Monthly Labor Review

July 2021

Teleworking and lost work during the pandemic: new evidence from the CPS

To measure the effects of the coronavirus disease 2019 pandemic, the U.S. Bureau of Labor Statistics added questions to the Current Population Survey, the main U.S. labor force survey, starting in May 2020. This article analyzes the results from questions asking people (1) whether they teleworked because of the pandemic and (2) whether they were unable to work because their employers closed or lost business because of the pandemic. We use the data on telework to refine work completed earlier in the pandemic that classified occupations on their suitability for telework. We then apply the revised classification to examine trends in telework and the extent to which working in an occupation suitable for telework shields workers from unemployment. Our results show that the pandemic resulted in a large increase in teleworking, with 33 percent of U.S. workers reporting teleworking because of the coronavirus in the period May–June 2020, before declining to a still substantial 22 percent in the fourth quarter. Rates of lost work varied widely both by an occupation's suitability for telework and by demographic category.

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The coronavirus disease 2019 (COVID-19) pandemic has had a momentous impact on the U.S. economy and on the labor market, in particular. In addition to eliminating millions of jobs, especially in the early months, the pandemic has dramatically changed the way work is performed. To measure the effects of the pandemic, starting in May 2020, the U.S. Bureau of Labor Statistics added questions to the Current Population Survey (CPS), the main U.S. labor force survey.[1] All of these supplemental questions refer to activities at any time during the "last 4 weeks" prior to the survey and follow the monthly labor force questions. These questions ask whether

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1. people teleworked or worked from home because of the pandemic,
2. people were unable to work because their employers closed or lost business because of the pandemic,
3. they were paid for that missed work,
4. the pandemic prevented job-seeking activities, and
5. anyone in the household was prevented from seeking non-coronavirus-related medical care because of the pandemic.

In this article, we analyze the results from the first two of these added questions. Building on previous work by Jonathan I. Dingel and Brent Neiman early in the pandemic in which they classified occupations on their suitability for telework,[2] we look both at the extent of telework and whether the people's ability to telework mitigates the effect of the pandemic on employment. We use the new CPS data on people teleworking because of the pandemic to revisit the Dingel and Neiman classification scheme and suggest refinements to it. We then apply the revised classification to examine trends in telework and the extent to which working in an occupation suitable for telework shields workers from unemployment.

Telework rates

Table 1 shows how many workers teleworked because of the coronavirus pandemic in the May–December 2020 period . In May-June, fully a third of workers reported teleworking because of the pandemic. This proportion declined to 22 percent by the fourth quarter. Although the surveys are not strictly comparable, note that the 2017-18 Leave and Job Flexibilities Module of the American Time Use Survey (ATUS) showed only 13 percent of wage and salary workers had paid telework arrangements.[3]

Table 1. Employed people (in thousands) who teleworked because of COVID-19, by suitability for telework classification, May–December 2020

Suitability for telework category	May–June 2020			July–September 2020			October–December 2020		
	Total	Telework because of COVID-19	Percent	Total	Telework because of COVID-19	Percent	Total	Telework because of COVID-19	Percent
Employed, 16 years and over	140,136	46,674	33.3	146,504	35,832	24.5	150,083	33,397	22.3
Original Dingel and Neiman occupation classification [1]									
Suitable for telework	61,235	35,054	57.2	61,434	27,210	44.3	62,056	25,563	41.2
Not suitable for telework	77,096	10,793	14.0	83,187	7,978	9.6	86,196	7,288	8.5
Revised occupation classification									
Suitable for telework	65,373	35,886	54.9	66,115	29,143	44.1	66,543	27,026	40.6
Not suitable for telework	72,958	9,961	13.7	78,505	6,045	7.7	81,709	5,824	7.1

See footnotes at end of table.

[1] As discussed in the main text, our revised classification modifies that originally developed by Jonathan I. Dingel and Brent Neiman ("How many jobs can be done at home?" *Journal of Public Economics*, vol. 189, no. 2, September 2020).

Note: COVID-19 = coronavirus disease 2019; O*Net = Occupational Information Network.

Source: U.S. Bureau of Labor Statistics, Current Population Survey supplement.

Researchers have noted that many jobs cannot be performed remotely and require that workers be physically present at their worksites. The Occupational Information Network (O*NET) contains occupation-level measures that include not only the knowledge and skills required by an occupation but also how the work associated with the occupation is conducted and in what environment. Dingel and Neiman use these data to construct a division between occupations suitable for telework and those not suitable.

Table 1 also shows how the percentage of workers who teleworked because of the pandemic differs between occupations classified as suitable and those classified as not suitable for telework by Dingel and Neiman. (The revised classification shown in the table is discussed later.) Occupations classified as suitable for telework reassuringly had a much higher percentage of workers teleworking because of the COVID-19 pandemic. Over half of workers in these occupations teleworked because of COVID-19 in May–June, with the percentage declining to approximately 40 percent in the fourth quarter.

Occupations classified as not suitable for telework had a much lower percentage of workers responding that they were able to telework because of the pandemic. However, the proportion was still appreciable, with 14 percent reporting telework in May–June, declining to 8 percent in the fourth quarter. This finding raises the question of whether the classification can be improved.

Revising the classification of suitability for telework by occupation

We attempt to improve the Dingel and Neiman classification scheme by revising several occupations. We add several criteria classifying occupations as not suitable for telework if O*NET measures indicate working conditions are unlikely to be replicated in a home office environment. For example, we classify an occupation as unsuitable for telework if it involves workers spending a substantial amount of time kneeling, crouching, stooping, or crawling. We eliminate the criterion that a job is not suitable for telework when "Performing for or working directly with the public" is rated as very important. Finally, we replace the Dingel and Neiman condition that in order to be suitable for telework, an occupation must include using electronic mail at least once a month, with a three-prong condition that an occupation must involve regularly interacting with computers, spending time sitting, and working in an environmentally controlled indoor setting.[4] (See appendix table 1.)

The appendix table 2 shows the proportion of workers in each four-digit North American Industry Classification System industry who are in occupations considered suitable for telework according to our classification (labeled "DFLP," which stands for Dey, Frazis, Loewenstein, and Piccone) and the Dingel and Neiman classification. The appendix table 3 provides breakdowns by Metropolitan Statistical Area. These estimates are constructed with the use of microdata from the May 2019 Occupational Employment Statistics survey. With wage data from the same survey, both tables also show the average wage earned by workers in occupations that are deemed suitable for telework. Wages in these occupations are markedly higher. The average wage is $35.22 in occupations that we

deem suitable for telework, compared with $20.31 in occupations that we classify as unsuitable for telework (data not shown in appendix table 2).[5]

The last two rows of table 1 show the proportions reporting teleworking because of COVID-19 in the revised classification. In the latter half of the year, the proportion of workers who report telework despite being in occupations classified as not suitable for telework is reduced by about 20 percent (1.5 to 2.0 percentage points) relative to the Dingel and Neiman equivalent. (The change in the proportion teleworking in occupations suitable for telework is small.) Overall, of workers who report being in occupations not suitable for telework, an appreciable fraction still reports teleworking. Rather than taking the labels “suitable for telework” and “not suitable for telework” literally, we find that the two categories may be better interpreted as containing occupations in which conditions are favorable or not favorable for telework. Given the serious concerns about working onsite during a pandemic, some workers may still telework, although their productivity is substantially lower as a result. Teachers are a well-known example of workers who fall into our unable-for-telework category. Research indicates that remote learning by elementary and high school students is less effective than onsite instruction.[6] Yet, averaged over the May-June period, the percentage of preschool and kindergarten, elementary and middle school, secondary school, and special education teachers teleworking was 78.0 percent. This rate declined to 38.1 percent in the fourth quarter, a percentage decline similar to that for other occupations in the not-suitable-for-telework category. If one were to remove teachers from the not-suitable-for-telework category, the percentage of workers in this category who are teleworking would be 8.9 instead of 13.7 in the May-June period and 4.9 instead of 7.1 in the fourth quarter.

Table 2 shows telework rates of employed people in occupations classified as suitable and unsuitable for telework for various demographic groups averaged over the May-December 2020 period. For most demographic breaks, telework rates are similar within the suitable-for-telework categories. Different concentrations in the suitable- and not-suitable-for-telework occupations appear to account for much of the variation in total telework rates across demographic groups. Educational attainment is an exception to the similarity within occupation categories. The teleworking rate for bachelor’s degree holders who worked in occupations classified as not suitable for telework was 18 percent, and for advanced degree holders in those occupations, the rate was 35 percent. In all other categories of educational attainment, the teleworking rate for occupations classified as not suitable for telework was 6 percent or less. Similarly, the teleworking rate for bachelor’s degree holders in occupations classified as suitable for telework was 53 percent, and for advanced degree holders, the rate was 62 percent. In contrast, the comparable rate was 33 percent or less for other categories of educational attainment.

Table 2. Employed people (in thousands) in occupations classified as suitable and unsuitable for telework, who teleworked because of COVID-19, by demographic category, May–December 2020

Demographic category	All			Suitable for telework			Not suitable for telework		
	Total	Telework because of COVID-19	Percent	Total	Telework because of COVID-19	Percent	Total	Telework because of COVID-19	Percent
All workers	146,254	37,629	25.7	66,090	30,035	45.4	78,320	6,941	8.9
Gender									
Male	77,922	17,756	22.8	32,168	14,712	45.7	45,048	2,858	6.3
Female	68,333	19,873	29.1	33,921	15,323	45.2	33,272	4,083	12.3
Race									

See footnotes at end of table.

Table 2. Employed people (in thousands) in occupations classified as suitable and unsuitable for telework, who teleworked because of COVID-19, by demographic category, May–December 2020

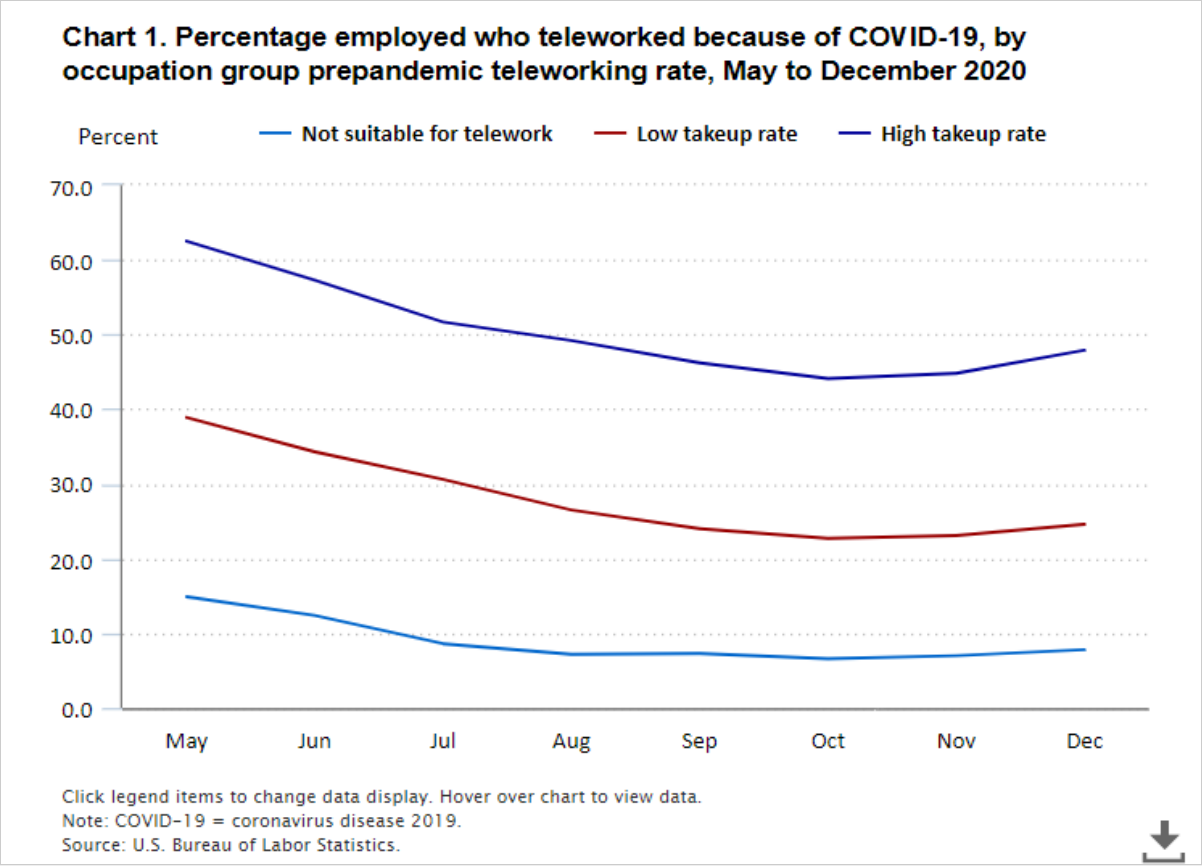
Demographic category	All			Suitable for telework			Not suitable for telework		
	Total	Telework because of COVID-19	Percent	Total	Telework because of COVID-19	Percent	Total	Telework because of COVID-19	Percent
White only	114,327	28,785	25.2	51,923	22,809	43.9	61,004	5,480	9.0
Black only	17,544	3,780	21.5	6,726	2,880	42.8	10,543	809	7.7
Asian only	9,307	3,880	41.7	5,441	3,433	63.1	3,761	410	10.9
All other	5,076	1,184	23.3	2,000	913	45.7	3,012	243	8.1
Age, years									
16 to 24	17,176	2,051	11.9	4,364	1,515	34.7	12,611	479	3.8
25 to 54	94,221	27,178	28.8	44,408	21,660	48.8	48,612	5,061	10.4
55 to 64	25,184	6,245	24.8	12,436	5,112	41.1	12,455	1,040	8.4
65+	9,673	2,155	22.3	4,882	1,748	35.8	4,642	361	7.8
Hispanic ethnicity									
Hispanic	25,611	4,219	16.5	8,036	3,119	38.8	17,282	1,006	5.8
Non-Hispanic	120,643	33,410	27.7	58,053	26,916	46.4	61,038	5,935	9.7
Marital status									
Married	80,142	22,930	28.6	40,091	18,419	45.9	39,098	4,176	10.7
Never married	46,770	10,310	22.0	17,546	8,170	46.6	28,611	1,909	6.7
Other marital status	19,343	4,390	22.7	8,453	3,446	40.8	10,611	856	8.1
Educational attainment									
Less than a high school diploma	10,414	345	3.3	1,061	144	13.5	9,282	198	2.1
High school graduate, no college	36,722	3,224	8.8	9,473	2,237	23.6	26,890	917	3.4
Some college, associate's degree	39,112	6,612	16.9	15,744	5,125	32.6	22,832	1,349	5.9
Bachelor's degree only	37,539	15,226	40.6	23,793	12,641	53.1	13,191	2,327	17.6
Advanced degree	22,468	12,223	54.4	16,018	9,888	61.7	6,125	2,151	35.1

Note: COVID-19 = coronavirus disease 2019; O*Net = Occupational Information Network.

Source: U.S. Bureau of Labor Statistics, Current Population Survey supplement.

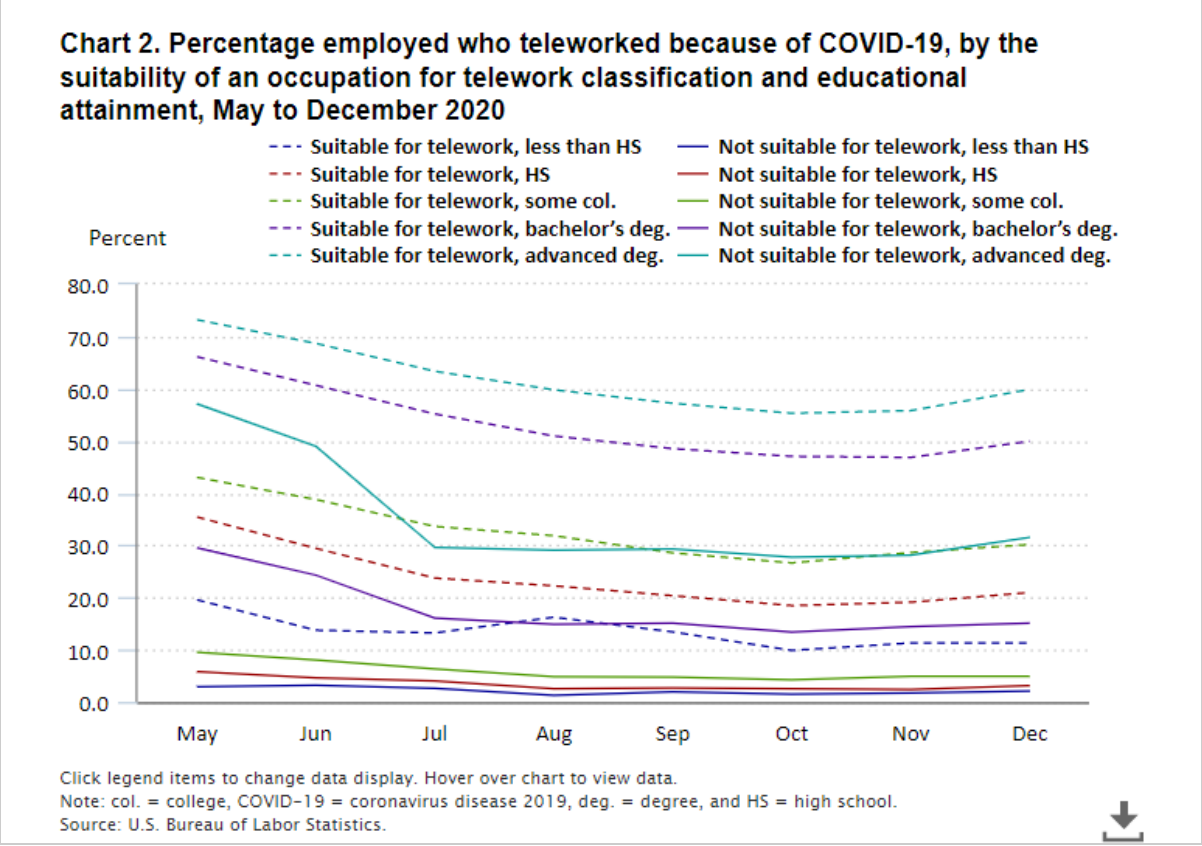
In previous work, Matthew Dey, Harley Frazis, Mark A. Loewenstein, and Hugette Sun showed that in occupations in which telework is feasible, the proportion of workers who actually teleworked (hereafter, the "takeup rate") was particularly high before the pandemic for workers in management, professional, and sales occupations—over 20 percent in all three groups—in the ATUS and the National Longitudinal Survey of Youth.[7] Takeup rates in all other occupation groups were 10 percent or less. Grouping occupations into high and low takeup-rate categories accordingly, chart 1 shows trends in telework because of the pandemic in the May-December 2020 period for our

three occupational categories: suitable for telework and high prepandemic takeup rate, suitable for telework and low prepandemic takeup rate, and unsuitable for telework.



Although the CPS and the prepandemic surveys are not entirely comparable, the pandemic has clearly caused an increase in telework for both low and high takeup-rate occupations. However, although one might speculate that low takeup-rate occupations would have had a particularly large increase in telework and that this increase would have grown with time as employers adapted to pandemic conditions, this did not occur. In both high and low prepandemic take-up rate occupations, telework rates were high relative to their levels in prepandemic surveys.[8] Telework rates decreased for both occupation groups later in the year but remained high compared with prepandemic levels. Throughout the second half of 2020, the telework rate in high prepandemic takeup-rate occupations remained substantially above the rate in low takeup-rate occupations.

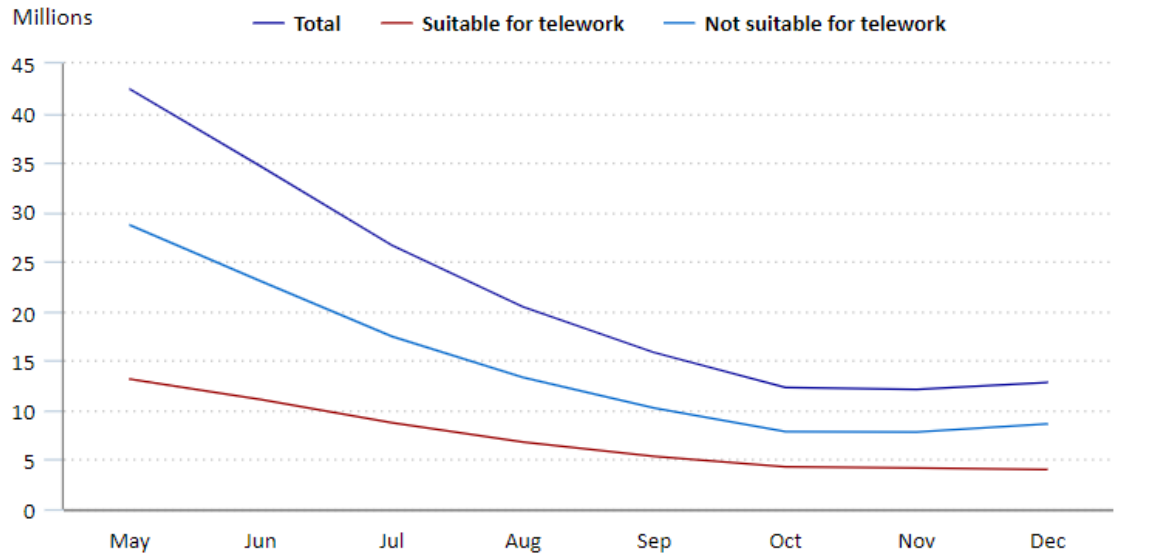
Chart 2 shows how teleworking rates varied in the May-December 2020 period by educational attainment. Teleworking rates declined rather rapidly from May to July for bachelor's degree and advanced degree holders in occupations classified as not suitable for telework. However, the rates later in the year were still much higher than those in lower educational attainment groups who were also in occupations classified as not suitable for telework. This finding suggests that telework was a temporary expedient for at least some workers with high levels of education.



Rates of lost work because of COVID-19

What were the direct effects of the pandemic on employment, and how did this vary by the suitability for telework? Among the questions added to the CPS to track the effects of COVID-19 was "At any time in the last 4 weeks, were you unable to work because your employer closed or lost business due to the coronavirus pandemic?"[9] Chart 3 shows trends in the number of persons who lost work because of the coronavirus pandemic. The underlying population for chart 3 is the experienced labor force—the employed, plus the unemployed with previous work experience. The number of workers who lost work in the last 4 weeks declined from 42 million in May 2020 to 12 million in October 2020 before leveling off. In each month, most of these workers were in occupations classified as not suitable for telework, although both types of occupations showed declines in lost work as the year progressed.

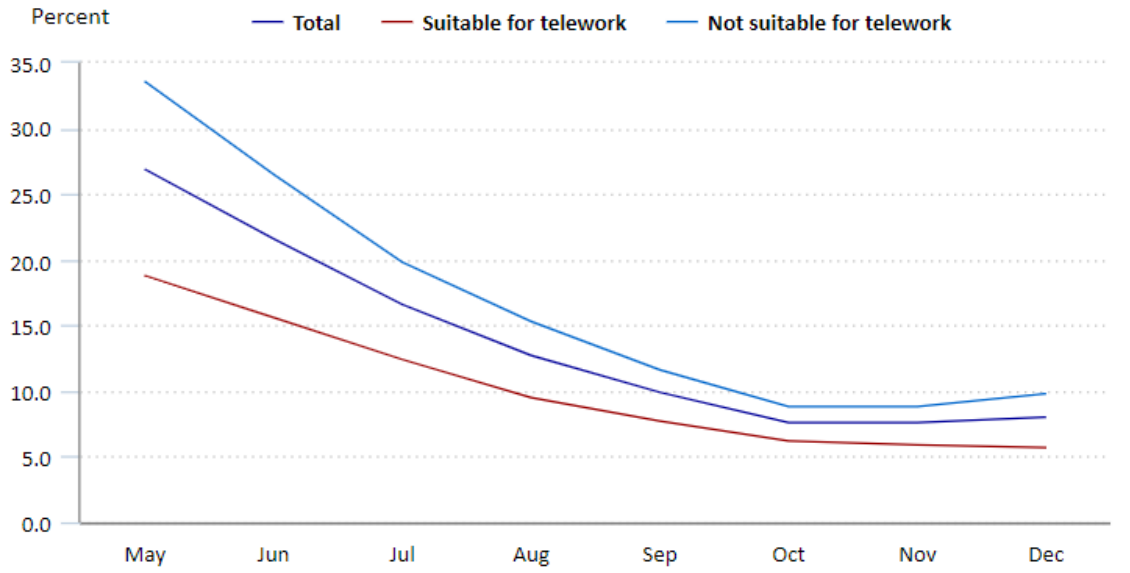
Chart 3. Number of persons (in millions) in experienced labor force who were unable to work at some point in last 4 weeks because employer closed or lost business because of COVID-19, by the suitability of an occupation for telework, May to December 2020



Click legend items to change data display. Hover over chart to view data.
Note: COVID-19 = coronavirus disease 2019.
Source: U.S. Bureau of Labor Statistics.

Chart 4 shows the percentage of workers reporting lost work because of the pandemic. In May 2020, 27 percent of workers lost work, declining to approximately 8 percent in each month of the fourth quarter. As might be expected, workers in occupations classified as suitable for telework were less likely to report that they had lost work because of the pandemic. In May, 34 percent of workers lost work in occupations classified as not suitable for telework, in contrast to 19 percent of workers in occupations classified as suitable for telework. These rates declined to 9 percent and 6 percent, respectively, by the fourth quarter.

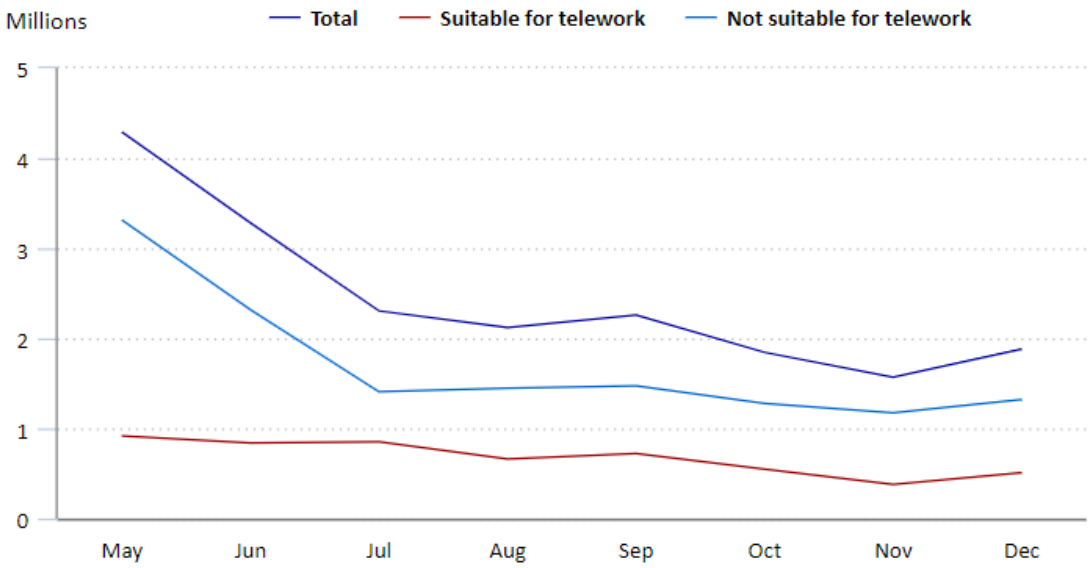
Chart 4. Percentage of persons in experienced labor force who were unable to work at some point in last 4 weeks because employer closed or lost business because of COVID-19, by the suitability of an occupation for telework, May to December 2020



Click legend items to change data display. Hover over chart to view data.
Note: COVID-19 = coronavirus disease 2019.
Source: U.S. Bureau of Labor Statistics.

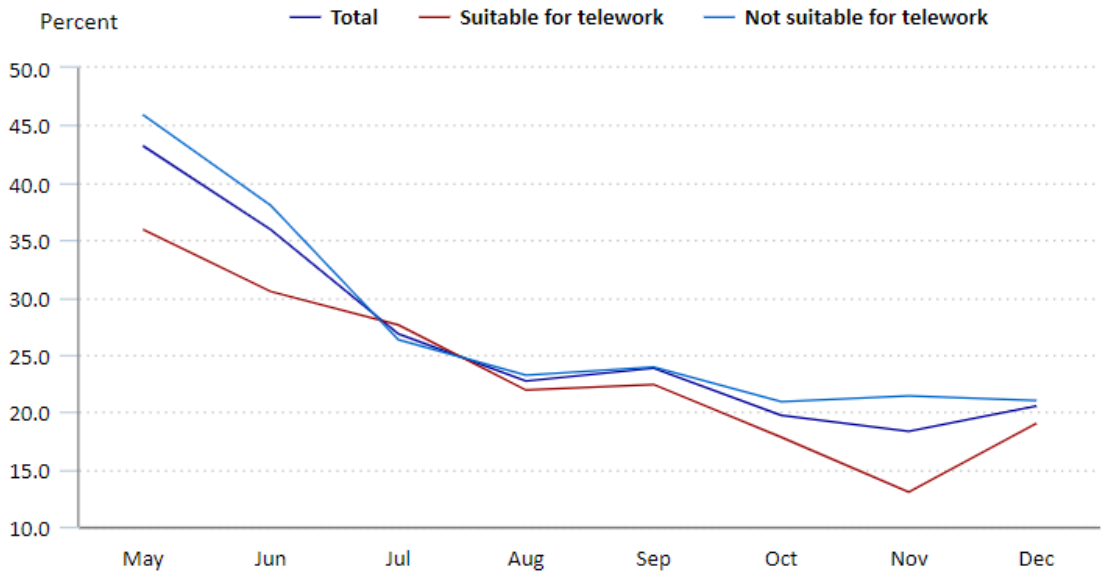
Some persons may not have searched for work and instead may have withdrawn from the labor force in response to losing a job because of the pandemic. Charts 5 and 6 repeat charts 3 and 4 for the population of persons who withdrew from the labor force after working within the last 12 months. Over 4 million persons who were out of the labor force in May 2020 and who had worked within the previous 12 months reported losing work in the last 4 weeks because of the pandemic. This number declined to less than 2 million by the end of the year. These were predominantly persons whose most recent job was in an occupation classified as not suitable for telework—over 3 million such persons in May, for example.

Chart 5. Number of persons (in millions) recently exiting labor force who were unable to work at some point in last 4 weeks because employer closed or lost business because of COVID-19, by the suitability of an occupation for telework, May to December 2020



Click legend items to change data display. Hover over chart to view data.
Note: Numbers only include persons exiting labor force in previous 12 months. COVID-19 = coronavirus disease 2019.
Source: U.S. Bureau of Labor Statistics.

Chart 6. Percentage of persons recently exiting labor force who were unable to work at some point in last 4 weeks because employer closed or lost business because of COVID-19, by the suitability of an occupation for telework, May to December 2020



Click legend items to change data display. Hover over chart to view data.
Note: Percentages only include persons exiting labor force in previous 12 months. COVID-19 = coronavirus disease 2019.
Source: U.S. Bureau of Labor Statistics.

As chart 6 shows, the numbers in the previous paragraph are a large percentage of withdrawals from the labor market by the recently employed. In May, approximately 43 percent of those not in the labor force who had worked in the last 12 months reported losing work in the last 4 weeks because of the pandemic. The percentage declined to a still substantial 20 percent by the end of the year.

Table 3 shows averages for May to December 2020 by demographic category for workers reporting lost work because of the pandemic. Both the demographic group and whether the occupation is classified as suitable for telework are important determinants of lost work. For example, 12.9 percent of Hispanics in occupations classified as suitable for telework reported losing work, compared with 19.9 percent of Hispanics in occupations not suitable for telework. For comparison, the equivalent numbers for non-Hispanics were 9.9 percent and 15.7 percent, respectively.

Table 3. People (in thousands) in occupations classified as suitable and unsuitable for telework who were unable to work because of COVID-19, by suitability for telework designation from O*NET, for experienced labor force, May–December 2020

Demographic category	All			Suitable for telework			Not suitable for telework		
	Total	Unable to work because of COVID-19	Percent	Total	Unable to work because of COVID-19	Percent	Total	Unable to work because of COVID-19	Percent
All workers	159,772	22,137	13.9	69,991	7,180	10.3	87,691	14,614	16.7

See footnotes at end of table.

Table 3. People (in thousands) in occupations classified as suitable and unsuitable for telework who were unable to work because of COVID-19, by suitability for telework designation from O*NET, for experienced labor force, May–December 2020

Demographic category	All			Suitable for telework			Not suitable for telework		
	Total	Unable to work because of COVID-19	Percent	Total	Unable to work because of COVID-19	Percent	Total	Unable to work because of COVID-19	Percent
Gender									
Male	84,798	11,199	13.2	33,842	3,297	9.7	50,134	7,767	15.5
Female	74,975	10,938	14.6	36,149	3,883	10.7	37,557	6,847	18.2
Race									
White only	123,762	16,360	13.2	54,748	5,448	10.0	67,451	10,665	15.8
Black only	19,984	3,237	16.2	7,306	916	12.5	12,362	2,274	18.4
Asian only	10,291	1,539	15.0	5,762	513	8.9	4,404	998	22.7
All other	5,735	1,001	17.5	2,175	305	14.0	3,474	678	19.5
Age, years									
16 to 24	19,935	3,091	15.5	4,889	593	12.1	14,792	2,456	16.6
25 to 54	102,102	13,623	13.3	46,772	4,468	9.6	53,994	8,961	16.6
55 to 64	27,208	3,657	13.4	13,136	1,388	10.6	13,744	2,205	16.0
65+	10,528	1,766	16.8	5,194	731	14.1	5,161	993	19.2
Hispanic ethnicity									
Hispanic	28,725	5,089	17.7	8,698	1,121	12.9	19,701	3,915	19.9
Non-Hispanic	131,048	17,049	13.0	61,293	6,059	9.9	67,990	10,699	15.7
Marital status									
Married	85,353	10,625	12.4	41,842	3,938	9.4	42,463	6,522	15.4
Never married	53,162	8,209	15.4	19,112	2,170	11.4	33,318	5,917	17.8
Other marital status	21,257	3,303	15.5	9,038	1,073	11.9	11,909	2,176	18.3
Educational attainment									
Less than a high school diploma	11,903	2,213	18.6	1,163	179	15.4	10,655	2,015	18.9
High school graduate, no college	41,098	6,350	15.5	10,225	1,207	11.8	30,438	5,066	16.6
Some college, associate's degree	43,184	6,657	15.4	16,996	2,124	12.5	25,581	4,429	17.3
Bachelor's degree only	40,151	4,731	11.8	25,030	2,371	9.5	14,511	2,282	15.7
Advanced degree	23,437	2,186	9.3	16,578	1,299	7.8	6,506	823	12.6

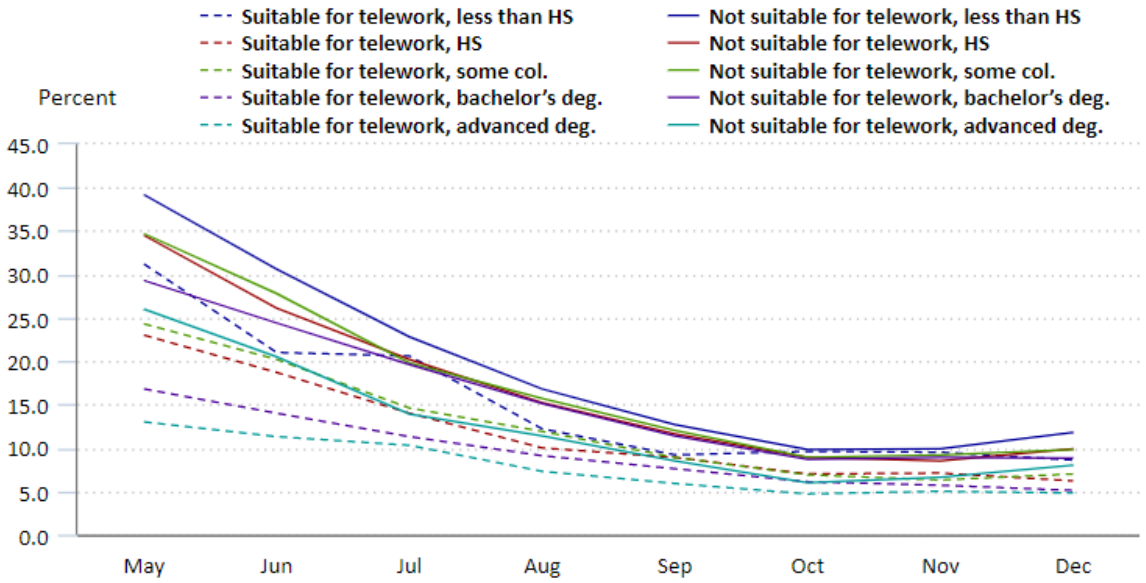
Note: COVID-19 = coronavirus disease 2019; O*Net = Occupational Information Network.

Source: U.S. Bureau of Labor Statistics, Current Population Survey supplement.

As with the reported teleworking category, educational attainment shows a particularly strong effect on lost work. For example, advanced degree holders in occupations classified as not suitable for telework report lost work at approximately the same percentage as those with some college in occupations classified as suitable for telework (12.6 vs. 12.5 percent). Recall from table 2 that workers with more education had higher rates of telework even after controlling for occupational suitability for telework. So, at least part of the advantage of more highly educated workers with respect to lost work likely is due to suitability for telework of their jobs not captured by our occupational classification.

Chart 7 shows trends in lost work because of the pandemic in the May-December 2020 period, by educational attainment and occupational suitability for telework. The chart shows that the greatest differences between groups occurred early in the period when the percentage reporting lost work was greatest.

Chart 7. Percentage of persons in experienced labor force unable to work at some point in last 4 weeks because employer closed or lost business because of COVID-19, by the suitability of an occupation for telework and educational attainment, May to December 2020



Click legend items to change data display. Hover over chart to view data.
Note: col. = college, COVID-19 = coronavirus disease 2019, deg. = degree, and HS = high school.
Source: U.S. Bureau of Labor Statistics.

Conclusion

This article has examined the reaction of the U.S. labor market to the COVID-19 pandemic, using questions added to the CPS in May 2020. We analyzed the prevalence of both telework and lost work because of the pandemic in the May-December 2020 period. Our major focus was on how these outcomes varied by an occupation's suitability for telework. To aid in our analysis, we revised a commonly used classification to reduce the incidence of telework by workers classified as unable to telework.

The pandemic resulted in a large increase in teleworking, with 33 percent of U.S. workers reporting that they had teleworked because of the coronavirus pandemic in May-June before the percentage declined to a still substantial 22 percent in the fourth quarter. The suitability of occupations for telework is, unsurprisingly, an important determinant of this rate.

The pandemic also directly caused substantial rates of lost work. Rates of lost work varied widely both by an occupation's suitability for teleworking and by demographic category. As having an occupation classified as suitable for telework is itself correlated with demographic characteristics, workers with characteristics associated with high-telework occupations enjoyed a substantial advantage in weathering the pandemic.

Although falling from their peak at the start of the pandemic, teleworking rates are still considerably higher than before the pandemic. It seems likely that some of the increase in teleworking will be permanent as workers and employers gain experience with teleworking arrangements and with the information technology that helps facilitate teleworking.[10] Although teleworking entails some costs and limits some of the interactions that occur among coworkers, it still provides benefits even in the absence of a pandemic. For example, employers can potentially economize on office space. Workers who telework only part of the time save on commuting time and costs and have more flexibility in managing their household tasks. Workers who are full-time teleworkers are not constrained to live near their employer, thereby enlarging the set of potential employer-worker matches.

Appendix. Breakdown of teleworking suitability of occupations

Appendix table 1. O*NET categories and their variables and cutoffs used to classify occupations as suitable for telework by Jonathan I. Dingel and Brent Neiman and DFLP

Appendix table 2. OES-based employment and mean wage estimates, by four-digit NAICS and suitable for telework

Appendix table 3. Occupational Employment Statistics-based employment and mean wage estimates, by detailed MSA and suitable for telework category

SUGGESTED CITATION

Matthew Dey, Harley Frazis, David S. Piccone Jr, and Mark A. Loewenstein, "Teleworking and lost work during the pandemic: new evidence from the CPS," *Monthly Labor Review,* U.S. Bureau of Labor Statistics, July 2021, https://doi.org/10.21916/mlr.2021.15.

NOTES

1 For more information regarding the added questions that measure the effects of the coronavirus disease 2019 pandemic, see https://www.bls.gov/covid19/measuring-the-effects-of-the-coronavirus-covid-19-pandemic-using-the-current-population-survey.htm.

2 Jonathan I. Dingel and Brent Neiman, "How many jobs can be done at home?" *Journal of Public Economics,* vol. 189, no. 2, September 2020. See also Matthew Dey, Harley Frazis, Mark A. Loewenstein, and Hugette Sun, "Ability to work from home: evidence from two surveys and implications for the labor market in the COVID-19 pandemic," *Monthly Labor Review*, June 2020, https://doi.org/10.21916/mlr.2020.14, assessing the Dingel and Neiman classification using telework rates in earlier datasets.

3 See Harley Frazis, "Who telecommutes? Where is the time saved spent?" BLS Working Paper 523, April 2020, https://www.bls.gov/osmr/research-papers/2020/ec200050.htm. Frazis considers workers as teleworkers if they work entirely at home on some days. Current Population Survey respondents are not asked how many hours or days they worked at home.

4 See appendix table 1 for a comprehensive list of the Occupational Information Network variables and cutoffs used in both the Dingell and Neiman and our classification schemes (called "DFLP," which stands for Dey, Frazis, Loewenstein, and Piccone).

5 Dingel and Neiman have also observed that wages are higher in occupations that are suitable for telework.

6 See Susanna Loeb, "How effective is online learning? What the research does and doesn't tell us," *Education Week*, March 20, 2020, https://www.edweek.org/technology/opinion-how-effective-is-online-learning-what-the-research-does-and-doesnt-tell-us/2020/03.

7 Dey et al., "Ability to work from home," p. 9.

8 Telework rates most likely jumped up in April 2020, but May is the first month for which we have data.

9 This question was asked of all individuals, regardless of their labor force status at the time of the survey.

10 Both the popular press and the economics literature widely speculate that telework will be substantially higher after the pandemic than before. For example, see Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis, "Why working from home will stick," Working Paper 28731 (Cambridge, MA: National Bureau of Economic Research, April 2021), https://www.nber.org/papers/w28731, who surveyed workers about their expectations to telework after the pandemic.

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