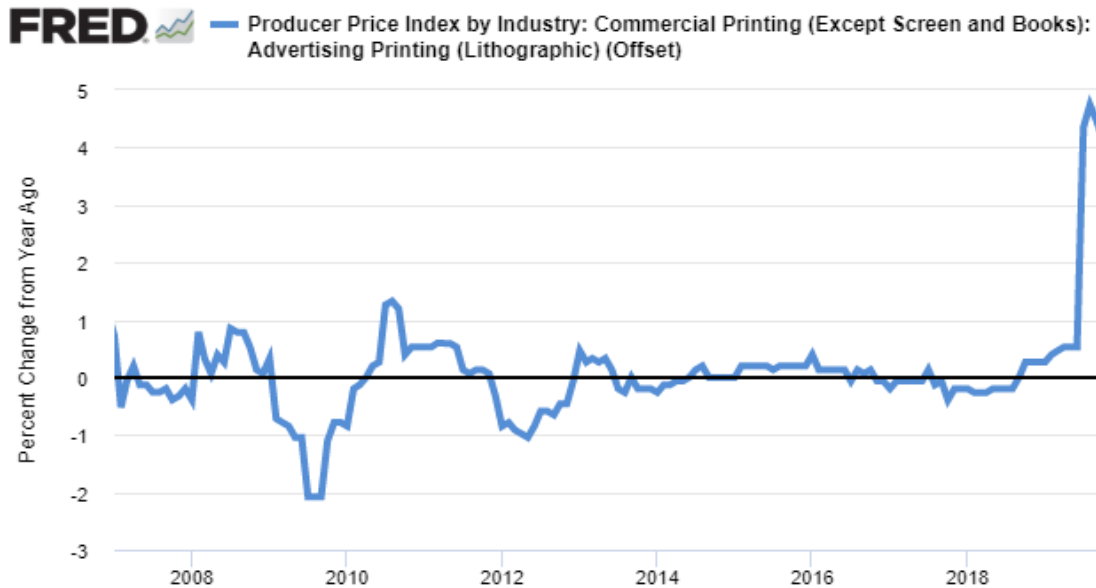
So automation changes the nature of the employees that are sought. As we just saw above, the erosion of prepress as a discrete step changed the demand for prepress employees to press operators or binding and finishing employees. Automating these processes thus shifts the demand to things like sales and business development. Web-to-print doesn't as yet appear to have any impact on the demand for sales people in the industry, although there are some very successful print businesses that don't have *any* salespeople. They rely on highly effective search engine optimization (SEO) strategies to attract Googlers to a Web-to-print site, where customers may never have any actual interaction with an employee of the printing company. (You know, the way people increasingly like to buy things.) This doesn't mean that those businesses don't have *any* employees; instead of salespeople they have programmers, Internet search experts, and customer service personnel for when there are questions of problems. This is a good thing—these are highly desirable jobs, especially on the part of younger people—and looking for software developers and search experts may help attract new blood to the industry, more so than a loud, smelly shop floor will.

Producer Price Index

The Producer Price Index (PPI) is a weighted index of prices measured at the wholesale, or producer, level. The Bureau of Labor Statistics' PPI shows trends within specific industries. In other words, how much does it cost to produce what a given industry or

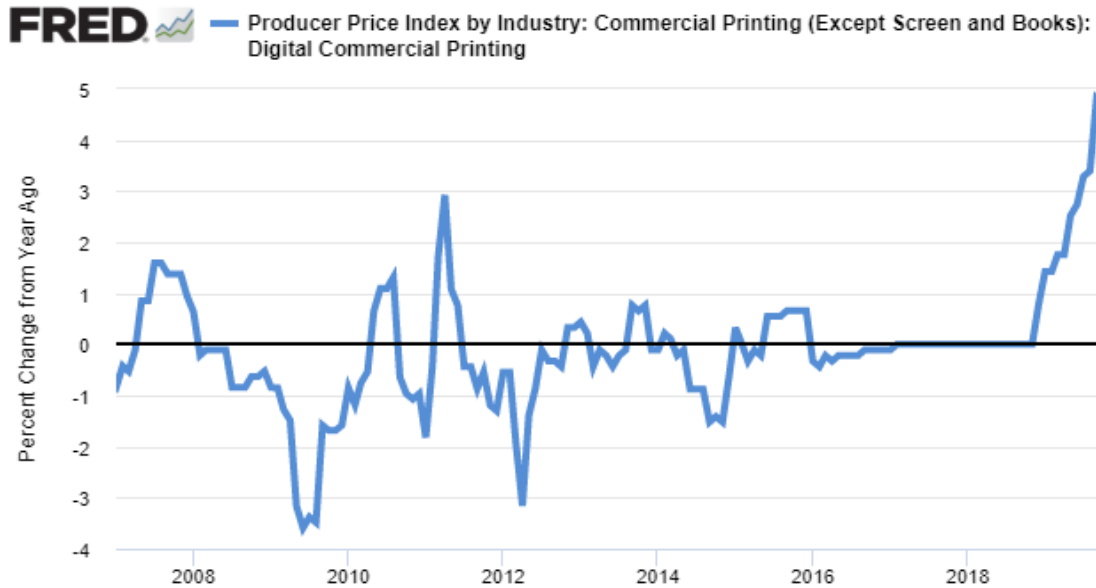
market produces? Different industries that produce different products have different inputs. For printers, it's equipment, paper, ink, and other consumables. For the creative markets (designers, ad agencies, etc.), it's computers, software, and other tools. In some cases, those inputs are getting more expensive (paper, ink, and plates, for example, in the case of printers) and in some cases cheaper (software, in the case of creatives—and, yes, printers, too). We often use the *Consumer Price Index* (CPI) for cost comparisons because that reflects the prices of most relevance to our own personal wallets, but looking at the PPI helps us understand what's going on with supply and demand.

We typically look at the PPI for different aspects of printing, as well as related communications. As you can see from the chart below, the PPI for offset printing had been on a downward trend but spiked rather dramatically toward the end of 2018. Any printer can tell you that consumables of all kinds have increased in price as of late, whether it's paper, or ink, or even plates, thanks to the aluminum tariffs.



Source: U.S. Bureau of Labor Statistics

The change in PPI for digital printing, on the other hand, has been remarkably steady—until there was a spike in late 2018 thanks to an increase in ink prices.

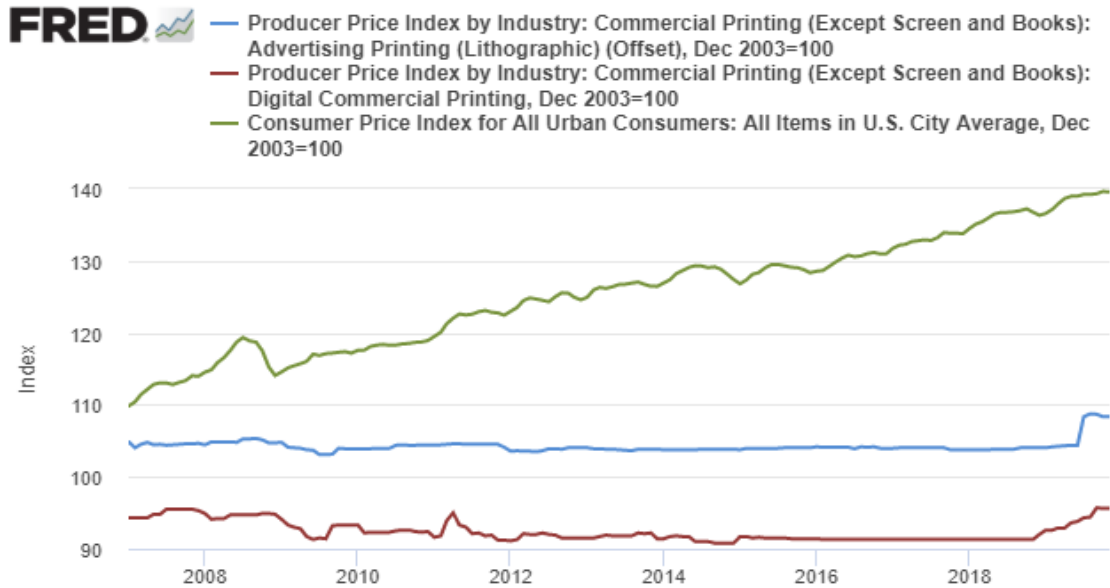


Source: U.S. Bureau of Labor Statistics

So the prices of the goods you are selling and the materials, labor, etc., are increasing, while the only things that are declining in terms of costs are certain technologies, such as cellphones, and maybe software. Revenue is affected by market prices, and all other costs are following the CPI. So, if costs are going up and you are having trouble getting sufficient demand, *and* if you can't raise prices, you can't cover those costs properly. As a result, the bottom line looks really bad.

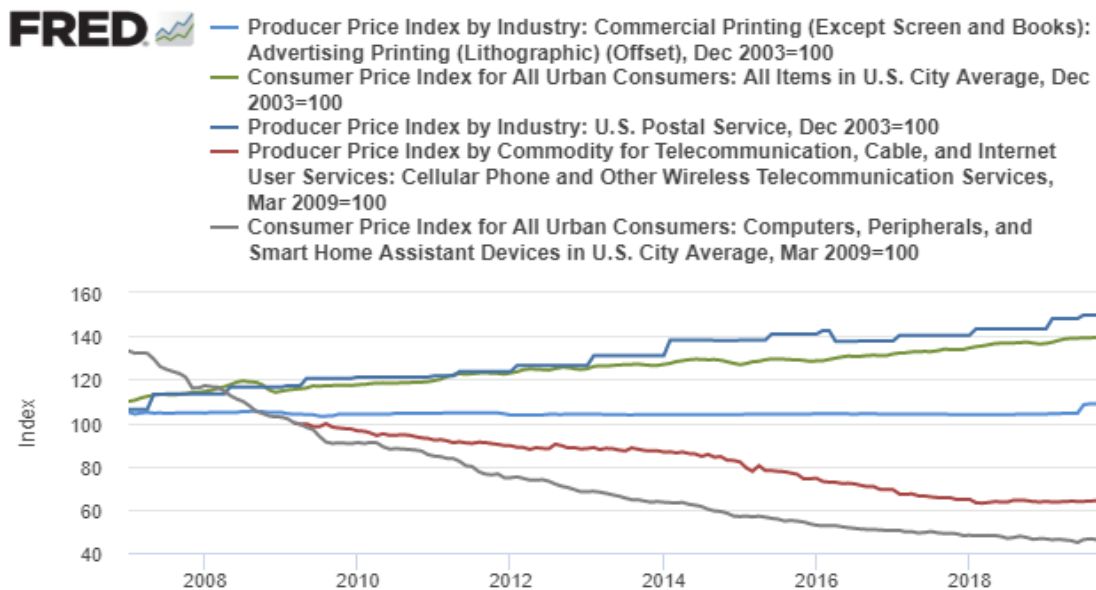
When you compare the change(s) in PPI to the change in CPI, it gives you a good sense of how printers' costs are going up on a per-unit basis. Remember, the inflation report does not tell you anything about the supply of, or demand for, goods. All it tells you are their prices, so you still have to try to work out *why* prices have changed. There may be price pressures inside the cost structure and the value production side of the business, and market prices may not be keeping up with them, which, again, is why "pricing" remains such a challenge for our industry.

In the chart on the next page, look at the gap between the blue line (commercial printing PPI) and the green line (CPI) in the chart below. (It's even bigger for digital printing, the red line.) On the offset side, you have lower prices than you had seven years ago and on the digital side, you have lower prices than you had five years ago. On the plus side, with digital, you have newer equipment that is more efficient, especially in that digital presses are not long-term investments and can be upgraded or replaced fairly readily.



Source: U.S. Bureau of Labor Statistics

Here is our traditional chart of printing prices compared to the prices/costs of other technologies. Commercial print remains flat, while the USPS is increasing its prices even more than CPI. Prices have been steady (kind of) for two or three years but they're still higher than inflation and still don't reflect competition from other products. Wireless and computers continue to drop in price.



Source: U.S. Bureau of Labor Statistics

And this is the crux of the problem that has plagued the industry: costs increasing, demand decreasing, and pricing a challenge. Still, this issue is not affecting everyone in

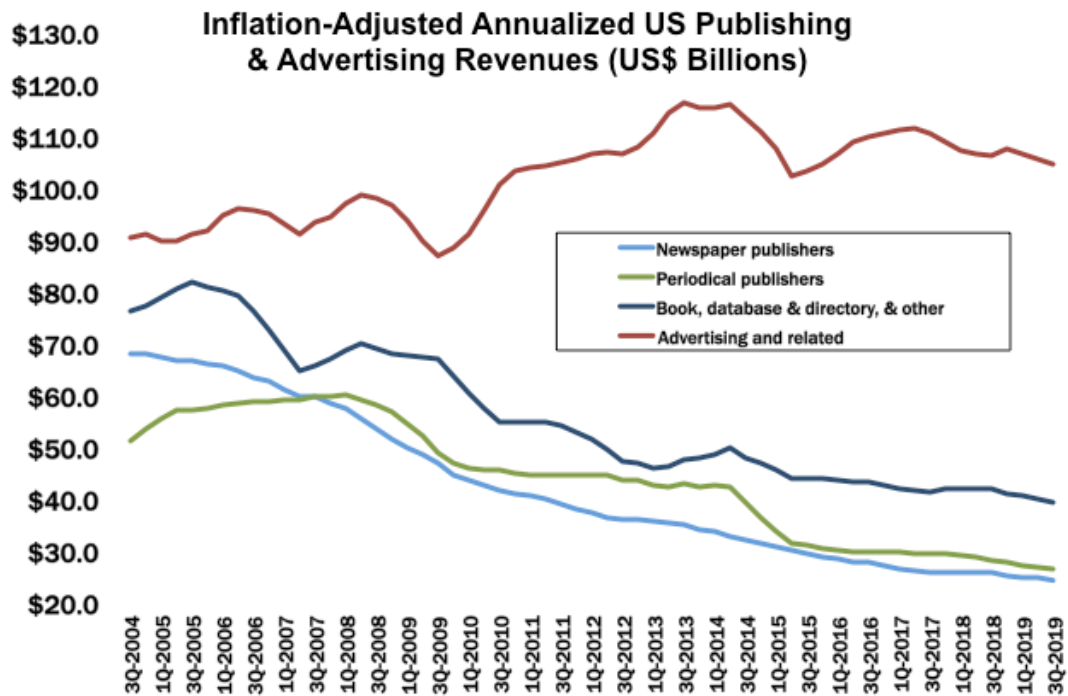
the same way. As we saw in the profits data earlier, comparing plants with under \$25 million and over \$25 million in profits—the tale of two cities—the precipitous nature is mainly among large printing plants because the big-demand, big-volume items are not what they used to be. But the equipment is still designed to produce those things, so those fixed costs just keep staring them in the face and they can’t downsize fast enough. When they try to move into digital technologies that require shorter runs, they can’t cover the downward pressure of the legacy part of the business.

On the other hand, the advent of wide-format, specialty, and newer kinds of printing *are* seeing increased demand, and can command higher prices—we often refer to a lot of these products as “high-value applications” because margins on them are still very good. So even if the cost of, say, UV inkjet ink goes up (which it has, because of an increase in the cost of some of the chemicals used to make it), it is still possible to cover your costs on many of those kinds of jobs.

Publishing and Advertising

The figure below rounds up the latest revenue data for the various publishing segments as well as ad agencies.

On an annualized basis, since 2004, newspaper publishing revenues have plummeted by about \$40 billion. Periodical and book publishers aren’t in much better shape.



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Advertising revenues have flattened out to some extent. After all, as revenues for the places that used to feature a lot of advertising—periodicals and newspapers—have dropped, that is reflective of perhaps not just a shift to non-print forms of advertising, but

other kinds of marketing initiatives than what we think of as “advertising.” A lot of it is content marketing, a greater reliance on social media and other forms of digital marketing, smarter use and negotiation of cable and TV. Traditional TV audiences are smaller, people continue to cut the cord faster, and streaming is the “new cable”—and largely advertising-free, as people are willing to pay extra for commercial-free versions of streaming services like Hulu.

The streaming landscape is in flux. At first, it was pretty easy to pick one or two streaming services (Netflix and Hulu, for example) and get access to a good mix of compelling original programming as well as some old favorites.¹³ Now, more and more streaming services are appearing—Disney’s new service got a big boost from *The Mandalorian* and “Baby Yoda fever”—and NBC is rolling out their own. CBS launched CBS All Access several years ago (and is worth it for *Star Trek Discovery*). At ~\$10 a month per service, they can add up after a while. In some ways, we brought this on ourselves. Haven’t we all for years implored the cable companies to let us pick and pay for what channel lineups we actually wanted? The streaming services are just about what we always wished for—and at some point we may be wondering if someone could bundle them together into packages for a lower overall price than à la carte. Kind of like...cable.

Anyway, we’ve wandered a little far afield, but the point is that what we know of as “TV” is changing drastically and no one is quite sure how this will all play out for advertisers.

The nature of advertising is changing because things like content marketing, e-newsletters, mobile apps, and things like that can be done internally or with freelancers, and offer much more bang for much less buck. Also, as you may recall from the employment discussion earlier, PR firms/ reps are handling a lot of these initiatives, especially social media. And consumers are more and more leery of advertising that is conspicuously advertising.

And then there are issues of privacy. We joke about the fact that we look at, say, boots online and then suddenly every page we go to has an ad for boots. (I sometimes think I need to search for more upscale items so I get a better class of ad following me around the Internet.) But now voice assistants are starting to get in on this game; our devices are listening to us and it’s not becoming unusual to be talking with someone about a particular product or topic and then go online and see ads for it. That’s more than a little creepy, but will probably represent the future of advertising. It’s hard not to think of that scene *2001: A Space Odyssey* where Bowman and Poole lock themselves in a soundproof pod to talk about HAL. We may have to resort to that approach in our own homes. If Alexa learns to lip read, we’re in trouble.

Privacy, especially in the context of social media, will become more a vital concern as the 2020s begin. In fact, as of January 1, 2020, if you scroll down to the bottom of most sites,

¹³ In December 2019, Netflix announced that *Friends*—a 25-year-old show that had apparently been discovered by younger viewers—would be leaving the service, as Warner Bros. Television, the company that produced the show, will be moving it to WarnerMedia’s HBO Max streaming service. We would expect to see more of this kind of thing.

you will see a new “Do Not Sell My Personal Information” link, a requirement for sites doing business in California, under the new [California Consumer Privacy Act \(CCPA\)](#). The link must then go a site where a user can opt out of the sale of their personal information. Will anyone actually opt out? Will it stop anyone from selling personal data? No one knows yet. But the war on Big Data is only just beginning.

Looking Forward

Compared to recent years, 2019 was a darn good one for the industry. Last year, we remarked that we were an industry in transition. This year, it's safe to say we are an industry in resurgence. But, when one has Dr. Joe as a mentor, it's hard not to have some misgivings amongst the elation. We'll look into those in more detail in Section 7.

First, though, we'll zoom out and have a look at me macroeconomic data, to give us some context for the industry data. Then we'll look at current trends and our forecast.

6. MACROECONOMIC DATA

In this section, we zoom out to get a larger sense of the general economy. In all, the economy has been doing well. GDP growth has been steady, if not stellar, and the employment situation has been improving, not just in terms of the headline unemployment number but also in labor force participation. Other macroeconomic indicators are also positive.

GDP

From the [Bureau of Economic Analysis](#):

Real gross domestic product (GDP) increased at an annual rate of 2.1 percent in the third quarter of 2019 (table 1), according to the "third" estimate released by the Bureau of Economic Analysis. In the second quarter, real GDP increased 2.0 percent.

Fourth quarter GDP comes out at the end of this month, and predicting it has become one of economists' favorite pastimes. Some guesstimates (via [Calculated Risk](#)):

Merrill Lynch says: "On balance retail sales cut our 4Q GDP tracking by 0.2pp to 2.0% qoq saar¹⁴."

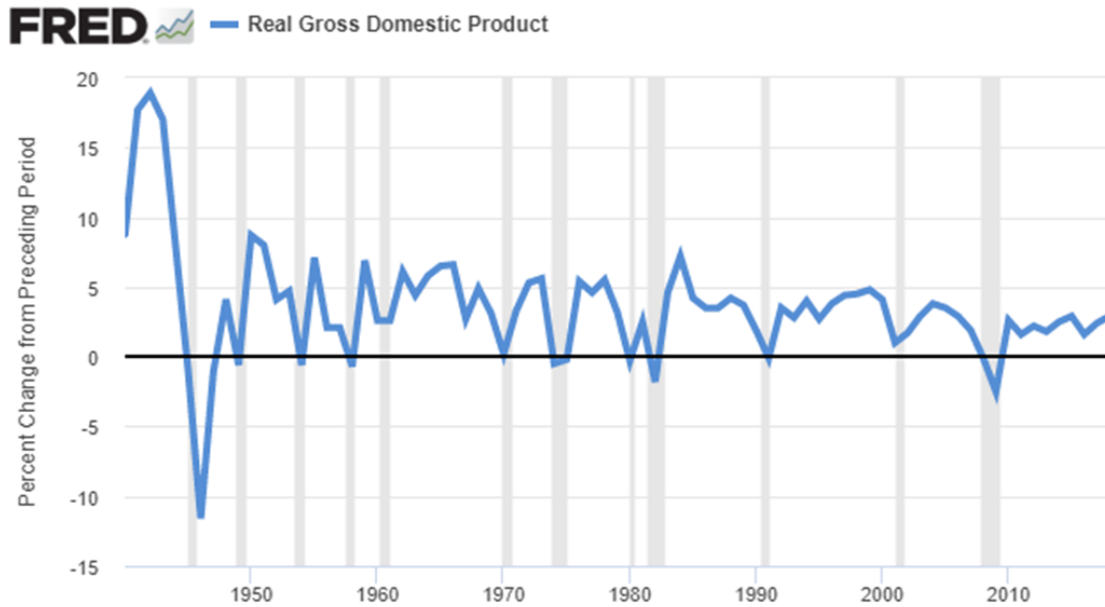
The [NY Fed Nowcasting Report](#) says: "The New York Fed Staff Nowcast stands at 1.2% for 2019:Q4 and 1.7% for 2020:Q1."

The Atlanta Fed [GDPNow](#) says: "The GDPNow model estimate for real GDP growth (seasonally adjusted annual rate) in the fourth quarter of 2019 is 1.8 percent on January 17, unchanged from January 16 after rounding. After this morning's housing starts report from the U.S. Census Bureau and industrial production release from the Federal Reserve Board of Governors, a decrease in the nowcast of fourth-quarter real personal consumption expenditures growth from 1.6 percent to 1.4 percent was partly offset by an increase in the nowcast of real residential investment growth from 4.3 percent to 5.5 percent." The consensus, then, is that Q4 GDP growth will be between 1.2% and 2.0%."

While we do not have all of 2019's data yet, the GDP growth rate for 2018 was 2.86%, up from 2017. GDP has been getting better, certainly since the depth of the recession, but is still nowhere near the 3.3% post-World-War II average, and is nowhere close to the 4% or even 5% that had been trumpeted a few years ago.

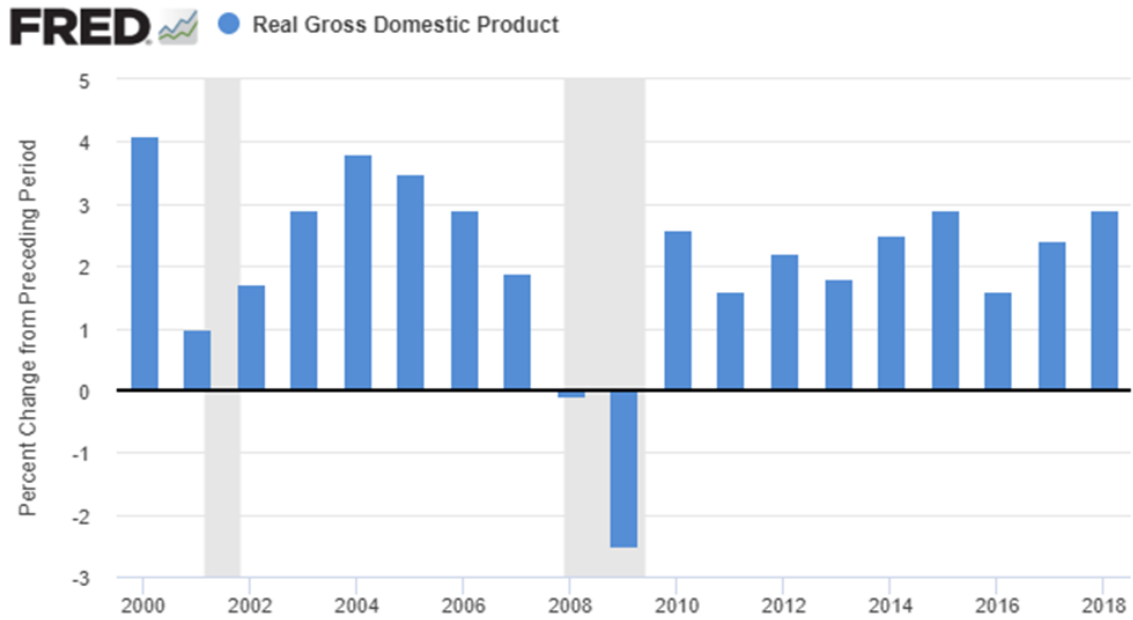
¹⁴ No, that's not Klingon. It stands for "quarter over quarter seasonally adjusted annual rate."

Real GDP % Change Y/Y, 1940-2019



Source: U.S. Bureau of Economic Analysis

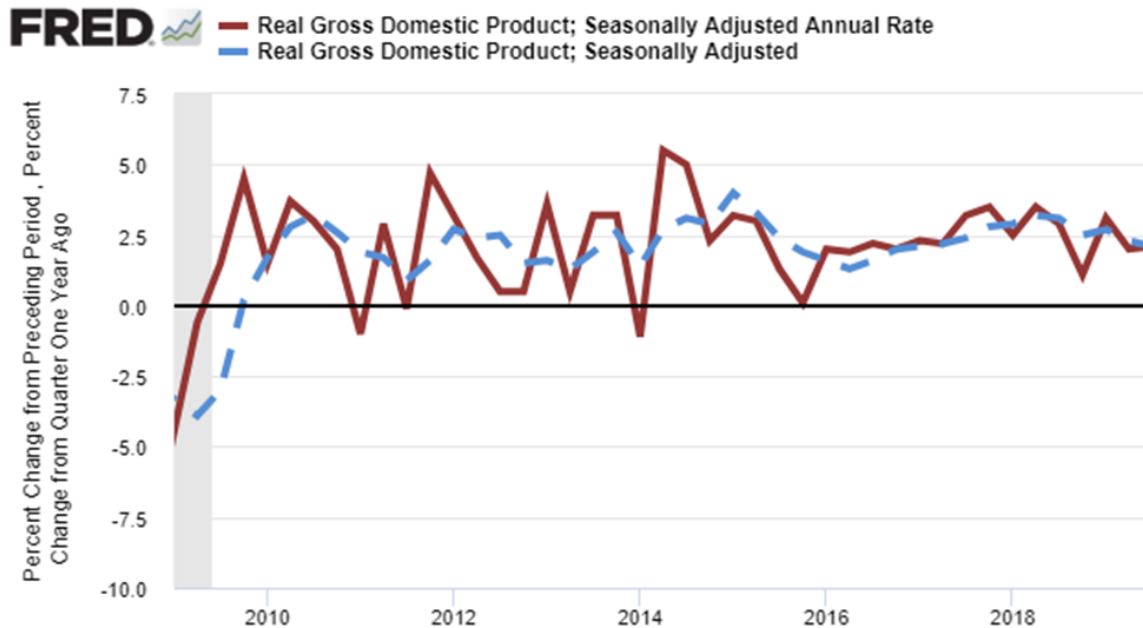
Real GDP % Change Y/Y, 2000-2019



Source: U.S. Bureau of Economic Analysis

In the figure below, the blue line is the year-to-year GDP, while the red line is quarter-to-quarter; the former removes some of the data noise endemic to the latter.

Percent Year-over-Year (blue line) Change in Real GDP vs. Quarter-to-Quarter (red line), 2009–2019



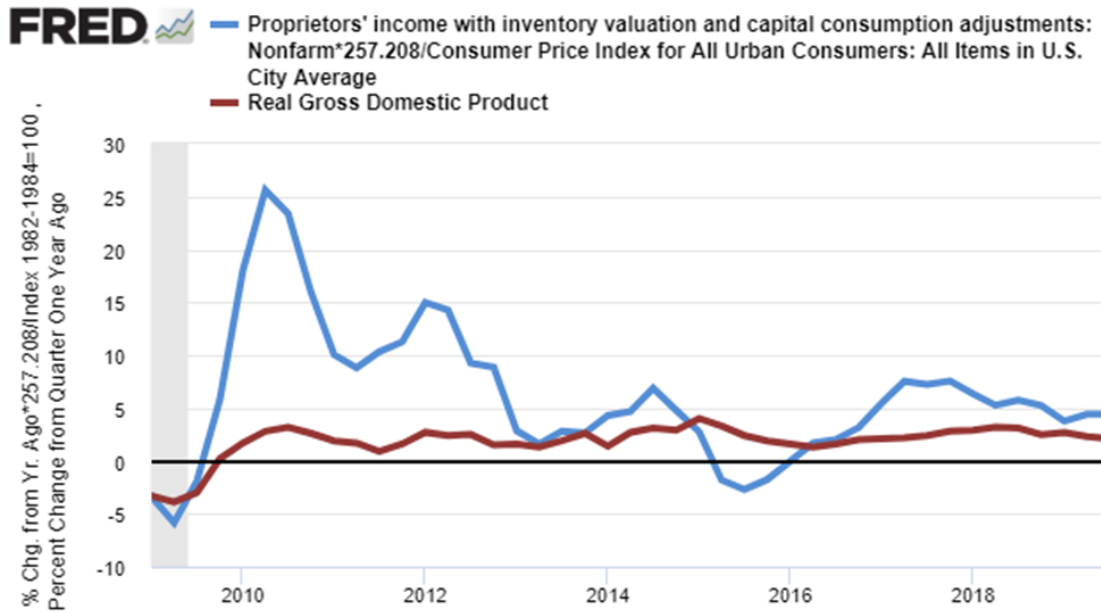
Source: U.S. Bureau of Economic Analysis

Proprietors' Income

The figure below shows the percentage change in proprietors' income for the past 10 years compared to current dollar GDP (the figure below that zooms in to look at the past six years.) Proprietors' income is often seen as a surrogate for small business, and it tends to be out of phase with GDP as large businesses outsource work to small businesses at the beginning of recoveries and then make those services the first to be cut in expectations of a downturn.

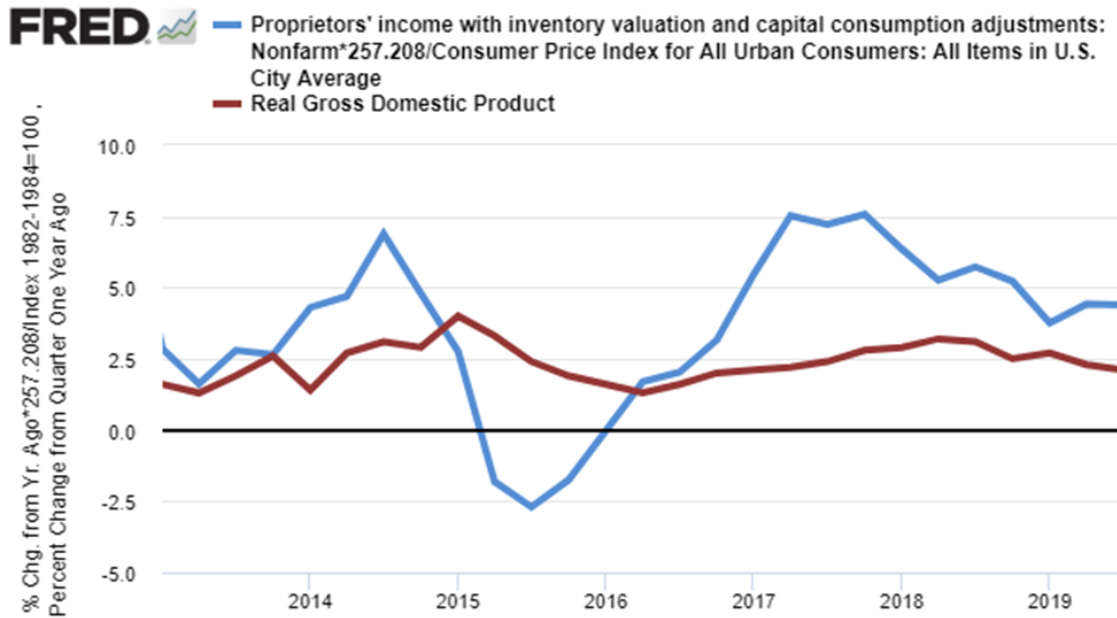
Proprietors came out of the Great Recession pretty strong compared to GDP—that's a lot of freelancers, particularly those working in construction and related services, who took a beating after the housing crash that prefaced the recession. They seem to have eased back in line with the economy in general and then some. If we look at the more detailed six-year chart, we see more clearly that proprietors' income had been lagging GDP since 2014, took a sharp upward turn last year, and flattened out this year.

Percent Change in Proprietors' Income vs. GDP (10 years), 2009-2019



Sources: BEA, BLS

Percent Change in Proprietors' Income vs. GDP (6 years), 2013-2019

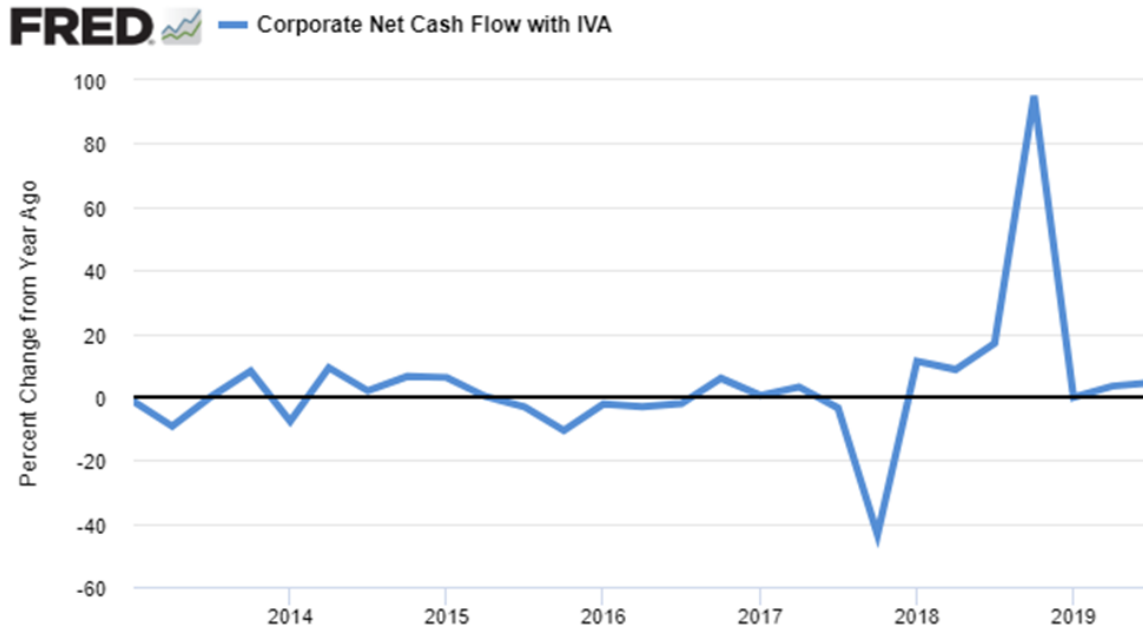


Sources: BEA, BLS

Corporate Cash Flow

Likewise, corporate cash flow growth has been inconsistent for the majority of the 2010s. It was down in 2017, but ticked up in 2018 substantially thanks to tax repatriation and the cut in the corporate tax rate. It crashed immediately thereafter.

Percent Change in Corporate Cash Flow, 2013-2019

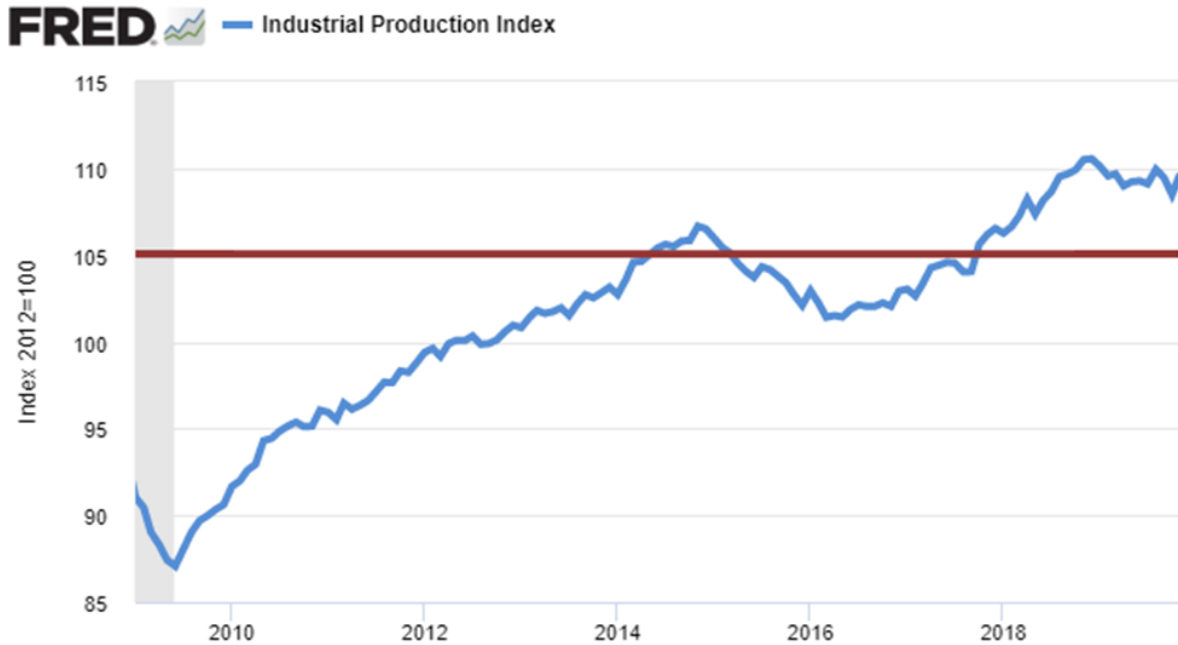


Source: U.S. Bureau of Economic Analysis

Industrial Production Index

If we look at the industrial production index, 2016 had been pretty terrible, 2017 and 2018 were better, and 2019 saw it above the recession line, which is pretty good.

Percent Change in Industrial Production Index, 2009–2019

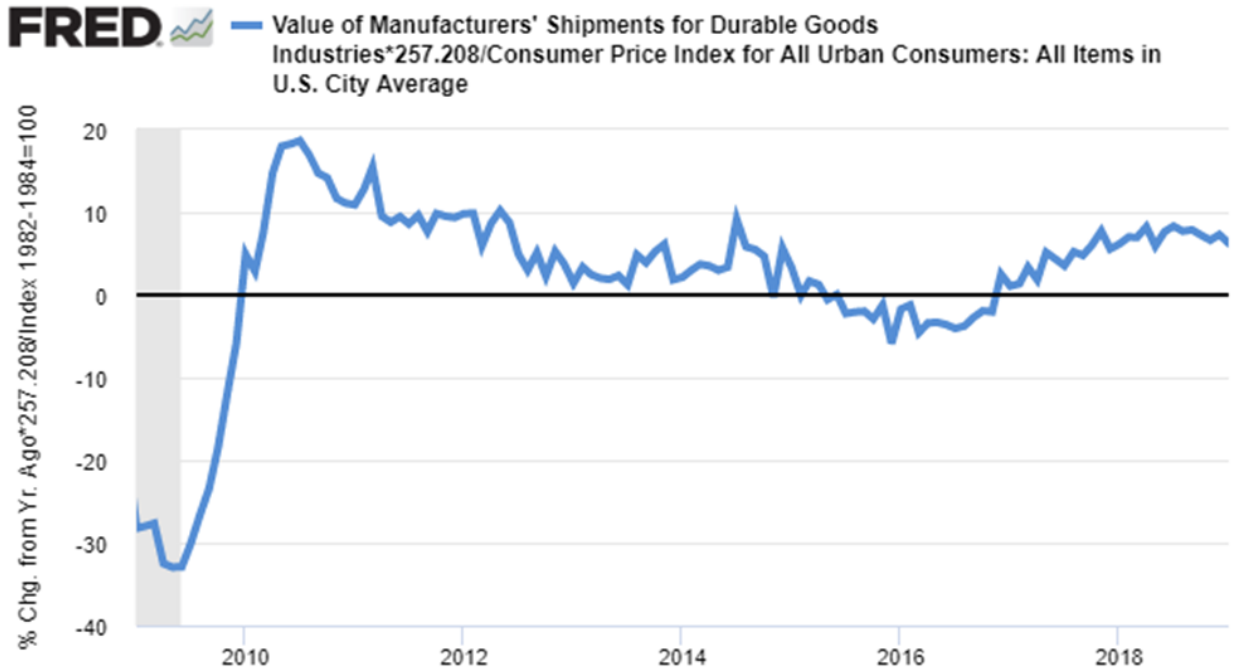


Source: Board of Governors of the Federal Reserve System (US)

Durable Goods

Durable goods—items like appliances, home and office furnishings, lawn and garden equipment, consumer electronics, toys, small tools, sporting goods, and other items that last for at least three years (per the official definition)—have been getting better. They retreated a bit in 2016, which could have been an election effect in terms of manufacturing. Durable goods perked up again in 2017, peaked in 2018, and have been on a slight downward trend over the past few quarters.

CPI-Adjusted Durable Goods Orders (10 years), 2009–2019

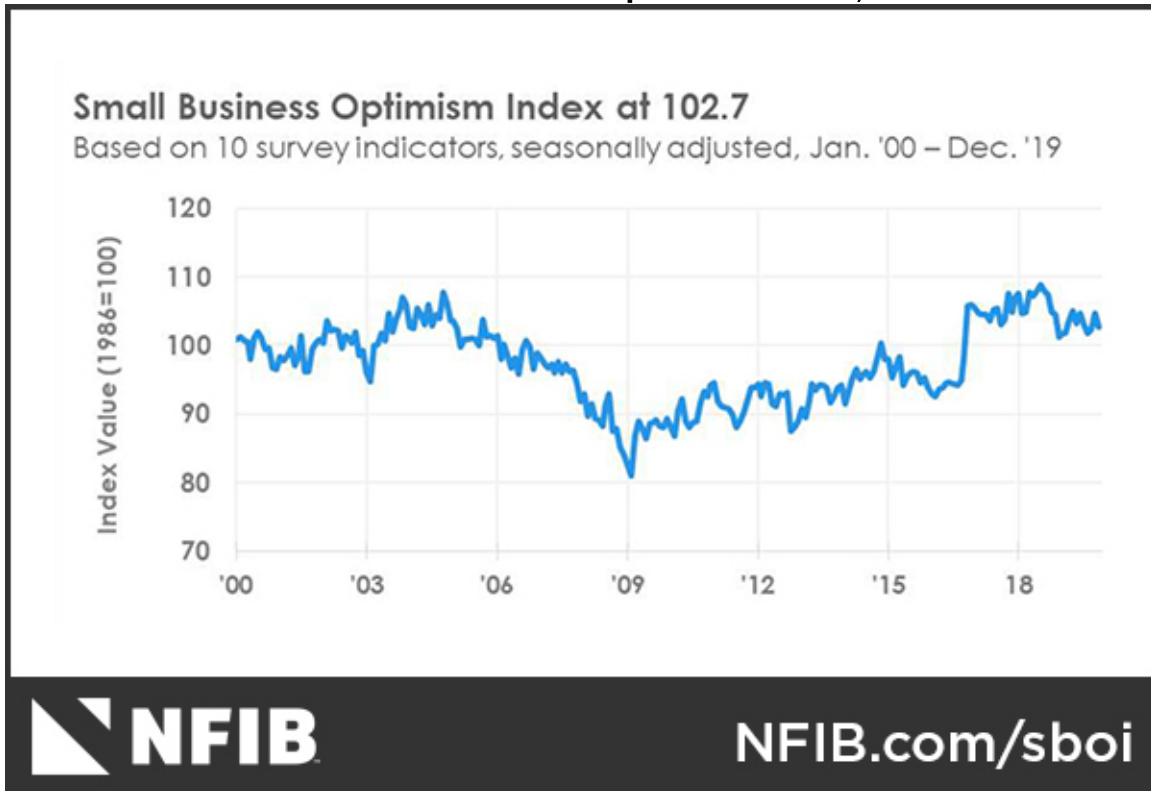


Sources: U.S. Bureau of Labor Statistics, U.S. Census Bureau

NFIB Small Business Index

The NFIB's Small Business Optimism Index is based on the quarterly survey from the National Federation of Independent Businesses (NFIB).¹⁵ It's been pretty low since even before the recession, and there was a slight peak in 2014, although dropped immediately thereafter. It had been climbing throughout 2017 and 2018, likely in anticipation of regulatory rollbacks and tax reform, and has been down again for the past two years. It ended the year at 102.7, down two points from November.

NFIB Small Business Economic Optimism Index, 2000–2019



¹⁵ View or download the December 2019 report at <https://www.nfib.com/surveys/small-business-economic-trends/>.

Personal Income

Personal Income

Personal income is income that people get from wages and salaries, Social Security and other government benefits, dividends and interest, business ownership, and other sources.

From the [Bureau of Economic Analysis](#): “Personal income increased 0.5% in November after increasing 0.1% in October. Wages and salaries, the largest component of personal income, increased 0.4% in November after increasing 0.5% in October.”

Real personal income had taken a dive in 2016 and started to climb again, but has been steady throughout 2017 and the first half of 2018, started to trend downward, and has been on a slight upward trend in 2019.

Real Personal Income, 2009–2019

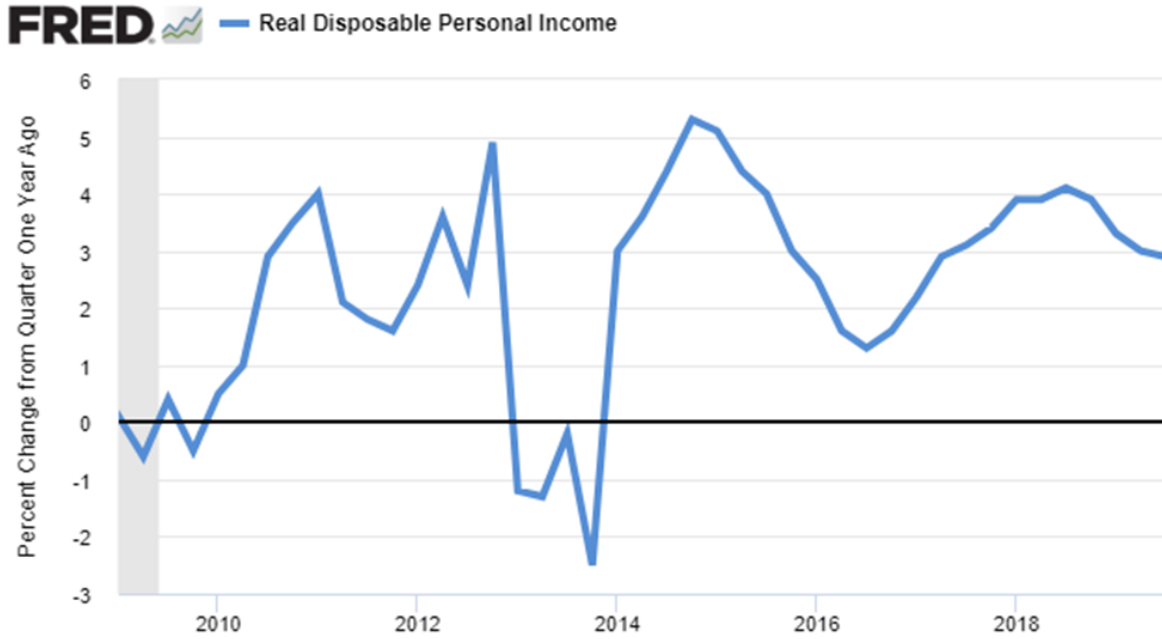


Source: U.S. Bureau of Economic Analysis

Disposable Personal Income

Disposable income is real personal income after taxes, and has been on a downward trend.

Real Disposable Personal Income, 2009-2019



Source: U.S. Bureau of Economic Analysis

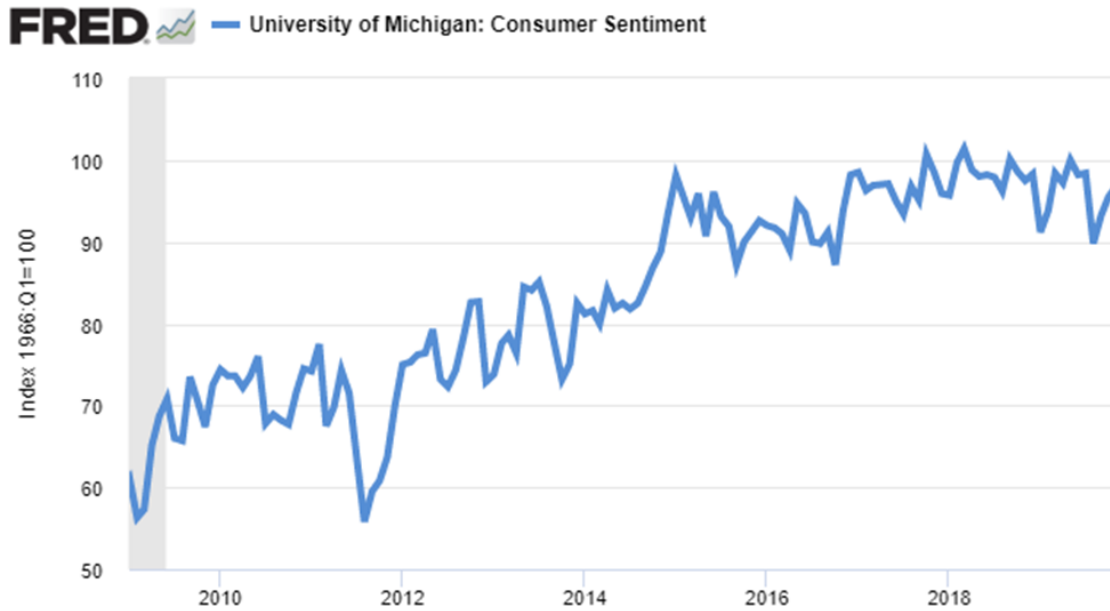
Consumer Confidence

Consumer confidence is a hard thing to figure, as it seems to ebb and flow independent of what other data points would suggest. Of course, most consumers don't pore over economic data and pretty much go on "gut" instincts. In other words, people are strange.

Consumer Sentiment Index

Somewhere around 2015, there was a breakout increase in consumer sentiment. Perhaps this was the point at which the idea that the recession was over finally kicked in. Since then, it's been pretty choppy, but generally on an upward trajectory. 2019 has been a mixed bag.

Consumer Sentiment Index, 2009–2019

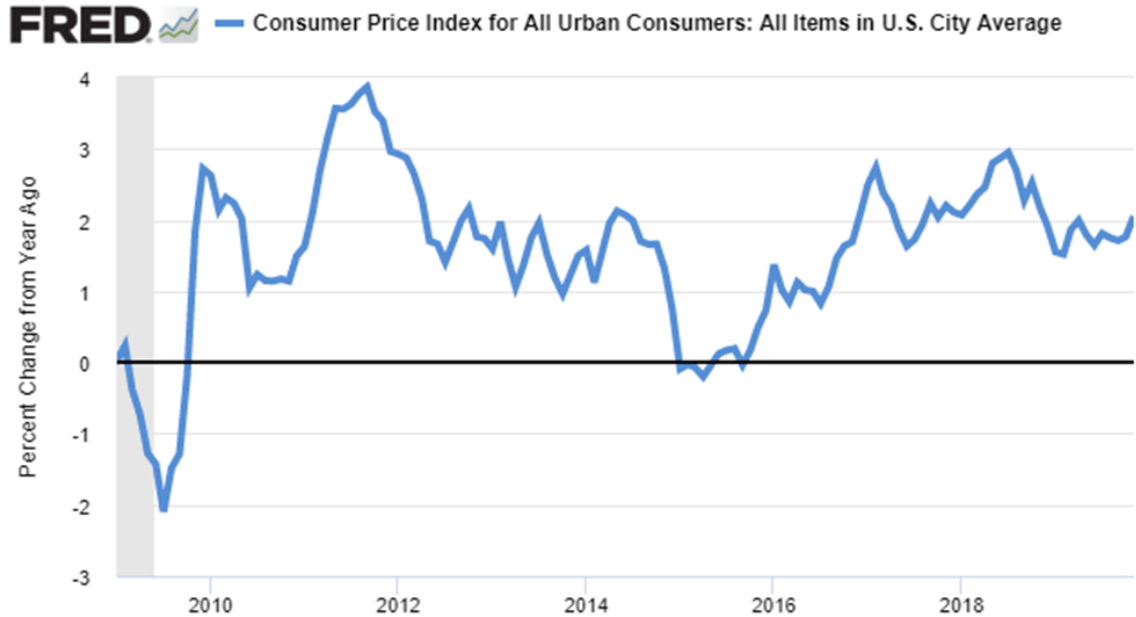


Source: University of Michigan

Consumer Price Index

The figure below shows the percent change in the Consumer Price Index from 2009 to 2019, and it has just come close to 2%. In December, the Federal Reserve [announced](#) it had no plans for a rate hike in 2020, and one hike in 2021.

Percent Change In CPI, 2009–2019

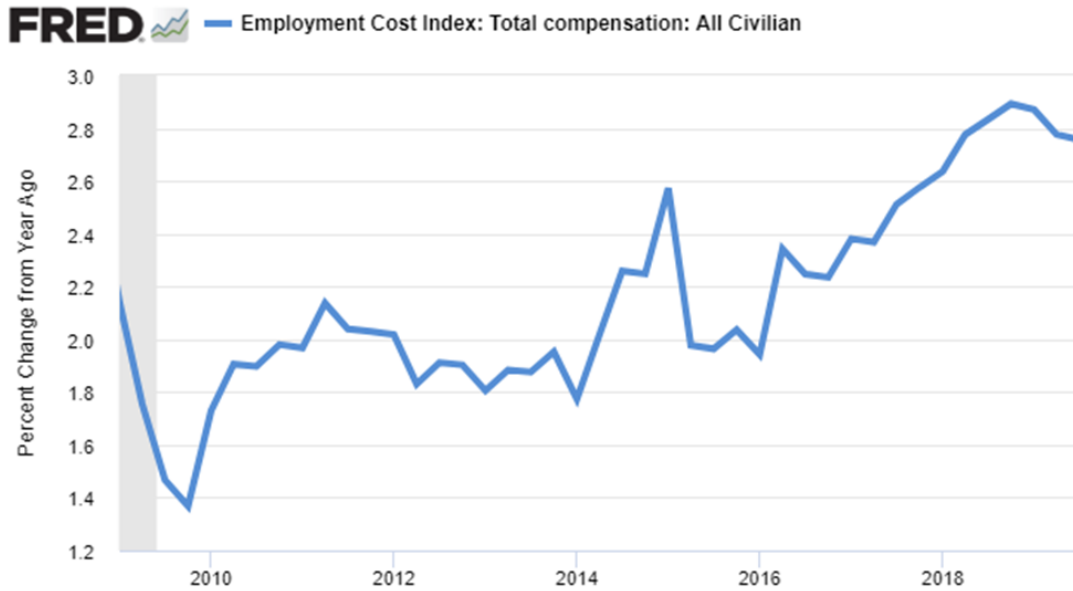


Source: U.S. Bureau of Labor Statistics

Employment Cost Index

The Employment Cost Index includes the total compensation for all civilian workers, and had been rising since about 2015, started to slow around 2015, was up and down in 2016, had been steadily rising in 2017, and appears to have peaked in 2018 before dropping again. We actually want to see this indicator rising, as it is a sign of a potentially improving employment market. (More on that below.)

Employment Cost Index, 2009-2019



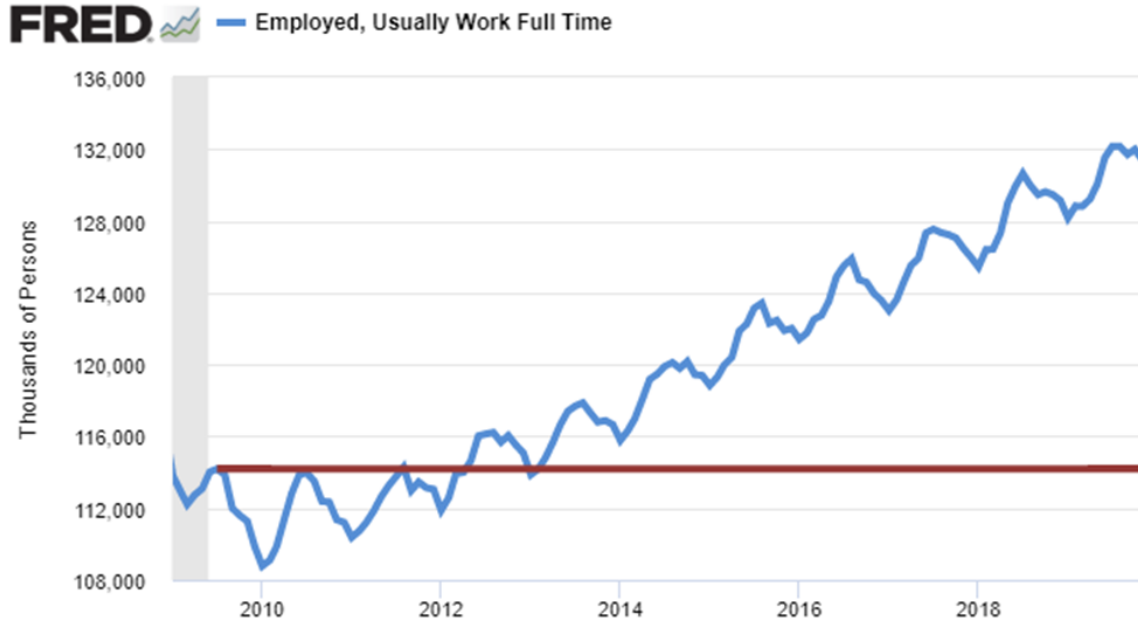
Source: U.S. Bureau of Labor Statistics

Employment and Unemployment

Full-Time Employment

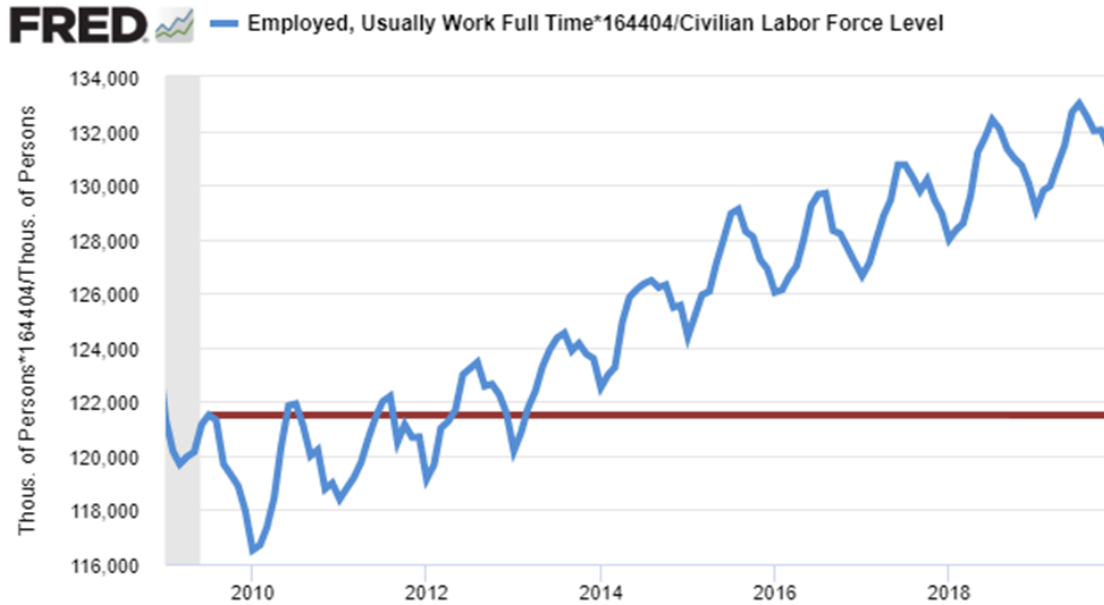
In general, the employment situation has pretty good, with some caveats. It's certainly better than it had been following the recession, even if the headline unemployment rate has tended to understate unemployment because of lower-than-desirable labor force participation, a situation which is starting to correct itself. (For the record, the unemployment rate as of January 2020 is 3.5%.)

Number of Employed Full-Time, 2009–2019



Source: U.S. Bureau of Labor Statistics

Number of Employed Full-Time Adjusted for Size of the Labor Force, 2009–2019



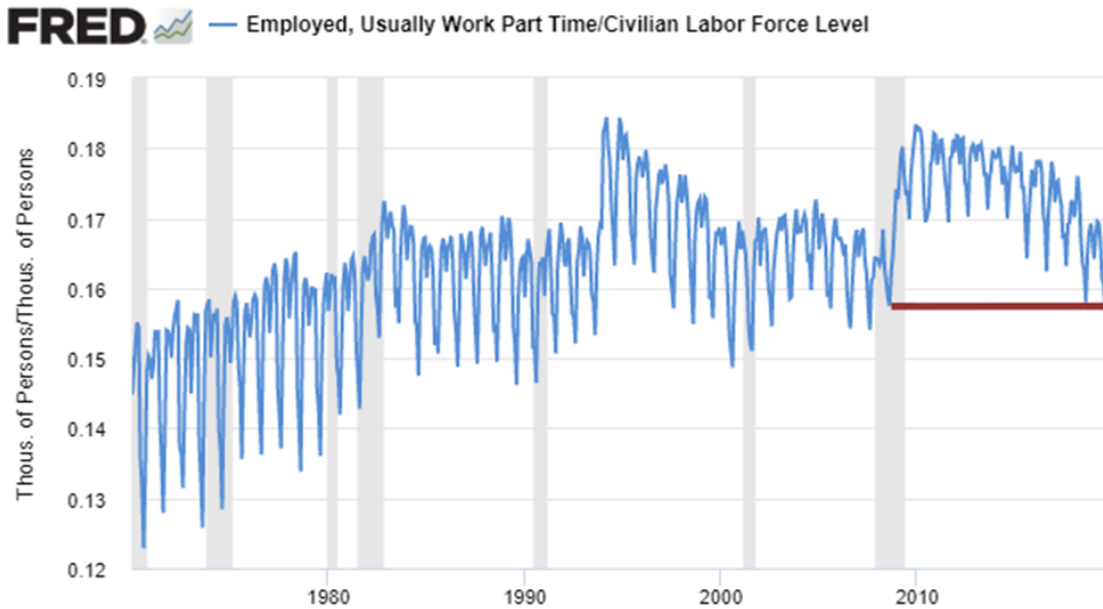
Source: U.S. Bureau of Labor Statistics

Part-Time Employment

We have been seeing a greater than usual percentage of part-timers. The reason for big jump around 1992/1993, by the way, was a redefinition of “part-time.” If you look at the late 1990s, you can see what an economic boom does: it reduces part-time employment in favor of full-time jobs. We’re slowly getting back down to that point.

Of course, we shouldn’t make the assumption that everyone who works part-time really wants a full-time job. Some do, sure, but some people choose to work part-time, either because they are raising a family, or because, thanks to the Affordable Care Act, they may not need a full-time job to get health care coverage. So we shouldn’t paint all part-time employees with the same brush.

Part-Time Employed as a Percentage of the Workforce, 1970–2019



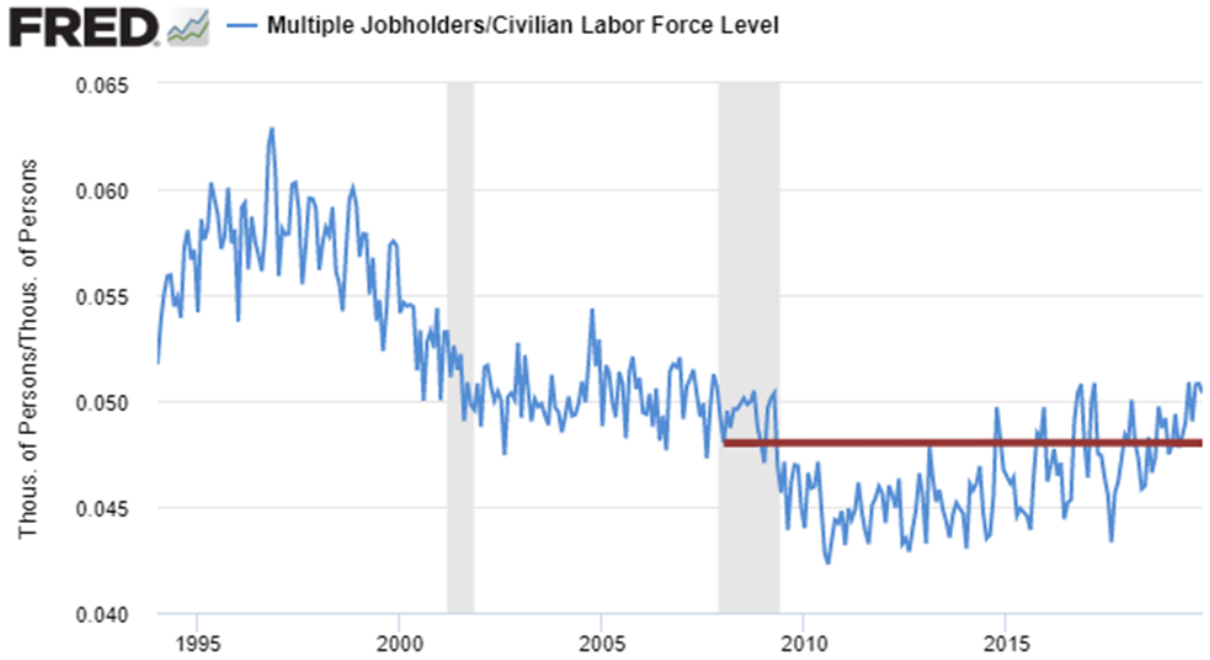
Source: U.S. Bureau of Labor Statistics

Multiple Jobholders

Multiple jobholders are an issue for the payroll employment data because the workers they tally can be double-counted. Payroll data count how many people are going to get W-2s (if you work more than one job, you get more than one W-2), whereas the household survey counts each worker once regardless of how many jobs they have.

The important thing here is that multiple jobholders had recently been at a lower than usual level, but have started to climb again. One conclusion is that people need multiple jobs in order to meet financial obligations for which a single job is inadequate. Look how high the number got just prior to the 1990s boom, during which it dropped. It's great when it's an employees' market, isn't it? A tight labor market means companies have to offer higher pay and benefits to attract workers, at least in theory. Multiple job holders were fairly steady throughout the 00s, and it was only after the recession that they fell.

Multiple Jobholders as a Percentage of the Workforce, 1994-2019



Source: U.S. Bureau of Labor Statistics

Unemployment Rate

In the last employment report at the time of this analysis (January 2020), the headline unemployment rate is 3.5%.

Unemployed as a Percentage of the Workforce, 2009–2019

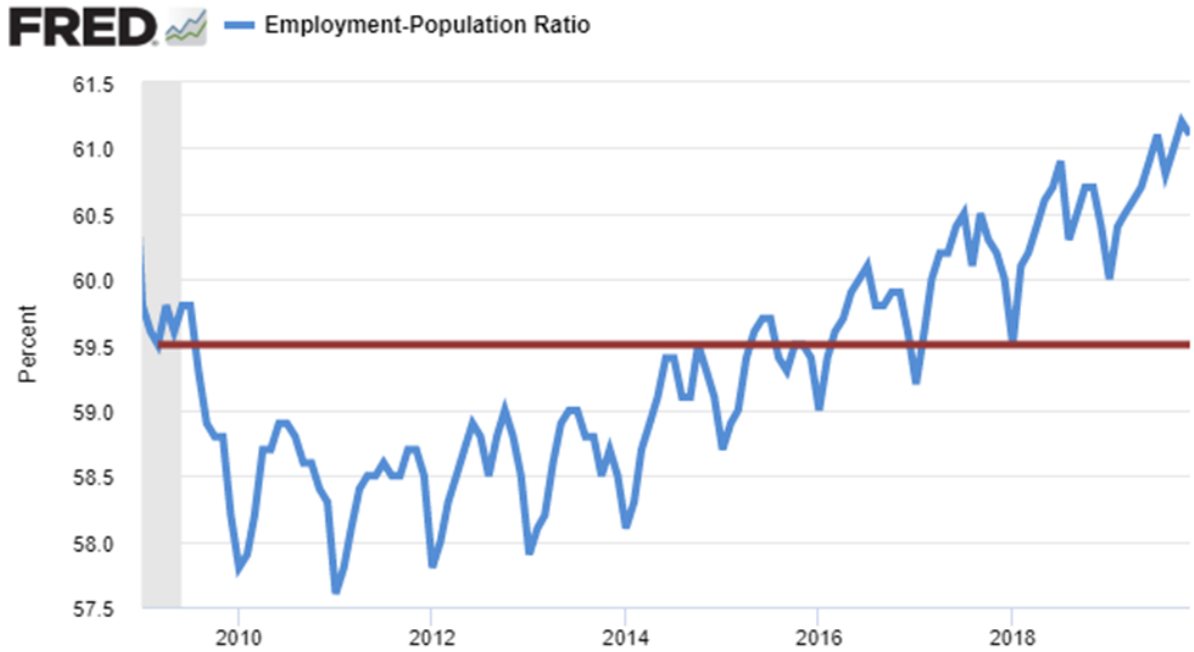


Source: U.S. Bureau of Labor Statistics

Employment-to-Population Ratio

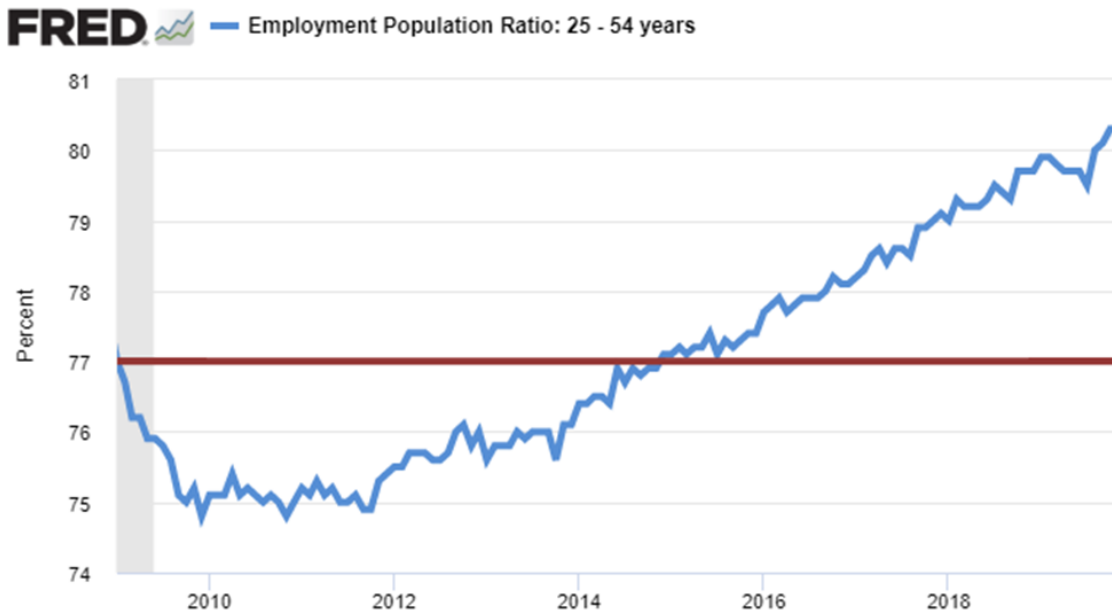
Regardless of how good we think the employment situation is, the employment-to-population ratio suggests that there is still a large amount of slack, but most of that is Baby Boomers retiring. If we look at the employment-to-population ratio among 25-to-54-year-olds, we're at an all-time high.

Employment-to-Population Ratio, 2009-2019



Source: U.S. Bureau of Labor Statistics

Employment-to-Population Ratio for 25- to 54-Year-Old Workers, 2009-2019

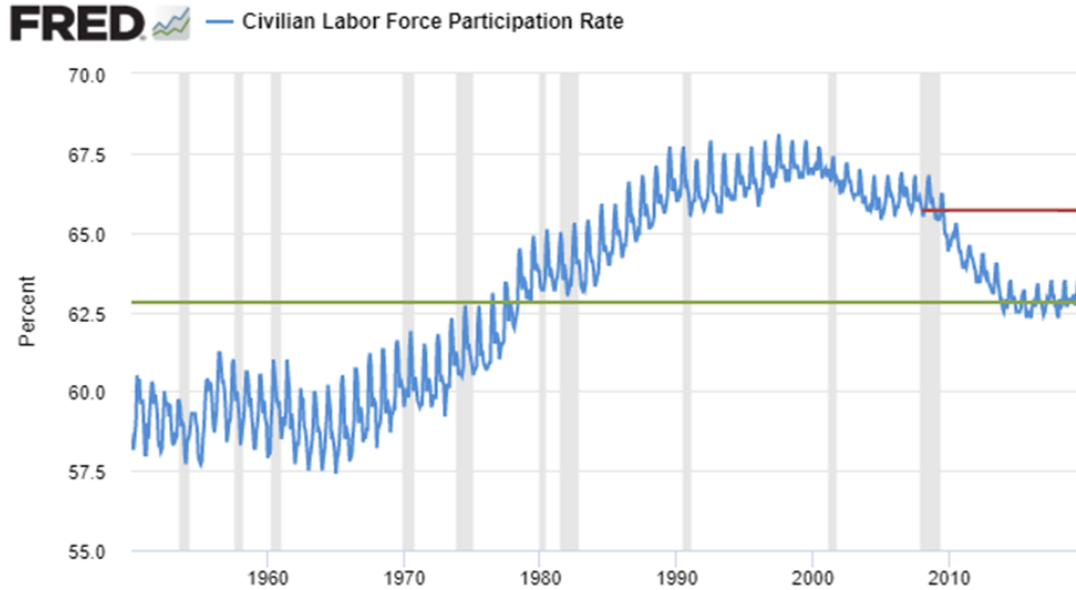


Source: U.S. Bureau of Labor Statistics

Labor Force Participation Rate

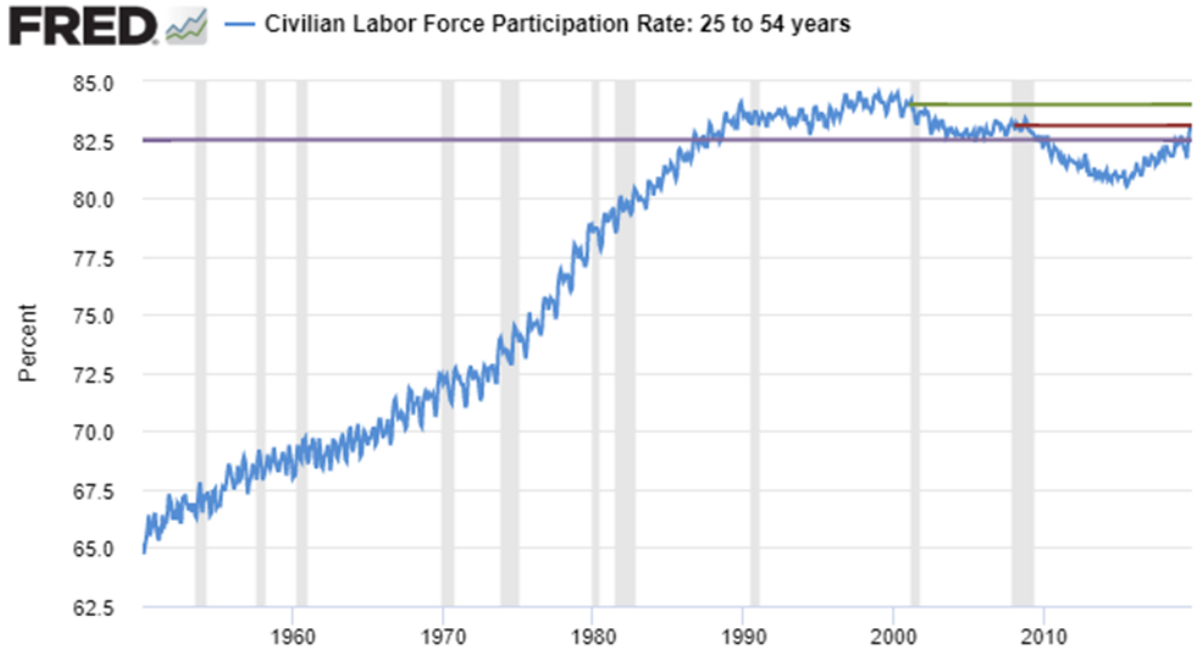
Another way to look at this is civilian labor force participation rate. It peaked in the late 1990s, started dropping between the two recessions (2001 and 2008), and just kept dropping. But for the prime working age cohort, it's finally back up to its pre-recession level.

Labor Force Participation Rate, 1950-2019



Source: U.S. Bureau of Labor Statistics

Labor Force Participation Rate for 25- to 54- Year-Old Workers, 1950-2019



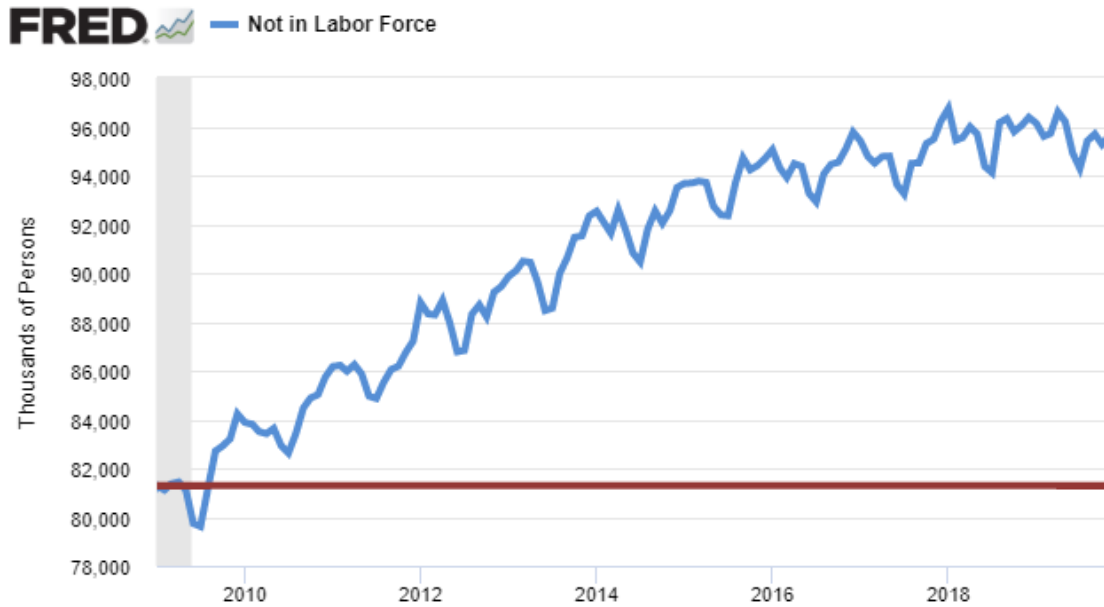
Source: U.S. Bureau of Labor Statistics

Not In Labor Force

Correspondingly, “not in labor force” has been choppy, but remains at an abnormally high level. Some of this is retirees, but a lot of these folks should be in the workforce. Again, aggregate data don’t tell us anything about individual situations. Maybe a particular industry has been declining (do we know of any industries like that?) or has died or is in the process of dying and it’s tougher to get work if that is someone’s particular field of expertise, or at least basic skill. Maybe there is a general skills mismatch. Maybe someone is a prisoner of geography, stuck in an economically depressed area (it’s not always easy for someone—especially if they have a family—to pull up stakes and relocate). And maybe available jobs pay far lower than what the market used to bear.

Regardless, this number should never be zero, but neither should it be as high as it has been in recent memory.

Not in Labor Force, 2009–2019

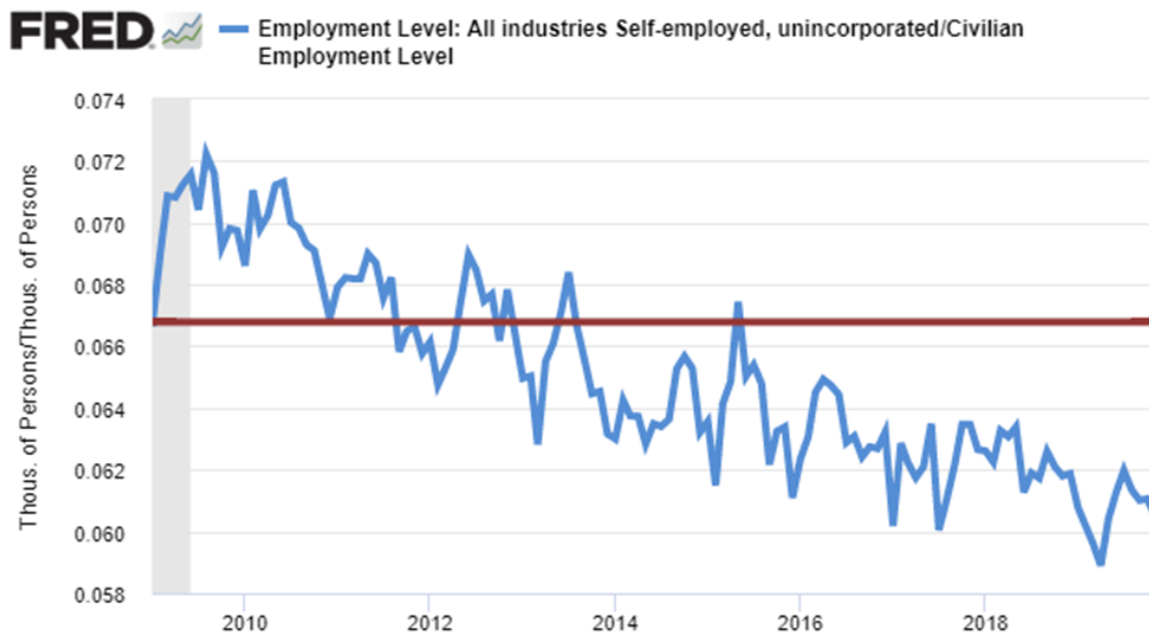


Source: U.S. Bureau of Labor Statistics

Self-Employment

Because we're in graphic communications, we automatically think of the self-employed as writers, designers, web developers, and other "information workers," but as it happens, a hefty chunk of the self-employed are construction workers, which is why there was such a drop-off after the recession, which was preceded by the housing crash that took a toll on the construction industry for a time. Theoretically, you would see many of these workers come to the full-time or part-time workforce or be more entrepreneurial—which, admittedly, is not always possible, and not everyone is adept at being entrepreneurial. Then again, these data reflect self-employed but unincorporated, so it's entirely possible that some of them became S corporations or LLCs—especially as the 2016 tax law conferred tax advantages on being such a "pass-through" organization. Still, as a percentage of the workforce, the self-employed are down to around 6.1%—which is far below historical norms. So something else is likely going on.

Self-Employed as a Percentage of the Workforce, 2009–2019



Source: U.S. Bureau of Labor Statistics

The Economic Landscape

GDP growth has been pretty good, though not stellar. One drag on higher GDP growth compared to previous periods is that the US population is growing more slowly than in previous boom times. Job growth has been pretty good, generally exceeding the number of jobs needed to keep up with population growth. Consumer spending has been pretty good, and even retail sales have been on an upswing toward the end of 2019. For those who like to use the stock market as a barometer of economic health, it certainly has been continuing to rise.

With this backdrop, the printing renaissance we have been talking about is perhaps—as Fort Minor would say—10% luck, as the technological and demographic trends have coincided with a particularly good macroeconomic climate. Will that continue? That’s a topic for the next section.

7. INDUSTRY TRENDS AND FORECAST

As we mentioned a few times in this report, one of the comments that was often heard at last October's PRINTING United show in Dallas was that there had not been such excitement in the industry since the late 1990s. And if there is a theme to this year's Outlook report, it's that of a "Printing Renaissance."¹⁶

The past couple of years have not necessarily seen any quantum leaps in technology, but rather the kicking in of the advantages of inkjet in virtually every corner of the industry. If we can call the past two or three years a recovery from a print recession that began in 1999, then it was largely an application-driven recovery. It's not the case that everyone is suddenly printing direct mail, transactional documents, or magazines and catalogs again (although some are). The printed directories business remains firmly in the realm of Jacob Marley. Rather, it was new *kinds* of printing that have largely driven the recovery. Wide format in all its varieties, especially signage. Textiles, in all of *its* varieties. And packaging; let's not forget packaging. If the only metric we had was the number of press releases we receive, then packaging would be hands-down the most explosively growing part of the print market. But it's not the only metric we have, and packaging *is* the most explosively growing part of the print market. And for all—or most, anyway—of this, we can thank inkjet technology (and, in the case of packaging, a bit of a flexo renaissance).

At the same time, elaborate digital finishing technologies collectively called "embellishments" have added a little *je ne sais quoi* to print, which has worked to improve response rates and make print more appealing for marketers.

The print recovery is not *just* due to inkjet printing and embellishments. There are macroeconomic forces at work, as well. As we saw, the general economy has been on a steady upward trend since the early 2010s as we recovered from the Great Recession and while the past couple of years have seen that upward trend wobble a bit (GDP growth has been fairly lackluster), there remains a great deal of optimism, and unemployment has remained low. We've even seen the workforce participation rate of prime-age workers rise, something that had hitherto eluded the recovery. Companies have money to spend, and they are spending it on print. Should we experience another recession, however, you can bet that trend will reverse itself ASAP.

So a combination of technology, demographic, and economic trends have helped drive the printing renaissance.

Technology and Other Trends Affecting the Industry

First of all...

¹⁶ Don't worry, we're not going to go too nuts with this analogy.

Hot Trends

The Economy and the “R” Word

As we head into 2020 and the new decade,¹⁷ where are we economically? Well, we’re certainly in better shape than when the decade began, although that isn’t saying much. We have been experiencing the longest economic expansion in US history; at what point is that likely to end? Or, in other words, is another recession on the horizon? How will we know?

There has been no shortage of forecasts—good and bad—and there have been a few signs—good and bad. Everyone’s favorite recession indicator is the [inversion of the yield curve](#) (where longer-term government bond interest rates fall below short-term ones), which [happened in March](#) and got worse by summer. However, the Fed cut rates and now the yield curve is positive again. Economists fret the yield curve because it has been a fairly reliable predictor of past recessions and even though it has turned positive, that doesn’t cancel out the recession risk because the signal was the initial inversion, not what has happened since. So there’s that. If this was indeed a true recession predictor, then sometime this spring will be when it hits, although there is usually a lag between when a recession begins and when we detect that it has happened.

Another indicator is that [manufacturing has been contracting](#) at a faster rate. Although manufacturing isn’t as important a sector as it used to be, and there is a lot of noise and volatility in the data. It’s possible that other parts of the economy may have to make up for the manufacturing sector and will ultimately fall short.

There is also the sense that we may simply be due for a recession. Historically, we’ve seen a recession in about 1 in 5 years. That’s kind of a dodgy predictor, but it exists nonetheless.

On the other hand, there are positive signs that preclude an imminent recession. For one, the stock market has been hitting record highs, and while that isn’t the best gauge of economic health (only about 10% of Americans are directly invested in the stock market), it does indicate how bullish investors are. At the same time, both unemployment and inflation remain low, two other good signs. If unemployment ticks up to 4%, it could herald trouble.

What does this mean for the printing industry? We’ve seen the impact of the past two recessions (2001 and 2008) on the industry and while recessions are never good for any industry, in the printing industry, they tend to amplify underlying trends that are already happening. For example, the biggest problem the industry has had over the past 20 years is the shift from print to electronic media, first thanks to the Internet itself and then to social and mobile. Economic downturns serve to accelerate the shift to electronic media as a cost-cutting strategy, as these media channels are often seen as “free,” or at the very least less expensive than print. The print renaissance we saw this year was thanks to companies having marketing budgets and seeing the value in print as part of their overall

¹⁷ Not really the new decade.

media mix. But you can bet that as soon as the economy goes south, those marketing budgets will be cut and print will be at the top of the list to get the axe. ’Twas ever thus.

On the plus side, a lot of the industry’s growth has been in areas and applications that are less easily replaced by electronic alternatives. Direct mail, print advertising, transactional—they’re all pretty easy to “digitize.” But things like signs and display graphics, packaging, and labels are far more difficult, if not impossible, to replace with electronic media (but see the discussion of 5G networks below). Sure, demand for a lot of these items may decline if the economy turns sour (rebrand cycles may be decelerated, there may be a drop in new construction or remodeling, and fewer new businesses forming that will need signage and other display collateral), but it will still be there rather than evaporating completely.

Our advice is to not worry unduly about a recession. Focus on your business and keep it healthy while the times are good, because robustly healthy businesses are in the best position to weather an economic downturn.

Local Economics

When we think about “economic conditions” as a challenge, we tend to think solely—or at the very least primarily—in terms of the national economy. All our macroeconomic data are national data.¹⁸ However, print businesses, quite obviously, operate in a specific geography, which can differ—often quite substantially—from national conditions. So while the economy *as a whole* has been on a 15+-year growth cycle, that hasn’t translated to all localities equally, and some part of the country are faring much more poorly than others.¹⁹ So print businesses that serve these depressed local markets will perform more badly than those that serve more prosperous markets.

For example, [a recent study](#) from the Brookings Institution and the Information Technology and Innovation Foundation (ITIF) found that, from 2005 to 2017, less than half a dozen metro areas—Boston, San Francisco, San Jose, Seattle, and San Diego—accounted for more than 90% of the growth in high-tech industries, the industries that are, after all, driving our economy. There are many good takeaways from the report, but one is key:

High levels of territorial polarization are now a grave national problem. Many Americans reside far from the opportunities associated with the nation’s innovation centers, undercutting economic inclusion and raising social justice issues. Moreover, the costs of excessive tech concentration have meant less overall innovation industry activity in the United States in part as companies increasingly move activity from high-cost U.S. tech hubs to medium-cost foreign hubs. Creating tech hubs in the heartland will provide an opportunity to reduce “innovation offshoring.”

Why is this important for printing? They say “all politics are local,” but then so is all (or most) printing. We use the “Tale of Two Cities” as a metaphor for large and small

¹⁸ That said, the Bureau of Economic Analysis tracks [GDP by county and metro area](#).

¹⁹ Lest we not forget that this was a major factor in the 2016 election.

printing businesses, but there is a very literal “Tale of Hundreds of Cities (and Towns)” across the country. This is where a tool like [APTech’s PrintStats](#) can be a real asset: it lets users drill down into specific states and metro areas and get highly specific statistical data.

Overlappage

Economic issues out of the way, let’s look more specifically at the industry. Perhaps the biggest trend that has emerged in the past few years and fully took root in 2019—it even spawned an entire trade show, PRINTING United—was what some call “convergence” but is probably more accurately referred to as “overlappage,” as it has become difficult to separate wide-format printing from other aspects of the printing industry, such as textiles, packaging, and industrial printing. All of these different aspects of print are simply variations on the same basic theme—ink on something—rather than completely different songs. The range of potential print applications can seem overwhelming, but it actually works to everyone’s advantage since it has never been easier to develop a highly diverse product portfolio to offer clients. Compare today’s situation to that of a decade ago. It was certainly possible, but it was a struggle. Chalk it all up to inkjet technology, which has penetrated into all the corners of the industry. Overlappage can also include general commercial printing, as those kinds of applications also complement and supplement wide-format and other kinds of specialty printing.

5G

We cited 5G as a trend to watch in last year’s Outlook report, and watch it we have. To recap briefly, 5G is a new cellular technology that will offer speeds up to a thousand times faster than today’s 4G networks. What that means is that a full two-hour movie could be downloaded onto a mobile device in five seconds, and gaming and streaming would be free from the latency or “time lag” that can make these applications somewhat frustrating. So think about everything you have been able to do on a mobile phone since the advent of 4G—watch videos, stream services Netflix or Hulu, play video games, access augmented and virtual reality (AR and VR), and so on. Now imagine what exponentially faster mobile connectivity will allow.

5G isn’t quite there yet, although some carriers claim they already offer 5G (they don’t yet offer true 5G which requires all new equipment). 5G watchers expect the real rollout to be some time in 2020—probably towards the end of the year, if not in 2021.

Why is this important for the printing industry? It will have a number of implications. The first, as was detailed in a [recent white paper](#) published by the International Sign Association (ISA), it would provide advantages for electronic signage which has become fairly common—both LCD-based dynamic digital signage (DDS) or LED displays, and 5G networks will only enable it to proliferate even more.

On the downside, there tends to be a direct correlation between increasing Internet speeds and declining printing shipments, and it’s an easy enough phenomenon to explain: the more things that one can do on an electronic or mobile device, the less they are likely to interact with print.

Here are some recommendations for thinking about the emergence of 5G:

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- Don't ignore it. It will be disruptive for traditional print, just as all advances in broadband technology have been, and that includes some aspects of sign and display, which may displace some print-based sign and display applications.
- Understand the potential applications for technologies that can exploit 5G. That can include new kinds of interactive print, AR and VR, and other applications not yet thought of. Augmented print applications like Ricoh's Clickable Paper have the potential to bridge the print and the non-print world, which will be an important strategy, especially as the Internet of Things (IoT) threatens to take over the world.
- 5G will also improve your own internal connectivity, and will make cloud computing and cloud migration a much more compelling prospect. Work with your print MIS and other software providers to see how they are taking advantage of 5G.

Remember, 5G isn't here yet, but it's coming, and starting to investigate it now will only make it easier to get the most out of it when it finally is ready for prime time.

Packaging and the Flexo Renaissance

David Zwang has identified the [four major trends in packaging](#): quality, short and on-demand production runs, personalization, and sustainability. Two of these—short-run/on-demand printing and personalization—are playing into production inkjet's hands, and digital technologies of all kinds have transformed packaging. At the same time, we have been seeing something of a rebirth of flexography, thanks to digital enhancements incorporated into the flexo process affecting everything from transport to imaging and providing significantly enhanced automation and control. The result is extremely high print quality, while still providing high productivity and low cost, which are helping flexo defend itself against digital inkjet encroachments.

There are also more and more hybrid digital/flexo systems being developed, and while there are plenty of hybrid solutions out there, and an increasing number of components to support the variety of packaging requirements, perhaps the whole hybrid evolution today is really just a part of the industry's digital transformation and transition to the real end game: purpose-built or bespoke solutions. More digital print solutions can satisfy the requirements of shorter, on-demand runs, but digital toner and inkjet solutions are slower than conventional flexo, which means that the total available production capacity of the press is less. That's not necessarily a bad thing; it allows you to create focused and optimized production processes based on specific requirements instead of trying to fit work with different requirements into the same production processes. That could provide more cost effective and timely solutions with less setups and handling.

drupa 2020 will see the next wave of packaging production introductions, so stay tuned.

Now, granted, our survey results don't show a tremendous amount of interest in getting into packaging on the part of commercial printers, even though packaging has been touted as a high growth area for displaced print providers looking for greener pastures. And while it's true that packaging does present certain unique barriers to entry—from

navigating the various governmental regulations surrounding food, pharmaceutical, and cosmetics packaging to earning credibility in the eyes of brandowners—the technology makes the production process itself easier to get into. It’s another area we will continue to watch closely.

Textiles and the Microfactory

Textiles have also been on our “trends to watch” list for a few years, but one of the most important trends within textiles is the development of apparel microfactories for customization, shorter runs, and reshoring of textile/apparel manufacturing. There have been significant improvements in the quality, flexibility, and price point of digital fabric printing solutions, and one substantial development has been the growing availability of pigment inks, which enable printing on a broader range of fabrics without pretreatment. There has also been increased automation across all parts of the textiles and apparel supply chain, with sewing being the “last mile” problem for automation. According to our textiles *doyenne* Cary Sherburne, the total percentage of worldwide printed fabrics produced digitally has slowly grown to 6%, but appears to be stuck at that level, pending increased education of both brands and producers on the benefits of digital textile printing. At the same time, growing consumer demand for customized fabrics and apparel on the part of Millennials and Generation Z may help goose the digital textile printing market, probably not immediately, but more in the 2024 timeframe.

The Inplant Renaissance

You’d think this was 15th-century Europe, what with all these Renaissances going on! Inplants don’t show up in our printing industry data (they are reported as part of their parent organizations which can be in a wide variety of NAICS categories), but anecdotally, and through research done by the In-Plant Printing & Mailing Association (IPMA), we do know that inplants are having a bit of a resurgence, driven in large part by—*quel surprise*—an expansion into wide-format and specialty printing. Once simply the in-house “copy/mailing center,” these departments have begun to prove their value to their parent company or organization, being on the front lines of technological change (digital printing, specialty printing, the “Amazonification”²⁰ of mailing, etc.).

ISO

No, not the International Standards Organization, but rather “in search of”—that is, of employees. The skilled employee shortage in our industry has been widely commented on over the past few years, and has been a concern that has turned up in our survey data. Automation may be a solution to the problem of finding elusive employees, at least in terms of production, but it is also being implemented (in our industry and elsewhere) primarily to reduce costs and improve quality.

We’ve commented on this elsewhere in this report, but the people we need to attract to the industry are not production employees. What we really need—and proactive print businesses have started down this route already—are programmers, IT pros, and app

²⁰ That is, being able to track a package down to the square nanometer and get real-time updates about expected delivery times.

developers, in order for shops to be able to offer variable-data and other sophisticated applications. People who can wrangle databases, experts in search engine optimization, and other technology pros are whom we need to attract. And, in fact, it may be the best way to attract younger people into our industry, if we can present our businesses as high-tech programming environments rather than noisy, dirty manufacturing plants.

Lukewarm Trends

The Ebook Non-Revolution

A decade ago, the Lords of Publishing were predicting that the 2010s would be the decade of the “ebook revolution.” Well, not so much. Sure, people buy and read them, but by the end of the 2010s, they pretty much stayed at about 20% of book sales, with print comprising the remaining 80%. So what happened?

[Vox](#) has a look at the revolution that wasn't: “the digital natives of Gen Z and the millennial generation have very little interest in buying ebooks. ‘They’re glued to their phones, they love social media, but when it comes to reading a book, they want John Green in print,’ says [Andrew Albanese, a senior writer at trade magazine *Publishers Weekly* and the author of [The Battle of \\$9.99](#). “The people who are actually buying ebooks? Mostly boomers.” Why? The ability to increase the font size.

Audiobooks remain the more popular alternative to print books, but we don't see books as a print product disappearing any time soon.

Flight 323

There is one other trend we have discussed in this report, and it may be a little *Inside Baseball* but it's worth mentioning again, as it impacts industry statistics. One of the consequences of “overlappage” is that we have been seeing a kind of printing industry diaspora. All the government data we have historically tracked is from NAICS 323 (Printing and Related Activities). However, not all businesses that we would consider printing today—or, more importantly, what those businesses would consider printing—are classified in 323.²¹ Sign shops, for example, are in NAICS 339. Packaging converters are in 322. We also did some playing around with Dun & Bradstreet data, looking up some of the print businesses we have profiled in the past couple of years, and most are in 323, but some threw us for a loop. One is classified in 517410 (Telecommunications Services), while another is 811111 (Consumer Services). We suspect these are outliers, but one of our projects for 2020 is to get a better handle on this issue to determine if it's significant enough to skew industry data enough to present a false picture of the industry.

²¹ Remember way back when, to a time when print providers were busy reclassifying themselves as “marketing services providers”? Although most of that was surface-level rebranding, it's possible some took it seriously enough to report themselves in a services NAICS like 541 rather than a manufacturing NAICS like 323. We don't think it was a significant number (Dr. Joe Webb and I had this conversation going back at least 10 years), but it's worth bearing in mind.

The Only Trend That Matters

Ultimately: Demand for Print

There really is no trend more important than the fundamental demand for print in the marketplace. It doesn't matter whether digital or analog printing predominates, it doesn't matter how productive our workflows are, it doesn't matter if we have the greatest sales people in the world—if there is no demand for what we as an industry produce, business will be bad and we will lose establishments. We've seen this before—and this is how we got where we are today, with an industry a third the size it was 20 years ago. The good news is that, over the past couple of years, demand for print has been on the rise. A lot of that is specialty printing, but there does seem to be a resurgence in general commercial print, as well. The two forces that negatively impact the demand for print are economic conditions and electronic media (see the 5G discussion above). We have little control over the former, but if we can understand how to use the latter to our advantage, we can continue our print renaissance into 2020 and beyond.

Industry Shipments Forecast

As we always caution in these reports, any forecast can only ever predict the past, as it extrapolate existing data, albeit different forecast models do the extrapolating in different ways. If you are familiar with our past forecast reports, you know we use three basic forecasting models to analyze time series (namely, printing shipments):

- Exponential Smoothing
- Curve
- Box Jenkins

We also average the three forecasts to see if the “hive mind” of the forecasting software exceeds the sum of its parts, and it doesn't really.

An obvious question is, “Well, if you have been doing these forecasts for so long, which of those models has been the most accurate?” Ah, if it were only that simple! If we look at historical shipments data and compare what ultimately came to pass with what the forecasts predicted, none has hit the mark with any consistency. Often, there were major changes in one particular year to which the forecasting model attached too much importance and which was not duplicated. Once a forecast model gets hold of an idea, it has a hard time letting go of it—but then a lot of humans do that, too.

Exponential Smoothing looks to be the most accurate for 2019 and arguably the next couple of years, but we find it far too bullish in the long run. If wishing made it so... The Curve forecast we always find too aggressively negative—a \$17 billion in 2028?! Yikes. Last year, we found Box Jenkins to be a little too positive, but after this year's better than average shipments performance, this model seems to us to be a little closer to the mark, but in the long run, it's probably a bit too optimistic. So we'll want to think outside the Box Jenkins. (Sorry.)

Our own WTT forecasting model is more judgment-based, adding a human²² perspective based on what we know about the industry, technology, and culture as opposed to what the “robotic” models know just from looking at past data and assuming that the past will repeat itself more or less aggressively.

We do have to be careful. Last year’s forecast was a bit too dour in retrospect, but we don’t know with any certainty that this year was an outlier and next year will see a regression to the mean. So we’re revising our forecasts up a little, but not too drastically.

We are forecasting somewhat of a stasis, if not a modest increase, in the short term, but ultimately regular declines in printing shipments through 2028, with some years seeing steeper declines than others. Some qualitative factors—both positive and negative—we have to keep in mind as we look ahead:

- A potentially slowing economy (negative)
- Growth of specialty/industrial/textile printing (positive)
- Flexo renaissance and growth in packaging (positive)
- Further industry consolidation (negative)
- Election years (positive)
- NAICS 323 flight (negative)
- The coming of 5G (negative)

**NAICS 323 Forecast Value of Shipments, 2019–2028
(2019 \$US million)**

| | Exponential Smoothing | Curve | Box Jenkins | Average | WTT Forecast |
|------|-----------------------|----------|-------------|----------|--------------|
| 2019 | \$82,341 | \$68,471 | \$82,441 | \$77,751 | \$82,500 |
| 2020 | \$83,312 | \$63,333 | \$82,594 | \$76,413 | \$83,100 |
| 2021 | \$84,283 | \$58,073 | \$82,059 | \$74,805 | \$82,900 |
| 2022 | \$85,254 | \$52,688 | \$81,436 | \$73,126 | \$82,200 |
| 2023 | \$86,225 | \$47,181 | \$80,813 | \$71,406 | \$81,500 |
| 2024 | \$87,196 | \$41,550 | \$80,190 | \$69,645 | \$82,200 |
| 2025 | \$88,167 | \$35,795 | \$79,567 | \$67,843 | \$81,300 |
| 2026 | \$89,138 | \$29,917 | \$78,944 | \$65,999 | \$79,500 |
| 2027 | \$90,109 | \$23,915 | \$78,321 | \$64,115 | \$75,400 |
| 2028 | \$91,080 | \$17,790 | \$77,698 | \$62,189 | \$76,800 |

²² Well, industry analyst, anyway.

Inflation Multipliers

Finally, here is our CPI multiplier table. It is helpful to look at your own business metrics and adjust for inflation so you know whether you're *really* making any money.

CPI multiplier table

| Year | Multiplier |
|------|------------|
| 2013 | 1.103 |
| 2014 | 1.094 |
| 2015 | 1.087 |
| 2016 | 1.064 |
| 2017 | 1.042 |
| 2018 | 1.023 |
| 2019 | 1.000 |

The Last Word

2019 was a good year for the industry. It involved some pleasure, some pain, yes, and some concentrated force of will. While we're too skeptical to start singing "Happy Days Are Here Again," we're not gloomy enough to chant "Swing Low, Sweet Chariot" either. 2020 is going to be a drupa year (and WhatTheyThink's 20th anniversary!), which means lots of new technologies and lots of ways that we can help print continue to thrive and grow.

In the meantime, as always, WhatTheyThink looks forward to continuing to provide cutting-edge research, analysis, and commentary on these dynamic markets.

APPENDIX A. METHODOLOGY AND QUESTIONNAIRE

The number of respondents to the Fall 2019 Business Outlook Survey was 285 WhatTheyThink printing executives. These were gathered from a total of 318 respondents. The excluded questionnaires were from individuals in other industries that were not the survey target, or only answered one or two questions. Respondents were gathered from WhatTheyThink's and *Printing News's* commercial printing subscribers, recruited through social media (Twitter, LinkedIn), and special appeals through the WTT newsletter. The results were weighted to 2017 *County Business Patterns* NAICS 323.

Questionnaire

WhatTheyThink is conducting a survey of printing and communications executives, like you, about their business outlook and the industry's print and service offerings.

This short survey will only take 5 minutes to complete.

Your responses will be kept confidential. We will not release your name or answers to anyone; your responses will be combined with all of the others in survey totals. This is strictly a research project. Responses will not be used to create sales leads for advertisers or dealers.

To thank you for your assistance, we will send you an executive summary of this project. At the end of the questions, you will also have the option to be placed into a drawing for one of 10 premium WhatTheyThink memberships or one of 5 \$50 Amazon gift cards.

Please enter your email address in the last question of the survey to receive the thank you items.

Thank you for your consideration and your help!

— Richard Romano

1) What is the *primary business* at this location? (Choose *only the one that is the highest portion of 2019 sales.*) Select only the best single answer.

- Quick printing (mainly b&w digital printing and copying, offset duplicators)
- Mainly book printing
- Mainly commercial multicolor sheetfed or web offset
- Mainly toner and/or inkjet digital color (high-volume, high-production, like HP Indigo or Canon Océ Prostream)
- Mainly digital black & white (high-volume, like Docutech)
- Non-offset commercial (gravure, letterpress, flexo, etc.)
- Specialty printing and promotional items (envelopes, business cards, stationery, greeting cards, novelties, etc.)
- Wide-format/signage/display
- Prepress services
- Binding and finishing services
- Inplant printing department, corporate, government, education, or non-profit
- Newspaper publisher/printer, daily and non-daily newspapers

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- Business forms/systems dealer
- Business forms printing
- Folding carton printing
- Other packaging (label & wrapper, flexible packaging, etc.)
- Print management company (like InnerWorkings)
- Independent print broker
- Graphic design, advertising agency, publishing
- Paper merchant/dealer, industry manufacturer/vendor/dealer/VAR
- Industry journalist, analyst, consultant
- Other, please specify _____

2) Where is this business located?

- USA
- Canada
- Mexico or Central or South America
- Europe
- Asia
- Africa
- Australia/Oceania

3) How many employees are at this specific location?

- 1-4
- 5-9
- 10-19
- 20-49
- 50-99
- 100-249
- 250-499
- 500+

4) In terms of your 2019 revenues at this location only, how do they compare to 2018?

- increased more than 10%
- increased between 6% and 10%
- increased between 1% and 5%
- stayed about the same
- decreased between 1% and 5%
- decreased between 6% and 10%
- decreased more than 10%

5) How do you expect your 2020 revenues at this location to compare to 2019?

- increase more than 10%
- increase between 6% and 10%
- increase between 1% and 5%
- stay about the same
- decrease between 1% and 5%

decrease between 6% and 10%
decrease more than 10%

6) In terms of your 2019 jobs/orders at this location only, how do they compare to 2018?

increased more than 10%
increased between 6% and 10%
increased between 1% and 5%
stayed about the same
decreased between 1% and 5%
decreased between 6% and 10%
decreased more than 10%

7) How do you expect your 2020 jobs/orders at this location to compare to 2019?

increase more than 10%
increase between 6% and 10%
increase between 1% and 5%
stay about the same
decrease between 1% and 5%
decrease between 6% and 10%
decrease more than 10%

8) In terms of your 2019 profitability, how did it compare to 2018?

increased more than 10%
increased between 6% and 10%
increased between 1% and 5%
stayed about the same
decreased between 1% and 5%
decreased between 6% and 10%
decreased more than 10%

9) How do you expect your 2020 profitability to compare to 2019?

increase more than 10%
increase between 6% and 10%
increase between 1% and 5%
stay about the same
decrease between 1% and 5%
decrease between 6% and 10%
decrease more than 10%

10) In the next 12 months, which of the following will be your biggest business challenges? (click all that apply)

increasing plant productivity
managing workflow automation
competition from other print providers

- capabilities of sales personnel
- capabilities of production personnel
- understanding the needs of today's communications buyers
- consumables and supplies prices
- national economic conditions
- local economic conditions
- financing costs of our equipment
- finding capital for investments
- need for employee training
- finding qualified sales personnel
- finding qualified production personnel
- increasing employee benefit costs
- profitably handling shorter runs
- deciding whether to keep or discard our offset equipment
- loss of print business to digital media
- pricing
- job tracking
- print MIS implementation
- migrating production to the cloud
- migrating business functions to the cloud
- migrating customer service and sales to the cloud
- training employees to use cloud applications
- keeping up with technological changes
- owner/management retirement
- retirement of key production personnel
- selling our business
- adding/updating web-to-print/online storefront
- getting web-to-print to work on smartphones and other mobile devices
- adding wide-format equipment/services
- adding packaging printing equipment/services
- transitioning jobs from offset to high-speed digital printing equipment
- adding non-print media capabilities (web design, app development, social media management, etc.)
- competing against digital media agencies
- other, please specify_____

11) In the next 12 months, which of the following represent your best new business opportunities? (click all that apply)

- improving economic conditions
- customers outsourcing more work to us
- increasing sales through print brokers
- partnering with other print providers
- helping clients get their websites to work on mobile devices

- offering electronic/non-print services for customers (web design, app development, social media management, etc.)
- offering Augmented Reality (AR) services to customers
- helping customers integrate print and non-print marketing campaigns
- using marketing automation for our business (like HubSpot, Eloqua, Marketo)
- selling marketing automation services to our customers
- adding additional offset printing equipment
- adding digital printing equipment
- customized, personalized, or variable-data printing jobs
- disposing of offset equipment to concentrate on digital printing
- broadening bindery/finishing equipment/services
- adding “digital enhancement” finishing technologies (like Scodix, Highcon, MGI)
- adding wide-format printing capabilities
- adding textile/fabric printing capabilities
- adding packaging printing capabilities
- adding digital label/wrapper printing capabilities
- adding specialty or industrial printing capabilities
- broadening fulfillment, shipping, mailing capabilities
- automating production
- adding web-to-print/online storefront
- print MIS implementation
- getting more customers using smartphones and other mobile devices
- migrating production to the cloud
- migrating business functions to the cloud
- migrating customer service and sales to the cloud
- training employees to use cloud applications
- acquiring another company
- selling our company
- hiring new salespeople
- video production services
- other, please specify_____

12) Which of the following investment items have you budgeted for and plan to acquire in the next 12 months? (click all that apply)

- additional space/new location
- color measurement equipment (densitometer, spectrophotometer)
- color management software
- computer-to-plate equipment
- finishing/bindery equipment for offset/analog production
- finishing/bindery equipment for digital production
- toner-based color digital press (like HP Indigo, Xerox iGen)
- high-speed production inkjet printing equipment (like HP PageWide, Canon Océ ColorStream/ImageStream)
- sheetfed offset press

- web offset press—new
- rebuilding our web offset press
- wide-format color printer (24 in.+)-solvent/eco-solvent (like Epson, Roland)
- wide-format color printer (24 in.+)-latex (like HP Latex)
- wide-format color printer (24 in.+)-flatbed UV (like EFI VUTEk, Canon Océ Arizona, HP Scitex)
- digital label printing equipment
- dye-sublimation printer (like Epson, Roland, Mimaki)
- packaging press/printer-corrugated
- packaging press/printer-folding carton
- packaging press/printer-flexible packaging
- prepress RIP for our wide-format printers
- prepress RIP for other devices
- Management Information System (MIS)
- Customer Relations Management (CRM) system
- workflow automation software
- we have no planned investments
- other, please specify _____

13) Have you added, or do you plan to add, any of the following capabilities? (click all that apply)

| | Added more than 2 years ago | Added in past 18-24 months | Plan to add in next 18-24 months | No plans to add | Don't produce in-house but outsource/plan to outsource | Don't know |
|---|-----------------------------|----------------------------|----------------------------------|-----------------|--|------------|
| high-speed production inkjet (like HP PageWide, Canon Océ Prostream) | | | | | | |
| wide-format printing (like signs, displays, banners) | | | | | | |
| textile/fabric printing for soft signage | | | | | | |
| textile/fabric printing for garment printing/decorating | | | | | | |
| direct-to-garment printing | | | | | | |
| specialty or industrial printing (like coffee mugs, golf balls, smartphone cases) | | | | | | |
| corrugated packaging printing | | | | | | |
| folding carton printing/converting | | | | | | |

| | | | | | | |
|--|--|--|--|--|--|--|
| flexible packaging printing/converting | | | | | | |
| 3D printing | | | | | | |
| printed electronics | | | | | | |

14) Are you considering hiring/adding staff in the next 12 months?

- yes
- no
- don't know

15) If yes, for what positions are you looking to hire? (Check all that apply)

- executive management
- inside sales representative
- outside sales representative
- marketing and market communications
- prepress
- production management
- press operator (offset or digital)
- postpress/bindery/finishing
- IT management
- IT/software programming
- graphic designer (for print)
- web design/development
- mobile app development
- other, please specify_____

16) If you would like a free summary of the report from this survey, and to be placed into a drawing for one of 10 premium WhatTheyThink memberships or one of 5 \$50 Amazon gift cards please enter your e-mail address below.

Thank you very much!

APPENDIX B. SURVIVOR BIAS

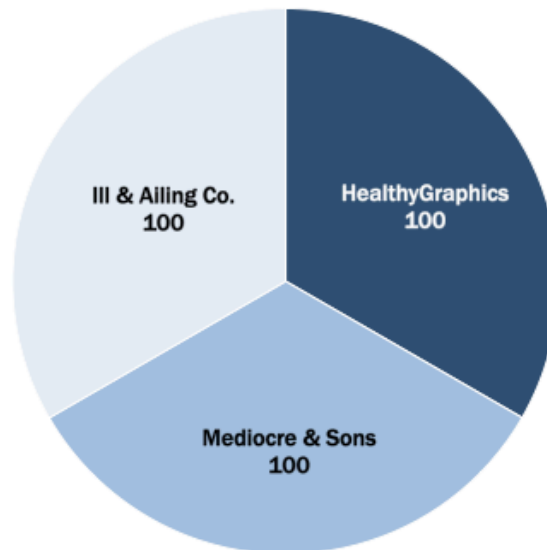
In our survey results, what we refer to as “survivor bias” plays a very important role, as it has in past surveys, and affects the interpretation of survey data. When an industry is growing, this type of bias is not an important statistical issue. But, as you know, the industry has *not* been growing—quite the opposite—so we need to bear survivor bias in mind, because it stems from the fact that really unhealthy print businesses have exited the industry (and thus have not taken our survey), and the ones that survived are naturally healthier than the ones who went—or are going—out of business. After all, businesses that are *really* ailing tend to disregard survey participation requests, since they’re too busy trying to stay in business to bother answering a questionnaire.

Survivor bias is nothing unusual, nor is it unique to the printing industry; it’s almost always what happens in markets.²³ But how they perceive the remaining print landscape may not be a true reflection of the overall market.

Here’s what we mean.

Say you have a given print market with three printers. One is doing really well (HealthyGraphics), one is doing OK but not great (“Mediocre & Sons Printing”), and one is doing very badly (“Ill & Ailing Co.”). Assume at the outset that in their region, the overall market for print is 300 print buyers, at this point in time, they each serve 100 customers:

The initial market—My Three Printers
Market=300 customers

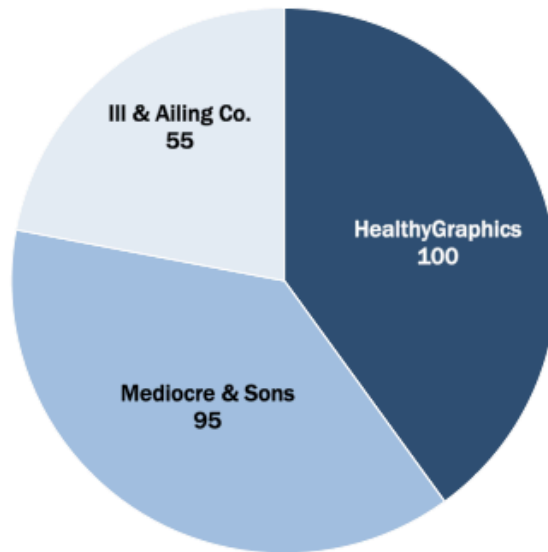


²³ It’s also common in medical and health research, where the term “survivor” is used a bit more literally.



These three printers plug away merrily for a period of time. Now, say there is some sort of upheaval—50 of those customers are gone. Some may have moved away, some may have had their marketing budgets cut and thus stopped printing things, relying instead on digital or social media, and some may have gone out of business or been acquired. In a word, the market for print shrinks. When the smoke clears, there are only 250 customers spread among these three shops. The healthy printer keeps all its original customers, the mediocre printer loses a little bit, and the sick printer loses the most:

Upheaval! The market changes
Market=250 customers



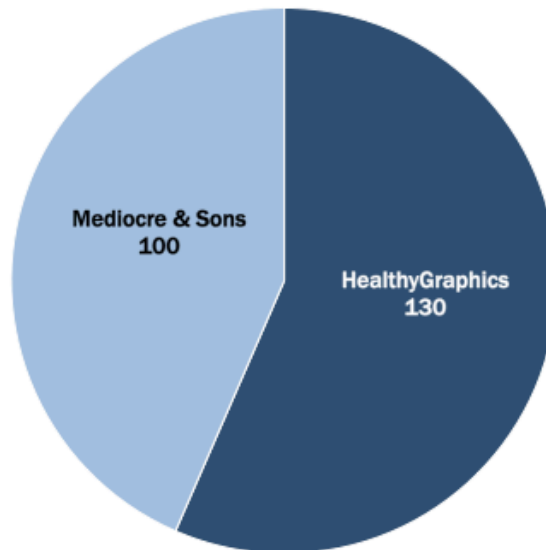
WhatTheyTh!nk

How does each of these printers describe the prevailing economy?

- HealthyGraphics: “Business isn’t growing strongly, but we’re holding steady.” (What they say on our survey: “Business conditions have stayed about the same.”)
- Mediocre & Sons: “Business is tough, but we’ve only lost 5% of our business.” (What they say on our survey: “Business decreased up to 5%.”)
- Ill & Ailing Co.: “We’re in a recession. Things are terrible. We have to go out and sell harder.” (What they say on our survey: “Business decreased more than 10%.”)

Things go on like that for a bit and ultimately Harold Ill and Dennis Ailing of Ill & Ailing decide to pack it in, and the company exits the market (so it goes). As a result, both the healthy printer and the mediocre printer each pick up some of the volume from the I&A’s customers. However, at the same time, another 20 of print customers have themselves left the market, or at least the print market:

And then there were two...the printing landscape changes
Market=230 customers



WhatTheyTh!nk

How do the printers now describe the prevailing market?

- HealthyGraphics: “Business is great! We’re up 30%.” (What they say on our survey: “Business increased more than 10%.”)
- Mediocre & Sons: “Hey, business is pretty good! We were down 10%, now we’re up *more than 10%* from where we were since we went from 90 to 100 accounts. This is because we’re smart. We’re terrific executives. Next year will be even better.” (What they say on our survey: “Business increased more than 10%.”)
- Ill & Ailing: “I played a round of golf this morning, and Dennis is going sailing later today. Retirement is great!” (What they say on our survey: Nothing.)

When things are good, you’re a genius. When things are bad, it’s the economy. Right? However, neither of these things was the case in this example. Because look at what happened to the overall market for print:

The effects of survivor bias on market perception

| | Time Period 1 | Time Period 2 | Time Period 3 | | |
|---|-----------------------------------|--|---|-----|------|
| Market size/change (number of accounts) | 300 | 250 | -17% | 230 | -8% |
| Healthy printer | 100 | 100 | 0% | 130 | +30% |
| Mediocre printer | 100 | 95 | -5% | 100 | +11% |
| Sick printer | 100 | 55 | -45% | - | - |
| What the market survey says | "All printers are doing the same" | "We did a survey and only one out of three printers said business was holding steady." | "Printers are doing great; survey respondents said that business is up 10%+!" | | |
| What really happened | Flat market | Market shrank by -17% | Market shrank by -8% | | |

Even when aggregate business conditions were up, the print market still declined. So the survivor bias phenomenon leads to a false assessment of aggregate business conditions that ends up being reflected in the way participants in industry surveys answer questions about business performance. When we ask whether business increased in the past year, both the healthy printer and the mediocre printer would say, “yes,” skewing the results in a positive direction because the sick printer is lolling in the Florida sun and isn’t around any longer to select any of the “business is declining” survey options. None of these respondents were lying; they were reporting about their individual business, which is what they’re supposed to do.

Now, you might say, “Well so what? If the industry is left with healthy printers, isn’t that a good thing? Isn’t that what usually happens in a dynamic market?” If it were the case that the *only* variable in this example was the health of the printers, then yes, it would be a good thing. But that’s *not* the only variable. The more important variable is the number of print customers—the overall market for print. In our theoretical example, that kept declining, an effect that the relative health of the remaining printers masked. If that keeps declining, then the mediocre printer will become the sick printer, and the healthy printer a mediocre printer. Lather, rinse, repeat, and the next time there is a survey, the shops that are left are still in the roughly the same position as our example and will say the same basic things. It’s just that the numbers will be smaller. At some point, you may just have the healthy printer who has all the print business in the area. So he’ll be doing quite well. For a while...

Now, this is not to say that survey results are useless; if they were, we wouldn’t keep doing them. It’s only during times of consolidation that this becomes an issue. Over the years, we’ve done surveys where respondents were quite frank about how bad their business conditions were, and we’ve seen survey results that we felt accurately did reflect an industry that was in better shape than it had been previously.

Survey data need to be looked at in the context of what we know about the market both in terms of broader statistics like changes in monthly printing shipments and other general economic data, as well as anecdotal evidence gleaned from talking with printers and

printers' suppliers and vendors. Other data in the survey also help shed a light on business conditions data.

So think of this: industry-wide government data give us a "top-down" view of the marketplace. Survey data give us a "bottom-up" perspective. The job of the researcher is to reconcile the two truthful perspectives with analysis that reveals the dynamics of the industry.

There are telltale signs of survivor bias lurking in the data if you know where to look for them. It comes down to interpreting data that you know just can't be true, or at least don't tell the whole story. There is a bit of that in Section 4 of this report.

So keep this idea in mind as you read through the data in this report. You will see generally upbeat numbers for many respondents in the business conditions segment of the survey, even though industry shipments have taken a very bad turn since Fall 2016. Surveys are for winners, it seems. Printers having trouble staying afloat have to keep paddling; they don't have time for surveys.

That's the end of our lecture. Except perhaps for this comment: if you're a printer who has been a survivor, stay vigilant. When business is great, everyone thinks they're a genius. When business is bad, you really need to be one to adapt and reposition.