Goldman Sachs | Economics Research

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US Economics Analyst

Will Worker Shortages Be Short-Lived? (Briggs)

- Worker shortages have slowed the labor market recovery and put significant upward pressure on wages in 2021. In this *US Economics Analyst,* we explore the underlying causes of these labor shortages and when they will likely resolve.
- The labor shortage facing employers has reflected a perfect storm of labor supply disincentives from generous federal unemployment insurance (UI) benefits, early retirements, population aging, other labor force exits, a collapse in immigration, and increases in self-employment during the pandemic. Combined, these factors had lowered the pool of prospective employees by over 8mn through August, of which 5.6mn will persist after federal UI benefits expired in September.
- While generous UI benefits have contributed to the labor shortages, reports of labor shortages are widespread across developed economies, suggesting that common global factors—for example, elevated health risk—also play significant roles. The good news is that aside from retirees nearly all new labor force nonparticipants still view their exits as temporary and expect to start searching for work within the next year. We therefore expect that the current labor shortage will ease considerably going forward, but still project an over 1mn hit to the labor force relative to trend at end-2022 from early retirements and other labor force exits during the pandemic.
- In addition to reduced labor supply, labor shortages could also reflect mismatch between the jobs workers are looking for and the jobs that are available. While mismatch across industries increased during the pandemic, mismatch across geography soared to an all-time high as labor demand has shifted away from urban areas. Mismatch should moderate as offices and cities continue to reopen, but will likely remain elevated as some of the pandemic-driven shifts in economic activity prove persistent.
- Although we expect labor-market shortages to ease going forward, early retirements, the 2020 immigration collapse, and lingering mismatch will likely mean that a 3.5% unemployment rate—our forecast for end-2022—would imply a tighter labor market than it did last cycle. As a result, we expect wage growth will remain at about 3¾% in 2022, stronger than it was last cycle.

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Will Worker Shortages Be Short-Lived?

Worker shortages have slowed the labor market recovery and put significant upward pressure on wages in 2021. The widespread nature of these labor shortages has been well-covered in the media[1] and recent releases of the Federal Reserve's Beige Book, and in a recent GS survey 80% of small businesses reported that hiring difficulties are currently affecting their bottom line.[2]

The effects of these labor shortages are most clearly visible in recent wage data. Wage growth only reached 3% at the very end of last cycle, but our composition-adjusted wage tracker has risen to +3.7% year-on-year in 2021Q3, while our low-wage wage tracker—which summarizes wage growth measures among the population where labor shortages are most pronounced—currently stands at +6.0%. Given the importance of labor market shortages in determining the pace of labor market recovery and the inflation outlook, in this *US Economics Analyst* we explore the underlying causes of these labor shortages and when they will likely resolve.

A Perfect Storm of Worker Shortages

Current worker shortages reflect a perfect storm of factors that have significantly reduced the supply of workers who are currently looking for jobs at the same time that labor demand—as measured by job openings—has risen to an all-time high.

There are several different ways that the current labor shortfall facing employers can be defined. One could consider all factors that have limited the effective labor force since the start of the pandemic, although some factors driving shortfalls like generous federal unemployment insurance (UI) benefits are now behind us. Additionally, other potential drivers of worker shortages like population aging are unrelated to the pandemic, while shortages due to some factors—for example, fewer immigrants and increased self-employment—should be partially offset by lower labor demand. In the rest of this section we estimate the size of the shortage coming from each of these factors, and then add them together under different assumptions to provide a range of estimates of the current worker shortfall.

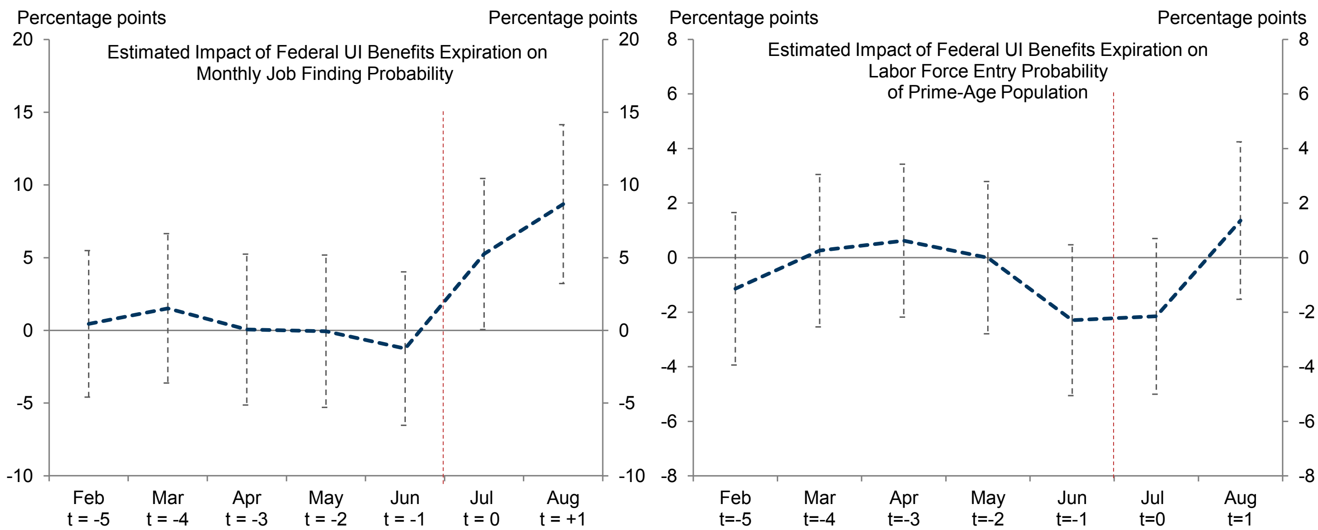
First, generous federal unemployment insurance (UI) benefits have likely been a significant contributor to labor shortages. Our examination of the July and August individual-level employment data—when 25 states opted out of federal benefit programs early—showed that UI-benefit expiration significantly boosted the job-finding rate for unemployed workers, although it was not associated with an increase in the labor force participation rate (Exhibit 1). Based on these findings, we expect that benefit expiration for the remaining 5.3mn recipients in early September—of which roughly

[1] Autor, David. "Good news: There's a labor shortage". *NY Times.* Sep 4, 2021.
Davidson, Paul. "Breaking down the big US labor shortage: Crunch could partly ease this fall but much of it could take years to fix." *USA Today.* Sept 7, 2021.
Morath, Eric. "Millions are unemployed: Why can't companies find workers?". *The Wall Street Journal.* May 6, 2021.

[2] Solomon, David and Kenneth Adams. "One way to help solve the nation's labor shortage". *CNN.* 10/1/2021.

2.7mn earned more from benefits than they earned from their prior job—will boost hiring by 1.3mn through year-end and provide significant relief to the current worker shortage.

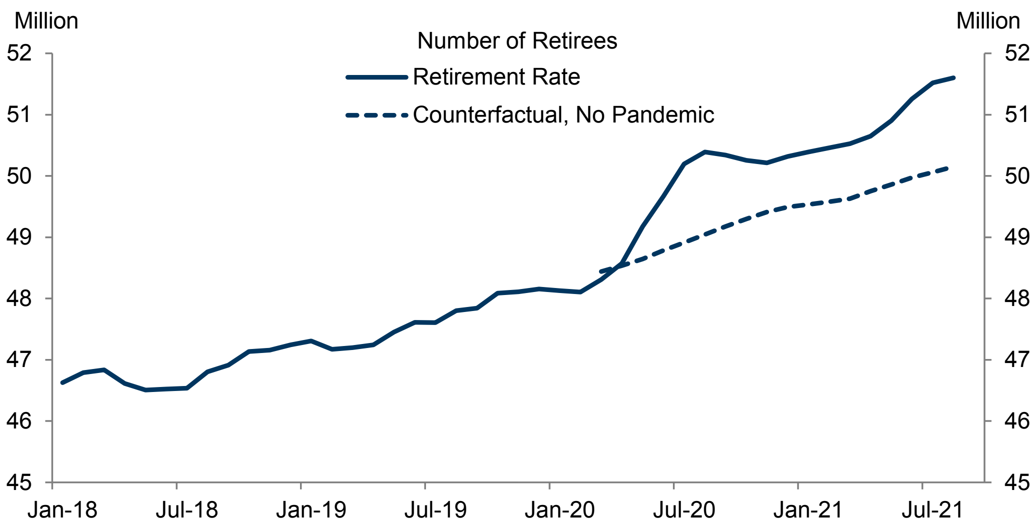
Exhibit 1: Unemployment Insurance Benefit Expiration Boosts Job Finding for Unemployed Workers, but Hasn't Affected Participation Yet



Source: US Bureau of Labor Statistics, Goldman Sachs Global Investment Research

Second, the number of excess retirees—defined as the difference between the actual number of retirees and the number of retirees implied by the age-specific retirement rates observed in 2019—has increased to 1.5mn as of August (Exhibit 2), a 0.6pp hit to the labor force participation rate. Combined with a structural drag from population aging that has reduced the labor force by 900k workers and the participation rate by 0.3pp, this implies that retirements alone have reduced the pool of potential workers by roughly 2½mn.

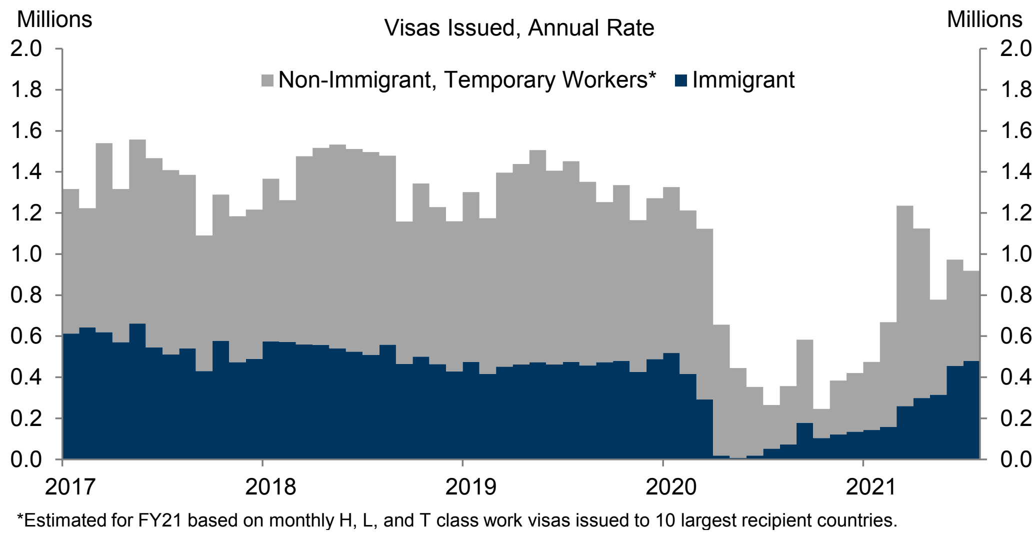
Exhibit 2: 1.5mn Workers Have Retired Early During the Pandemic



Source: US Bureau of Labor Statistics, Goldman Sachs Global Investment Research

Third, visas issued to immigrants and temporary workers collapsed during the pandemic, partially reflecting restrictions on entry into the United States that have only recently been relaxed. We estimate that the drop in temporary worker visas since the start of the pandemic has reduced the size of the effective labor force by 400k workers, while the drop in immigration visas has reduced the labor force by 300k (Exhibit 3). Adding these together implies a 700k drag on labor supply, although a decline in immigration should also lower labor demand since these workers are not consuming in the US. While the decline in temporary worker visas will unwind going forward, the drag from lost immigration will likely persist since we do not expect immigration declines in 2020 to be offset by higher future immigration.

Exhibit 3: The Collapse in Visa Issuance Has Reduced the Labor Force by Roughly 700k, Of Which 300k Will Likely Persist



Source: US Department of State, Goldman Sachs Global Investment Research

Fourth, self-employment increased by over 800k during the pandemic (left chart, Exhibit 4). Although an increase in output from self-employed workers should in principle help meet aggregate demand and reduce the need for employed labor, some employers may be slow to adjust labor demand projections, and the implications for aggregate output may be negative if some workers value the non-pecuniary benefits of self-employment enough to forego more productive job offers.[3]

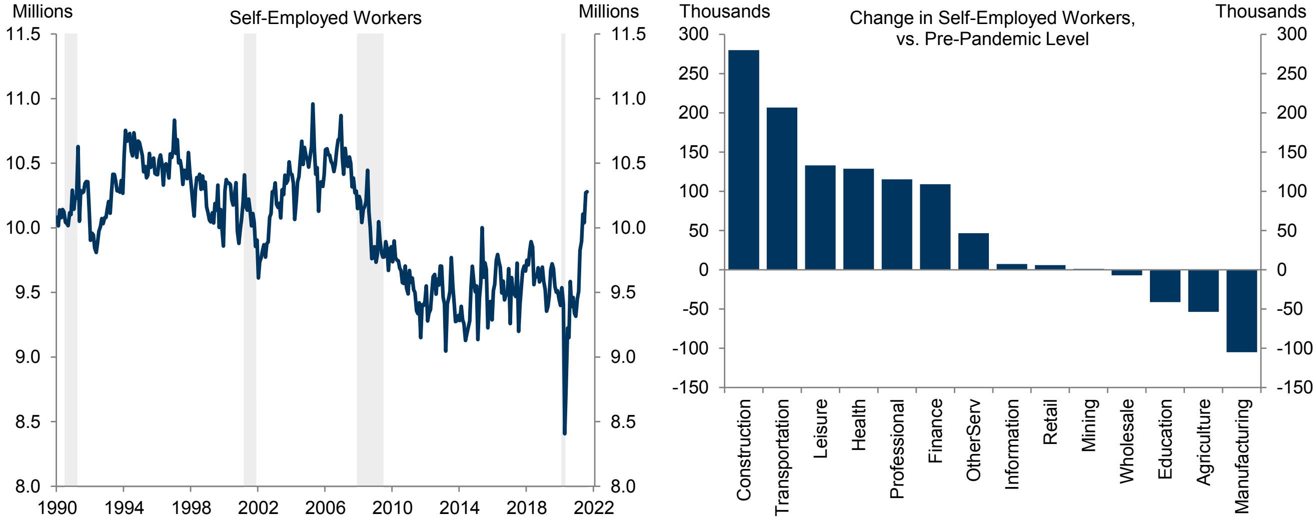
Anecdotal evidence suggests that the increase in self-employment is indeed a contributor to the current labor shortages. For example, self-employment has increased the most in the construction sector (right chart, Exhibit 4) where labor shortages have been especially pronounced.[4] Although some of the increase in self-employment will likely prove temporary—for example, the 200k increase in self-employment in the transportation sector may reflect an increase in ride-hailing and delivery drivers that reverses as normal jobs return—the increases are fairly broad-based across industries,

[3] Hurst, Erik, and Ben Pugsley. "The non pecuniary benefits of small business ownership." *University of Chicago working paper.* 2010.

[4] Sisson, Patrick. "One Solution to a Shortage of Skilled Workers? Diversify the Construction Industry." *NY Times*. September 25, 2021.

and we therefore expect self-employment to remain elevated going forward.

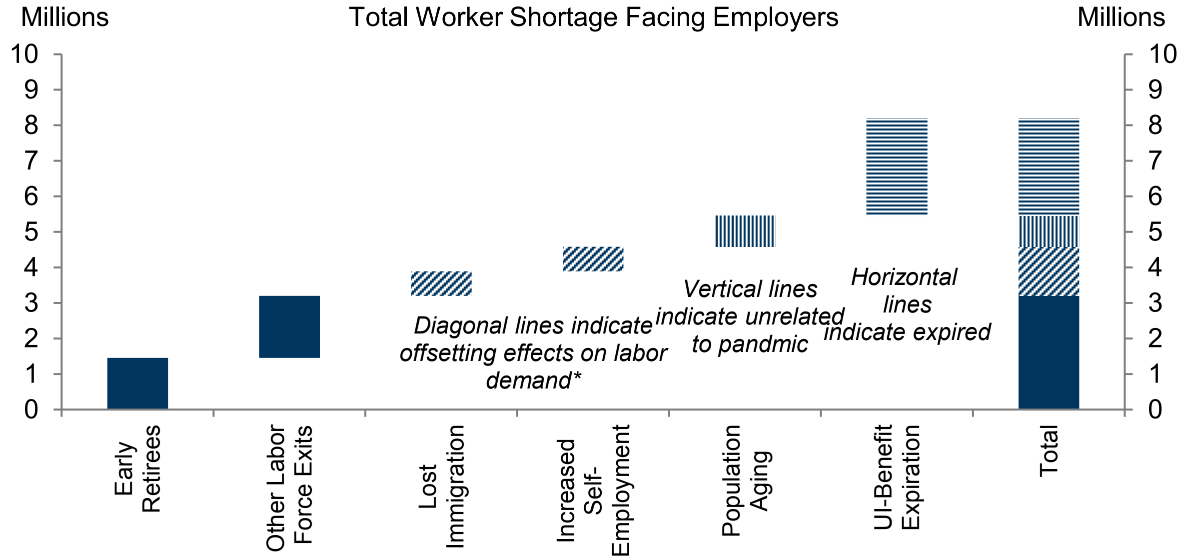
Exhibit 4: Over 800k Workers Have Switched to Self-Employment



Source: US Bureau of Labor Statistics, Goldman Sachs Global Investment Research

In Exhibit 5 we add these labor force drags with the 1.7 million other workers that have exited the labor force since the start of the pandemic to estimate the current shortfall in employees facing employers. Combined, we estimate that as of August 2020 employers were facing a roughly 8mn shortfall prospective workers, of which 5.6mn will persist after the federal UI benefits expired in September. If we exclude shortfalls due to population aging that are unrelated to the pandemic our estimated shortfall relative to trend drops to 4.7mn. If we further assume that the decline in immigration and increase in self-employment are fully offset by reduced labor demand, then the remaining shortfall in labor supply—consisting of early retirements and other labor force dropouts—drops further to 3.2mn. Regardless of the precise number, all estimates imply a sizable reduction in labor supply that helps explain the 4mn increase in unfilled job openings since the start of the pandemic.

Exhibit 5: Employers Have Faced an 8 Million Shortfall in Workers Since the Start of the Pandemic



Note: The loss of immigrants and temporary workers may lower labor demand since the loss of these workers should lower aggregate demand. Increased self-employment might lower labor demand since these workers are producing output that helps meet current demand.

Source: Goldman Sachs Global Investment Research

What Are the Underlying Causes of Worker Shortages, and When Will They Reverse?

While work disincentives associated with now-expired UI benefits have contributed to the labor shortage, labor shortages are actually widespread across other developed economies, suggesting that other common global factors are also important in explaining worker shortages. To illustrate this point, Exhibit 6 shows that job vacancies have similarly increased in most G10 countries, especially in the low-paid and virus-sensitive leisure and hospitality sector.

Exhibit 6: Labor Shortages Are Widespread Across Many Developed Economies, Suggesting That Very Generous Fiscal Support Does Not Entirely Explain the Recent Labor Shortages in the US

Source: Goldman Sachs Global Investment Research

In this section, we therefore consider three other leading candidates—wealth gains, virus concerns, and child care constraints—that are likely contributing to current worker shortages, before estimating when worker shortages are likely to reverse.

First, wealth increases—reflecting the gains from pent-up savings, stock market gains, and house price appreciation during the pandemic that have also accrued globally—could explain some of the decline in labor supply. Academic research finds that the effect of wealth increases on overall labor supply is generally mixed but that older workers are particularly sensitive to wealth gains (Exhibit 7), consistent with the increase in early retirements.

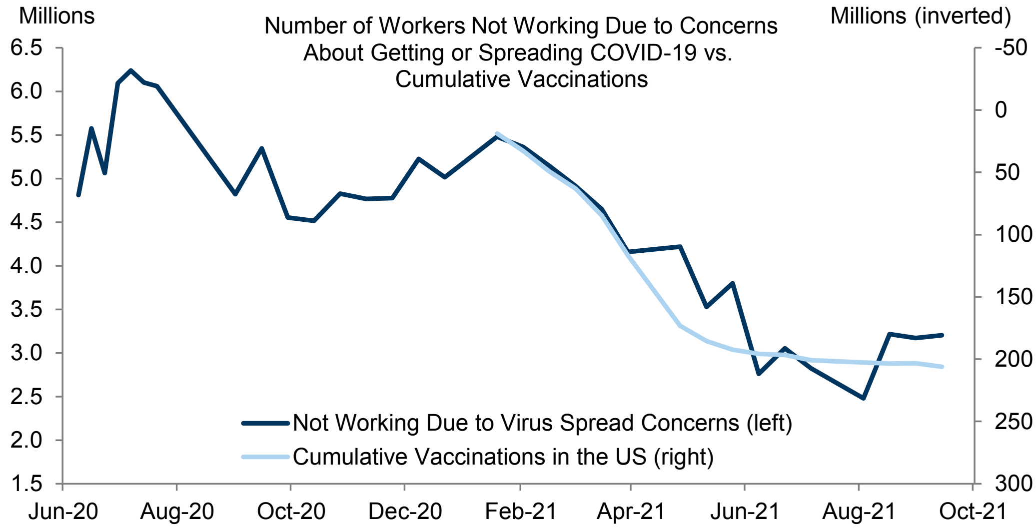
Exhibit 7: Wealth Increases During the Pandemic Likely Explain Some Labor Force Exits

Effect of Wealth on Labor Supply		
Study	**Details**	**Estimate**
Disney Gathergood (2018)	Changes in house prices in the UK	10% increase in housing wealth reduces labor supply of young women by 1.3%, older men by 4.4%.
Cesarini Lindqvist Notowodigdo Ostling (2017)	Estimate labor supply response to large lottery prizes in Sweden	Each $150k reduces labor supply by 2pp.
Zhao (2017)	Compare changes in labor supply to changes in house prices across states	100% increase in housing wealth reduces labor supply of elderly homeowners by 5%.
Powell (2014)	Compare labor supply responses to 2008 stimulus payments	No effect on labor force participation, small negative effect on earnings.
Imbens Rubin Sacerdote (2001)	Estimate labor supply response to lottery prizes in the US	Each $55k reduces labor supply by 0.3pp.

Source: Goldman Sachs Global Investment Research

Second, concerns regarding health risk have likely been a significant contributor to labor shortages. As shown in Exhibit 8, the number of workers not working due to health concerns has declined as vaccination rates have increased, although over 3mn respondents to the Census Household Pulse Survey still say that concerns about getting or spreading COVID-19 are their main reason for not working. This suggests that increased vaccination and a broader improvement in the virus situation should alleviate health concerns and encourage some workers to return to work.

Exhibit 8: The Number of Workers Not Working Due to Concerns About Getting or Spreading Covid-19 Declined as Vaccination Rates Increased

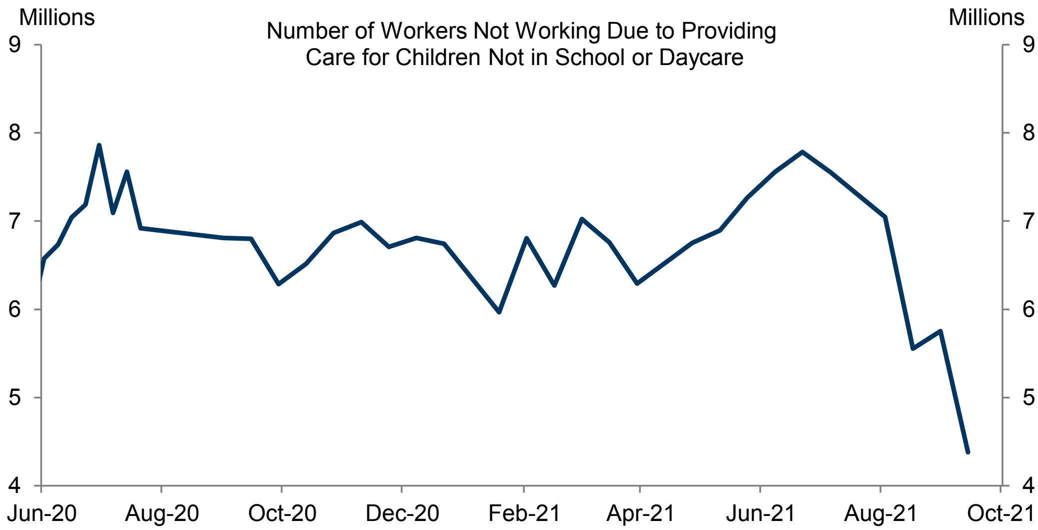


Source: Census Bureau, Goldman Sachs Global Investment Research

Third, child-care constraints may have also contributed to the current labor shortage, and we expect these constraints to ease considerably as children return to school. Although prior academic research found that child care constraints were likely only modestly slowing the labor market recovery,[5] recent data from the Census Household Pulse Survey show that the number of respondents reporting child care constraints as their main reason for not working fell sharply as schools reopened for in-person learning (Exhibit 9).

[5] Furman, Jason, Melissa Schettini Kearney, and Wilson Powell. "The Role of Childcare Challenges in the US Jobs Market Recovery During the COVID-19 Pandemic." No. w28934. National Bureau of Economic Research, 2021.

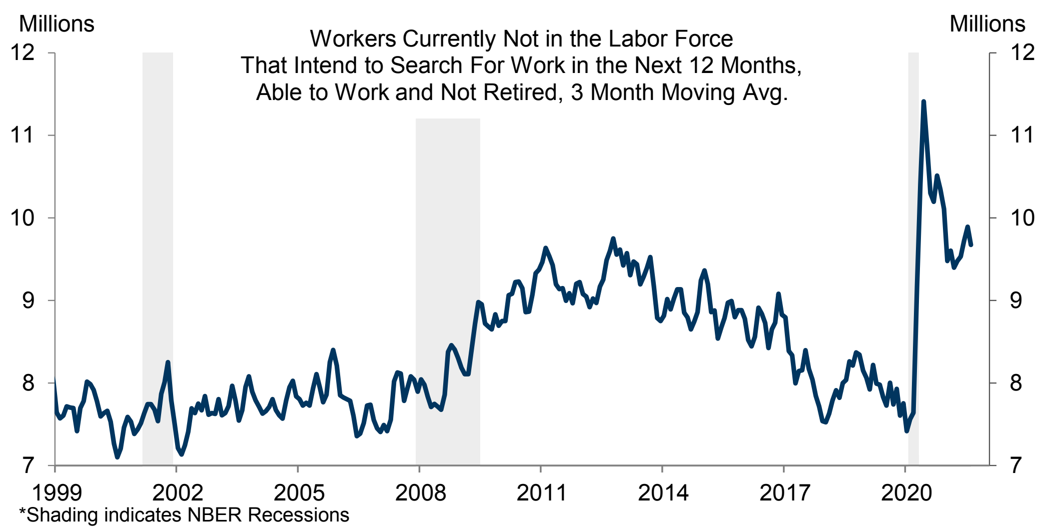
Exhibit 9: The Number of Workers Not Working Due to Child Care Constraints Fell Sharply as Schools Reopened in August and September



Source: Census Bureau, Goldman Sachs Global Investment Research

The good news is that nearly all workers who have left the labor force since the start of the pandemic still view their exits as temporary. Aggregating the data underlying the household survey shows that the number of non-retired workers intending to search for work within the next 12 months has increased by over 2mn since the start of the pandemic (Exhibit 10), suggesting that labor shortages should ease in the coming months as the aforementioned constraints on labor supply fade.

Exhibit 10: Apart from Retirees, Nearly All Workers Who Left the Labor Force Since the Start of the Pandemic Intend to Start Searching for Work in the Next 12 Months

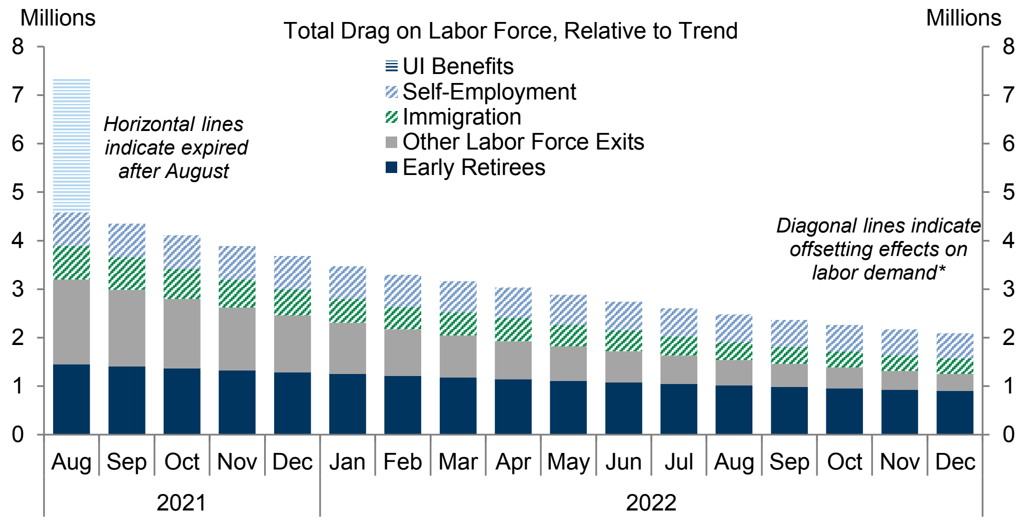


Source: US Bureau of Labor Statistics, Goldman Sachs Global Investment Research

To project the drag on labor supply going forward, we combine historical data on the labor force-reentry prospects of workers who have left the labor force but intend to search for work and early retirees with our prior estimates of the unwind of the immigration drag from temporary workers. We also assume that some of the shift to self-employment will unwind as labor market opportunities normalize. Our resulting estimates are shown in Exhibit 11, which omits the effect from population aging so that the cumulative drag is shown relative to trend.

We estimate that the current labor shortage will ease considerably this fall—especially following the expiration of federal UI benefits programs in September—but still project an over 1mn hit to the labor force from early retirees and other labor force exits at end-2022. Although the drag is about twice as large if we factor in the drop in immigration and shift to self-employment, labor demand should have mostly adjusted at this horizon to reflect the offsetting demand and production effects from these groups.

Exhibit 11: We Expect That Labor Shortages Will Ease Considerably



*The loss of immigrants and temporary workers may lower labor demand since the loss of these workers should lower aggregate demand. Increased self-employment might lower labor demand since these workers are producing output that helps meet current demand.

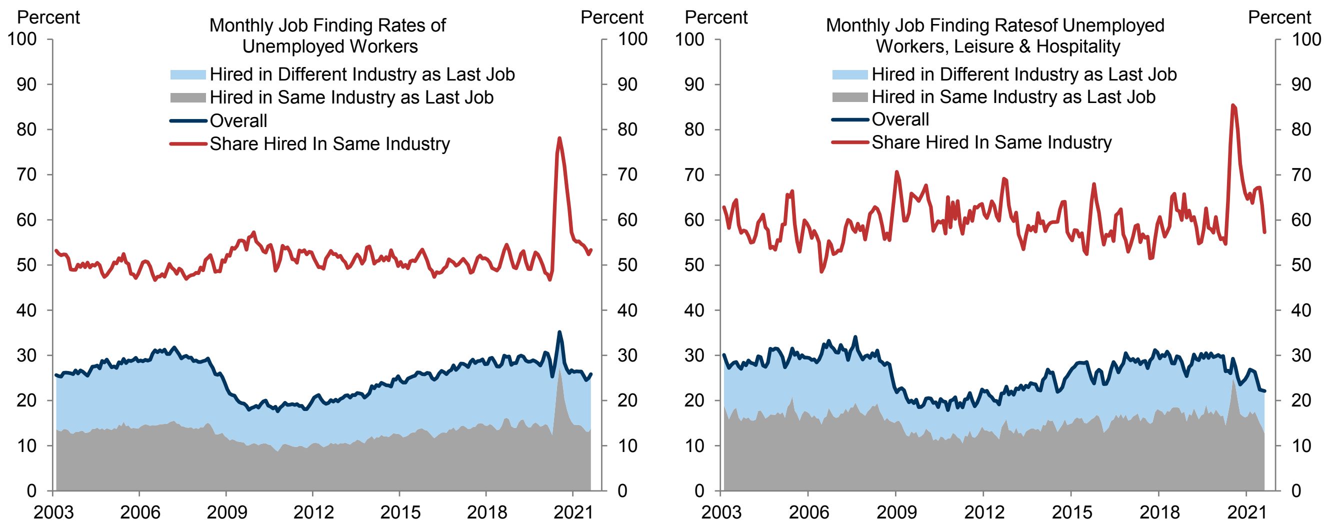
Source: Goldman Sachs Global Investment Research

Labor Force Mismatch

In addition to reduced labor supply, labor shortages could also reflect mismatch between the jobs workers are looking for and the jobs that are available in their area.

One source of mismatch is that workers are looking for jobs in industries where jobs are less abundant. Although there is little information available regarding where workers are targeting their job search, observed job transitions thus far suggest cross-industry mismatch is less of a problem. As shown in the left chart in Exhibit 12, most workers who found jobs during the pandemic did so in the industry where they were previously employed. This pattern was most pronounced last spring when many workers were recalled to their prior employers but has continued in 2021, and the share of workers returning to work in their previous field remains well above its pre-pandemic peak. The right chart in Exhibit 12 shows that similar patterns hold for workers who were previously employed in the leisure and hospitality industry.

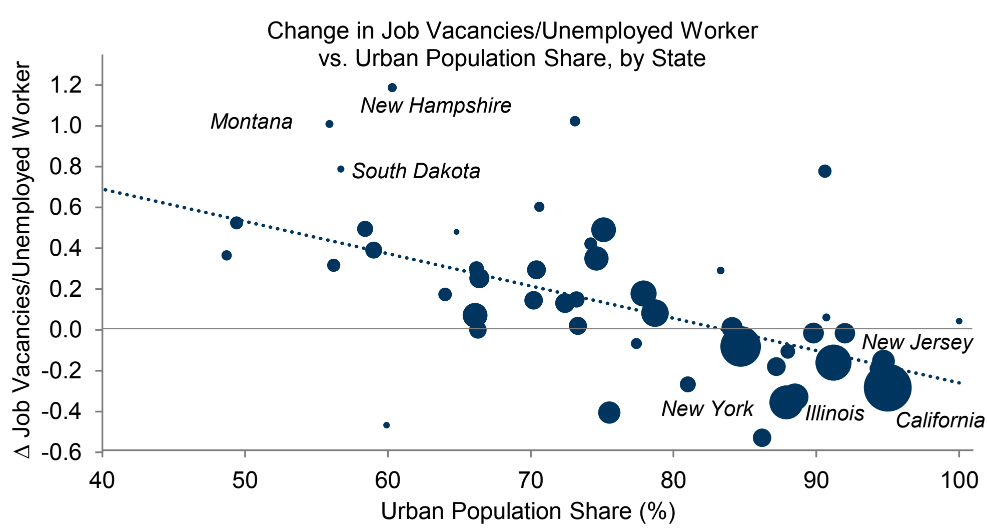
Exhibit 12: Most Workers Who Have Returned to Work Did So in the Same Industry Where They Worked Previously



Source: US Bureau of Labor Statistics, Goldman Sachs Global Investment Research

A second source of mismatch is that workers are looking for jobs in places where jobs are not available, which may be particularly relevant if the shift to remote work—and its associated move in population away from city centers to more suburban and rural areas[6]—has shifted labor demand away from urban areas where many workers lived prior to the pandemic. Exhibit 13 suggests this dynamic is empirically relevant, as relative labor demand—defined as the ratio of job vacancies to unemployed workers searching for jobs—has increased in rural states, but generally declined in urban states like California, Illinois, and New York.

Exhibit 13: Labor Demand Has Strengthened More Relative to Labor Supply in Less Urban States



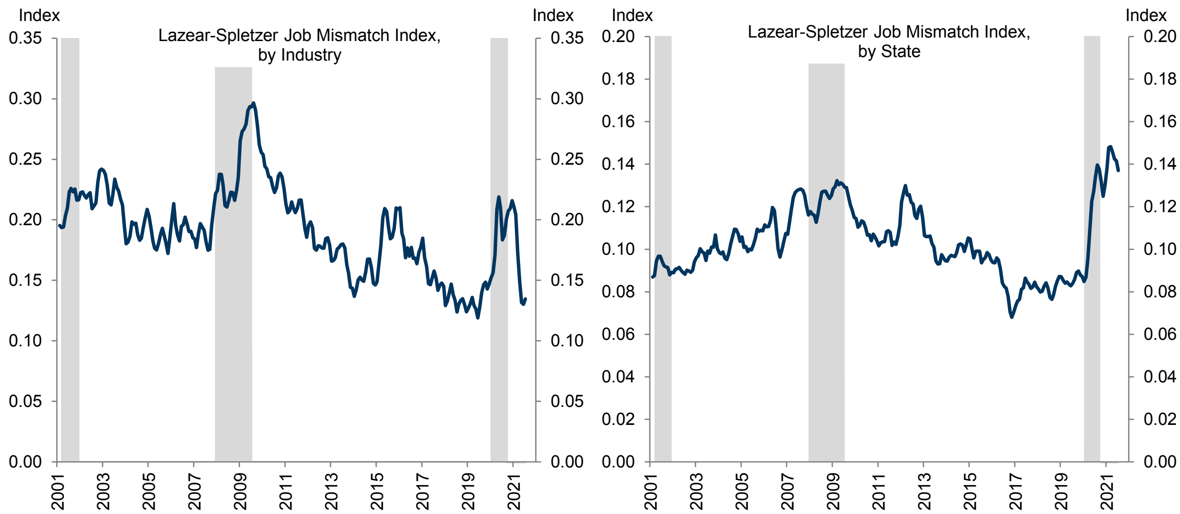
Note: Markers proportional to state population.

Source: US Bureau of Labor Statistics, Census Bureau, Goldman Sachs Global Investment Research

[6] Ramani, Arjun, and Nicholas Bloom. "The Donut Effect of Covid-19 on Cities." National Bureau of Economic Research Working Paper No. w28876. 2021.

Exhibit 14 summarizes these patterns by updating the Lazear-Spletzer measure of mismatch—which captures the share of job searchers who would need to be moved to equate labor market tightness across categories—across industry (left chart) and geography (right chart).[7] Mismatch by industry has declined to pre-pandemic levels. In contrast, mismatch across states soared to an all-time high during the pandemic and remains very elevated through August.

Exhibit 14: Mismatch Across Industries Is Back to Pre-Pandemic Levels, but Geographic Mismatch is Near a Record High



Source: US Bureau of Labor Statistics, Goldman Sachs Global Investment Research

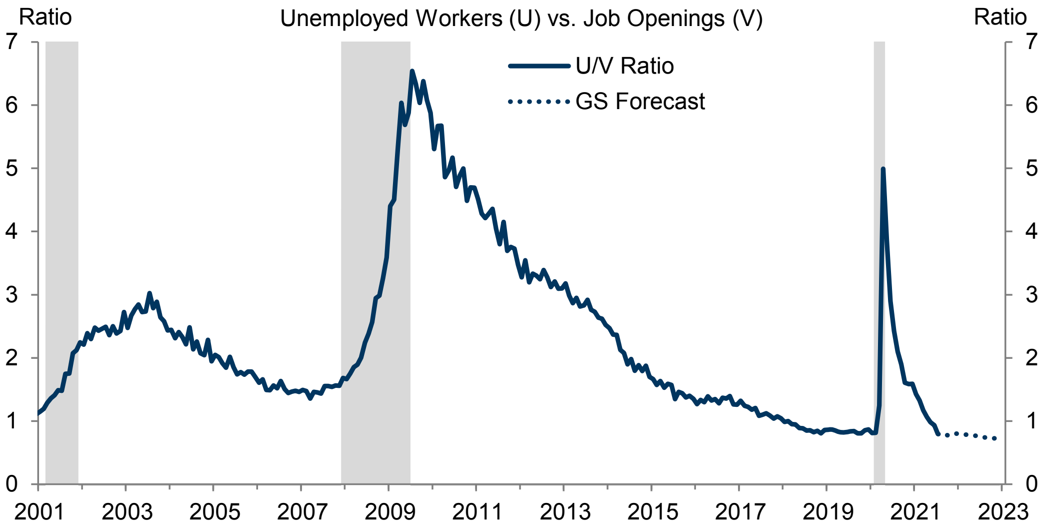
Labor Market Tightness Going Forward

We expect labor market shortages to ease this fall and winter, although we see risk of further near-term tightening if President Biden's vaccine mandate causes some workers—especially those in the healthcare sector where testing options might not be available—to quit their jobs.

However, the lingering drags shown in Exhibit 11 and elevated mismatch will likely continue to restrict labor supply and keep competition for workers elevated in the medium term. Even though we expect job vacancies to normalize back towards their pre-pandemic trend, these persistent drags will likely mean that a 3.5% unemployment rate—our forecast for end-2022—would imply a tighter labor market than it did last cycle (Exhibit 15). As a result, we expect wage growth will remain stronger than it was last cycle and forecast it will stay at about 3¾% in 2022.

7 Lazear, Edward P., and James R. Spletzer. "The United States labor market: Status quo or a new normal?". No. w18386. *National Bureau of Economic Research*, 2012.

Exhibit 15: We Expect the Number of Job Searchers to Remain Low Relative to Job Vacancies Going Forward



Source: Goldman Sachs Global Investment Research

Joseph Briggs

The US Economic and Financial Outlook

THE US ECONOMIC AND FINANCIAL OUTLOOK
(% change on previous period, annualized, except where noted)

	2019	2020	2021 (f)	2022 (f)	2023 (f)	2024 (f)	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4
OUTPUT AND SPENDING														
Real GDP	**2.3**	**-3.4**	*5.8*	*4.5*	*2.0*	*2.0*	**6.3**	**6.7**	*4.3*	*5.0*	*5.0*	*4.5*	*3.5*	*1.5*
Real GDP (annual=Q4/Q4, quarterly=yoy)	**2.6**	**-2.3**	*5.6*	*3.6*	*1.7*	*2.1*	**0.5**	**12.2**	*5.4*	*5.6*	*5.2*	*4.7*	*4.5*	*3.6*
Consumer Expenditures	**2.2**	**-3.8**	*7.7*	*3.6*	*2.0*	*2.1*	**11.4**	**12.0**	*0.3*	*3.5*	*4.5*	*3.5*	*2.5*	*2.0*
Residential Fixed Investment	**-0.9**	**6.8**	*10.7*	*2.7*	*2.6*	*2.0*	**13.3**	**-11.7**	*0.9*	*6.0*	*4.0*	*4.0*	*3.0*	*3.0*
Business Fixed Investment	**4.3**	**-5.3**	*8.1*	*5.9*	*4.1*	*3.9*	**12.9**	**9.2**	*5.3*	*6.4*	*6.1*	*5.6*	*5.1*	*4.2*
Structures	**2.1**	**-12.5**	*-6.5*	*3.3*	*4.9*	*3.4*	**5.4**	**-3.0**	*4.0*	*2.0*	*2.0*	*4.0*	*8.0*	*6.0*
Equipment	**3.3**	**-8.3**	*13.9*	*6.2*	*3.0*	*2.8*	**14.1**	**12.2**	*1.6*	*7.0*	*8.0*	*7.0*	*4.0*	*2.5*
Intellectual Property Products	**7.2**	**2.8**	*10.1*	*6.9*	*5.0*	*5.2*	**15.6**	**12.5**	*10.0*	*8.0*	*6.0*	*5.0*	*5.0*	*5.0*
Federal Government	**3.8**	**5.0**	*0.9*	*-1.2*	*0.0*	*0.0*	**11.3**	**-5.3**	*-4.0*	*-2.0*	*0.0*	*0.0*	*0.0*	*0.0*
State & Local Government	**1.3**	**0.9**	*0.9*	*3.3*	*0.6*	*0.5*	**-0.1**	**0.2**	*5.4*	*5.0*	*5.0*	*2.0*	*0.5*	*0.5*
Net Exports ($bn, '12)	**-905**	**-943**	*-1,242*	*-1,282*	*-1,263*	*-1,237*	**-1226**	**-1245**	*-1240*	*-1255*	*-1274*	*-1281*	*-1285*	*-1288*
Inventory Investment ($bn, '12)	**75**	**-42**	*-59*	*150*	*96*	*60*	**-88**	**-169**	*-28*	*50*	*75*	*150*	*200*	*175*
Industrial Production, Mfg.	**-2.0**	**-6.6**	*6.1*	*4.8*	*1.9*	*1.7*	**2.8**	**4.5**	*3.9*	*4.8*	*5.3*	*5.9*	*4.5*	*1.9*
HOUSING MARKET														
Housing Starts (units, thous)	**1,292**	**1,397**	*1,624*	*1,676*	--	--	**1,599**	**1,588**	*1,662*	*1,645*	*1,653*	*1,682*	*1,686*	*1,685*
New Home Sales (units, thous)	**683**	**828**	*860*	*918*	*977*	*978*	**896**	**738**	*876*	*928*	*913*	*901*	*908*	*951*
Existing Home Sales (units, thous)	**5,327**	**5,658**	*5,972*	*5,964*	*6,086*	*6,210*	**6,303**	**5,833**	*5,862*	*5,891*	*5,920*	*5,949*	*5,979*	*6,009*
Case-Shiller Home Prices (%yoy)*	**3.4**	**9.9**	*9.4*	*7.6*	*6.2*	--	**11.7**	**15.2**	*11.7*	*9.4*	8.1	6.1	7.8	7.6
INFLATION (% ch, yr/yr)														
Consumer Price Index (CPI)**	**2.3**	**1.3**	*5.3*	*2.2*	*2.4*	*2.4*	**1.9**	**4.8**	*5.2*	*5.3*	*4.9*	*3.5*	*2.4*	*2.3*
Core CPI **	**2.2**	**1.6**	*4.6*	*2.4*	*2.5*	*2.5*	**1.4**	**3.7**	*4.1*	*4.4*	*4.7*	*3.3*	*2.6*	*2.5*
Core PCE** †	**1.6**	**1.5**	*4.25*	*2.00*	*2.15*	*2.20*	**1.7**	**3.4**	*3.7*	*4.2*	*4.1*	*3.0*	*2.4*	*2.1*
LABOR MARKET														
Unemployment Rate (%)^	**3.6**	**6.7**	*4.2*	*3.5*	*3.3*	*3.2*	**6.0**	**5.9**	*5.0*	*4.2*	*3.8*	*3.7*	*3.6*	*3.5*
U6 Underemployment Rate (%)^	**6.8**	**11.7**	*7.6*	*6.8*	*6.4*	*6.2*	**10.7**	**9.7**	*8.7*	*7.6*	*7.2*	*7.0*	*6.8*	*6.8*
Payrolls (thous, monthly rate)	**168**	**-785**	*620*	*215*	*123*	*100*	**518**	**615**	*679*	*667*	*317*	*213*	*179*	*150*
Employment-Population Ratio (%)^	**61.0**	**57.4**	*59.6*	*60.2*	*60.2*	*60.2*	**57.8**	**58.1**	*59.0*	*59.8*	*59.8*	*60.0*	*60.1*	*60.2*
Labor Force Participation Rate (%)^	**63.3**	**61.5**	*62.2*	*62.4*	*62.3*	*62.2*	**61.5**	**61.6**	*61.9*	*62.2*	*62.2*	*62.3*	*62.4*	*62.4*
GOVERNMENT FINANCE														
Federal Budget (FY, $bn)	**-984**	**-3,132**	*-3,000*	*-1,300*	*-1,100*	*-1,200*	--	--	--	--	--	--	--	--
FINANCIAL INDICATORS														
FF Target Range (Bottom-Top, %)^	**1.5-1.75**	**0-0.25**	*0-0.25*	*0-0.25*	*0.25-0.5*	*0.75-1*	**0-0.25**	**0-0.25**	*0-0.25*	*0-0.25*	*0-0.25*	*0-0.25*	*0-0.25*	*0-0.25*
10-Year Treasury Note^	**1.92**	**0.93**	*1.60*	*1.80*	*2.30*	*2.45*	**1.74**	**1.45**	*1.40*	*1.60*	*1.60*	*1.60*	*1.60*	*1.80*
Euro (€/$)^	**1.12**	**1.22**	*1.20*	*1.25*	*1.30*	*1.30*	**1.17**	**1.18**	*1.16*	*1.20*	*1.23*	*1.24*	*1.25*	*1.25*
Yen ($/¥)^	**109**	**103**	*110*	*105*	*102*	*100*	**111**	**111**	*111*	*110*	108	107	106	105

* Weighted average of metro-level HPIs for 381 metro cities where the weights are dollar values of housing stock reported in the American Community Survey. Annual numbers are Q4/Q4.
** Annual inflation numbers are December year-on-year values. Quarterly values are Q4/Q4.
† PCE = Personal consumption expenditures. ^ Denotes end of period.
Note: Published figures in bold.
Source: Goldman Sachs Global Investment Research.

Source: Goldman Sachs Global Investment Research

Economic Releases

Date		Time (ET)	Indicator	Estimate GS	Estimate Consensus	Last Report
Mon	**Oct 04**	**10:00**	**Factory Orders (August)**	**+0.9%**	**+1.0%**	**+0.4%**
Tue	**Oct 05**	**8:30**	**Trade Balance (August)**	**-$71.1bn**	**-$70.6bn**	**-$70.1bn**
		10:00	**ISM Services Index (September)**	**59.2**	**59.9**	**61.7**
Wed	**Oct 06**	**8:15**	**ADP Employment (September)**	**+375k**	**+430k**	**+374k**
Thu	**Oct 07**	**8:30**	**Initial Jobless Claims**	**333k**	**348k**	**362k**
		8:30	Continuing Claims	n.a.	2,790k	2,802k
Fri	**Oct 08**	**8:30**	**Nonfarm Payrolls (September)**	**+600k**	**+470k**	**+235k**
		8:30	**Private Payrolls (September)**	**+500k**	**+450k**	**+243k**
		8:30	**Unemployment Rate (September)**	**5.1%**	**5.1%**	**5.2%**
		8:30	**Average Hourly Earnings (September mom)**	**+0.4%**	**+0.4%**	**+0.6%**
		8:30	**Average Hourly Earnings (September yoy)**	**+4.6%**	**+4.6%**	**+4.3%**
		8:30	Labor Force Participation Rate (September)	n.a.	61.7%	61.7%
		10:00	Wholesale Inventories (August final)	n.a.	+1.2%	+1.2%

Source: Goldman Sachs Global Investment Research

Disclosure Appendix

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We, Jan Hatzius, Alec Phillips, David Mericle, Spencer Hill, CFA, Joseph Briggs and Ronnie Walker, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

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