

TOBIAS SYTSMA

The Globalization of Remote Work

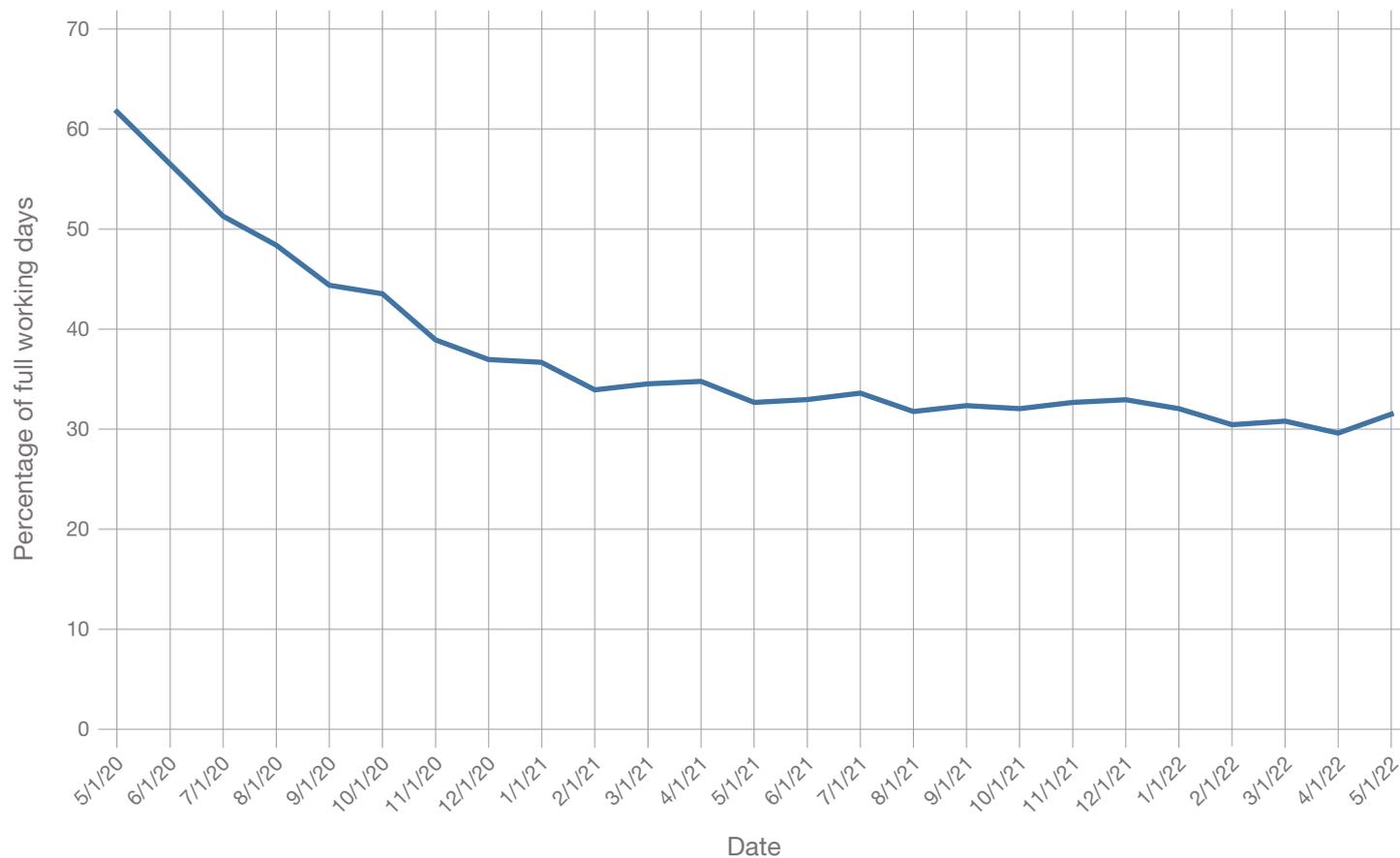
Will Digital Offshoring Make Waves in the U.S. Labor Market?

Quietly, over the past several decades, advances in digital technology have expanded the capacity of remote work. However, this capacity was relatively underutilized in many organizations until the coronavirus disease 2019 (COVID-19) pandemic.¹ In the early months of the pandemic, roughly two-thirds of economic activity in the United States was done remotely.² While rates of remote work have fallen since 2020, most survey evidence suggests that it is likely here to stay. For instance, a Pew Research survey found that 59 percent of workers with jobs that can be done from home were still teleworking as of January 2022.³ Survey data from Barrero, Bloom, and Davis, 2021, indicate that 30 percent of all full paid working days are being spent at home, as of May 2022 (Figure 1). This is a sixfold increase relative to the prepandemic baseline of 4.8 percent.⁴ Survey results from Brynjolfsson et al., 2022, show that 21 percent of workers say that most of their work will be remote after the pandemic, and 9.5 percent say all their work will be remote.⁵ Similarly, the pandemic led to a rapid increase in

innovation surrounding technologies that support remote work⁶ and an increase in firm-level investments in digital technologies.⁷

Since the start of the pandemic, many in the popular press have pointed out the potential for remote work to lead to increased offshoring. For instance, Will Daniel wrote in

FIGURE 1
Percentage of Full Paid Working Days Worked from Home



SOURCE: Data from Barrero, Bloom, and Davis, 2021.

NOTE: This figure displays the percentage of full paid working days worked from home. The data in the figure come from a survey conducted in waves by Barrero, Bloom, and Davis, 2021.

Fortune, “Since the remote-work era began over two years ago, business leaders and economists have suggested that it may backfire by creating a more difficult environment for white-collar workers as companies begin to consider offshoring jobs to reduce costs.”⁸ Similar sentiments appear in other publications, including the *Financial Times*,⁹ the *National Review*,¹⁰ and *Forbes*.¹¹

Behind these concerns is the idea that U.S. employers could replace domestic workers with inexpensive offshore workers using telework. These concerns are not new. Offshoring has been going on for decades in some information technology and business processing occupations.¹² However, the unprecedented growth in remote work since the beginning of the pandemic may mean offshoring is about to become more common. Digital technologies (including those that make remote work possible) make services easier to transmit across distances. As a result, U.S. service sector workers may face increased competition for jobs from workers in other countries where wages are significantly lower. The situation mirrors how improvements in communication technologies increased the tradability of production activities in the late 20th century, which contributed to job losses in the U.S. manufacturing sector.¹³ Digital offshoring—moving jobs overseas to cheaper locations using digital technologies—could be performed by firms specializing in specific activities, similar to offshoring that has already occurred in customer service jobs. Alternatively, distributed work platforms could allow individual contractors to carry out offshored tasks and jobs.¹⁴

Digital offshoring appears to be on the rise. Recent survey data from Barrero, Bloom, and Davis, 2021, show that high domestic labor costs have led 8 percent (net) of employers to use remote work to increase offshoring over

the past year.¹⁵ Research suggests that artificial intelligence (AI) technologies and offshoring are complements.¹⁶ Growth in AI adoption could lead to increased offshoring as well. While it may seem simple to offshore a job, the relationship between offshoring and the domestic labor market is complicated. The labor market impact of digital offshoring will depend on the types of tasks and jobs that are offshored, how the gains from trade are distributed across society, and what kinds of new employment opportunities digital offshoring creates for American workers. With 80 percent of U.S. workers employed in the service sector¹⁷ and the historical failure to compensate workers displaced by previous waves of globalization,¹⁸ digital offshoring in a post-COVID world may directly or indirectly impact many American workers.

What Can We Learn from Previous Waves of Offshoring?

Offshoring refers to moving some aspects of a company’s processes or services overseas. Often, this is done to take advantage of lower costs in foreign markets. Offshoring is sometimes conflated with outsourcing, but they are not the same. *Outsourcing* refers to contracting out a specific part of business operations to a third party, who may or may not be located in a foreign country. *Digital outsourcing* could be thought of as a company replacing in-person workers with remote workers in another U.S. state, while *digital offshoring* is a company replacing domestic workers with remote workers in another country.

Economic theory highlights two main implications of offshoring. First, theory predicts that offshoring will have a positive impact on the overall economy. The posi-

tive impact is driven by productivity improvements. When employers offshore jobs, they can cut costs, lower prices, and grow. Their growth creates additional growth throughout the economy. Second, offshoring displaces some workers. This job loss, while often smaller in magnitude than the job gains produced by the first effect, can be devastating for affected workers and some local communities.¹⁹ While, in theory, the gains from offshoring could be redistributed to those who are displaced, this is difficult to do in practice.

A 2003 McKinsey report put some numbers to the economic theory.²⁰ The authors estimated that every dollar of U.S. services offshored to India in 2003 created \$1.47 globally, a 47-cent “return on investment.” Of that \$1.47, 33 cents went to India. Of the remaining \$1.14 left for the United States, shareholders and consumers of the firms that offshored got 54 percent, the initially displaced U.S. workers got 41 percent through reemployment in other firms or other occupations, and the remaining 5 percent went toward additional exports. A lot has changed since 2003, but these numbers provide some insight into the way offshoring redistributes value across the economy.

How Many Jobs Are “Offshorable”?

There is a large literature on the labor market implications of service-sector offshoring dating back to the early 2000s. Most of this research occurred before the pandemic. For instance, Blinder, 2009, estimated that 22–29 percent of all U.S. service jobs could be offshored over the next several decades.²¹ Other studies have come to similar conclusions. Van Welsum and Vickery, 2005, estimated that 20 percent of total U.S. employment in services is offshorable,²² and

Jensen and Kletzer, 2010, found that 38 percent of U.S. workers are employed in offshorable service occupations.²³ However, evidence of substantial job losses due to service offshoring is scarce. Instead, Crinò, 2010, notes that, up until the mid-2000s, service offshoring had had, at most, a small negative effect on total employment. Estimates from 2004 indicate that job losses due to offshoring accounted for a small fraction (3–4 percent) of total job losses in the United States.²⁴

Since the pandemic, a renewed interest in offshoring has led to additional research on offshorable service jobs. Some of this research has focused on improving estimates of potentially offshorable jobs. For instance, Frey et al., 2021, estimated that 26 percent of U.S. service jobs could be offshored over time. Others use new data sources and empirical methods to evaluate changes in service-sector offshoring. Ozimek, 2020, evaluated the claims made in Blinder, 2009, and other earlier studies, finding that most of the occupations that were predicted to be offshored have become remote jobs in the United States rather than moving overseas.²⁵

The emerging research on offshoring in the wake of the pandemic indicates that any significant impact on U.S. jobs has yet to materialize, but some note that the pandemic has likely accelerated its arrival.²⁶ A 2020 report from NTT, a Japanese telecommunication firm, suggested that 45 percent of global corporations expected to expand their use of outsourcing over the next 18 months, though they were not surveyed about whether the outsourced jobs would be domestic or offshore.²⁷ Survey evidence from Barrero, Bloom, and Davis, 2021, found that 8 percent (net) of employers have used remote work to increase offshoring during the pandemic.²⁸ Equally important,

however, is how little we know about how many jobs have already moved offshore. Studies in this literature cite data limitations as a primary obstacle to projecting how future offshoring may evolve.²⁹

What Are the Characteristics of Offshorable Service Jobs?

While data on jobs that have actually been offshored are lacking, empirical research suggests that jobs that (1) are relatively more skill-intensive, (2) provide impersonal services with little face-to-face interaction, and (3) make intensive use of internet and communication technology are the most tradeable and, hence, the most offshorable.³⁰ Other studies highlight the importance of soft skills and communication when considering jobs that can be performed remotely and potentially offshored, highlighting that not all tradeable jobs are offshorable. For instance, Baldwin and Dingel, 2021, find that teleworkable (i.e., tradeable) jobs tend to require stronger English language skills and place greater importance on written expression, persuasion, and social perception than non-teleworkable jobs.³¹

According to Frey et al., 2021, digitally offshorable service jobs tend to be relatively high-skill and higher-paying.³² Examples include such occupations as software developers, editors, accountants, and office clerks. These characteristics are notably different from those of jobs exposed to industrial robots and automation, which tend to be lower-paying jobs with more routine tasks. Examples of jobs at high risk of automation include cashiers and assembly work.³³

What are **high-skill** and **low-skill** jobs? These terms are commonly used to describe the technical training and knowledge required to carry out job tasks. A skilled job may or may not require a college degree, though often researchers use degrees as a way of delineating a job's skill level. Higher-skilled jobs have larger barriers to entry because workers need to acquire skills before they can perform the tasks effectively. As a result, higher-skilled jobs are typically higher-paying jobs.

Emerging research highlights a potentially troubling trend: Automation can result in increased offshoring.³⁴ Baldwin, 2019, wrote that the dual process of automation and offshoring could put increased pressure on the middle class, giving rise to greater inequality within countries including the United States.³⁵

Using data from an online job platform, Brinatti et al., 2021, evaluated which jobs are offshorable using information on worker and employer locations.

Their findings are broadly aligned with previous research; the most offshorable jobs fall in the technology or information sector.³⁶ For example, software development, computer programming, and data management occupations are highly offshorable. The study also found that nontech jobs—such as architect, interior designer, interpreter and translator, accountant, and order clerk—are offshorable as well. Additionally, the authors provided evidence that wages for remote workers are beginning to converge to a single global wage. However, the authors noted that wage gaps for online labor still exist across countries.

A future concern?

Research is identifying new links between technology and offshoring. Several studies have found that when employers adopt AI, they are likely to also increase offshoring. For instance, Stapleton, 2020, found that the adoption of machine learning has led firms to increase offshoring of business and professional services. Similarly, Stapleton and Webb, 2020, found that firms that had not already offshored jobs became more likely to do so after adopting industrial robots. Nordas and Tang, 2022, found that AI adoption has led to greater offshoring in service sectors as well.

Offshoring Contributes to Economic Inequities

Given that higher-skilled tasks appear to be easier, in theory, to offshore, one might expect that service offshoring will reduce demand for higher-skilled domestic workers. This line of thinking is behind the numerous articles in the popular press that foretell the “loss of good jobs” as a result of offshoring. For example, Simon Kuper wrote in the *Financial Times* that “The biggest economic winners of the last 40 years were highly skilled natives living in superstar cities. They risk becoming the biggest losers of the next era. To quote the scary new mantra: if you can do your job from anywhere, someone anywhere can do your job.”³⁷

However, relatively few studies find evidence supporting these fears. In fact, most empirical analyses find that service offshoring increases the demand for high-skilled workers in the domestic economy. In other words, offshoring higher-skilled jobs and tasks *improves* the employment opportunities for domestic higher-skilled workers. For instance, Crinò, 2010, found that service offshoring is skill-biased because it tends to increase employment in skilled occupations and reduce employment in lower-skill occupations.³⁸ Geishecker and Görg, 2013, found that service-sector offshoring has contributed to a widening wage gap between skilled and less-skilled workers.³⁹ A similar effect was found in Andersson, Karpaty, and Savsin, 2016.⁴⁰ One

exception is Ornaghi, Van Beveren, and Vanormelingen, 2021, who use transaction-level data from Belgian firms to find that service offshoring reduced labor demand for higher-skilled workers in Belgium.⁴¹

What explains the positive association between service offshoring and domestic demand for high-skilled service labor? One explanation is that offshored activities complement domestic high-skilled labor.⁴² For example, offshoring computer programming jobs creates a need for managers to oversee operations or quality control experts to monitor output. Another potential explanation is that offshoring allows firms and industries to grow, and this growth tends to favor high-skilled workers. For example, offshoring computer programming jobs makes computer software less expensive and allows firms that work with software to expand hiring. If higher-skilled workers tend to work with software more than lower-skilled workers, offshoring can create more demand for higher-skilled workers. Theoretical work shows that offshoring high-skilled tasks can lead to wage growth among domestic high-skilled workers through this productivity mechanism.⁴³

Is This Time Different?

Taken together, the literature on service-sector offshoring suggests that future waves of offshoring, driven by advances in digital technology and remote work, will likely not result in an economically meaningful decline in the demand for service workers, though it may increase inequality. Is there reason to believe that “this time is different,” and that remote work and new digital technologies may cause larger-than-expected disruptions to the U.S. labor market? The answer to this question might be “yes.”

Let’s start with reasons why this time might not be different. First, the costs of engaging in long-distance remote work are still quite high. For example, remote offshore workers may be less productive than in-person workers. The research on the productivity of remote workplaces remains mixed, with some studies finding that remote workers are just as productive as their in-person counterparts,⁴⁴ while others found that they are less productive.⁴⁵ Productivity differences could cause global remote work wages to differ across countries. However, the pandemic may have shifted perceptions about the productivity of remote workers. A PriceWaterhouseCoopers survey found that 83 percent of employers say remote work has been successful during the pandemic, and 52 percent say that productivity has grown since the start of the pandemic.⁴⁶ The same survey found that the vast majority of employers are planning to make continued investments in remote work supporting technologies, including tools for virtual collaboration and IT infrastructure.

Relatedly, it may be difficult to integrate remote offshore workers into company culture, and, even when it is possible to successfully integrate a remote worker, there

may be regulatory barriers that make offshoring infeasible. Reporting suggests that employers believe the pandemic, and the resulting boom in remote work, has adversely affected organizational culture.⁴⁷ Along with data and cybersecurity issues that arise with remote work, these findings suggest that there are limits to the types of occupations that can be offshored. Extraterritorial data privacy laws, such as the EU’s General Data Privacy Regulation, that limit where and how data can be shared and stored may protect private information on citizens but will also likely hinder the growth of cross-border trade in digital services,⁴⁸ making digital offshoring more costly than hiring remote domestic workers.

Why might we see greater uptake of offshoring in a postpandemic economy? The first reason has to do with declining costs. While the costs of digital offshoring are high, they are falling. Many of the costs associated with digital offshoring are fixed or sunk costs.⁴⁹ Identifying offshore talent pipelines, building out secure IT infrastructure, and developing new workplace policies to integrate remote workers are costs that, once incurred, allow an employer to engage in digital offshoring. However, because these costs are large and potentially nonrecoverable, it takes a significant shock, creating a permanent change to economic conditions, for employers to be willing to pay them. Once these costs are paid, employers are likely to use their new capabilities. This is known as sunk-cost hysteresis.⁵⁰ A once-in-a-century global pandemic is a significant shock, and employers appear to believe the changes brought on by the pandemic will persist. In other words, the pandemic may have been the tipping point at which making these large investments became cost-effective for many employers. And the cost of these investments may

Research suggests that the greater a sector's exposure to AI, the more likely it is to offshore jobs to lower-income countries.

decline with the number of employers having made the leap owing to network effects.

It is also possible that the historical relationship between service offshoring and domestic labor demand is partly because of the types of occupations that were cost-effective to offshore. New technologies may create new offshoring opportunities. For instance, growth in computer vision and virtual reality technologies could facilitate service-sector offshoring in new occupations. Currently, occupations that require inspecting equipment, structures, or materials may not be suitable for remote work, and thus are not very tradeable.⁵¹ However, technological advances could make those activities more tradeable. For example, virtual reality platforms may be used to collaborate with offshore contractors and inspectors in the construction industry.⁵² Collaborative virtual environments, where remote team members can manipulate objects and react to each other in real time, have been developing for several years.⁵³ Additionally, there is evidence that the pandemic

is pushing firms to invest in new technologies. A recent analysis of U.S. patent applications found that patents for new technologies that support video conferencing, telecommuting, and remote interactivity doubled between January and September of 2020.⁵⁴ Other studies find that the pandemic has accelerated the adoption of digital technologies, particularly digital communication software, among American firms.⁵⁵ Whether newly offshorable jobs have a different relationship to firm productivity, or different complementarities with other domestic jobs, remains an open question. If they do, the impact of digital offshoring on domestic labor markets may differ from that of previous waves of offshoring.

There are other ways that new technologies may enhance offshoring opportunities. Technology makes some jobs less reliant on face-to-face interactions. Taxi services are a prime example. Historically, taxi services required someone to drive passengers to their destination. Technology is slowly changing this relationship. Several companies now offer self-driving taxis in San Francisco, Phoenix, and surrounding cities.⁵⁶ The main source of labor in the taxi services of the future may be in data processing services. Processing, analyzing, and storing the massive amount of data that these self-driving taxis produce does not require face-to-face interaction and, in theory, could be performed by offshore workers. This example highlights how automation and offshoring go hand-in-hand: Robots and AI can replace workers in jobs that require face-to-face interaction, while offshore workers can perform the growing “back end” jobs in data processing.

Research suggests that the greater a sector's exposure to AI, the more likely it is to offshore jobs to lower-income countries.⁵⁷ For instance, Nordas and Tang, 2022, stud-

ied the Swedish economy, finding that AI exposure leads to greater offshoring of IT, management, research and development, and other business functions, and that this offshoring is negatively associated with in-house employment. Stapleton, 2021, found a similar result among UK firms.⁵⁸ Stapleton and Webb, 2020, also found that automation makes Spanish firms more likely to offshore.⁵⁹ These results indicate that an increasingly automated economy may also be an increasingly offshored economy.

Conclusions

What does all this mean for U.S. workers? It could spell trouble for those in an occupation that has become easier to offshore. Cities that have built their regional economy on these jobs may also want to keep an eye on emerging remote work trends over the next several years. The hollowing out of downtown San Francisco, where half of the city's publicly traded companies have gone fully remote,⁶⁰ may be a bellwether for other regional technology hubs. However, the news is not all bad. Digital offshoring will create demand for other types of jobs in the United States. Again, in San Francisco, office buildings that were once built for technology firms are being converted and leased as life science laboratory space.⁶¹

There will always be "good jobs" available in the United States for American workers, but that does not mean that everyone will have access to those opportunities, or that the transition from the current economy to

the economy of the future will be painless. Programs like Trade Adjustment Assistance (TAA), designed to help workers get back on their feet after being displaced by trade-related activities, have a relatively mixed track record of success.⁶² More research is needed to understand whether the TAA, as currently constituted, can effectively help workers who have been displaced by digital offshoring transition to new employment opportunities.

There are many open questions when it comes to digital offshoring. For example, future research should describe the upskilling or reskilling needed to prepare workers for the increased competition they may face in the globalized remote work labor market. Research is needed to understand the regional economic impacts of digital offshoring as well. The loss of regional jobs to digital offshoring could reduce local tax revenue, change demand for such public services as transportation, and harm local retailers.

However, a key limitation in answering the open questions in this area is the lack of data on offshored jobs. Unlike trade in goods, the ambiguities of service trade make it difficult to capture systematically. For instance, when a company imports a good, it must file customs forms that document where the good comes from, the good's commodity code, and when the good was purchased. This sort of documentation does not exist for service trade, making it difficult to track global transactions. Better data collection efforts are needed to understand the potential impacts of digital offshoring on American workers.

Notes

- ¹ Althoff et al., 2021.
- ² Bloom, 2020.
- ³ Parker, Horowitz, and Minkin, 2022.
- ⁴ Barrero, Bloom, and Davis, 2021.
- ⁵ Brynjolfsson et al., 2022.
- ⁶ Bloom, Davis, and Zhestkova, 2021.
- ⁷ Barrero, Bloom, and Davis, 2021.
- ⁸ Daniel, 2022.
- ⁹ Kuper, 2021.
- ¹⁰ Stuttaford, 2022.
- ¹¹ Levanon, 2022.
- ¹² Farrell et al., 2003, pp. 7–9.
- ¹³ Kemeny, Rigby, and Cooke, 2015; Autor, Dorn, and Hanson, 2016.
- ¹⁴ Lehdonvirta et al., 2019.
- ¹⁵ Barrero, Bloom, and Davis, 2021.
- ¹⁶ Stapleton and Webb, 2020; Stapleton, 2020; Nordas and Tang, 2022.
- ¹⁷ U.S. Bureau of Labor Statistics, 2021.
- ¹⁸ Kletzer, 2004.
- ¹⁹ Brainard and Litan, 2004.
- ²⁰ Farrell et al., 2003.
- ²¹ Blinder, 2009.
- ²² Van Welsum and Vickery, 2005.
- ²³ Jensen and Kletzer, 2010.
- ²⁴ Crinò, 2010.
- ²⁵ Ozimek, 2020.
- ²⁶ Baldwin, 2020.
- ²⁷ NTT, 2020.
- ²⁸ Barrero, Bloom, and Davis, 2021.
- ²⁹ Brainard and Litan, 2004; Baldwin and Dingel, 2021.
- ³⁰ Blinder, 2009; Crinò, 2010.
- ³¹ Baldwin and Dingel, 2021.
- ³² Frey et al., 2021.
- ³³ Frey et al., 2021.
- ³⁴ Stapleton, 2020; Stapleton and Webb, 2020; Nordas and Tang, 2022.
- ³⁵ Baldwin, 2019.
- ³⁶ Brinatti et al., 2021.
- ³⁷ Kuper, 2021.
- ³⁸ Crinò, 2010.
- ³⁹ Geishecker and Görg, 2013.
- ⁴⁰ Andersson, Karpaty, and Savsin, 2016.
- ⁴¹ Ornaghi, Van Beveren, and Vanormelingen, 2021.
- ⁴² Crinò, 2009.
- ⁴³ Grossman and Rossi-Hansberg, 2008.
- ⁴⁴ Choudhury, Foroughi, and Larson, 2021; Barrero, Bloom, and Davis, 2021.
- ⁴⁵ Morikawa, 2022; Gibbs et al., 2021.
- ⁴⁶ Caglar et al., 2021.
- ⁴⁷ Chartered Institutes of Internal Auditors, undated.
- ⁴⁸ Office of the U.S. Trade Representative, 2017.
- ⁴⁹ Ellram, Tate, and Billington, 2008.
- ⁵⁰ Baldwin, 2020.
- ⁵¹ Jensen and Kletzer, 2010.
- ⁵² Wu et al., 2019.
- ⁵³ Oyekan et al., 2017.
- ⁵⁴ Bloom, Davis, and Zhestokova, 2021.
- ⁵⁵ Barrero, Bloom, and Davis, 2021.

- 56 “Driverless Taxis Are Coming to the Streets of San Francisco,” 2022.
- 57 Nordas and Tang, 2022.
- 58 Stapleton, 2021.
- 59 Stapleton and Webb, 2020.

- 60 Tong, Gillespie, and Truong, 2022.
- 61 Tong, Gillespie, and Truong, 2022.
- 62 Schochet, Berk, and Dolfen. 2013; Hyman, 2018.

References

- Andersson, Linda, Patrik Karpaty, and Selen Savsin, “Firm-Level Effects of Offshoring of Materials and Services on Relative Labor Demand,” *Review of World Economics*, Vol. 152, No. 2, 2016, pp. 321–350. As of August 30, 2022:
<https://doi.org/10.1007/s10290-015-0243-8>
- Althoff, Lukas, Fabian Eckert, Sharat Ganapati, and Conor Walsh, “The Geography of Remote Work,” National Bureau of Economic Research Working Paper 29181, 2021. As of August 30, 2022:
<https://doi.org/10.3386/w29181>
- Autor, David H., David Dorn, and Gordon H. Hanson, “The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade,” *Annual Review of Economics*, Vol. 8, No. 1, 2016, pp. 205–240.
- Baldwin, Richard, *The Globotics Upheaval: Globalization, Robotics, and the Future of Work*, Oxford, UK: Oxford University Press, 2019.
- Baldwin, Richard, “Covid, Hysteresis, and the Future of Work,” *VoxEU*, May 29, 2020. As of August 30, 2022:
<https://voxeu.org/article/covid-hysteresis-and-future-work>
- Baldwin, Richard, and Jonathan I. Dingel, “Telemigration and Development: On the Offshorability of Teleworkable Jobs,” National Bureau of Economic Research Working Paper 29387, 2021. As of August 30, 2022:
<https://doi.org/10.3386/w29387>
- Barrero, Jose Maria, Nicholas Bloom, and Steven J. Davis, *Why Working from Home Will Stick*, Rochester, NY: Social Science Research Network, SSRN Scholarly Paper 3741644, 2021. As of August 30, 2022:
<https://doi.org/10.2139/ssrn.3741644>
- Blinder, Alan, “How Many US Jobs Might Be Offshorable?” *World Economics*, Vol. 10, No. 2, 2009, pp. 41–78.
- Bloom, Nicholas, “How Working from Home Works Out,” policy brief, Stanford Institute for Economic Policy Research, June 2020. As of August 30, 2022:
<https://siepr.stanford.edu/publications/policy-brief/how-working-home-works-out>
- Bloom, Nicholas, Steven J. Davis, and Yulia Zhestkova, “COVID-19 Shifted Patent Applications Toward Technologies That Support Working from Home,” *AEA Papers and Proceedings*, Vol. 111, May 2021, pp. 263–266. As of August 30, 2022:
<https://doi.org/10.1257/pandp.20211057>
- Brainard, Lael, and Robert Litan, “Outsourcing, Offshoring–Service Offshoring: Bane or Boon and What to Do?” *CESifo Forum*, Vol. 5, January 2004, pp. 3–7.
- Brinatti, Agostina, Alberto Cavallo, Javier Cravino, and Andres Drenik, “The International Price of Remote Work,” National Bureau of Economic Research Working Paper 29437, 2021. As of August 30, 2022:
<https://doi.org/10.3386/w29437>
- Brynjolfsson, Erik, John Horton, Christos A. Makridis, Alex Mas, Adam Ozimek, Daniel Rock, and TuYe Hong-Yi, “How Many Americans Work Remotely?” Stanford Digital Economy Lab, March 22, 2022. As of June 13, 2022:
<https://digitaleconomy.stanford.edu/publications/how-many-americans-work-remotely/>
- Caglar, Deniz, Vinay Couto, Bhushan Sethi, and Ed Faccio, “Business Needs a Tighter Strategy for Remote Work,” webpage, PricewaterhouseCoopers, January 12, 2021. As of August 30, 2022:
<https://www.pwc.com/us/en/library/covid-19/us-remote-work-survey.html>
- Chartered Institutes of Internal Auditors, “Hybrid Office Working Exposes Post-Pandemic Culture Crisis,” press release, undated. As of June 13, 2022:
<https://www.iaa.org.uk/policy-and-research/press-releases/hybrid-office-working-exposes-post-pandemic-culture-crisis/>

- Choudhury, Prithwiraj (Raj), Cirrus Foroughi, and Barbara Larson, “Work-from-Anywhere: The Productivity Effects of Geographic Flexibility,” *Strategic Management Journal*, Vol. 42, No. 4, 2021, pp. 655–683. As of August 30, 2022: <https://doi.org/10.1002/smj.3251>
- Crinò, Rosario, “Offshoring, Multinationals and Labour Market: A Review of the Empirical Literature,” *Journal of Economic Surveys*, Vol. 23, No. 2, 2009, pp. 197–249. As of August 30, 2022: <https://doi.org/10.1111/j.1467-6419.2008.00561.x>
- Crinò, Rosario, “Service Offshoring and White-Collar Employment,” *Review of Economic Studies*, Vol. 77, No. 2, 2010, pp. 595–632.
- Daniel, Will, “The Layoffs at Tesla Show That White-Collar Workers Are Screwed, Hedge Funder Famous from ‘The Big Short’ Predicts,” *Fortune*, June 29, 2022. As of August 30, 2022: <https://fortune.com/2022/06/29/michael-burry-tesla-layoffs-white-collar-workers-screwed-offshoring-the-big-short/>
- “Driverless Taxis Are Coming to the Streets of San Francisco,” Associated Press, June 3, 2022. As of August 30, 2022: <https://www.npr.org/2022/06/03/1102922330/driverless-self-driving-taxis-san-francisco-cruise>
- Ellram, Lisa M., Wendy L. Tate, and Corey Billington, “Offshore Outsourcing of Professional Services: A Transaction Cost Economics Perspective,” *Journal of Operations Management*, Vol. 26, No. 2: Offshoring of Service and Knowledge Work, 2008, pp. 148–63. As of August 30, 2022: <https://doi.org/10.1016/j.jom.2007.02.008>
- Farrell, Diana, Martin N. Baily, Vivek Agrawal, Vivek Bansal, Tim Beacom, Noshir Kaka, Manish Kejriwal, Anil Kumar, Vincent Palmade, Jaana Remes, and Thomas-Anton Heinzl, *Offshoring: Is It a Win-Win Game?* McKinsey Global Institute, August 1, 2003.
- Frey, Carl Benedikt, James Ainley, Jason B. Bazinet, Igor Cesarec, Nelson Cheung, Nick Coulter, Robert Garlick, Ronit Ghose, Surendra Goyal, Daniel Grosslight, et al., *Technology at Work v6.0: The Coming of the Post-Production Society*, CitiGPS, June 16, 2021. As of August 30, 2022: <https://www.citivelocity.com/citigps/technology-at-work-v6-0/>
- Geishecker, Ingo, and Holger Görg, “Services Offshoring and Wages: Evidence from Micro Data,” *Oxford Economic Papers*, Vol. 65, No. 1, January 2013, pp. 124–46. As of August 30, 2022: <https://doi.org/10.1093/oeq/gpr055>
- Gibbs, Michael, Friederike Mengel, and Christoph Siemroth, *Work from Home & Productivity: Evidence from Personnel & Analytics Data on IT Professionals*, Rochester, N.Y.: Social Science Research Network, SSRN Scholarly Paper 3843197, 2021. As of September 8, 2022: <http://dx.doi.org/10.2139/ssrn.3841457>
- Grossman, Gene M., and Esteban Rossi-Hansberg, “Trading Tasks: A Simple Theory of Offshoring,” *American Economic Review*, Vol. 98, No. 5, 2008, pp. 1978–1997. As of August 30, 2022: <https://doi.org/10.1257/aer.98.5.1978>
- Hyman, Benjamin, *Can Displaced Labor Be Retrained? Evidence from Quasi-Random Assignment to Trade Adjustment Assistance*, Rochester, N.Y.: Social Science Research Network, SSRN Scholarly Paper 3155386, 2018. As of August 30, 2022: <https://doi.org/10.2139/ssrn.3155386>
- Jensen, J., and Lori G. Kletzer, “Measuring Tradable Services and the Task Content of Offshorable Services Jobs,” in Katharine Abraham, James Spletzer, and Michael Harper, eds., *Labor in the New Economy*, Cambridge, Mass.: National Bureau of Economic Research, 2010. As of August 30, 2022: <https://econpapers.repec.org/bookchap/nbrnberch/10826.htm>
- Kemeny, Thomas, David Rigby, and Abigail Cooke, “Cheap Imports and the Loss of US Manufacturing Jobs,” *World Economy*, Vol. 38, No. 10, 2015, pp. 1555–1573. As of August 30, 2022: <https://doi.org/10.1111/twec.12238>
- Kletzer, Lori G., “Trade-Related Job Loss and Wage Insurance: A Synthetic Review,” *Review of International Economics*, Vol. 12, No. 5, 2004, pp. 724–748. As of August 30, 2022: <https://doi.org/10.1111/j.1467-9396.2004.00479.x>
- Kuper, Simon, “Are Superstar Employees About to Be Offshored?” *Financial Times*, March 25, 2021.
- Lehdonvirta, Vili, Otto Kässi, Isis Hjorth, Helena Barnard, and Mark Graham, “The Global Platform Economy: A New Offshoring Institution Enabling Emerging-Economy Microproviders,” *Journal of Management*, Vol. 45, No. 2, 2019, pp. 567–599. As of August 30, 2022: <https://doi.org/10.1177/0149206318786781>
- Levanon, Gad, “Remote Work: The Biggest Legacy of Covid-19,” *Forbes*, November 23, 2022. As of July 20, 2022: <https://www.forbes.com/sites/gadlevanon/2020/11/23/remote-work-the-biggest-legacy-of-covid-19/>
- Morikawa, Masayuki, “Work-from-Home Productivity During the COVID-19 Pandemic: Evidence from Japan,” *Economic Inquiry*, Vol. 60, No. 2, 2022, pp. 508–527. As of September 8, 2022: <https://doi.org/10.1111/ecin.13056>

Nordas, H., and A. Tang, “Artificial Intelligence, Trade and Services Jobs,” Trade and Investment in Services Associates Network, Working Paper No. 2022-14, 2022. As of August 30, 2022: https://iit.adelaide.edu.au/ua/media/1783/wp-2022-14-h-nordas_a-tang.-march-2022.pdf

NTT, *2020 Global Managed Services Report*, Tokyo, 2020. As of August 30, 2022: <https://services.global.ntt/en-us/insights/2020-global-managed-services-report>

Office of the U.S. Trade Representative, “Key Barriers to Digital Trade,” fact sheet, March 2017. As of August 30, 2022: <http://ustr.gov/about-us/policy-offices/press-office/fact-sheets/2017/march/key-barriers-digital-trade>

Ornaghi, Carmine, Ilke Van Beveren, and Stijn Vanormelingen, “The Impact of Service and Goods Offshoring on Employment: Firm-Level Evidence,” *Canadian Journal of Economics/Revue Canadienne d'économique*, Vol. 54, No. 2, 2021, pp. 677–711. As of August 30, 2022: <https://doi.org/10.1111/caje.12520>

Oyekan, John, Vinayak Prabhu, Ashutosh Tiwari, Vinubha Baskaran, Mark Burgess, and Rob McNally, “Remote Real-Time Collaboration Through Synchronous Exchange of Digitised Human–Workpiece Interactions,” *Future Generation Computer Systems*, Vol. 67, February 2017, pp. 83–93. As of August 30, 2022: <https://doi.org/10.1016/j.future.2016.08.012>

Ozimek, Adam, “When Work Goes Remote,” Rochester, N.Y.: Social Science Research Network, SSRN Scholarly Paper ID 3777324, 2020. As of August 30, 2022: <https://www.upwork.com/press/releases/when-work-goes-remote>

Parker, Kim, Juliana Menasce Horowitz, and Rachel Minkin, “COVID-19 Pandemic Continues to Reshape Work in America,” Pew Research Center Social and Demographic Trends Project, Washington, D.C., February 16, 2022. As of August 30, 2022: <https://www.pewresearch.org/social-trends/2022/02/16/covid-19-pandemic-continues-to-reshape-work-in-america/>

Schochet, Peter, Jillian Berk, and Sarah Dolfin, “Estimated Impacts of TAA on Participants’ Outcomes Under the Trade Act of 2002,” Washington, D.C.: Association for Public Policy Analysis and Management Conference, November 8, 2013. As of August 30, 2022: <https://www.mathematica.org/publications/estimated-impacts-of-taa-on-participants-outcomes-under-the-trade-act-of-2002>

Stapleton, K., ed., *Essays on Technology, Trade and Labour Markets*, thesis, University of Oxford, 2020. As of August 30, 2022: <https://ora.ox.ac.uk/objects/uuid:304e5b4b-8943-4ac0-abea-6f18a6d72978>

Stapleton, Katherine, and Michael Webb, “Automation, Trade and Multinational Activity: Micro Evidence from Spain,” Rochester, NY: Social Science Research Network, SSRN Scholarly Paper 3681143, 2020. As of August 30, 2022: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3681143

Stuttaford, Andrew, “Will Someone Someday Work at Your Job from Their Home?” *National Review*, May 17, 2022. As of August 30, 2022: <https://www.nationalreview.com/corner/will-someone-someday-work-at-your-job-from-their-home/>

Tong, Anna, Joseph Gillespie, and Kevin Truong, “Easy Come, Easy Go: How Tech Fueled the Boom and Bust of San Francisco Office Work,” *San Francisco Standard*, July 8, 2022. As of August 30, 2022: <https://sfstandard.com/business/how-techies-fueled-boom-and-bust-of-sf-office-work/>

U.S. Bureau of Labor Statistics, “Employment by Major Industry Sector,” database, updated September 8, 2021. As of June 13, 2022: <https://www.bls.gov/emp/tables/employment-by-major-industry-sector.htm>

Van Welsum, D., and G. Vickery, “Potential Off-Shoring of ICT-Intensive Occupations,” in *Enhancing the Performance of the Services Sector*, Paris: OECD Publishing, 2005, pp. 179–204.

Wu, Tzong-Hann, Feng Wu, Ci-Jyun Liang, Yi-Fen Li, Ching-Mei Tseng, and Shih-Chung Kang, “A Virtual Reality Tool for Training in Global Engineering Collaboration,” *Universal Access in the Information Society*, Vol. 18, No. 2, 2019, pp. 243–255. As of August 30, 2022: <https://doi.org/10.1007/s10209-017-0594-0>

About This Perspective

Remote work creates opportunities for organizations to engage in cross-border trade in services and offshoring. “Digital offshoring”—moving jobs overseas to cheaper locations using digital technologies—could be one of the long-run impacts of the recent remote work boom. In other words, services may be about to go through a period of globalization, similar to what the manufacturing sector experienced in the late 1990s and early 2000s. This Perspective looks at the history of offshoring to gain insights into the potential impact that digital offshoring may have on U.S. workers. Like previous waves of offshoring, digital offshoring will create winners and losers. However, the scope and scale of digital offshoring could be more extensive than earlier waves of service-sector offshoring. Given the relatively poor track record of policies designed to compensate workers harmed by earlier waves of globalization, digital offshoring in a post-COVID world may directly or indirectly affect many workers.

Funding

Funding for this research was made possible by the Lowy family, whose generous gift established the RAND Lowy Family Middle-Class Pathways Center in 2021.

RAND Lowy Family Middle-Class Pathways Center

This research was conducted within the RAND Lowy Family Middle-Class Pathways Center. The center aims to identify ways to create and sustain middle-class employment in the face of rapidly changing labor-market conditions. The center is part of RAND Education and Labor, a division of the RAND Corporation that conducts research on early childhood through postsecondary education programs, workforce development, and programs and policies affecting workers, entrepreneurship, and financial literacy and decisionmaking.

For more information about the RAND Lowy Family Middle-Class Pathways Center, visit www.rand.org/mcpc. For more information on RAND Education and Labor, visit www.rand.org/education-and-labor.

About the Author

Tobias Sytsma is an associate economist at the RAND Corporation. His research focuses on technology, international trade, and labor market competition.

The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest.

Research Integrity

Our mission to help improve policy and decisionmaking through research and analysis is enabled through our core values of quality and objectivity and our unwavering commitment to the highest level of integrity and ethical behavior. To help ensure our research and analysis are rigorous, objective, and nonpartisan, we subject our research publications to a robust and exacting quality-assurance process; avoid both the appearance and reality of financial and other conflicts of interest through staff training, project screening, and a policy of mandatory disclosure; and pursue transparency in our research engagements through our commitment to the open publication of our research findings and recommendations, disclosure of the source of funding of published research, and policies to ensure intellectual independence. For more information, visit www.rand.org/about/research-integrity.

RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. **RAND**® is a registered trademark.

Limited Print and Electronic Distribution Rights

This publication and trademark(s) contained herein are protected by law. This representation of RAND intellectual property is provided for noncommercial use only. Unauthorized posting of this publication online is prohibited; linking directly to its webpage on rand.org is encouraged. Permission is required from RAND to reproduce, or reuse in another form, any of its research products for commercial purposes. For information on reprint and reuse permissions, please visit www.rand.org/pubs/permissions.

For more information on this publication, visit www.rand.org/t/PEA1141-7.

© 2022 RAND Corporation



www.rand.org