Goldman Sachs | Economics Research

25 April 2021 | 11:41PM EDT

US Economics Analyst

Productivity in the Post-Pandemic Economy (Hill)

- While productivity growth was disappointing during the last cycle—averaging +1¼% annually vs. the long-term average of just over 2%—we forecast much better progress in the early 2020s. Specifically, we expect three drivers of lasting productivity gains in the wake of the pandemic recession: 1) an accelerated demand shift to ecommerce and other higher-productivity segments; 2) the digitization of the workplace (cost- and time-savings from remote computing and virtual meetings); and 3) a boost from creative destruction, with some unprofitable firms shrinking or closing down. We forecast the contribution to productivity growth in the post-pandemic economy from each channel based on survey data and the experience so far during reopening.
- The shifts toward ecommerce, virtual meetings, and Work-from-Home all appear likely to persist to some degree, even with the reopening progressing quickly. Ecommerce share gains have extended into 2021, firms report that they expect three times as many external meetings to be conducted virtually, and Zoom and Teams continue to add users—albeit at a slower pace.
- Surveys of both employees and employers indicate that Work-from-Home and flexible workforce arrangements will also remain in place for around a quarter of employees. For the roughly 45% of the workforce for whom it is viable, our review of surveys, natural experiments, and cross-sectional macro data indicates that remote computing probably enhances productivity by 3-8% on average.
- The cleansing aspect of recessions—so called "creative destruction" from the closures of money-losing and low-return businesses—is a final reason to expect above-trend productivity growth, even if the scale of business closure is much smaller than following the financial crisis.
- By our estimates, these three channels are likely to boost the level of productivity in the nonfarm business sector by at least 2% cumulatively by 2022 (relative to trend), and potentially by as much as 7%. Our baseline forecast envisions a 4% boost to medium-term productivity levels relative to trend—or a +1.3pp boost to annual productivity growth over 2020-2022. While this estimate is large, our timely proxies for productivity growth indicate cumulative gains relative to the pre-crisis trend already in the 3-4% range.

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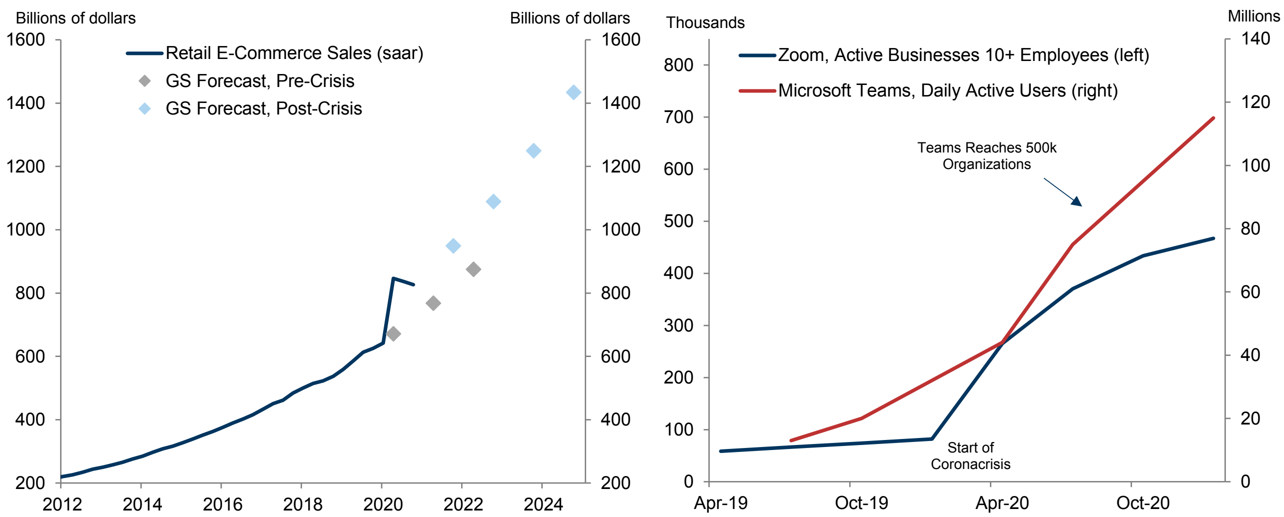
Productivity in the Post-Pandemic Economy

While the reopening of the economy and the improvement in public health have already boosted traffic at malls, restaurants, and worksites, we believe many of the pandemic-driven shifts in consumption patterns and time usage are unlikely to reverse—particularly those related the digitization of economic and social activity.

As shown in the left panel of Exhibit 1 and discussed in more detail here, the coronacrisis accelerated a shift toward ecommerce spending that was already taking place. The equivalent of three years of market-share gains took place in 2020, and neither the 2021 experience with reopening nor our sector analyst forecasts imply a significant reversal of this step-up. And because ecommerce generally requires less labor and real estate than brick-and-mortar retail, the reallocation of resources catalyzed by these consumption shifts represents a tailwind for sector- and economy-wide productivity. Indeed, retail-sector GDP per worker-hour jumped 4.4% between 2019 and the second-half of 2020.[1]

Exhibit 1: Higher E-Commerce Penetration Here to Stay; Virtual Meeting Usage Still Expanding Despite Reopening Economy



Source: Department of Commerce, Department of Labor, Bloomberg LP, Company Data, Goldman Sachs Global Investment Research

The surge in virtual meetings also shows no sign of reversing (see right panel), with the pace of growth for Zoom and Teams slowing but remaining positive during the first few quarters of the reopening.[2] Business surveys by the Atlanta Fed are also consistent with a persistent shift, with firms expecting three times as many external meetings to be conducted virtually on average (post- vs. pre-pandemic). Relatedly, in their survey of Chief Information Officers, our IT equipment analysts found surprising resilience in 2021

[1] This gain predated the surge in demand related to the Biden stimulus. A more timely but less precise proxy for productivity in the sector—real goods consumption per employee in retail, warehousing, and delivery—has risen 9.4% since the fourth quarter of 2019.

[2] For example, the number of businesses with at least 10 employees conducting meetings on Zoom decelerated in the January quarter (+7.7% qoq after +17.2% in the previous quarter). Zoom's revenue guidance indicates continued growth in the spring quarter and for the full year, despite the continued reopening of the economy.

spending intentions for networking equipment—as opposed to a normalization following 2020's bumper year.[3]

Consumer use of video calls and virtual meetings has also increased, posing medium-term risks to in-person substitutes like recreation and food services. But while we assume the ecommerce gains represent a level shift, we expect the declining employment shares in the leisure and hospitality and business services segments to eventually normalize with the unemployment rate.[4] Taken together, we estimate pandemic-driven shifts in ecommerce and services consumption will boost productivity in the nonfarm business sector by between 0.5% and 1.7% (summarized later in Exhibit 7).

Work-from-Home in the Post-Pandemic Economy

Business models and cost structures are also evolving in ways that could affect medium-term productivity. If changes in the workplace reduce business-sector consumption of intermediate inputs like office space, building maintenance, and travel and entertainment, this would in turn boost GDP and productivity as these resources are repurposed—for example as condominiums, concierge services, and consumer recreation (see here). The ultimate size of these cost savings in part hinges on the viability and industry breadth of the flexible work arrangements themselves.

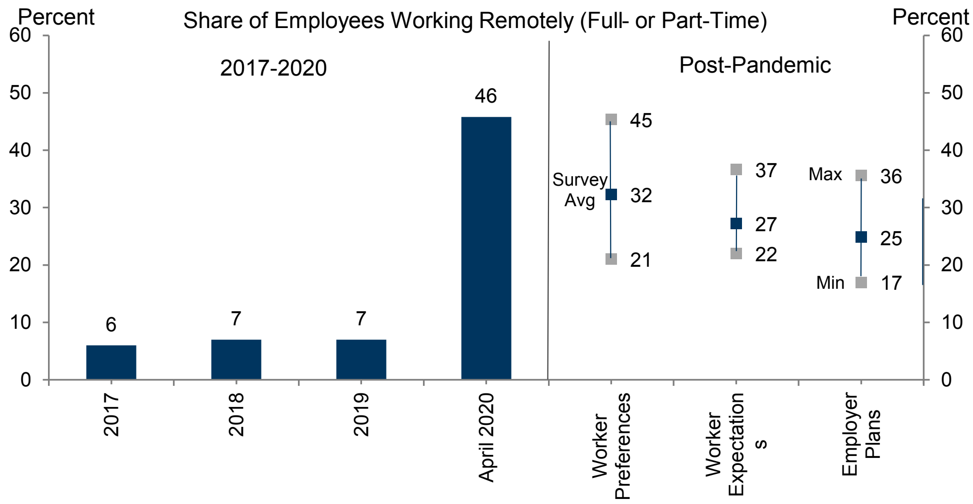
While the physical presence of labor is essential in much of the goods sector and in some consumer-facing services (leisure and hospitality, personal care), the coronacrisis revealed that remote computing was a viable alternative in many other parts of the economy. Analyzing the labor market in the spring lockdowns last year, the Bureau of Labor Statistics found that Work-from-Home was implemented in 46% of industries (employment-weighted).[5] Similarly, University of Chicago economists Jonathan Dingle and Brent Neiman estimate that 37% of jobs can be done entirely at home—representing 46% of wages. These surprisingly large figures suggest scope for a nearly seven-fold increase in flexible workforce arrangements, relative to the 7% pre-crisis level—provided of course that workers and employers are both willing to implement them (see first four columns of Exhibit 2).

[3] Even after the surge in 2020 to accommodate the lockdowns and temporary restrictions in office capacity the majority of CIOs expect to increase spending levels this year. Our analysts note that Work-from-Home "has driven businesses to re-evaluate their networking needs and this result suggests that most are finding more investment is necessary."

[4] Several other shifts in consumer and business behavior are also likely transitory—for example, activities still unavailable or restricted due to public health risks.

[5] The authors speculate that Work-from-Home shares may "increase permanently as workers and employers become more comfortable with telework arrangements."

Exhibit 2: Around One Quarter of the Workforce Is Likely to Adopt Flexible Workplace Arrangements



Averages reflect surveys by Stanford/UChicago, PricewaterhouseCooper, GetAbstract, ResumeLab, Grossman Group, Morning Consult, and McKinsey (Worker Preferences); Gallup, Garner, and Citrix Systems (Worker Expectations); Atlanta Fed; Stanford/UChicago, Scandinavia 2017 actuals, PricewaterhouseCooper, and Garner (Employer Plans). Data are adjusted to be comparable to 2017-20 actuals from the American Time Use Survey/Bureau of Labor Statistics.

Source: Department of Commerce, Department of Labor, Bloomberg LP, Company Data, Goldman Sachs Global Investment Research

In the final three columns of the same exhibit, we summarize survey evidence on this crucial question. Averaging across surveys, we find that roughly a third of the workforce would be willing and able to work from home at least some of the time (we assume workers in non-viable sectors will continue to commute, even if they would prefer not to). A smaller but still large share of workers expect these programs to be actually implemented (27%), and 25% of employers expect that outcome for their own employees.[6]

At the margin, the balance of opinion among employers appears to be shifting towards a hybrid model, as a PricewaterhouseCoopers study found 83% of executives believe remote work was successful—up from 73% when they were surveyed last June—but 68% of executives believe 3+ days a week in the office are needed to maintain the company culture.

The Digitization of the Workplace

This survey evidence increases our conviction that remote computing will result in a disintermediation of some business-sector intermediate inputs in coming years. This opportunity exists because Work-from-Home has mobilized part of the household capital stock (home offices and computers) for business purposes, much like what Uber and Airbnb did for cars and second homes.

[6] Albeit with a wider range of opinion: 17% to 36% on this basis. Generally speaking, executives appear more cautious than employees about the long-term viability of remote-computing, with an Enaible study finding that 84% are concerned whether staff can be effectivity managed remotely and 76% are concerned about worker productivity and their ability to monitor it. The jury is still out in many cases: A McKinsey study found that only 32% of employers have clearly communicated their post-pandemic plans on this dimension to workers, and 40% have made no communications whatsoever.

As shown in Exhibit 3 and discussed in more detail here, we identify $2.6tn of upstream business inputs whose importance could decline in the post-pandemic economy. A 15% reduction in travel and entertainment costs alone would free up $70bn of resources and could boost economy-wide productivity by 0.3% over the medium term.

Exhibit 3: Business Surveys Suggest Sustained Declines in Travel and Entertainment Expenses, but Probably Only Modest Changes in Office Space

Intermediate Inputs Provided to US Business Sector, 2019		
Sector	**$bn**	**as % GDP**
Commercial Real Estate	1,226	5.7%
Car Rentals, Miscellaneous Leasing	313	1.5%
Ground Transportation*	293	0.0%
Maintenance and Personal Services	239	1.1%
Restaurants and Bars	220	1.0%
Spectator Recreation and Related	95	0.4%
Air Transportation	80	0.4%
Waste Management & Related	76	0.4%
Accommodation	71	0.3%
Total	2,614	10.8%
If Commercial R.E. -1.2% and All Other -15%	*223*	***0.9%***
Travel and Entertainment Only	*467*	*2.2%*
If 15% Reduction	*70*	***0.3%***

*Includes rail, transit, taxi, and other transportation and support activities

Source: Department of Commerce, Department of Labor, Bloomberg LP, Company Data, Goldman Sachs Global Investment Research

For commercial real estate, we believe the declines are likely to be much more modest, reflecting ambiguous business surveys on the subject. We assume a decline of -1.2% reflecting the average of the two Atlanta Fed estimates.[7] With those parameters and also assuming a 15% drop for the remaining categories, cost savings of nearly $225bn would create scope for a sustained boost to the level of economy-wide productivity of 0.9% from this channel (or +1.2% for the nonfarm business sector).

That Could Have Been an Email: Workforce Efficiencies from Remote Computing

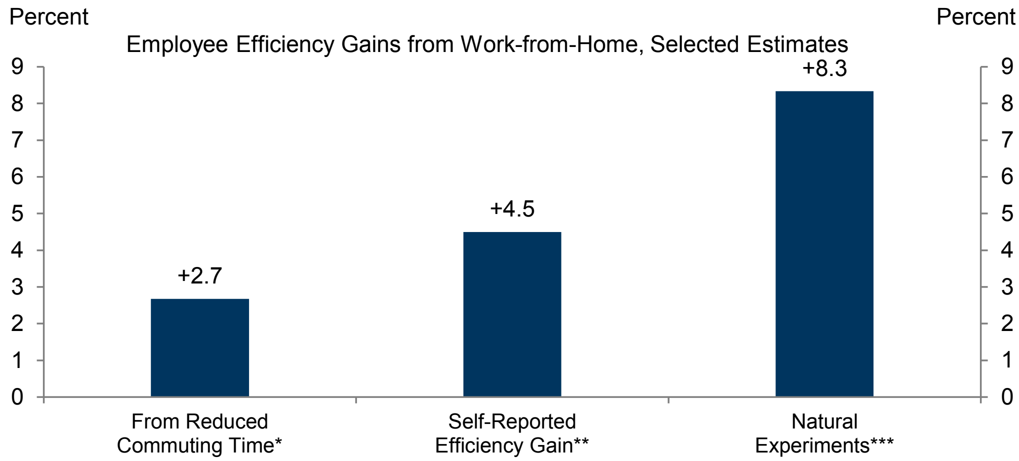
What about the productivity consequences for the workers themselves? The most straightforward time savings from Work-from-Home are the reduction in commuting. Before the crisis, the 28-minute average commute (one-way) represented nearly 5 hours of transit time per workweek, plus the stress and monetary costs that sometimes came with it. If employee and employer expectations about flexible workplace arrangements prove correct—and a fifth of workers start working from home 2 days per week on average—time savings would total 5.3% of the average workweek for this group and 1.1% of total business-sector hours worked.

While that math is simple enough, the implications of shorter commutes for official

[7] Additionally, a PricewaterhouseCoopers study found that while 87% of firms plan to make changes to their real estate strategy, downsizing was not a particularly common result. In fact, 56% expect more space will be needed—for example to improve the office experience.

productivity measures are much more tenuous, as explored in Barrero, Bloom, and Davis (2021). In the long-run, we might expect the benefits of a shorter commute to be split in some fashion between workers and employers. If half of these time savings are spent working—or otherwise boosting worker efficiency—the effective labor input provided by these workers would rise by 2.7%, boosting sector-wide productivity by 0.5% as a whole (see first column in Exhibit 4).

Exhibit 4: Work-from-Home Turned Out to Be More Productive and Efficient Than Many Expected



*Hours saved commuting as percent of aggregate hours worked. Assumes 20pp increase in flexible workplace arrangements that on average entail +2 days WFH. Based on 2019 average commuting time of 28 minutes (one-way). Assumes half of time savings are spent working or enhance worker efficiency, with the other half added to leisure hours.
**Average of self-reported efficiency gains of Work-from-Home employees in Barrero, Bloom, and Davis (2021)

Source: Department of Commerce, Department of Labor, Bloomberg LP, Company Data, Goldman Sachs Global Investment Research

While some employers have documented declines in worker screen time during the crisis, it's not obvious that more time at a desk leads to increased attention, effort, or output on the part of the employee. And worker surveys tend to indicate the opposite: Citrix Systems and Poll One found that 69% of workers think they are as or more productive working from home, a Kentik survey found that 27% of net respondents felt more productive, a Morning Consult survey found 49% were more productive even with pandemic distractions, and the Grossman Group found that 80% of employees working from home nonetheless received the information they needed from their supervisors. As the social experiment has continued, responses have solidified in this direction: In a PricewaterhouseCoopers survey, 52% of employers viewed Work-for-Home as more productive in December vs. 44% in June, and employees surveyed reported 34% in December vs. 28% in June.

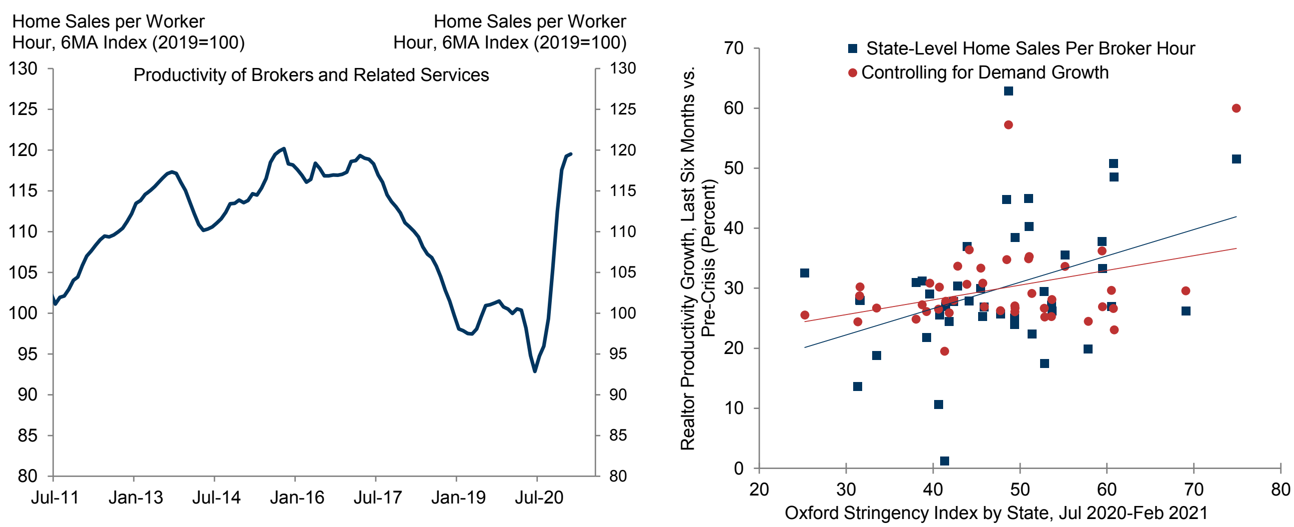
In one of the largest studies, Nicholas Bloom and colleagues find efficiency increases for 40% of employees, and 25% on net. Using the mid-point of each response bucket, we estimate the results are consistent with a 4.5% average gain in worker productivity for these employees.[8]

[8] Surveys provide less guidance on the medium-term impact on professional development, which could be significant particularly for younger employees and 100%-remote workers. This in turn argues in favor of the hybrid (flexible workplace) model.

Self-reported assessments by workers and managers may be colored by a desire to retain flexibility or reassert pre-pandemic norms. But randomized trials and natural experiments have generally found positive results of remote computing as well, with worker-level productivity gains of 4%, 8%, and 13% across three respective studies (summarized here).

Macro-level data also support the notion that the economy is capable of operating at a high level of utilization even during a pandemic, with new highs in output across manufacturing, residential construction, and ecommerce. But even in real estate—where in-person meetings and open houses were once thought vital—productivity has actually increased: existing homes sales per worker hour[9] has jumped nearly 20% since 2019 (see left panel of Exhibit 5). And in the state-level cross-section, stay-at-home restrictions are associated with larger—not smaller—realtor productivity gains (result robust to demand controls, see right panel).

Exhibit 5: Home Sales Boom Has Not Required Legions of New Office Workers; Brokerages Actually More Productive in Stay-at-Home States

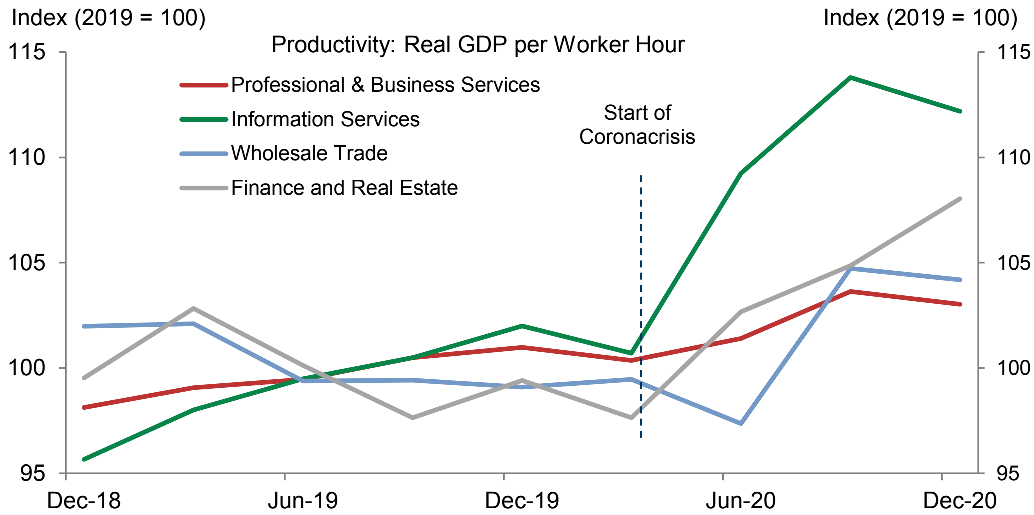


Source: Department of Commerce, Department of Labor, Bloomberg LP, Company Data, Goldman Sachs Global Investment Research, National Association of Realtors (NAR)

The time series of other large and non-virus-sensitive service industries is similarly encouraging for the productivity outlook and for the viability of Work-from-Home in these industries (see Exhibit 6).

[9] Residential brokers, agents, appraisers, and office staff.

Exhibit 6: Industry Composition Also Consistent with Work-from-Home-Related Efficiencies



Source: Department of Commerce, Department of Labor, Bloomberg LP, Company Data, Goldman Sachs Global Investment Research

The Productivity Outlook

We conclude by summarizing our range of estimates for the medium-term productivity consequences of the pandemic recession. We then interpret these potential gains in the context of efficiency improvements already visible in the data.

As shown in Exhibit 7, we expect the combination of changing consumer behavior (particularly online), cost savings from remote computing, and efficiency gains from flexible workforce arrangements to boost the level of productivity by around 3% relative to its counterfactual trend. We also continue to expect a boost from business closures and restructuring activity (see here), based on the $300bn in major bankruptcies last and this year ($285bn in combined liabilities vs. $98bn annual average in the 2010s; this pickup is nonetheless well below the $620bn pace in 2009).

Exhibit 7: We Expect Crisis-Related Productivity Gains of 2-7% for the Nonfarm Business Sector

Medium-Term Productivity Effects of the Coronacrisis, GS Estimates		
	Nonfarm Business Sector, Percent	
Channel	Estimate Range	Baseline
Demand Shift to ecommerce and Digital	0.5-1.7	0.7
Digitization of the Workplace: Cost Savings & Efficiency	1-2.9	1.9
Creative Destruction Due to Recession	0.5-2	1.3
Combined Productivity Boost	2-6.7	3.9
Annualized Over Three Years	**0.7-2.2**	**1.3**

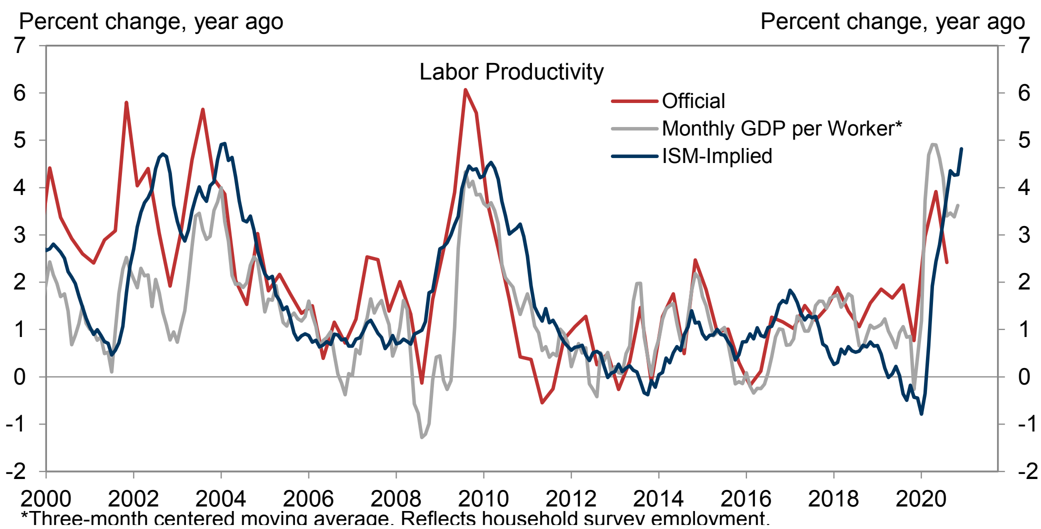
Note: ecommerce efficiencies estimates reflect changes in retail value added per employee hour or real goods consumption per retail and support job (multiplied by employment share). We also include other industry composition effects of the pandemic recession (direct impact of employment share changes in March 2021 vs. February 2020 across 66 private-sector industries, holding all other factors constant). Workplace digitization channel reflects calculations based on input usage by business sector and associated declines in affected commodities (CRE -1.2%, travel and entertainment -15%, office maintenance and related -15%). We also assume remote computing efficiencies as shown in Exhibit 2. Creative destruction estimates reflect company-level financial data and an assumed exit rate of unprofitable and other potentially non-viable firms of 9-31% cumulatively over 2020-22. See “A Productivity Boost from Creative Destruction and Cost Savings,” US Economics Analyst, September 28 2020.

Source: Department of Commerce, Department of Labor, Bloomberg LP, Company Data, Goldman Sachs Global Investment Research

By our estimates, these three channels are likely to boost the level of productivity in the nonfarm business sector by at least 2% cumulatively, and potentially by as much as 6.7%. This compares to our previous estimate range of 1.8-6.4%, as we now embed a larger boost from ecommerce/digitization and an explicit boost from remote computing to worker productivity—partially offset by fewer cost savings in commercial real estate.

Our baseline estimate envisions a 3.9% boost to the level of productivity from these three channels—or a +1.3pp boost to productivity growth over three years, above and beyond the normal rate. While this is a large estimate, we note that the nonfarm business sector already achieved a 2pp pickup in productivity growth last year (Q4/Q4), and our timelier proxies indicate cumulative gains relative to the pre-crisis trend may now be closer to 3-4% (see Exhibit 8). Given this and given that some of the pandemic-driven efficiencies will require years to be fully realized, we expect productivity growth to remain firm well into next year.

Exhibit 8: This Compares to the 3-4% Productivity Spurt that Has Already Taken Place



Source: Department of Commerce, Department of Labor, Bloomberg LP, Company Data, Goldman Sachs Global Investment Research

Spencer Hill

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				2022			
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
OUTPUT AND SPENDING														
Real GDP	**2.2**	**-3.5**	*7.2*	*4.9*	*1.8*	*2.1*	*7.5*	*10.5*	*7.5*	*6.5*	*5.0*	*3.0*	*2.0*	*1.5*
Real GDP (annual=Q4/Q4, quarterly=yoy)	**2.3**	**-2.4**	*8.0*	*2.9*	*1.9*	*2.1*	*0.7*	*13.4*	*7.4*	*8.0*	*7.4*	*5.5*	*4.1*	*2.9*
Consumer Expenditures	**2.4**	**-3.9**	*8.5*	*5.1*	*1.8*	*2.1*	*10.7*	*12.5*	*7.0*	*7.0*	*5.0*	*3.0*	*2.0*	*1.5*
Residential Fixed Investment	**-1.7**	**6.1**	*18.5*	*5.0*	*2.6*	*2.0*	*24.9*	*7.0*	*7.0*	*6.0*	*5.0*	*4.0*	*3.0*	*3.0*
Business Fixed Investment	**2.9**	**-4.0**	*9.8*	*5.6*	*3.6*	*3.7*	*12.3*	*11.3*	*9.7*	*6.7*	*4.3*	*3.9*	*3.7*	*3.4*
Structures	**-0.6**	**-11.0**	*1.3*	*7.4*	*2.8*	*2.5*	*11.0*	*15.0*	*15.0*	*10.0*	*5.0*	*5.0*	*4.0*	*2.5*
Equipment	**2.1**	**-5.0**	*15.1*	*4.1*	*2.5*	*2.5*	*13.9*	*10.0*	*8.0*	*5.0*	*2.5*	*2.5*	*2.5*	*2.5*
Intellectual Property Products	**6.4**	**1.7**	*8.5*	*6.5*	*5.3*	*5.5*	*11.0*	*11.0*	*9.0*	*7.0*	*6.0*	*5.0*	*5.0*	*5.0*
Federal Government	**4.0**	**4.3**	*0.9*	*0.1*	*0.0*	*0.0*	*3.0*	*1.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
State & Local Government	**1.3**	**-0.8**	*0.6*	*3.4*	*0.6*	*0.5*	*2.1*	*2.0*	*3.0*	*5.0*	*6.0*	*2.0*	*0.5*	*0.5*
Net Exports ($bn, '12)	**-918**	**-926**	*-1,229*	*-1,241*	*-1,202*	*-1,184*	*-1166*	*-1216*	*-1256*	*-1277*	*-1270*	*-1245*	*-1225*	*-1222*
Inventory Investment ($bn, '12)	**49**	**-77**	*50*	*85*	*60*	*60*	*-50*	*50*	*100*	*100*	*100*	*90*	*80*	*70*
Industrial Production, Mfg.	**-0.2**	**-6.5**	*7.7*	*5.4*	*2.0*	*2.0*	*1.7*	*10.0*	*8.3*	*6.8*	*5.5*	*3.7*	*2.6*	*1.4*
HOUSING MARKET														
Housing Starts (units, thous)	**1,295**	**1,395**	*1,494*	*1,519*	--	--	*1,613*	*1,370*	*1,502*	*1,492*	*1,482*	*1,509*	*1,538*	*1,545*
New Home Sales (units, thous)	**685**	**825**	**816**	*803*	*795*	*795*	*959*	*769*	*760*	*776*	*803*	*815*	*800*	*795*
Existing Home Sales (units, thous)	**5,327**	**5,658**	**6,344**	*6,456*	*6,569*	*6,683*	*6,303*	*6,331*	*6,358*	*6,385*	*6,414*	*6,442*	*6,470*	*6,498*
Case-Shiller Home Prices (%yoy)*	**3.4**	**9.8**	*6.8*	*3.9*	*4.6*	--	*10.1*	*11.3*	*9.4*	*6.8*	6.0	5.3	4.6	3.9
INFLATION (% ch, yr/yr)														
Consumer Price Index (CPI)**	**2.3**	**1.3**	*2.9*	*2.0*	*2.2*	*2.4*	*1.9*	*3.7*	*3.1*	*2.9*	*2.5*	*2.0*	*2.0*	*2.0*
Core CPI **	**2.2**	**1.6**	*2.2*	*2.3*	*2.4*	*2.5*	*1.4*	*2.3*	*1.9*	*2.1*	*2.4*	*2.3*	*2.4*	*2.4*
Core PCE** †	**1.6**	**1.4**	*2.05*	*2.00*	*2.10*	*2.20*	*1.6*	*2.4*	*1.9*	*2.0*	*1.9*	*1.9*	*1.9*	*2.0*
LABOR MARKET														
Unemployment Rate (%)^	**3.6**	**6.7**	*4.0*	*3.5*	*3.2*	*3.1*	**6.0**	*5.1*	*4.4*	*4.0*	*3.7*	*3.6*	*3.5*	*3.5*
U6 Underemployment Rate (%)^	**6.8**	**11.7**	*8.1*	*7.1*	*6.6*	*6.3*	**10.7**	*9.4*	*8.6*	*8.1*	*7.5*	*7.3*	*7.2*	*7.1*
Payrolls (thous, monthly rate)	**168**	**-785**	*637*	*237*	*146*	*105*	**539**	*867*	*650*	*492*	*350*	*233*	*192*	*172*
GOVERNMENT FINANCE														
Federal Budget (FY, $bn)	**-984**	**-3,132**	*-3,300*	*-1,800*	*-1,450*	*-1,350*	--	--	--	--	--	--	--	--
FINANCIAL INDICATORS														
FF Target Range (Bottom-Top, %)^	**1.5-1.75**	**0-0.25**	*0-0.25*	*0-0.25*	*0-0.25*	*0.5-0.75*	**0-0.25**	*0-0.25*	*0-0.25*	*0-0.25*	*0-0.25*	*0-0.25*	*0-0.25*	*0-0.25*
10-Year Treasury Note^	**1.92**	**0.93**	*1.90*	*2.10*	*2.30*	*2.40*	**1.74**	*1.80*	*1.90*	*1.90*	*1.95*	*2.00*	*2.05*	*2.10*
Euro (€/$)^	**1.12**	**1.22**	*1.27*	*1.30*	*1.30*	*1.30*	**1.17**	*1.23*	*1.26*	*1.27*	*1.28*	*1.28*	*1.29*	*1.30*
Yen ($/¥)^	**109**	**103**	*105*	*100*	*99*	*99*	**111**	*108*	*107*	*105*	104	102	101	100

* 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	**Apr 26**	**8:30**	**Durable Goods Orders (March)**	**+2.0%**	**+2.5%**	**-1.2%**
		8:30	**Durable Goods Orders Ex-Transport**	**+2.1%**	**+1.6%**	**-0.9%**
		8:30	**Core Capital Goods Orders**	**+2.1%**	**+1.5%**	**-0.9%**
		8:30	**Core Capital Goods Shipments**	+2.1%	**+1.5%**	-1.1%
		10:30	Dallas Fed Manufacturing Index (April)	n.a.	30.0	28.9
Tue	**Apr 27**	9:00	FHFA House Price Index (February)	n.a.	+1.0%	+1.0%
		9:00	**S&P/Case-Shiller Home Price Index (February)**	+1.1%	**+1.10%**	**+1.20%**
		10:00	**Consumer Confidence (April)**	113.5	**112.0**	**109.7**
		10:00	Richmond Fed Manufacturing Index (April)	n.a.	22	17
Wed	**Apr 28**	**8:30**	**Advance Goods Trade Balance (March)**	**-$88.5bn**	**-$87.7bn**	**-$86.7bn**
		8:30	Wholesale Inventories (March preliminary)	n.a.	+0.5%	+0.6%
		14:00	FOMC Statement	n.a.	n.a.	n.a.
Thu	**Apr 29**	**8:30**	**Initial Jobless Claims**	**560k**	**550k**	**547k**
		8:30	Continuing Claims	n.a.	3,590k	3,674k
		8:30	**Real GDP (Q1 first)**	**+7.5%**	**+6.5%**	**+4.3%**
		8:30	**Personal Consumption (Q1 first)**	**+10.7%**	**+10.5%**	**+2.3%**
		8:30	**Pending Home Sales (March)**	**+6.0%**	**+4.5%**	**-10.6%**
Fri	**Apr 30**	**8:30**	**Employment Cost Index (Q1)**	**+0.6%**	**+0.7%**	**+0.7%**
		8:30	**Personal Income (March)**	**+20.3%**	**+20.0%**	**-7.1%**
		8:30	**Personal Spending**	**+4.3%**	**+4.3%**	**-1.0%**
		8:30	**PCE Price Index**	**+0.50%**	**+0.5%**	**+0.2%**
		8:30	**Core PCE Price Index**	**+0.34%**	**+0.3%**	**+0.1%**
		9:45	**Chicago Purchasing Managers' Index (April)**	**65.5**	**64.2**	**66.3**
		10:00	**UMich Consumer Sentiment (April final)**	**88.2**	**87.5**	**86.5**

Source: Goldman Sachs Global Investment Research

Disclosure Appendix

Reg AC

We, Jan Hatzius, Alec Phillips, David Mericle, Spencer Hill, CFA, Daan Struyven, Joseph Briggs, Blake Taylor, Ronnie Walker and Laura Nicolae, 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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