Tapping Business and Household Surveys to Sharpen Our View of Work from Home[1]

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Abstract

Timely *business-level* measures of work from home (WFH) are scarce for the U.S. economy. We review prior survey-based efforts to quantify the incidence and character of WFH and describe new questions that we developed and fielded for the Business Trends and Outlook Survey (BTOS). Drawing on more than 150,000 firm-level responses to the BTOS, we obtain four main findings. First, nearly a third of businesses have employees who work from home, with tremendous variation across sectors. The share of businesses with WFH employees is nearly ten times larger in the Information sector than in Accommodation and Food Services. Second, employees work from home about 1 day per week, on average, and businesses expect similar WFH levels in five years. Third, feasibility aside, businesses' largest concern with WFH relates to productivity. Seven percent of businesses find that onsite work is more productive, while two percent find that WFH is more productive. Fourth, there is a low level of tracking and monitoring of WFH activities, with 70% of firms reporting they do not track employee days in the office and 75% reporting they do not monitor employees when they work from home. These lessons serve as a starting point for enhancing WFH-related content in the American Community Survey and other household surveys.

[1] Any opinions and conclusions expressed herein are those of the authors and do not represent the views of the U.S. Census Bureau. The Census Bureau has ensured appropriate access and use of confidential data and has reviewed these results for disclosure avoidance protection (Project 7512395 [MOPS]: CBDRB-FY24-CES022-004; Project 7529868 [BTOS]: CBDRB-FY23-0478, CBDRB-FY24-0162, CBDRB-FY24-0225, CBDRB-FY25-ESMD010-001; Project 7529868 [BTOS Supplement]: CBDRB-FY25-0117). Corresponding coauthor: Lucia.S.Foster@census.gov. We thank Anne Polivka and Ken Robertson for sharing their expertise about BLS surveys, participants at the pre-conference NBER CRIW for their comments, and John Eltinge, Robert Sienkiewicz, and Joseph Staudt for their comments. *Buffington and Savage were Census Bureau employees when the majority of this paper was written.

1. Introduction

The COVID pandemic propelled work from home (WFH) into an important phenomenon that persists post-pandemic and could continue into the future (Bick et al. 2023 and Barrero et al. 2021, 2023). However, WFH has proved difficult to measure. Important data gaps remain, and existing estimates differ across surveys and other data sources, including those based on mobility measures and online job postings (Abraham et al. 2024, Barrero et al. 2023, Brynjolfsson et al. 2023, Hansen et al., 2023). We attempt to understand these differences and address these data gaps by developing and collecting new content from a *business* survey and researching potential new content for *demographic* surveys. We intend for these efforts to complement each other and provide a more holistic view by combining worker and business perspectives.

Federal *demographic* surveys have long collected information on work done from home. Starting in 1960, the decennial census long form collected data on commuting patterns, including work at home. These efforts continue with the American Community Survey (ACS). The Current Population Survey (CPS) collects information on telework through occasional supplements and now collects some of this information monthly. The Household Pulse Survey (HPS), started during the pandemic, provided timely information on WFH and telework before being discontinued.[2] Coverage by federal *business* surveys is not as consistent or timely. Motivated by the pandemic, the Annual Business Survey (ABS), the Business Response Survey (BRS), and Small Business Pulse Survey (SBPS) collected information on this topic.[3] Among them, only the ABS continues to collect WFH information, and its releases face a long lag. Thus, the latest available business data on WFH is from 2022.

The Business Trends and Outlook Survey (BTOS) data collection fills this gap by providing timely information on work from home from *businesses*. In developing content for the BTOS, we relied upon the lessons learned from demographic and business federal surveys, and the non-federal Survey of Working Arrangements and Attitudes (SWAA, see Barrero et al. (2021)). Additionally, we considered our own experiences as well as the insights of Bureau of Labor Statistics experts whose experiences with the CPS and BRS were invaluable. The result is a new effort collecting WFH business data starting with a single question running over the entire survey year and ten supplemental questions running from November 2024 through January 2025.

The resulting data, gathered from over 150,000 businesses, reveals three key findings. First, about one in three businesses reports having employees that worked from home at least one

[2] It is not possible to discuss all the federal surveys on this topic; Pratt (1997) lists the following as having content related to the mobile workforce: Characteristics of Business Owners (CBO), Current Population Survey (CPS), Decennial Census of Population, Health and Retirement Survey (HRS), National Education Longitudinal Study (NELS), National Household Education Surveys (NHES), National Longitudinal Surveys of Labor Market Experience, National Survey of Families and Households (NSFH), Nationwide Personal Transportation Survey (NPTS), Panel Survey of Income Dynamics (PSID), Statistics of Income (SOI), Survey of Income and Program Participation (SIPP). To this list we add American Time Use Survey (ATUS), Management and Organizational Practices Survey (MOPS), and National Longitudinal Survey of Youth (NLSY). After the Household Pulse Survey's (HPS) discontinuation, its work-from-home question was kept by its successor, the Household Trends and Outlook Survey (HTOPS).

[3] Prior to the pandemic, work from home data were occasionally collected by the Characteristics of Business Owners Survey (CBO) and Management and Organizational Practices Survey (MOPS).

workday in the prior two weeks. That statistic masks enormous heterogeneity, for example across sectors. There is about a ten-fold difference in the rate between businesses in Information (NAICS 51) and Food & Accommodation (NAICS 72). Over 60% of businesses in the Information sector have employees that WFH, whereas well under 10% in Food and Accommodation say the same.

Second, the average number of full WFH days per week is close to 1 among employees of BTOS respondents. Businesses expect this amount of WFH will persist for a number of years. Their forecasts for WFH looking 5 years ahead also imply an average of about 1 day per week for the typical employee.

Third, the key factors that businesses see as limiting WFH relate to feasibility – whether some or all tasks can be done from home – and concerns about productivity while WFH. When asked about productivity, however, businesses do not unequivocally associate WFH with low performance. Whereas businesses are three times likelier to perceive onsite employees as more productive than WFH employees, they are even likelier to say they have not observed differences in onsite versus WFH productivity. Again, these patterns differ widely across sectors. In the Information sector, businesses are about equally likely to say WFH and onsite work are more productive, whereas in Food & Accommodation they are ten times likelier to say onsite work is more productive.

Our paper adds to a recent and growing literature that attempts to measure the amount of work from home across individuals, regions, and countries. Barrero, Bloom and Davis (2021) provide monthly measures of WFH among US residents aged 20 to 64, since 2020 based on the SWAA. Other recent papers have examined other measures and sources, including cross-country measures in Aksoy et al. (2022), and other US-focused work by Barrero, Bloom and Davis (2023), Bick et al (2023), Brynjolfsson et al. (2024), Buckman et al. (2025) and Hansen et al (2023).[4] These papers broadly report days worked from home were about 5% pre-pandemic, surged to around 60% during the peak of the pandemic lockdown in April and May 2020, and have fallen back to around 25% from 2024 onwards. Some of those estimates are sensitive to sampling and measurement criteria, including selection by age (as workers under 20 and above 60 tend to have lower levels of remote work), income (as lower income and part-time workers tend to have lower levels of remote work), and question structure. Buckman et al. (2025) attempt to reconcile some of these differences over nine measures (six household/individual surveys, one business survey, and two tracking datasets), and conclude that a consistent measure is of about 25%.[5]

Existing *business*-focused data on WFH is often consistent with our findings in BTOS, but often has narrower coverage. The Atlanta Fed Survey of Business Uncertainty (SBU) suggests a WFH rate of about 1 day per week (about 20% of full paid days), just like the BTOS. But the SBU's

[4] Some of these researchers developed their own surveys or survey content, for example the Real-Time Population Survey and special questions included in the Atlanta Fed Survey of Business Uncertainty.

[5] The list of surveys covered by Buckman et al. (2025) includes some overlap with ones in this paper, but we have an expanded focus on business surveys. Their list is: SWAA, ATUS, HPS, CPS, ACS, Morning Consult, Survey of Business Uncertainty, Kastle badge swipe data, and Place AI cellphone tracking data.

sample reaches a few hundred private-sector businesses each month (see Barrero et al. (2025)). Flynn et al. (2024) collect data on the return-to-office policies published by publicly listed firms in the Russell 3000. They find hybrid schemes requiring one or more onsite days per week are the most common arrangement among these larger businesses. With the BTOS, we can test whether the same applies to a broader population, dominated by smaller and closely held firms.

A second literature has focused on the impact of working from home and remote work on a whole range of worker and business outcomes, including productivity (for example Bloom et al. (2015, 2024), Gibbs et al. (2023), Atkin et al. (2023), Emanuel and Harrington (2024), and Choudhury et al. (2024)). The typical finding is that hybrid work has little net impact on productivity, while fully remote working can reduce it. Other papers have also examined the impact on real estate, city structure, consumer spending, and even crime patterns (for example, Gupta et al. (2024), Ramani et al. (2024), Davis et al. (2024), and Monte et al. (2024)).

The BTOS data allow us to explore key questions about remote work that are difficult to address using household surveys or purely observational data. For example, some of the productivity challenges related to WFH might be because it is hard to monitor employees from afar. So, how do businesses monitor onsite and WFH employees differently? Similarly, is there some additional evidence (see, e.g., Aksoy et al. (2022) and Lewandowski et al. (2024)) that workers have some willingness to pay for the ability to WFH? For fully remote workers, that willingness to pay might be larger given they can now move to areas with lower cost of living. Do businesses respond by paying fully remote employees differently based on location? That is a question that BTOS respondents can answer and yet would be challenging to explore even with access to detailed payroll records, as those generally do not say whether an employee works fully remotely.

The paper proceeds as follows. In section 2, we describe how we developed WFH content for the BTOS. We present results from the BTOS collection in section 3 and discuss these results in light of other surveys' results in section 4. To help the reader follow the narrative from development, through results, and to context, sections 2-4 have the same format (for example, subsections 2.1, 3.1, and 4.1 all refer to the Extensive and Intensive Margins). In section 5, we describe ongoing research into improvements and enhancements of the ACS and HPS. Section 6 synthesizes the lessons from business and demographic surveys on WFH and offers some discussion about future directions.

2. Developing WFH Content for the BTOS

The Business Trends and Outlook Survey (BTOS) is an experimental data product designed to capture high-frequency changes in economic conditions through a qualitative survey of employer businesses. The survey is intended to provide an overview of the general state of businesses through a short series of questions conducted every two weeks. It provides information on current economic trends and expectations regarding core topics, such as prices, employment, and revenue. It also includes supplements focused on topical issues; for example, on business use of Artificial Intelligence, as documented by Bonney et al. (2024)). The BTOS sample includes

approximately 1.2 million single- and multiple-location businesses.[6] Each cycle consists of six panels, with each panel in the field for two weeks. Businesses in each panel are asked to participate again at the start of a new cycle, about every 12 weeks, surveyed for 4 or 5 cycles per sample year.[7] Details about the BTOS methodology are available online.[8] BTOS response data are not subject to editing due to the nature of the survey questions and rapid cycle of data collection and release. The BTOS WFH-Supplement survey was collected during a 12-week period covering November 2024 to January 2025, which received responses from about 151,000 individual firms.

BTOS results are published shortly after collection, providing a near-real-time view of economic phenomena (Buffington et al. 2023). Sector-level statistics published by BTOS restrict attention to businesses that operate solely in that sector; businesses with multiple locations assigned to more than one NAICS sector are considered unclassified for sectoral purposes and are not included in any sector total (they appear in Sector "XX"). These exclusions from detailed totals prevent double counting at the sector level, but these unclassified businesses are included in national totals (including by firm characteristics such as firm size).

We used the following criteria when considering adding content to this *business* survey: whether the content is (1) appropriate, based upon the Census Bureau's mission and our role in the larger Federal Statistical System; (2) consistent based upon the survey's goals (in this case measuring business trends and outlook in a more qualitative biweekly survey); and (3) optimal in terms of weighing the benefits of additional data collection to fill an information gap against the costs of additional respondent burden.[9] Census has previously collected WFH data in surveys and so the topic is <u>appropriate</u> based upon our mission "to serve as the nation's leading provider of quality data about its people and economy." The topic of WFH is <u>consistent</u> with BTOS' goals concerning measuring business trends and outlook about current issues. The topic is <u>optimal</u> as there is a

[6] The initial target population for BTOS is all nonfarm, single location employer businesses with receipts of $1,000 or more that are in the United States, District of Columbia, and Puerto Rico. From September 2023, the BTOS sample includes all employer businesses (single and multi-location) in the U.S., excluding the following 2017 North American Industry Classification System (NAICS) codes, which were designated as out of scope for the BTOS:
Agriculture production (NAICS in ["110000," "111," "112]); Railroads (NAICS = "482"); U.S. Postal Service (NAICS = "491"); Monetary Authorities – Central Bank (NAICS = "521"); Funds, Trusts, and other financial vehicles (NAICS = "525"); Religious grant operations and religious organizations (NAICS = "813"); Private households (NAICS = "814"); Public administration (NAICS = "92"); Unclassified with legal form of organization as tax-exempt or unknown.

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[8] https://www.census.gov/hfp/btos/methodology

[9] These are similar in spirit to the criteria that Census and BLS use in developing supplements to the CPS (see U.S. Census Bureau, Current Population Survey Design and Methodology Technical Paper 77, October 2019 (pp. 13-14)). We also considered administrative data, but unfortunately, the most likely candidate administrative data, Longitudinal Employer-Household Dynamics (LEHD)'s Origin Destination Employment Statistics (LODES) is not currently a good candidate for measuring work from home.

clear need for timely information about WFH from the business perspective (and BTOS has a relatively low respondent burden since it is qualitative). Table 1 shows the data gap, by summarizing currently available information household and business surveys. Some household data is available for 2025, but the most recent business data is for 2022.[10]

We considered the following dimensions in developing the questions about WFH from the business perspective, informed by our experiences with federal and *private* surveys (specifically, the SWAA):

- **Concept**: Whether we are trying to capture people who work *at* home, work *from* home, or telework. We are focusing on work from home because it is generally understood to encompass work performed remotely, away from the workplace. That includes work done *at* home as well as other remote locations (e.g., cafés and coworking spaces), instead of business or client premises. By its nature, work from home excludes work that provides services in public locations (e.g., transportation services provided at public facilities and on vehicles) or work done on client premises (e.g., plumber or construction services).[11]
- **Scope**: Whether we include all businesses or just employer businesses. This decision was determined by BTOS survey specifications; while some surveys capture all workers including the self-employed, BTOS excludes the self-employed. Our estimates will likely be affected by this decision, given that the SWAA shows higher levels of WFH among self-employed and contract workers.
- **Frequency**: Whether the survey is conducted at high or low frequency; current regularly occurring surveys range from monthly to annual collection periods. This decision was determined by the BTOS survey specification as a biweekly collection. However, published results from the WFH supplement pool data over an entire 12-week cycle. This pooling allows us to provide more detailed published estimates with fewer quality or disclosure avoidance suppressions. Moreover, we do not expect to see meaningful biweekly variation within the 12-week cycle based on experience with the SBPS. In that case, we found little weekly variation after the first few months of the pandemic. SWAA and HPS data also point to little month-to-month variation in WFH rates.
- **Latency**: Whether there will be a long or short lag between collection and publication. This decision is partly determined by survey specifications, as Census publishes core results from BTOS within a few days after collection. The pooled supplement results (except for the WFH intensity measures) were published February 2025 following the final collection in January 2025.
- **Time period**: Whether the collection should cover the entire survey year or just one cycle. This decision was, again, partly determined by BTOS survey specifications, which allow for

[10] We focus on the American Community Survey (ACS), Current Population Survey (CPS), Household Pulse Survey (HPS), Annual Business Survey (ABS), Business Response Survey (BRS), and the Small Business Pulse Survey (SBPS).

[11] As a further distinction, we are interested in capturing *paid* work from home. Elridge and Pabilonia (2010) discuss "bringing work home" but not being paid for it. We return to this point in section 2.1 when we provide a justification for asking about a "workday" to avoid incidental work from home.

collection of supplemental questions over a single 12-week cycle. However, given some concerns about seasonality, it was decided that one core question about the extensive margin of WFH would run for the entire survey year. In this sense, BTOS has a similar structure to that used by the CPS with its core and supplemental questions.

- **Reference period**: Whether the collection will refer to current, past, or future values. A few surveys ask about the past or future plans. This decision was partly determined by survey specifications, which focus on current estimates as measured in the last two weeks (with some questions about forward-looking expectations). Ultimately, BTOS asks limited questions about past and future work from home.
- **Context**: Which characteristics to include that might relate to the prevalence of working from home. Most surveys include information on sectors, some demographic surveys include information about occupation (CPS, SWAA), and one survey includes information on the demographics of the business owner (ABS). This decision was determined by the survey specification which includes sector and information that enables us to measure business size (employment).
- **Margins**: Whether and how to measure the intensive margin of WFH. Some surveys group the intensive margin into categories such as WFH all, some of the time, or never. Other surveys have more specific categories (e.g., 1, 2, 3, 4, or 5+ days per week). BTOS collects detailed information because specificity about intensive-margin categories could help us reconcile WFH estimates from business and worker surveys.
- **Challenges and Limitations**: Whether to collect information on limitations at the business that make work from home challenging. The ABS and CPS supplement ask about business or worker challenges. The BTOS includes questions about business challenges.
- **Adaptations (Management Practices)**: Whether to collect information on adaptations that businesses undertake to adopt WFH. These adaptations could include locality-based pay for fully remote workers, onsite requirements for hybrid workers, and practices that can help them monitor WFH and onsite workers. The SWAA and MOPS ask about some of these practices, and BTOS builds on these existing questions.
- **Impacts**: Whether to collect information about the business' perception of the direct and indirect impact of WFH on the business. A few surveys collect operational impacts (BRS and SBPS), productivity impacts (SWAA), and some collect information that could enable a researcher to quantify the productivity impacts (ABS and MOPS). The decision was made to attempt to collect this information in the BTOS, but it was not feasible to ask about all the types of impacts we initially considered.

Based on these considerations, the team drafted potential questions for two rounds of cognitive testing.[12] The questions were reviewed and approved by the Office of Management and Budget.

[12] The Data Collection Methodology and Research Branch used moderated cognitive interviewing and unmoderated survey collection to garner feedback on proposed new items for the BTOS including the Work from Home supplement. Representatives of over 150 companies (single and multi-firm units) participated over two rounds of cognitive testing (in May/June and June/July 2024).

The eleven WFH questions (Appendix A) cover four areas: extensive and intensive margins; challenges and limitations; management policies; and impact on the business.

We next describe how the BTOS questions were developed, providing specific examples of how we built on the experiences in the other surveys noted in this paper. We focus on the last 4 elements in the list above: margins, challenges and limitations, adaptations (management practices), and impacts.

2.1 Extensive and Intensive Margins

The BTOS *core* question concerns the extensive margin and is a yes/no question for whether, over a recent two-week period, the business had any paid employees who worked from home for at least one workday. It is important to distinguish between work from home for an extended period during the day (our object of interest) and incidental work from home (for example, working all day in the office and then catching up on emails while at home in the evening). The primary WFH question in the SWAA addresses this issue by asking respondents whether they worked "a full day (6 hours or more hours)" and whether that was work from home or on business or client premises (see Appendix C7, question 207). Building on this experience, and after successful testing, BTOS defined: "A workday is 6 or more hours." The finalized core question is shown in Appendix A (question 6). It is asked over the entire survey year to provide some sense of whether there are seasonal patterns in work from home.

The BTOS WFH *supplement* begins with questions on the intensity of WFH which build on several approaches used in existing surveys. The ABS asks for the percent of employees in five categories of WFH frequency: never, less than one day, one day, two to four days per week, and five or more days per week (Appendix C1, question A17). The last BRS asks for the percent of employees who currently telework the following amounts in a typical week: All the time, Some of the time, and rarely or never (Appendix C3, question 2). The most recent CPS asks first for the total number of hours a person worked last week and then for the number of hours that they teleworked (Appendix C4, question 2). The SWAA obtains data on the number of full paid working days that were work from home days by asking about each specific day of the prior week (Appendix C7, questions 4 and 207). That yields a number (from 0 to 7) for the number of WFH days, which can then be expressed as a share of all full paid workdays (including WFH and onsite days).

Considering these different approaches, we decided to ask for as much detail as possible about the share of employees who WFH in the BTOS, aiming to produce estimates that would be comparable to those from worker-level surveys. Thus, the BTOS supplement asks about the current share of workers who currently never WFH, who do so occasionally, and those who WFH 1, 2, 3, 4, or 5 or more days per week. Respondents are instructed that the total of the shares must equal 100% and that estimates are acceptable (Appendix A, question 27).

There is considerable interest in how WFH has changed since the pandemic and where it may be headed in the future. For example, the BRS asked about the past (specifically, prior to the pandemic, see Appendix C3 question 4) and the future (specifically, in the next 6 months, see Appendix C3, question 3). The SWAA asks about expectations one year into the future (Appendix C7 question 464): "Looking one year ahead, how often is your employer planning for you to work

full days at home?" The SWAA response options include "never," "about once or twice per month," "1 day per week," "2 days per week," and so on up to "5+ days per week," plus options for "my employer has not discussed this matter with me or announced a policy about it," and "I have no employer."

Building on these questions, the BTOS asks versions of the WFH intensity question referring to two additional time periods. The first is a question about actual WFH five years ago (in 2019), and the second asks them to project WFH levels five years into the future (in 2029, see Appendix A, questions 28-29). While the lookback horizon is longer than Census Bureau business surveys usually use for recall questions, cognitive testing suggests that people can broadly recall working arrangements in 2019, since they represent WFH norms before the onset of the pandemic. We also have precedent for five-year recall questions in versions of the MOPS. For example, the 2015 MOPS asks for the percent of workers who fall within different categories in 2010, including those who WFH one day or more per week.[13]

2.2 Challenges and Limitations

Results from existing surveys show heterogeneous adoption of WFH, raising a natural question about what prevents some businesses from offering WFH to their employees. The supplement asks one question about factors that may limit the ability of a business's paid employees to work from home. It builds upon a similar question asked in the ABS: "did any of the following factors limit the ability of this business's employees to work from home?" Respondents are asked to select all that apply from 5 checkboxes: (1) jobs or part of a job cannot be performed from home; (2) management of employees working from home is too costly or complicated; (3) security (IT or other) concerns; (4) other (with a write-in box); and (5) no limiting factors (see Appendix C1, question A18).

The September 2024 CPS supplement also asks questions about challenges and limitations associated with "work at home," but from the worker's perspective (Appendix C4, question S15). The CPS asks respondents who are employed but do not work at home, "what is the MAIN reason you do not work at home?"[14] Respondents can pick one of 7 reasons including: (1) job can't be done from home; (2) not interested/personal preference; (3) child care or family conflicts; (4) no equipment to work remotely/no space at home; (5) more productive at work, better connection with coworkers; (6) loss of opportunity, income, or promotion; manager doesn't support; and (7) some other reason.

The BTOS question incorporates all five of the checkbox responses from the ABS and adds three other reasons: efficiency/productivity concerns; challenges around mentoring/learning or

[13] The question on the 2015 MOPS is: "In 2010 and 2015, what percent of employees at the establishment could be classified in the following ways?" The respondent is asked to fill in percentages (noting that estimates are acceptable) for each of the following four categories of employees: "part-time," "working flexible hours," "worked from home one day or more per week," and "cross-trained." The majority of manufacturing establishments do not offer telework (77% did not offer telework option).

[14] An analogous question is asked about workers who work entirely at home and have a worksite that they could go to but choose not to (question S19). There is also a question for hybrid workers about the reasons that they work at home (question S24).

teamwork/socialization; and legal/regulatory/tax reasons (Appendix A, question 31). The first two of these additional reasons are motivated by the literature on the impact of WFH on productivity, and especially through the channel of the importance of in-person connections (see Emanuel et al. (2023), which we also discuss in section 2.4.1 below, and Battiston et al. (2022)). These first two reasons are also similar to one of the reasons listed by the CPS which combines productivity and connection with coworkers. The third adds a new dimension, which is related but distinct from "security concerns" and may be relevant for some businesses.

2.3 Adaptations (Management Practices)

The fact that some businesses face challenges in adopting WFH raises questions about changes the business can make to overcome them. They might, for example, adopt new management practices that make WFH amenable, like paying remote employees based on their location, implementing return-to-office policies to foster coordination, or changing the way they monitor onsite and WFH employees.

Focusing first on businesses with fully remote workers, the BTOS WFH supplement asks whether compensation differs based on where those employees live. This question is partly motivated by discussions concerning pay differentials for remote workers as compared to onsite workers (for example, see Barrero et al. (2023) and Pabilonia and Vernon (2025)). This type of question does not appear on the federal surveys that we focused on (ACS, ABS, BRS, CPS, HPS, or SBPS) but is asked in the SWAA. Focusing on fully remote workers (who did not work on business or client preferences in the prior week and report seeing their colleagues no more than once per month) the question asks, "does your pay depend on where you live?" The response options include "Yes – by location, for example pay varies by US city" and "No – fully remote employees are paid the same across the US" (see Appendix C7, question 486). The BTOS version of this question is from the business' perspective but is very similar, "Does this business pay its fully remote employees based partly on the cost of living where they live (locality pay)?" The response options are yes, no, or do not know/not applicable (Appendix A, question 30).

Another management-related question focuses on return-to-office (RTO) policies, based on questions first asked in the SWAA. In the example provided in Appendix C7, the first question concerns "How many distinct Return to Office Policies has your employer announced since fall 2020?" The responses range from none, two, through five or more (question 523). A follow-up question then asks, "Roughly what percent of your co-workers comply with your employer's current Return to Office Policy?" The respondent is asked to fill in a percent (question 524). Finally, the SWAA asks about non-compliance: "What happens to employees who don't comply with your employer's current Return to Office Policy?" In this case, respondents are asked to check all the potential consequences that apply from the following list: nothing; verbal reprimand; negative performance review; reduction in pay/bonus; threat to terminate if it continues; termination; other [where they can provide write-in response], and don't know. Manager preferences and career concerns similarly arise among the possible reasons why someone might not WFH in the CPS Supplement: "loss of opportunity, income, or promotion; manager doesn't support."

The BTOS builds on the SWAA questions concerning RTO policies, starting with a yes/no question about whether the business has a work-from-home policy with a minimum-in-person (onsite) requirement (Appendix A, question 32). A follow-up question asks, "How does this business track whether paid employees meet the minimum in-person (onsite) requirement?" (Appendix A, question 33). Respondents can check all that apply from the following list: badge swipe or sign-in sheet, attendance at in-person meetings, manager checks, other (please describe), and this business does not track whether in-person (onsite) requirements are met. This question should provide hard data about how businesses typically enforce RTOs. Anecdotal evidence suggests some businesses track in-person attendance lightly even when they have minimum in-person requirements, while others use badge swipes or more hands-on methods.

The final set of management questions in the BTOS WFH supplement ask about monitoring of onsite and WFH employees. While not directly related, the BTOS questions are similar in spirit to MOPS questions concerning the use of structured management practices (such as the use of key performance indicators). In the BTOS supplement, the first of a pair of questions asks, "How does this business monitor the activity of paid employees working from home?" (Appendix A, question 34). The respondent then selects all that apply from the following: computer activity; attendance/participation in online meetings; specific measures of output (for example, number of customers served, or calls answered, sales, units produced, etc.); other (please describe); and this business does not monitor paid employees working from home. A second, analogous, question about monitoring onsite employees has response options that overlap somewhat but also considers some forms of monitoring that are specific to the onsite setting (Appendix A, question 35). The respondent again selects all that apply from: arrival/departure times; computer activity; attendance/participation in meetings; specific measures of output (for example, number of customers served, or calls answered, sales, units produced, etc.); other (please describe); and this business does not monitor paid employees working in-person (onsite).

2.4 Impact on the Business

The BTOS provides an opportunity to learn about how managers perceive the impact of WFH on the business. These perspectives are relatively harder to obtain than those of workers, as individual workers are easier to reach via non-federal surveys like the SWAA. We were interested in three types of impact: on productivity, operations, and indirect impacts from other businesses. As we discuss below, the latter two topics did not make it on to the survey instrument, but we include them in the discussion here as examples of proposed question content that did not work out.

2.4.1 Productivity

Much of the interest in WFH from a business perspective concerns whether businesses perceive employees' productivity to be different when WFH versus onsite, or across different working arrangements like fully remote, fully onsite, and hybrid WFH (1 to 4 days WFH per week, on business premises the remaining days). Barrero et al. (2023) include an in-depth discussion about the potential productivity impacts of WFH and hybrid work. They make two points that motivate our inclusion of productivity questions in the BTOS supplement. First, the impacts of WFH are likely to be very different across businesses, due to different types of jobs, managers, and

workplace cultures. Thus, we should expect a heterogenous impact of WFH on productivity. Having more details about productivity impact and about the context, for example, information about the sector and size of the firm in a business survey, can be critical. Second, adopting WFH can entail many operational changes within the business. Just like the successful adoption of new technology, WFH adoption can require complementary changes (for example, Bloom et al. (2012)). Barrero et al. (2023) note that this adaptation may be iterative, requiring trial and error and learning by doing. Thus, it may take time for the full productivity impact of WFH to play out.

Emanuel et al. (2023) provide another perspective on WFH and productivity growth dynamics, focusing on investments in human capital. They examine the impact of proximity on software engineers at a Fortune 500 online retailer. Since mentoring is an important form of investment in human capital, they analyze mentoring and performance over multiple time periods. They find an intertemporal tradeoff from (physical) proximity. In the short-run, productivity can drop when all employees are onsite as senior staff engage in more mentoring and devote less time to producing output (in this case, writing software). But more mentoring can lead to long-run productivity gains as this investment into junior staff's human capital eventually translates into higher output.

The CPS 2024 Supplement asks workers to self-assess their productivity working at home versus onsite (Appendix C4, question S15). Recall that productivity is one of the reasons that workers might give for why they choose not to work at home. The SWAA has also asked workers to self-assess their relative productivity while working from home since 2020. In some waves, the SWAA asks up to four related questions about productivity (see Appendix C7). The first asks, "How does your efficiency working from home compare to your efficiency working on business premises?" with three response options: Better -- I am more efficient at home than working on business premises, About the same – I'm equally efficient in both places, and Worse – I am less efficient at home than working on business premises (see question 144 in Appendix C7).[15] Follow-up questions that depend on the response to the first ask either "How much *more efficient*" or "How much *less efficient* are you working from home than on business premises?" with response options ranging from less than 5% to over 35% (see questions 145 and 146 in Appendix C7). A third question asks, "Is time saved by not commuting part of your extra efficiency when working from home?" with yes and no responses. If the respondent chooses "yes", a fourth question asks, "How much of your extra efficiency when working from home is due to the time you save by not commuting?" and respondents use a slider to select a percent between 0 and 100 (Appendix C7, question 36).

The motivation for the last two questions is described in Barrero et al. (2023). From the workers' perspective, the relevant measure of productivity might consider the full amount of time it takes workers to provide a full day of services onsite (including time spent commuting and getting ready for work). In fact, Barrero et al. (2021) find that commuting time savings account for a large

[15] An alternate version of the question switches the order of the responses (compare questions 114 and 336 in Appendix C7).

share of the productivity gains reported in SWAA.[16] From the business's perspective, the relevant measure of productivity centers on time spent working *for pay* (or hours) and would not typically include the time spent commuting. Barrero et al. (2023) argue that we might expect businesses and workers to perceive the relative productivity of WFH differently, due to fundamental differences in the productivity concepts used by each group.

These considerations led to a BTOS WFH question that asks businesses whether they have observed differences in the productivity of paid employees depending on whether they work from home or in person (onsite). As shown in Appendix A question 36, there are four response option checkboxes: yes, work from home more productive; yes, in-person (onsite) more productive; no observed differences in productivity; and do not know/not applicable. Since BTOS is a business survey, we do not include a question about commuting time savings, but it is important to keep in mind that workers might include them in their self-assessments of their WFH productivity.

2.4.2 Operational

We wanted to collect more detailed information about businesses' use of physical space, given the rise in office vacancies as work from home became prevalent. The BTOS already asks about physical locations on the *extensive* margin through a question about opening/closing locations. We wanted to add a question to capture the *intensive* margin in terms of square footage and its relation to WFH. The proposed question asked whether this business changed the amount of square footage leased, rented or owned for operations since the start of the pandemic with checkbox responses for: yes, increased; yes, decreased; no change; and not applicable. The survey methodologists noted that this setup led to vague responses that were uninformative. The SBPS and the BRS each asked a similar question in 2021, but they were dropped by 2022. An alternative approach of asking instead for the square footage at two different times could have led to more precise answers, but it would require respondents to recall or refer to details in business records and thus would lead to high respondent burden that outweighed the potential benefit of the question. Additionally, survey weights in the BTOS would not necessarily be appropriate for creating estimates of changes in the amount of space used by businesses. Without a clear path forward, the proposed question was dropped.

2.4.3 Indirect Impact on the Business

We were also interested in capturing indirect impacts on a business. Specifically, we proposed a question about how WFH at *other* businesses impacts the *responding* business; for example, whether the increase in WFH at downtown offices impacted sales at a local restaurant. The proposed question read "Has this business been impacted by other businesses' adoption of work from home? For example, has this business experienced lower sales due to a decrease in neighborhood foot traffic, or has this business experienced increased demand for products that

[16] Barrero et al. (2021) estimate that WFH would boost productivity by 4.6% when using the more expansive measure of work time to include commute time, but that it would boost productivity by 1.0% when using the traditional measure of work time that excludes commute time.

facilitate working from home?" Cognitive testing found that respondents "did not consistently interpret or understand the question about their business's revenues being impacted by other businesses' work from home policies…" The resulting recommendation was for "not including this question due to inconsistent interpretation by respondents and anticipated burden respondents face to answer it." Thus the question was not included in the WFH supplement.

3. Results from the BTOS

The main sample we use in this paper pools results to the BTOS WFH supplement. Thus, the supplement estimates include responses from the entire sample of 1.2 million businesses surveyed over one BTOS cycle (split into six biweekly panels) between 11/4/2024 to 1/26/2025. Each representative panel includes approximately 200,000 businesses. The average biweekly response rate over the period of collection for WFH related content is about 13%, resulting in about 151,000 business-level responses in our main analysis sample (see the BTOS website for a detailed discussion about response rates and fielding). When we examine responses to the year-round core question, we can either focus on that same sample or also include responses to the core question from earlier periods going back to August 2024.

Before turning to the results, we remind readers that the sector-level results are for businesses that operate solely in that sector. Businesses that operate in multiple sectors are categorized into Sector XX in those results.

3.1 Extensive and Intensive Margins

Using responses to the core question on the extensive margin, we estimate the percentage of businesses with any WFH employees has been steady at around 31% from August 2024 until January 2025 (Figure 1).

Underlying this national number, however, there is enormous variation across sectors. The share of businesses with any WFH employees is almost 10 times higher in Information, the most WFH-amenable sector, than in Accommodation and Food Services, the least WFH amenable. In Figure 2, we sort sectors highest to lowest by the percent of businesses with any WFH, again pooling responses to the core question collected between August 2024 and January 2025. Almost 70% of businesses in the Information sector have employees who WFH, compared with less than 7% in Accommodation and Food Services. More generally, the share of businesses with WFH employees tends to be higher in sectors with relatively large shares of professionals and managers and high use of information technology. Figure 3 reveals little change in the share of businesses with any WFH employees between August 2024 and January 2025 for the top and bottom sectors (again, Information and Accommodation and Food Services). These patterns are consistent with the stable WFH estimates coming from demographic surveys like the SWAA, which shows at best a slight declining trend in WFH since 2023. In future work, we hope to expand on these results by computing employment-weighted estimates of WFH adoption, which will reveal the share of *employment* covered by businesses that allow for at least some WFH.

In the meantime, we estimate how the extensive margin of WFH adoption varies by firm size (as measured by the number of employees). Figure 4 shows a positive relationship between firm size and the share of businesses that have WFH employees, except for the smallest firm size class (1-9 employees). About a quarter of businesses with less than 20 employees have some WFH but this share rises to 32% among those with 20-49 employees, 41% for those with 50-99, 56% for those with 100-249, and reaching 73% for the largest firms (250 or more employees). Larger organizations will naturally include a wider mix of jobs across several locations. Thus, it makes sense that the larger the organization the higher the likelihood that at least one employee has recently had paid workdays at home. As with differences across sectors, it is helpful to keep the gradient by firm size in mind when comparing across surveys with very different underlying compositions. For example, the data collected by Flynn et al. (2024) about return-to-office mandates among Russell 3000 firms will disproportionately pick up large firms with over 250 employees.

To quantify the intensity of WFH, we examine data from the more detailed questions in the supplement (questions 27, 28, and 29 in Appendix A), which ask businesses for the percentage their employees who work from home:

- never,
- occasionally,
- 1 day per week,
- 2 days per week,
- 3 days per week,
- 4 days per week,
- and 5 days per week.

As of this writing, we only have access to public tabulated results for this question. We approximate the share of employment with each of the above working arrangements based on the tabulated result. Then we use those estimated employment shares to estimate the average number of WFH days per week among BTOS respondents. See Appendix *B* for a more detailed discussion of our methodology and its underlying assumptions.

Figure 5 shows the resulting estimates at the national level, implying the average number of WFH days per week among employees of businesses that participated in BTOS was 1.04 days during the supplement's fielding period between November 2024 and January 2025).[17] Applying the same methodology to the forward-looking question about WFH intensity suggests that businesses foresee an average of 1.00 WFH days per week in five years' time (i.e., in 2029). That is virtually identical to the current number, suggesting current amounts of WFH could be near a steady state. Their responses to the analogous look-back question suggest that five years prior (in 2019 and pre-pandemic), the average number of WFH days per week was 0.69. That seems

[17] These numbers are not employment weighted because the public tabulations report equal-weighted statistics across firms. Later in the paper, we compute a rough employment-weighted statistic by aggregating the average WFH rates across different firm size categories.

higher than other estimates based on data collected at the time. For example, Barrero et al. (2023) use time use data from 2019 to estimate that 7% of paid workdays were WFH days in 2019 – or about 0.35 days per week for a typical five-day workweek. We suspect responses to the backward-looking question about WFH 5 years before might be subject to positive recall bias, accounting for this discrepancy.

As with the extensive-margin question, we find wide heterogeneity in the average number of WFH days by sector as shown in Figure 6. The top three sectors with the highest average number of work-from-home days per week are Information (2.86 days), Professional and Technical Services (2.34 days) and Finance and Insurance (1.61 days). At the bottom we have Accommodation and Food Services with 0.13 average days per week, Other Services with 0.33, and Construction with 0.41.

Figure 7 shows a u-shaped pattern in the average number of WFH days by firm size. Among firms with 1-4 employees, the average employee WFH about 1.36 days per week. For such very small businesses it might be more cost-effective and efficient to forgo office rentals (possibly altogether) and offer lots of telework. A small number of employees could also make it easy to coordinate work remotely. The second size category, covering firms with 5 to 9 employees, has a smaller average WFH rate of just 0.55 days per week. Thereafter, WFH intensity rises with firm size, reaching 1.07 days per week for firms with 250 or more employees.

We combine the estimates in Figure 7 with data on employment shares by firm size category from the 2022 Business Dynamics Statistics (BDS) to approximate the employment-weighted average WFH intensity.[18] Specifically, we compute a weighted average of the estimates in Figure 7 using the corresponding employment shares in the 2022 BDS as weights and obtain a value of about 0.9 days per week, somewhat lower than the unweighted result of 1.04 in Figure 5.

3.2 Challenges and Limitations

When asked about the challenges and limitations of WFH, businesses' most common concern is with feasibility. Close to two-thirds of businesses (61.2%) cite infeasibility as an important challenge to having WFH employees (Figure 8). More than one in four, however, noted no factors limiting work from home. The second most common concern with WFH relates to efficiency or productivity (11.7%). Businesses also report concerns with WFH's impact on teamwork and mentoring (9.0%) and to a lesser extent on their ability to monitor the work of WFH employees (5.3%). Concerns about security or IT (4.5%) or with legal, regulatory, or tax concerns (2.1%) were the least common responses. The latter two might be more salient to larger firms that operate in multiple jurisdictions and are subject to stricter regulations and enforcement. In future work,

[18] Employment distribution by firm size from the BDS is available here: https://www.census.gov/data/datasets/time-series/econ/bds/bds-datasets.html The firm size categories do not exactly overlap, so for the category in BDS covering 20-49 and 50-99 employees we use the average of those values in Figure 7 (0.54). We use 0.77 for the BDS category covering 100-499 and 1.07 for BDS categories with 500 or more employees.

we hope to dig deeper into the write-in responses among those who reported having other concerns (7.8%).

Comparing businesses in the top and bottom sectors for WFH, Information and Accommodation and Food Services, respectively, we find stark differences between the factors they see as limiting WFH (Figure 9). In the Information sector, just over half of businesses report no limiting factors at all (52.1%) – and not surprisingly, given the widespread prevalence of WFH in the sector. In Accommodation and Food Services, instead, 70% report that WFH is infeasible. Yet even within the Information sector, infeasibility is the most commonly cited limitation (mentioned by 36.7%), followed by concerns about productivity (14.8%) and mentoring (13.4%). The pattern flips in Accommodation and Food Services, where the second most common response cited no limitations to WFH. Management, legal, and security concerns rank low in both sectors. Taken together, the evidence suggests that the main determinant of WFH relates to whether a job requires the employee to be physically present to provide labor services. Other concerns (about productivity, monitoring, etc.) only start to become prominent when businesses have lots of jobs for which WFH is feasible.

3.3 Adaptations (Management Practices)

An important benefit of the BTOS is its ability to query businesses about management practices they use to overcome some of the challenges related to WFH and to support their operations when some of their employees WFH. Specifically, we ask whether they use locality-based pay for their fully remote employees, how they manage "hybrid" WFH employees with return-to-office (RTO) policies, and about how they monitor onsite and WFH employees.

Locality-based pay for fully remote workers is relatively rare among BTOS respondents. Only about one in six firms for whom the question was applicable reported using it (i.e., 3.9% of the 28.2% for whom the question was applicable, see Figure 10). Most businesses responded that they either did not know whether fully remote employees had locality-based pay, or it was not relevant to them (71.9%), probably because fully remote work is relatively rare and the individual respondent might not have those details at hand. The remainder responded that they did not provide locality pay for fully remote workers (24.3% of the total, or about ⅝ of those who gave a yes/no answer). Even in in the Information sector where a high percentage of businesses have WFH employees, just one in five of the yes/no respondents reported using locality-based pay (9.4% compared with 38.3%) and more than half (53.2%) said that they either do not know or the question was not applicable. The sample for this question includes all businesses (with or without fully remote employees), so it makes sense for so many respondents to say they don't know, or it does not apply. In the future, with access to the microdata, it should be feasible to take another look at locality-based pay after conditioning on a sample of businesses with WFH employees, or with more than a trivial amount of fully remote workers (WFH 5+ days per week).

When it comes to managing in-person attendance, only 4.1% of businesses nationally report having a WFH policy that imposes minimum in-person requirements. Given that about 31% of firms have some WFH employees, that suggests only about one of every seven or eight firms of those who do also have such onsite minimum requirements (4.1/31 = 13%). Even in the Information sector, only 6.9% of businesses have a policy requiring a minimum in-person attendance. That figure is, naturally, even lower in the Accommodation and Food Services sector at 1.4% (see Figure 11).

A majority of businesses also said they did not track whether employees meet such minimum in-person requirements. But interpreting responses to that follow-up question (shown in Figure 12) is complicated. It appears that the question has some unintended ambiguity, possibly because the question from Figure 11 was not used as a literal screener for the follow-up question. That is, there was not a conditional path allowing only those who responded yes to the first question about in-person attendance requirements to answer the second question. Many respondents could therefore be providing information about in-person attendance monitoring even when they have no WFH employees. Additionally, the first question is a "double barreled," asking both whether the business has a WFH policy as well as whether there are minimum in-person requirements. The answer need not be "yes" for both, but it was hard for businesses to report that nuance. Again, with access to the microdata, it will be possible to restrict attention to businesses that have at least one WFH employee when analyzing this second question about enforcement of minimum in-person requirements.

The response patterns are similar for the Information and Accommodation and Food Services sectors, and they are consistent with the relative prevalence of WFH across the two. Only 18.7% of businesses in the Information sector track compliance with an on-site requirement, while 40.8% of businesses in Accommodation and Food Services track compliance. In the latter case, businesses rely most heavily on badge swipes or sign-in sheets to track compliance (17.0%) whereas Information businesses rely most heavily on manager checks (9.0%). These differences probably arise from the lack of WFH-feasible jobs in Accommodation and Food, which makes physical presence essential to operations. If hourly rather than salary-based pay is also more common in Accommodation and Food Services, that also fits with their reliance on timesheets and badge swipes to track attendance.

Monitoring more generally can be a key challenge with WFH, since it can be difficult for managers to verify that employees are constantly exerting effort when they WFH. Lack of proximity could also make it harder to assess the quantity and quality of employees' work. Figure 13 shows how businesses track employee activity at home and onsite, according to their responses to BTOS questions. About three quarters of businesses in the full (National) sample, as well as in Information and Accommodation and Food Services say they don't monitor employees at all when they WFH. As before, many businesses who do not have any WFH employees are likely reporting no monitoring when the question does not apply to them.

Thus, it is more informative to focus on differences in the type of monitoring used across sectors. Businesses in the Information sector report using a variety of methods: output measures (14.3%), attendance in online meetings (11.3%), computer activity (8.3%), and other methods (7.8%). In contrast, businesses in the Accommodation and Food Services sector rely almost exclusively on other methods not explicitly mentioned in the survey instrument (17.8%). Since most jobs in Accommodation and Food require employees to provide services while physically onsite, it makes sense that they do not rely on digital methods like computer monitoring or output metrics. In future work, the write-in responses for that "other" category will reveal whether those other methods truly reflect other forms of monitoring or whether respondents used it in place of "N/A" among businesses who do not have WFH employees.

When it comes to onsite employees Figure 14 still shows many businesses do not do much explicit monitoring even when proximity is not an issue. That is the case for 45.8% of businesses in the National sample, but that differs more widely across sectors: 67.4% of businesses in Information do not monitor onsite employees, compared to just 32.4% in Accommodation and Food Services. Tracking arrival/departure times is the dominant form of monitoring tool overall (39.5% in National) and more so in Accommodations and Food Services (55.8%). Again, this pattern likely reflects the fact that many jobs nationally and in that sector require employees to be onsite to provide services. In the Information sector, fewer businesses track arrival/departure times (just 18.6%) but that is still the top way that businesses monitor onsite employees – despite the high prevalence of professional, managerial, and computer-based jobs in that sector. Use of output measures and participation in meetings to track onsite employees' performance is similar in the national and sectoral samples, suggesting that differences in WFH adoption have not led to widely different management practices at the workplace. Indeed, Figure 14 suggests businesses tend to use strategies that center on "input" monitoring when workers interact and provide services onsite. Comparing against Figure 13, it that seems alternative management practices only start to emerge only once employees WFH.

3.4 Impact on the Business

Figure 15 shows businesses' perceptions about a key impact of WFH, namely, on productivity. The underlying survey question asks whether the business has observed differences in productivity for paid employees based on whether they WFH or onsite. The question lets respondents select "don't know/not applicable," so we interpret the results by focusing on those who did not choose that option. (Nationally, about three-quarters of businesses note that either they do not know, or this is not applicable to their business, which is consistent with only about 30% having any WFH employees.[19])

Nationally, 15.6% of businesses – or about two thirds of those who did not select "don't know/not applicable" – report seeing no difference in productivity between employees working from home or onsite. In both the Information and Accommodation and Food sectors, "no difference" is also

[19] But this interpretation may differ in a sector with high adoption of WFH, such as the Information sector.

the most popular option among those who do not say “don't know/not applicable.” That means that businesses do not overwhelmingly associate WFH with lower productivity, even though the share who do is larger than the share who report higher productivity among WFH employees. Nationally, three times more businesses associate WFH with productivity losses than vice-versa (6.6% vs. 2.1%). The ratio is closer to even in Information (7.6% vs. 6.1%) but about to 10-to-1 in Accommodation and Food (3.9% vs 0.3%). These results broadly confirm the intuition that business managers are on balance pessimistic about the productivity implications of WFH, but many don't see a clear difference.[20]

4 BTOS Results in Light of Results from Other Surveys

How do the data from BTOS compare with other sources, in particular the surveys in Table 1? Given the many differences across surveys (in terms of sample, the definition of work from home, and collection and reference periods), these can put the BTOS results into rough context providing a broad overview of work from home from both business and demographic surveys. Buckman et al. (2025) run a more formal comparison that attempts to align results over these dimensions.

4.1 Extensive and Intensive Margins

The most recent data on WFH from large, federal *business* surveys goes back to 2022. The Annual Business Survey (ABS) reports that 35.8 % of employer businesses had WFH workers that year (down from 38.7% the year before). The Business Response Survey (BRS) also shows a decline in the share of paid employees who WFH from 2021 to 2022 (40.1% to 27.5%). Those numbers, respectively, for the extensive and intensive margins seem sensibly similar to our findings in BTOS: that about 31% of businesses had any WFH employees in the second half of 2024 and early 2025, and the average intensity of WFH was about 1 day per week (20% of a five-day workweek). But it is hard to compare directly because the sample period and potentially the sample composition is different across surveys.

Another useful comparison focuses on broad sectoral patterns. Figure 16 panel A plots the percentage of businesses offering WFH for the ABS, BRS, and the Small Business Pulse Survey (SBPS) by sector (sorted from highest to lowest according to the ABS). The percentage of businesses offering WFH in all three surveys is highest in the Information sector (51) just as in BTOS. It is generally high in all of the “50” sectors, and lowest in Accommodation and Food Services (72), which is also the sector with lowest WFH prevalence in BTOS. Focusing on our two example sectors, the latest results from the ABS for 2022 show that 78.9% of businesses in Information had WFH employees and 4.9% of businesses in Accommodation and Food Services had WFH employees. That near-20-fold difference is higher than the 10-fold we see in BTOS in

[20] The differences between Information and Accommodations and Food Services are all statistically significant as are the within-sector differences (with the exception of WFH employees are more productive for Accommodations and Food Services).

2024-2025, possibly because many professionals and managers may have returned to their offices in greater numbers since 2022. The ABS also has questions on WFH intensity, specifically on the share of employment that "never" WFH, versus WFH 1 less than 1 day per week, 1 day per week, 2 to 4 days per week, or 5 days per week. Comparing ABS data for 2019 versus 2022, there is a broad shift towards a higher frequency of WFH (2 or more days per week) and away from fully onsite or 1 day (or less) per week. The sectoral pattern, at least for 2022, seems sensibly comparable to what we observe in BTOS. Almost half of businesses in Information have large numbers (76% or more) of their employees WFH 5 days per week. In Accommodation and Food Services, instead, a majority of businesses report that most of their employees never WFH.

Figure 17 examines sectoral differences in WFH but now from workers' viewpoint, using ACS and CPS data. Starting with the 2021 ACS in panel A, 42.0% of workers in the Information Sector (NAICS 51) reported having no primary commute mode, implying they WFH full time. Only 7.8% of workers in the combined sectors of Arts and Entertainment (NAICS 71 and 72) did.[21] We can also see large sectoral differences in the CPS, which measures the share of workers with any telework during the reference week. In December 2024, Finance and Insurance (NAICS 52) had the largest share with 61.5%, compared to 3.8% in Accommodation and Food Services (NAICS 72). Again, while it is hard to compare the magnitude of statistics from different surveys, the pattern is consistent and sensible with the BTOS results (including those about the *feasibility* of WFH across sectors) and with other authors' work.

Digging more deeply into the CPS results, Figure 18 shows the overall share of people who telework has been rising since 2022, but it has fallen slightly in recent months.[22] As of the end of 2024 23.1% of workers did at least some telework according to the CPS. This total telework share can be decomposed into a crude measure of intensity: the share of workers who telework *some* hours, rather than *all* hours (see Figure 18, panel B). The share for *all* hours is stable, but the share with *some* telework hours rises from about 8% in late 2022 to about 12% by the end of 2024. These patterns suggest people may be answering the CPS question differently as the pandemic fades further into the past, perhaps as they associate WFH less with lockdowns and more with sporadic WFH. We find similar time-series trends in the CPS for our two sectors of focus. About 50% of the people in Information telework as compared to about 10% of the people in Accommodations and Food Services (Figure 18, panels C and D). In both cases, the share of workers reporting all their hours were in telework is flatter than the share reporting *some* telework, which trends upward between 2022 and 2024.

Recent SWAA results for the first four months of 2025 imply that 28% of paid days in the U.S. were WFH days. As noted in Table 1 this is essentially unchanged from July 2024, although there

[21] The 2023 ACS publishes a related statistic, which is less relevant for our analysis; namely, the sectoral distribution among workers who WFH. 27.6% of them were in Professional, Scientific, Management, and Administrative Services; 18.2% were in Information and FIRE; and 4.1% were in Arts and Accommodation and Food Services.

[22] While BLS publishes this as a single time series, the context provided in the survey instrument for this question changed over time. As shown in Appendix C4, prior to December 2023, the introduction to the question placed it in the context of the COVID-19 pandemic. Beginning in December 2023, the introduction drops the pandemic framing, broadly coinciding with the largest increase in the series.

are modest fluctuations from month to month (Figure 19, panel A). As with the BTOS, there is large sectoral variation underlying the national average (Figure 19, panel B). The sector with the largest percent of employees who work from home is Information (71%) and the sector with the least is Accommodations and Food Services (19%).

In the SWAA, hybrid work (with 1 to 4 days per week WFH and the rest onsite) is the most common arrangement. Panel C shows the share of employees by sector that were fully remote versus hybrid. This is true in the Information sector, where 21% of full-time employees are fully remote in the Information sector while 51% work a hybrid schedule. Even in Accommodation and Food Services, 16% of full-time employees work a hybrid schedule and only 3% are fully remote. Panel D shows the average intensity of WFH, measured as days per week by sector. Here, Information is ranks second after Finance and Insurance with 2.37 days per week, while Accommodations and Food Services ranks last with 0.56 days per week.

4.2 *Challenges and Limitations*

The 2022 ABS includes information that we can use to compare to BTOS responses about the challenges and limitations associated with WFH, which we show in Figure 20. Although the ABS results are for a different reference period and the response options were somewhat different from those in BTOS, we corroborate the key result that a majority (61.7%) of firms cite a lack of suitability for WFH as the top reason why their employees don't (the corresponding number for BTOS in 2024-5 is 61.2%). By contrast, 35.0% of firms report no limiting factors for WFH, compared to 26.9% in BTOS. Management and security-related concerns, the two remaining options that appear in both BTOS and ABS are cited by many fewer businesses, at 4.2% (5.3% in BTOS) and 4.3% (4.5% in BTOS), respectively.

When we look at the two sectors of interest, we see that again ABS and BTOS tell qualitatively similar stories (Figure 20). 34.5% of firms in Information noted that jobs were not suited to WFH, compared to 80.7% of those in Accommodations and Food Services (in BTOS the numbers are 36.7% and 70.0%, respectively). 62.1% businesses in Information note that they had no limiting factors as compared to 16.8% of businesses in Accommodations and Food Services (BTOS results: 51.2% and 18.2%). Businesses in Information also noted management and security concerns (4.5% and 4.9% respectively as compared to BTOS: 5.4% and 5.6%) but these are negligible concerns in Accommodation and Food Services businesses (as is the case in BTOS).

Eventually, it will be possible to compare our BTOS results with data from the CPS Supplement relating to WFH, which will be released later in 2025. Once they are available, that will yield information about whether workers and their employers have similar perspectives about what limits WFH.

4.3 *Adaptations (Management Practices)*

There are no contemporaneous results from *business* surveys concerning management practices and WFH. The 2015 MOPS has some information that could be used at the micro level to relate

WFH to some of the questions about the quantity and quality of monitoring. Similarly, it may be possible to examine micro data from the ABS in years where it also runs an occasional management practices module (in survey years 2021 and 2024). That module includes 12 questions, some of them touching on key performance indicators and target setting, but unfortunately not on internal monitoring (it does ask about monitoring customer satisfaction). Future work might be able to say more about the relationship between WFH adoption and management practices by examining these other datasets.

The November 2024 SWAA results report on the results of a question over a sample period covering October 2023 to October 2024, where respondents were asked "As a fully remote employee, your pay depend on where you live?" They find 43.0% of fully remote workers are paid depending on where they live. The SWAA also finds younger fully remote workers are more likely to get locality-based pay, as are men. That said, it is difficult to compare the SWAA estimate against BTOS because there might be differences in the underlying sample, for example by firm size and industry. Thus, while the BTOS estimate implies only about one in six businesses offer locality-based pay, this number is not necessarily inconsistent with the higher SWAA estimate.

In early 2024, the SWAA found that 39% of respondents that their employer had instituted two or more return to office (RTO) policies (see the July 2024 SWAA report). More recently, the SWAA (January 2025 report) has found that employer mandates of RTO in the past 6 months (for participants in the November or December waves) varied depending on whether the worker was fully onsite, fully remote, or hybrid. Workers whose current work arrangement is hybrid faced more RTOs (18% report an RTO) than either fully onsite (2%) or fully remote (10%).[23]

4.4 *Impact on the Business*

Few *business* surveys could be used to compare against the BTOS results on productivity and WFH. Bloom et al. (2023) examine SWAA and SBU data and show managers and workers disagree about the productivity implications of WFH, with managers being on balance negative and workers on balance positive. We also consider the context of other studies within individual firms.[24] Using firm-level data from a US Fortune 500 company call center, Emanuel and Harrington (2024) decompose the (positive) productivity gap between office and remote workers into selection and treatment effects. While selection is important (less productive workers tend to select into WFH), there is also a negative treatment impact of working remotely. Running a randomized control trial at Chinese technology company, Bloom, Han, and Liang (2024) find that *hybrid* work (two days of WFH per week) does not have a clear impact on performance among skilled workers (college graduates). They randomly assign employees to hybrid WFH or fully onsite working arrangements and reach this conclusion by examining data on detailed performance reviews, promotions, and (for computer engineers) the number of lines of code submitted. Instead, Bloom, Han, and Liang (2024) find a positive impact on worker retention, which could impact firm-level profitability and productivity.

[23] Readers may access all monthly SWAA reports at www.wfhresearch.com/research-and-policy.

[24] Another form of evidence is industry-level analyses. Pabilonia and Redmond (2024) examine the relationship between the change in the percentage of remote workers and total factor productivity growth at the industry level for 2019-2022 and find a positive correlation.

Their experiment also provides information about how managers and workers assess the impact of WFH on productivity. Prior to the experiment, they ask employees: "What is your expectation for the impact of hybrid WFH on your productivity?" with three possible responses: positive, about the same, and negative. For those that picked positive (negative), a follow-up question asked them to quantify the change in efficiency in buckets ranging from 5% to 35%. Prior to the experiment, managers believed hybrid work would have a negative impact on productivity. After the experiment, however, those same managers believed hybrid work would have a positive impact on productivity. Non-manager employees, instead, perceived a positive impact of hybrid WFH on productivity before the experiment, which improved afterward.

Concerning workers' assessments of the productivity impact of WFH, the results from the CPS supplement are not yet available, so we can examine existing SWAA results. Barrero et al. (2023) cite results from the SWAA (covering January to June 2023) whereby 43% of WFH workers say they are more productive working from home, but 14% believe that they are less productive. Perceptions of the relative productivity of remote work became more positive during the pandemic, as workers became more comfortable with it and the early struggles of the pandemic (e.g., school closures) subsided. We are cautious about taking workers' self-assessments literally, but they do seem to capture some of the key tradeoffs inherent to remote work. A majority of workers attribute at least part of that efficiency to time saved by not commuting. Self-assessments also correlate with actual remote work, so that workers who say they are less efficient at home commute to the workplace more often. Those with longer commutes, who save more time when WFH, also have more positive self-assessments of their WFH productivity and prefer to do so more often.

In forthcoming results, Barrero et al. (2025) calibrate a quantitative model of labor supply and demand in which employers and workers choose working arrangements endogenously. They infer the relative productivity of remote work and quantify the productivity costs of imposing pre-pandemic levels of remote work at 0.1 to 0.8 percent, or 0.4 to 2.2 percent when accounting for the time saved by not commuting. These results show that the biggest impact of work from home on productivity are unlikely to be captured by official statistics, which typically do not treat commuting as part of the time required for production of market output.

5 Research on Developing Expanded Content for the ACS and HPS Transition

Work from home information is collected by the American Community Survey (ACS) and its predecessor, the decennial census long form, as a checkbox response to a question about workers' primary travel mode (Appendix C2). The question asks about how the person usually got to work and since the respondent can only choose one mode, it is not possible to capture information about hybrid work schedules.[25]

[25] If the respondent uses more than one mode to commute, they are instructed to pick the mode that covers the most distance. For those who commute some days and work at home others, this instruction would seem to bias away from choosing work at home. Starting in 1960 and continuing through 1970, the decennial long form asked how a person got to work last week with a response including "worked at home." Starting in 1980, the question was

Evolving workplace norms associated with the pandemic and the period that followed have heightened interest in data related to WFH. The Census Bureau has seen an increase in the number of questions and comments about this topic. Information provided by the current version of the ACS WFH question (and formerly that of the Decennial Census Long Form) has, for decades, played an important and useful role in our understanding of historical WFH trends. The increased prevalence and complexity of working from home since 2020 has prompted further interest in WFH.

The Census Bureau has spent the last couple years workshopping ideas and gaining a better understanding of data user priorities for improving the ACS WFH question. Interested parties across federal agencies such as the U.S. Department of Transportation's Bureau of Transportation Statistics provided valuable feedback. Several U.S. Department of Transportation initiatives, including some mandated by law, require use of federal transportation data related to how people get to work or whether they work from home. Beyond federal partners, the Census Bureau also presented to and solicited feedback from transportation professionals at industry conferences such as the Transportation Research Board Annual Meeting. For household survey data, stakeholders most often requested the addition of information about how many days per week workers telework, followed by the specific days teleworked. This information is used to improve the accuracy of travel demand forecast models.

While the ACS includes limited detail about working from home, it provides a broad snapshot of its prevalence in recent decades. The meaning of work from home has evolved over time as technology and industry have evolved (see Salopek 1998).[26] Prior to 2020, decennial Census and ACS data showed a slow and steady increase in the share of workers who primarily work from home. Between 1990 and 2000, the rate of working from home modestly increased from 3.0 to 3.3%.[27] By 2010, the share of home-based workers increased to 4.3%.[28] It changed little over the course of the following decade until the pandemic sparked a dramatic increase in home-based work. The share of workers who primarily worked from home changed from 5.7% in 2019 to 17.9% in 2021. As the Pandemic subsided, the rate declined to 15.2% in 2022 and 13.8% in 2023.[29]

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modified to ask how the person usually got to work last week. The decennial long form was discontinued after 2000 and was replaced by the annual American Community Survey with results first published in 2005. From 2005-2018 the response was worked at home in 2019 and onward it became worked from home.

[26] The number of those who worked at home declined steadily over 1960 to 1980 "largely reflecting the number of family farmers who elected to give up farming" before a "dramatic increase" in 1990 (Salopek (1998)). The 1990 increase was fueled by the self-employed workers. "The primary difference between those who worked at home and those who worked away from home was the source of employment. More than half the workers who labored in their homes (54 percent) were self-employed in 1990, 10 times the rate of self-employment found among those who worked away from home (CENBR/98-2, p.2)."

[27] Clara Reschovsky, "Journey to Work: 2000," Census 2000 Brief, U.S. Census Bureau, Washington, DC, 2004. https://www.census.gov/library/publications/2004/dec/c2kbr-33.html

[28] Michael Burrows, Charlynn Burd, and Brian McKenzie, "Home-Based Workers and the COVID-19 Pandemic," American Community Survey Reports, ACS-52, U.S. Census Bureau, Washington, DC, 2023. https://www.census.gov/content/dam/Census/library/publications/2023/acs/acs-52.pdf

[29] Michael Burrows, Charlynn Burd, and Mehreen S. Ismail, 2025. "New U.S. Census Bureau Data Show Detailed Characteristics of Home-Based Workers.
https://www.census.gov/library/stories/2025/01/work-from-home-inequalities.html.

In order to provide more detailed information about those who WFH, starting with the 2023 ACS, the Census Bureau added "Work from Home" as a category to the Table S0802 "Means of Transportation to Work by Selected Characteristics." This means that users can now learn about the characteristics of those who WFH, for example, their age, sex, race and Hispanic or Latino origin, occupation, and industry.

Transportation-related stakeholders have provided critical feedback about elements of the home-based work experience that they would like the ACS to capture. The Census Bureau plans to use this feedback to inform changes to the survey's commuting content in the next ACS Content Test opportunity for which planning will begin in 2025. ACS Content Testing is a multi-year process by which new or modified survey content is tested prior to becoming part of the official ACS survey. The content in the ACS is determined by the Office of Management and Budget (OMB). Thus, any changes to the ACS content must adhere to a rigorous process consisting of cognitive testing, field testing, and final approval by the OMB and an interagency working group. In addition to more detailed information about home-based work schedules, data users have requested information about multi-modal commutes (for example, allowing respondents to check both subway and bus).

5.1 Household Pulse Survey

The Household Pulse Survey (HPS) also collects information on commuting at both the household and person levels. The HPS question on telework is sponsored by the Bureau of Transportation Statistics. In September 2024, the Census Bureau announced that Phase 4.2 of the HPS was the final phase using current methodology as the HPS transitions the HPS to a new longitudinal design. The HPS was relaunched as the Household Trends and Outlook Pulse Survey (HTOPS) in 2025 and contains a small number of transportation-related questions. This includes a person-level question about whether the respondent worked from home in the last 7 days. This HTOPS WFH data was collected in the first quarter of calendar year 2025 and, as of this writing, was not yet publicly released. The HTOPS has a panel design similar to surveys such as the Survey of Income and Program Participation. Like its predecessor, HTOPS data collection and processing is designed for rapid data dissemination.

6 Conclusions and Future Research

Tapping into business and household surveys from both the federal sector (especially BLS and Census surveys) and the private sector enabled us to develop targeted questions for a *business* survey intended to fill an important measurement gap concerning WFH. The resulting questions included in the Business Trends and Outlook Survey (BTOS) thus complement information gathered in earlier business surveys and information on current household and worker surveys. While it is still in research phase, we hope this paper will also help to inform future questions on the American Community Survey so that it too can provide information to fill important data gaps on this topic.

The key results based on over 150,000 responses to the BTOS are that about 30% of businesses had at least some employees who WFH in 2024-2025, and the average number of full paid WFH days among their employees was about 1 day per week in that same period. Looking five years ahead, respondents project little change in the intensity of WFH. The main thing limiting businesses from offering WFH is feasibility: many jobs simply are not suited to it. They also expressed concerns about productivity but were far from universally pessimistic on this topic. Nationally, and in the top and bottom sectors for WFH, more businesses said WFH and onsite productivity was similar than favored one or the other.

We hope to build on the results in this descriptive paper through a second set of empirical exercises that leverage the underlying micro data. With the micro data, we could complete more precise empirical exercises using the intensity results. We would like to dig more deeply into the write-in information provided in "other" responses. In some cases, these form a significant number of responses and may help uncover patterns that we did not consider when developing the questions. For example, it appears that we could be missing an important category concerning limiting factors for businesses in sectors like Accommodations and Food Services since 11.9% of businesses selected "Other (please describe)" as their response.

Since we have seen that firm size matters in WFH, we also would like to produce descriptive statistics that are employment weighted. The micro data will also enable us to run regression analyses that control for business characteristics and thus to disentangle the relationship between firm size and sector on WFH and related outcomes. We would also like to bring in firm age characteristics by linking to the Longitudinal Business Database, since firm age could also be an important dimension over which WFH varies.

One of the most interesting areas of future research concerns productivity. We can imagine multiple related inquiries on this topic. Starting with the questions on the BTOS, it would be useful to dig deeper into the response category of "Do not know/Not applicable". This is a very large category which unfortunately could contain two very different types of behavior. It may be that many respondents that "Do not know" are actually more similar to those who respond with "No observed difference in productivity". One way to address this question would be to instead use direct measures of productivity from other firm-level data such as the Longitudinal Business Database. Specifically, we could then compare how self-assessments about productivity and WFH align with those direct measures.

Taking this further, we could also attempt to understand the impact of WFH on productivity growth over time. We could then use firm-level ABS data to attempt to time the introduction and intensity of WFH and gauge whether this has an impact on productivity. This would also allow us to try to capture some of the intertemporal dynamics described by Barrero et al. (2023) and Emanuel et al. (2023). With the micro data, we could also examine productivity differences over a variety of business characteristics including industry, size, and age.

Finally, we hope that these results and others will help inform research into any content changes to the ACS questions and, more generally, to others who are considering WFH content on their surveys.

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Table 1: Gaps in Information on Work from Home
Percent of Work from Home (or Similar Concept)[1] by Different Surveys

	Workers				Businesses			
Year[2]	ACS	CPS	HPS	SWAA	ABS	BRS	BTOS	SBPS
2019	5.7				28.1			
2020					41.9			46.8
2021	17.9				38.7	40.1		47.6
2022	15.2	17.9	29.1		35.8	27.5		
2023	13.8	19.8	29.2					
2024		23.1	29.0	29.0			31.0	
2025		21.6		29.0			31.7	

Notes:
1/ Concepts listed by survey below. Exact questions used in surveys are in Appendices A and B.
2/ Reference periods listed by survey below.

ACS: American Community Survey. Percent of workers who say they work from home in response to a question about commute mode, 1YR results.

ABS: Annual Business Survey. Percent of employer businesses who allow employees to work from home, (reference) year.

BRS: Business Response Survey. Percent of employees who currently telework in a typical week. 2021 (collected July-Sept); 2022 (collected Aug-Sept).

BTOS: Business Trends and Outlook Survey. Percent of employer firms who had any paid employees who worked from home at least one workday (6 or more hours) during the reference period. 2024 (7/29-8/11/24, which is first week of core collection [202417]), 2025 (12/30/24-1/12/25, which is last week of supplement collection [202502]).

CPS: Current Population Survey. Percent of people who worked during the reference period who teleworked or worked at home for pay in the last week. 2022 (October), 2023 (October), 2024 (December), 2025 (April).

HPS: Household Pulse Survey. Anyone in Household Teleworked or Worked from Home in the Last 7 Days. Number shows the percent of three combined yes categories over total less did not report. 2022 (Phase 3.6; week 50), 2023 (Phase 3.10; week 63), 2024 (Phase 4.1; cycle 5).

SBPS: Small Business Pulse Survey. 100 minus the percent of small employer businesses who do not have employees who worked from home. 2020 (Aug09-15 2020), 2021 (Jan04-10 2021).

SWAA: Survey of Working Arrangements and Attitudes. Average percent of full paid workdays (6 or more hours) that were work-from-home days last week among employed respondents aged 20-24 who earned $20k+ in the prior year, 2024 (July), 2025 (January).

Figure 1: Extensive Margin Trend

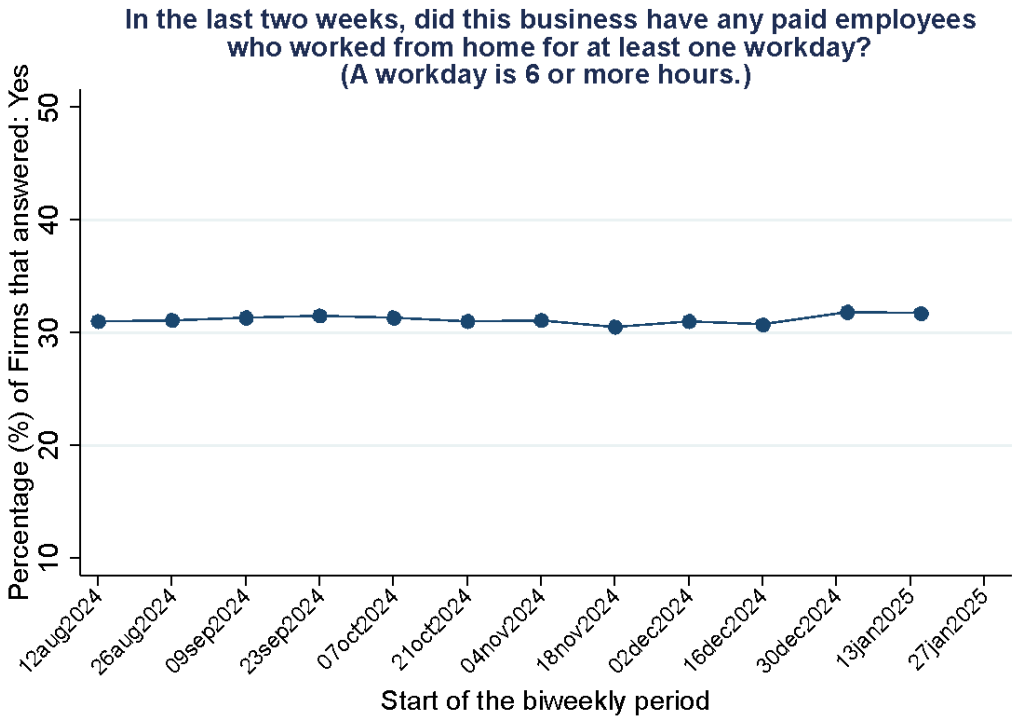
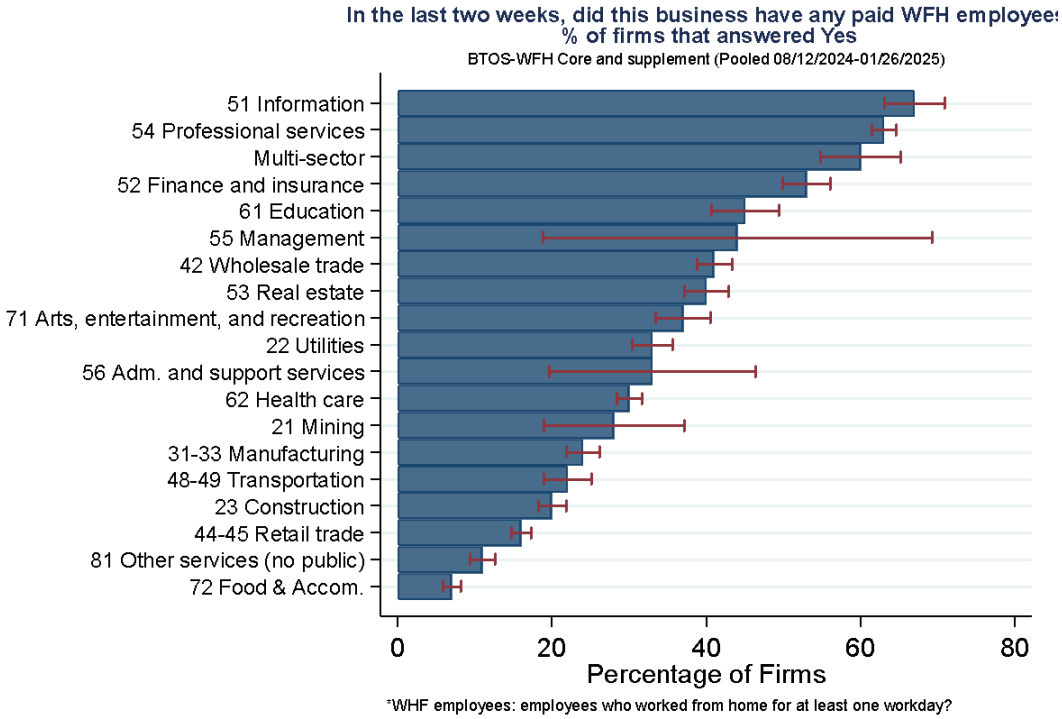


Figure 2: Extensive Margin Sectoral



Note: 95% Confidence Intervals are represented by the horizontal red lines.

Figure 3: Extensive Margin Sectoral (Trends): Two Sectors

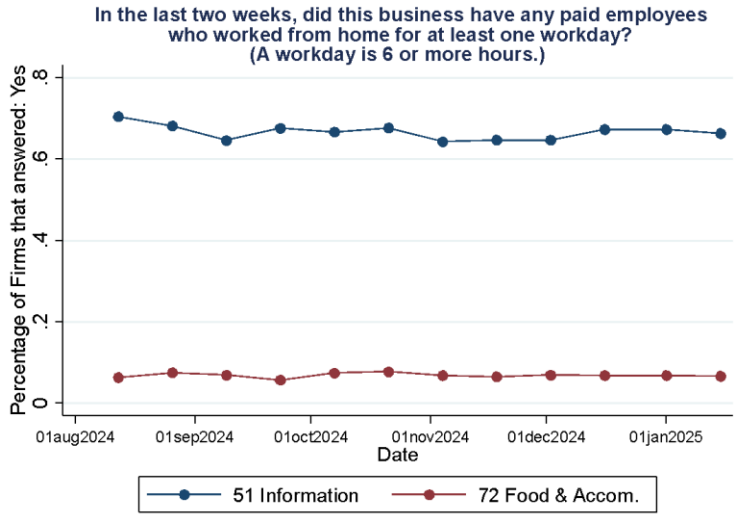


Figure 4: Extensive Margin by Firm Size

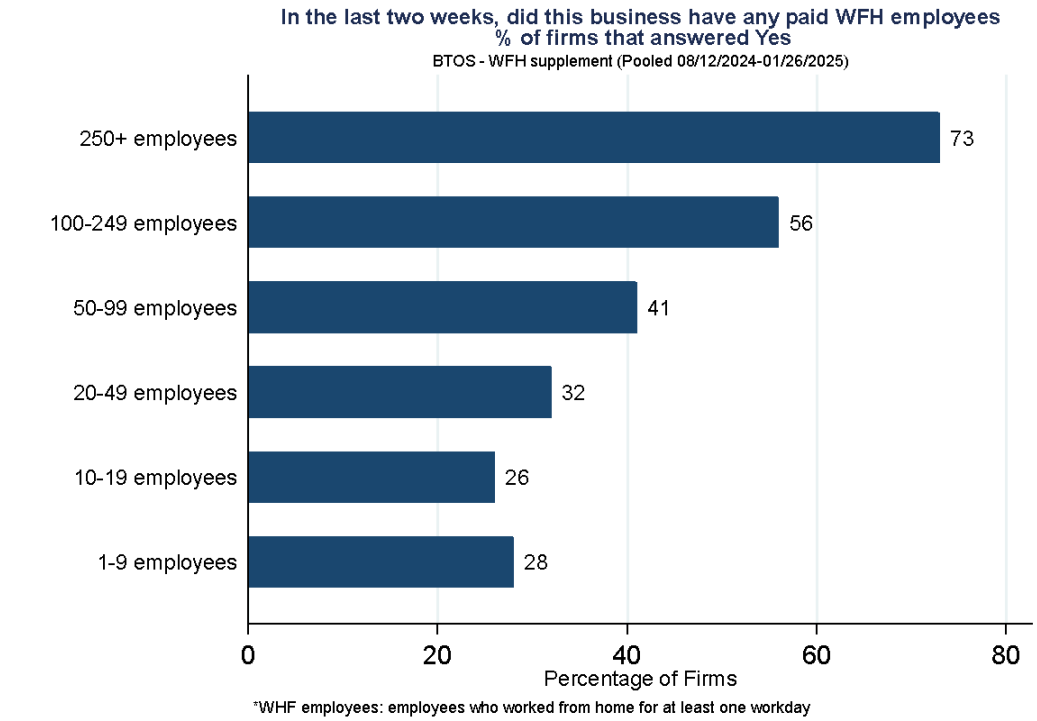
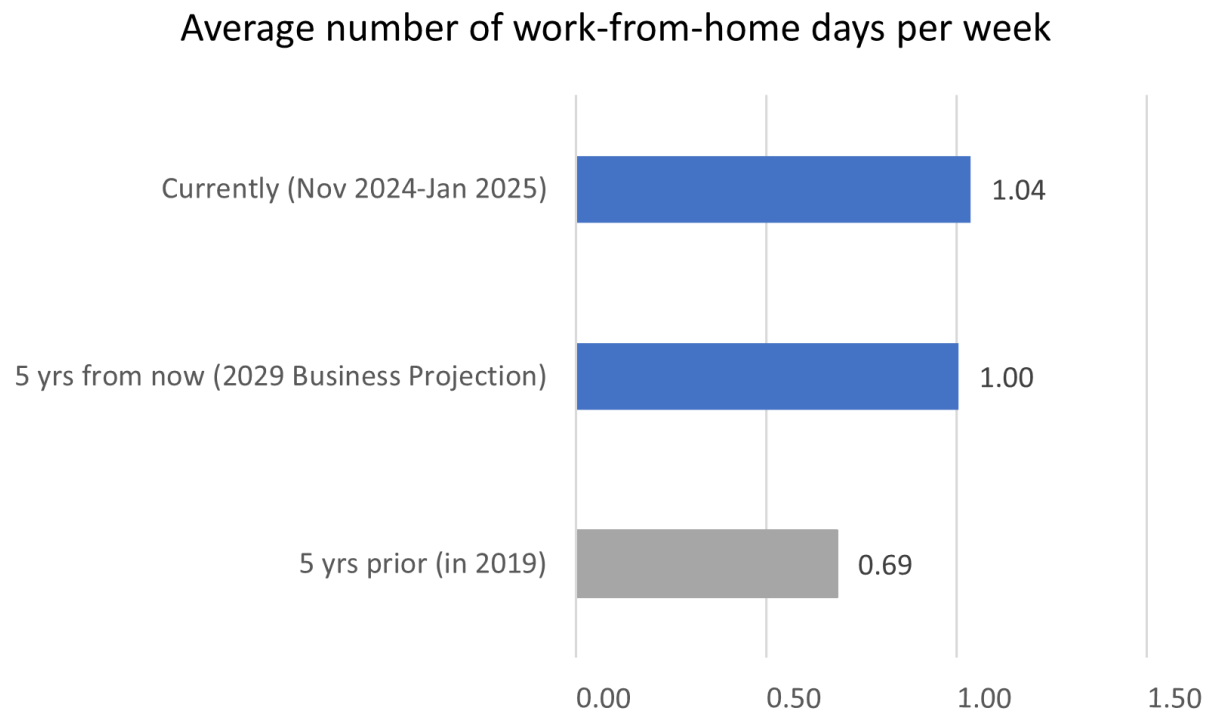
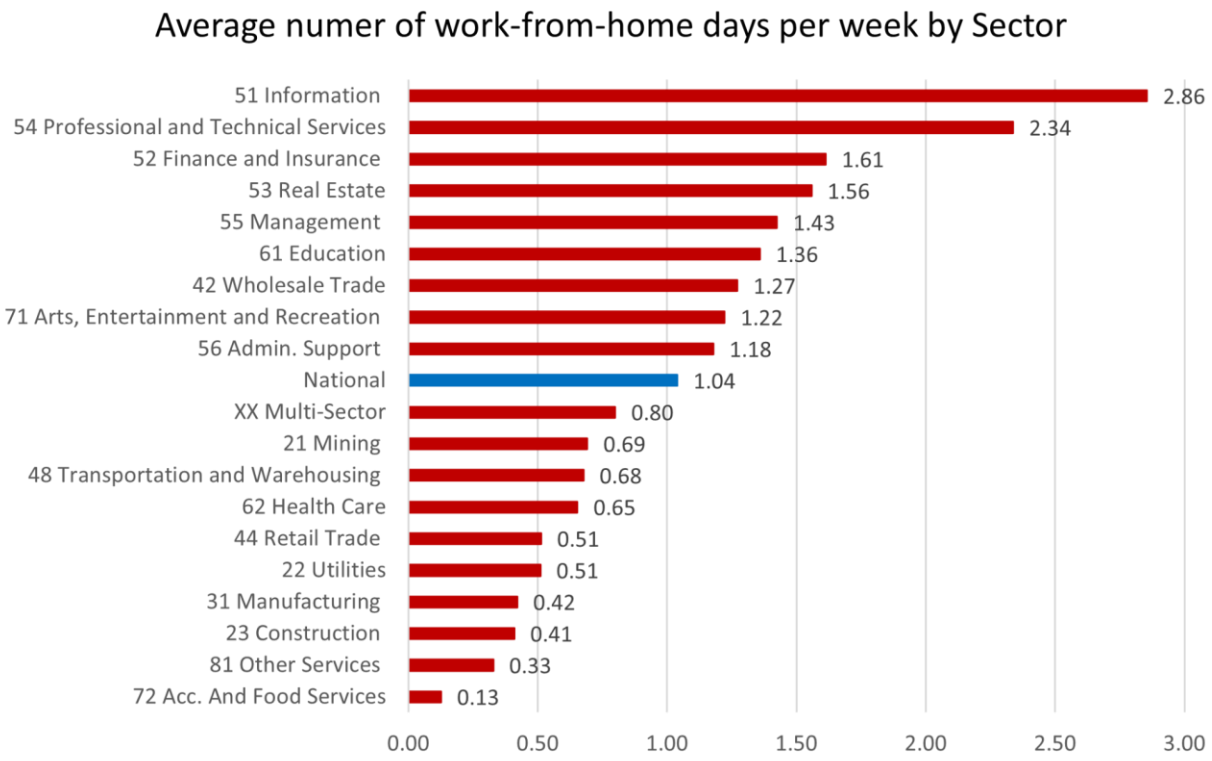


Figure 5: Intensive Margin



Source: BTOS-WFH Supplement Questions 27-29: https://www.census.gov/hfp/btos/data_downloads. Responses were received from over 150,000 firms for the BTOS WFH-Supplement survey conducted from November 2024 to January 2025.

Figure 6: Intensive Margin by Sector



Source: BTOS-WFH Supplement Questions 27-29: https://www.census.gov/hfp/btos/data_downloads. Responses were received from over 150,000 firms for the BTOS WFH-Supplement survey conducted from November 2024 to January 2025. XX – Multisector is how is it labeled in the sector files for download.

Figure 7: Intensive Margin by Firm Size

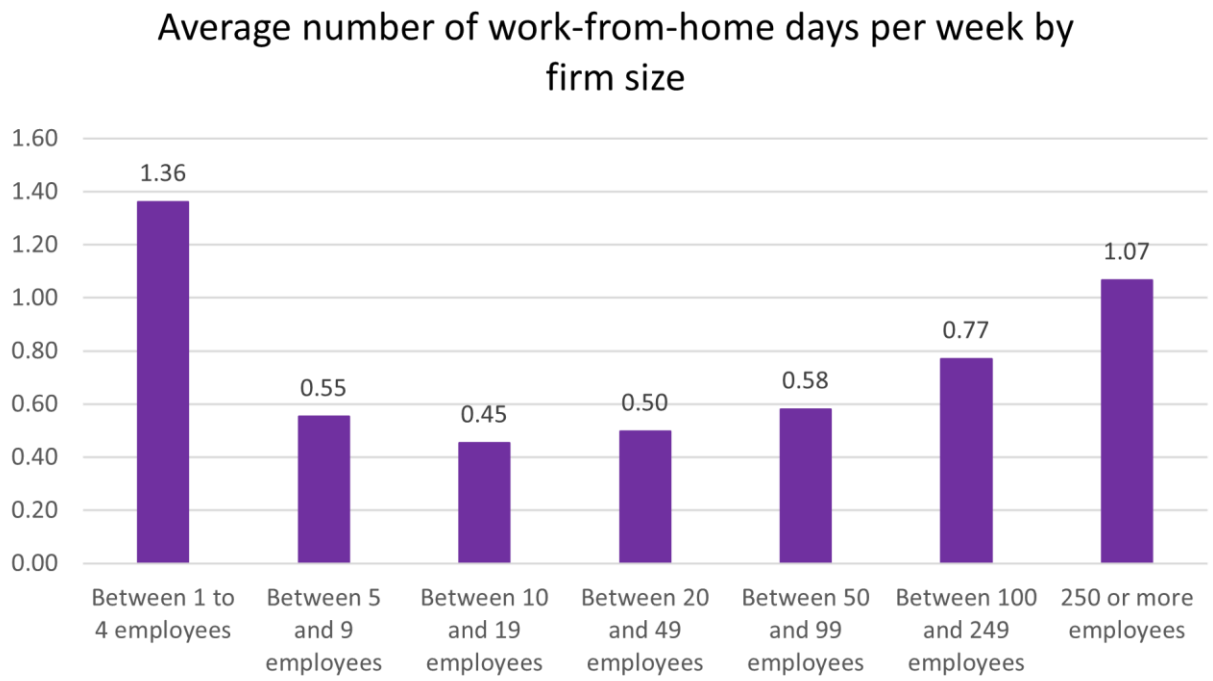


Figure 8: Limiting Factors: National

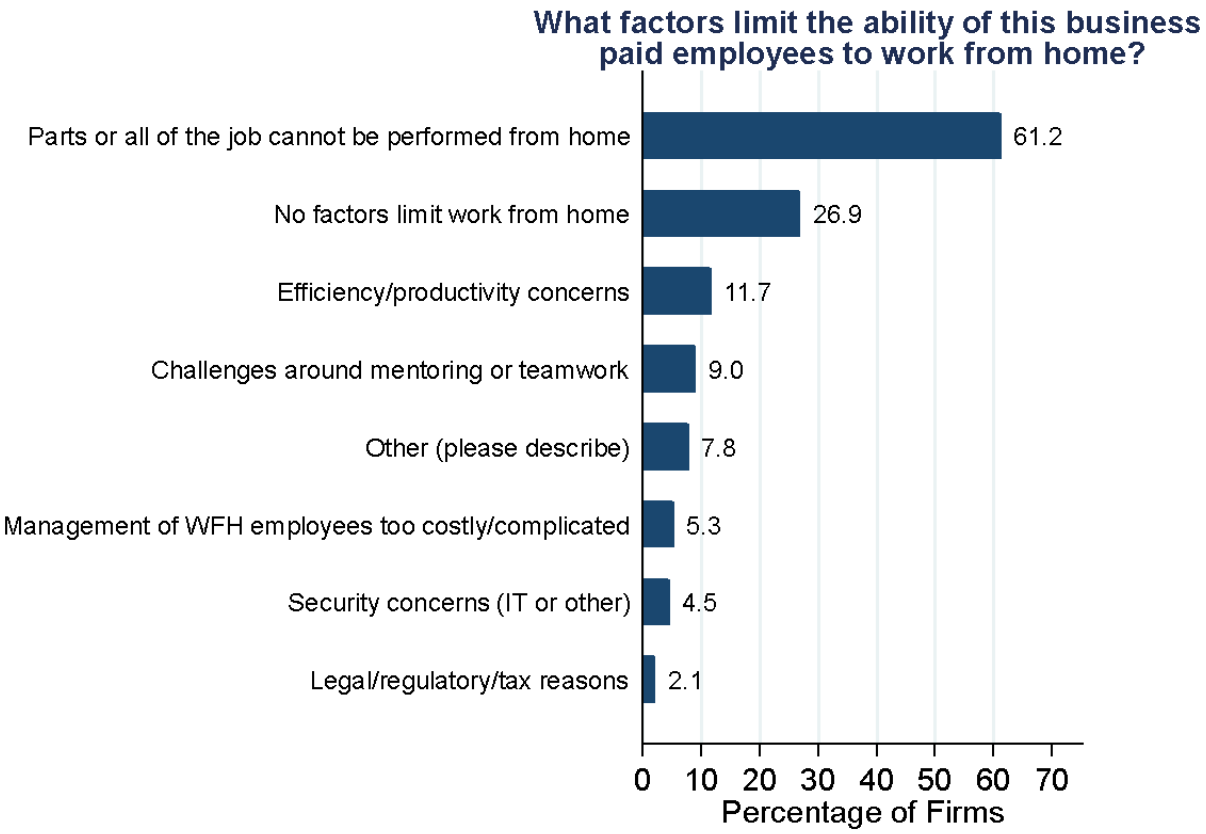
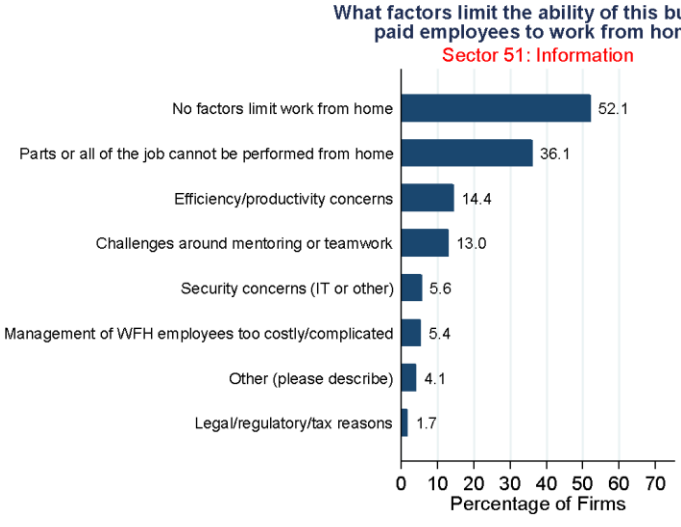


Figure 9: Limiting Factors (Two sectors)



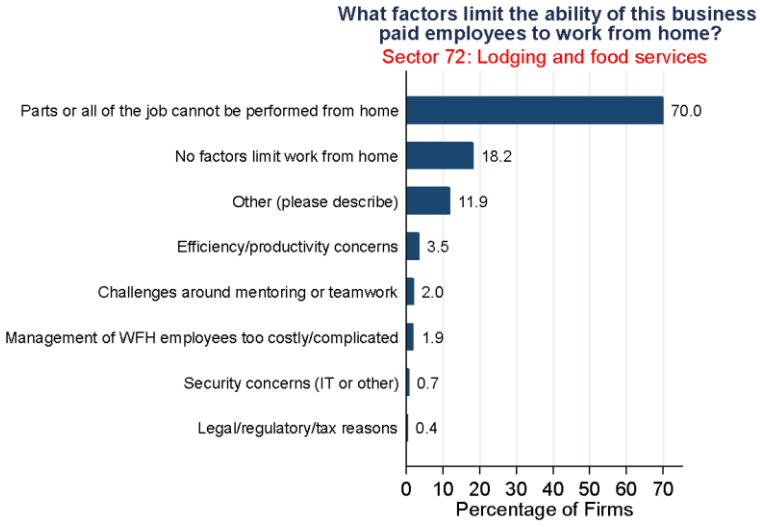


Figure 10: Locality Pay

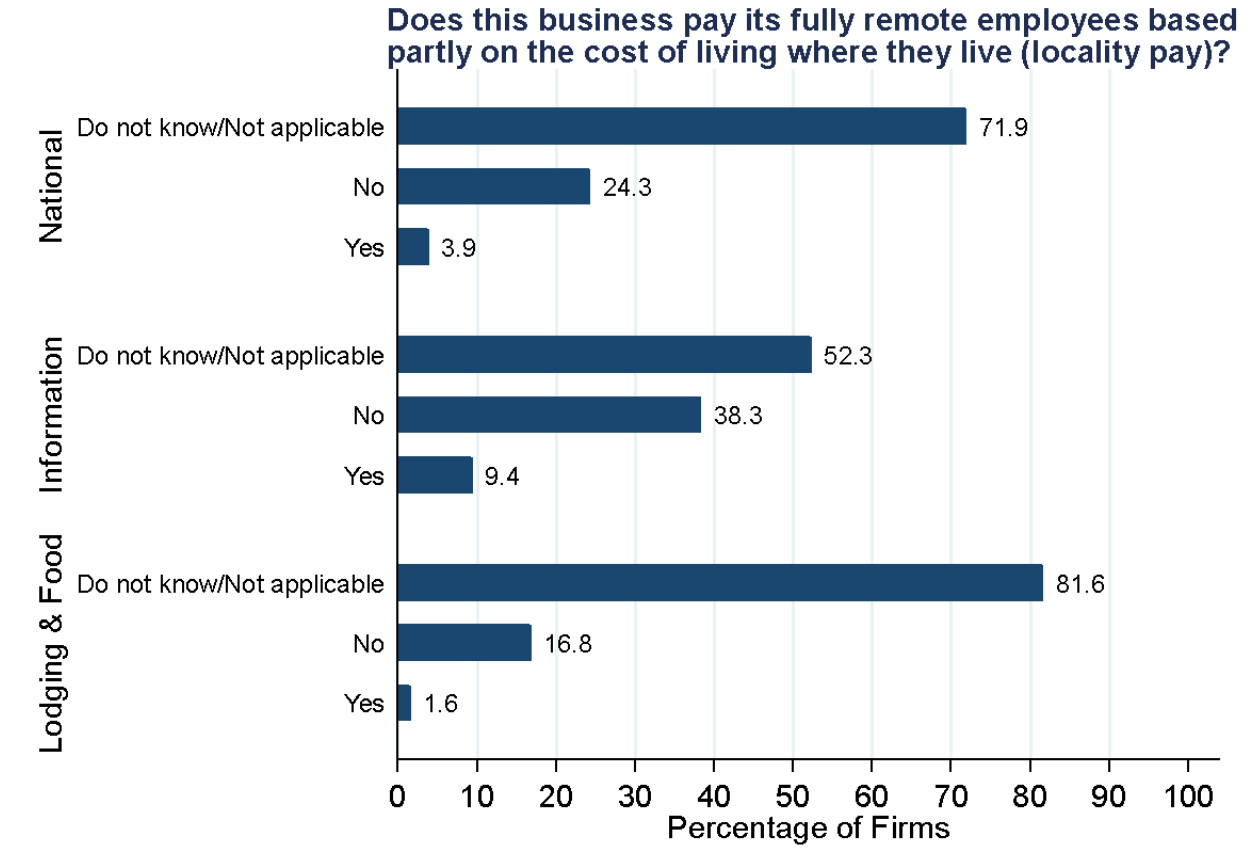


Figure 11: Onsite Requirements

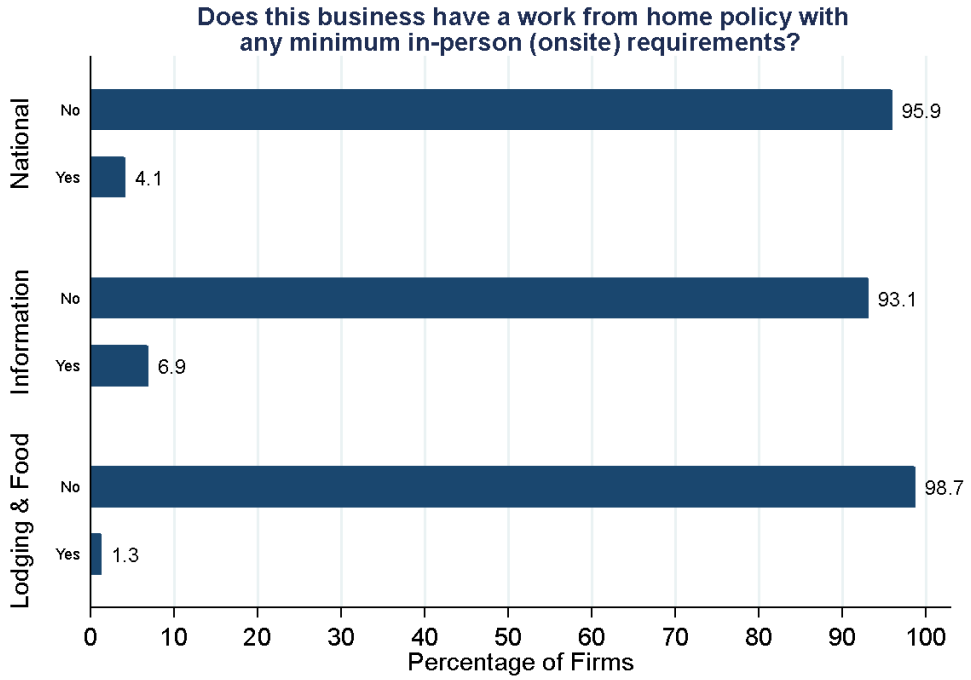


Figure 12: Tracking Onsite Requirements

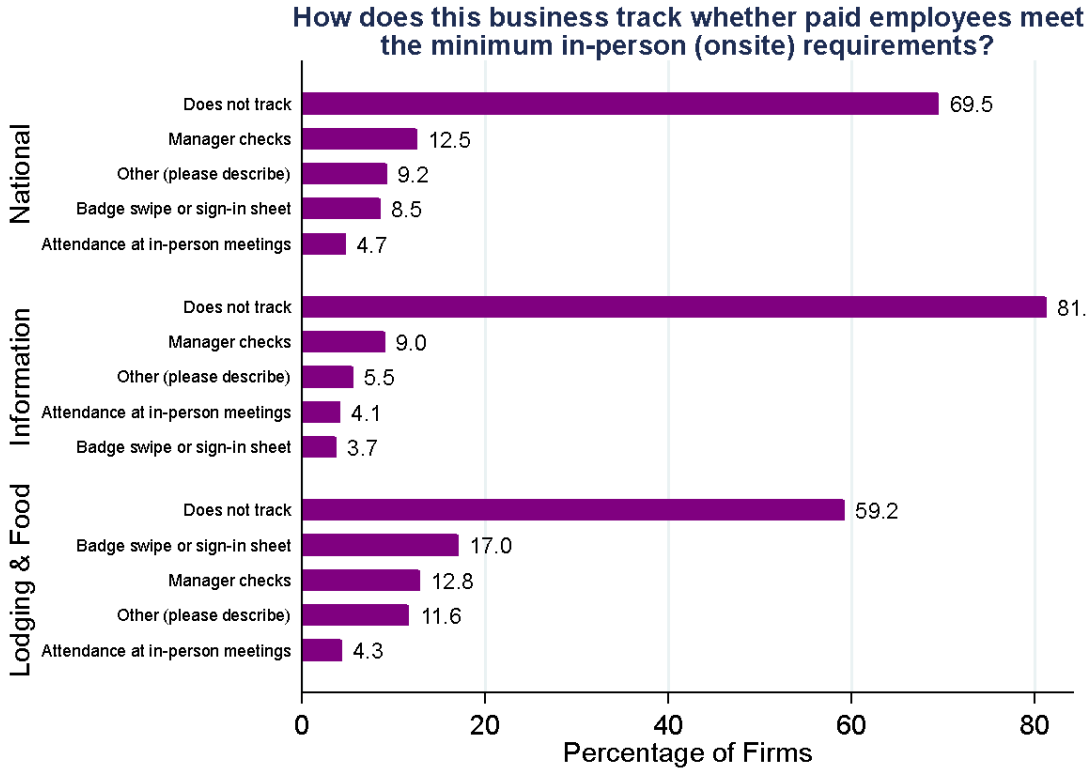


Figure 13: Monitoring work-from-home employees

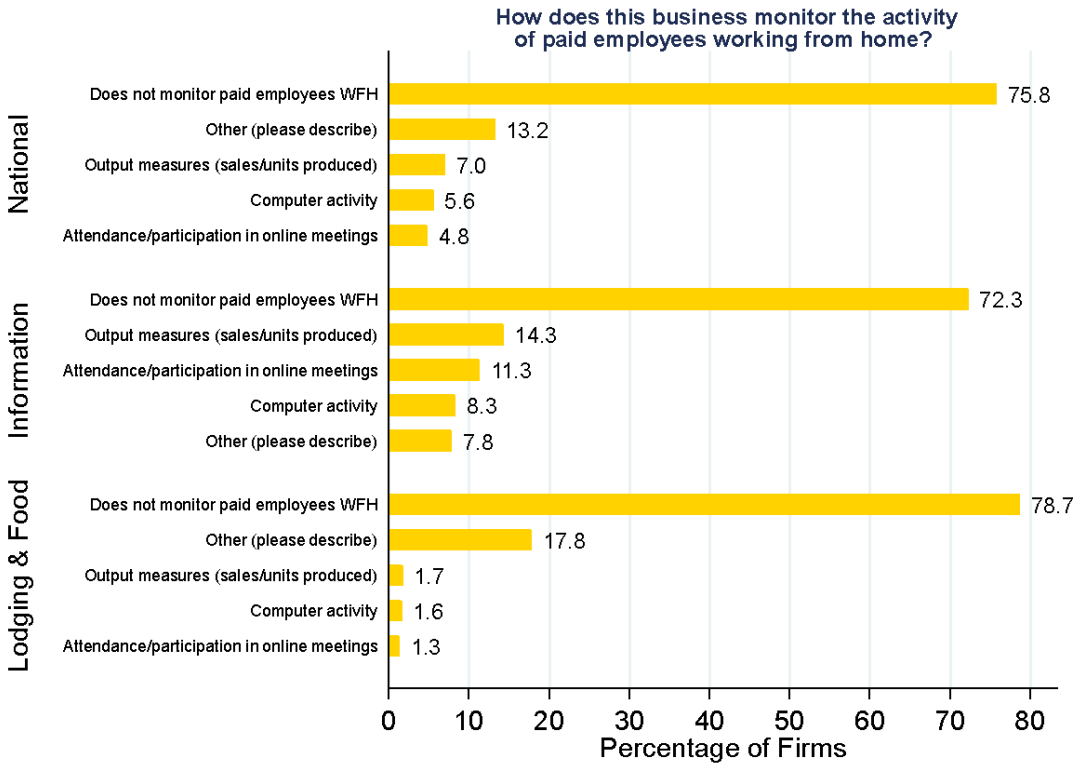


Figure 14: Monitoring in-person employees

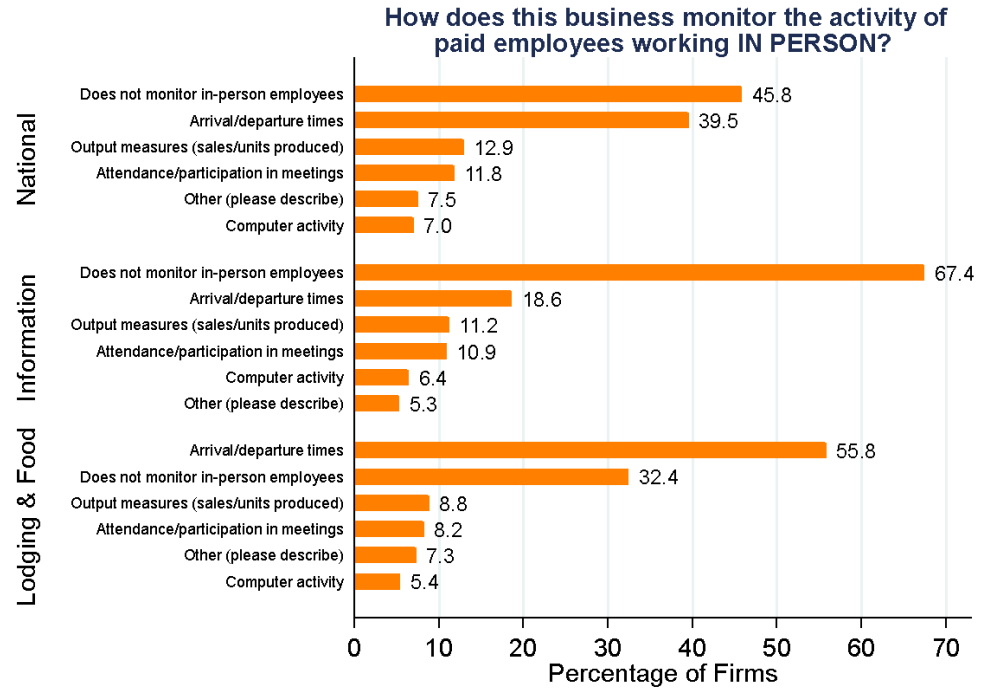


Figure 15: Productivity Differences

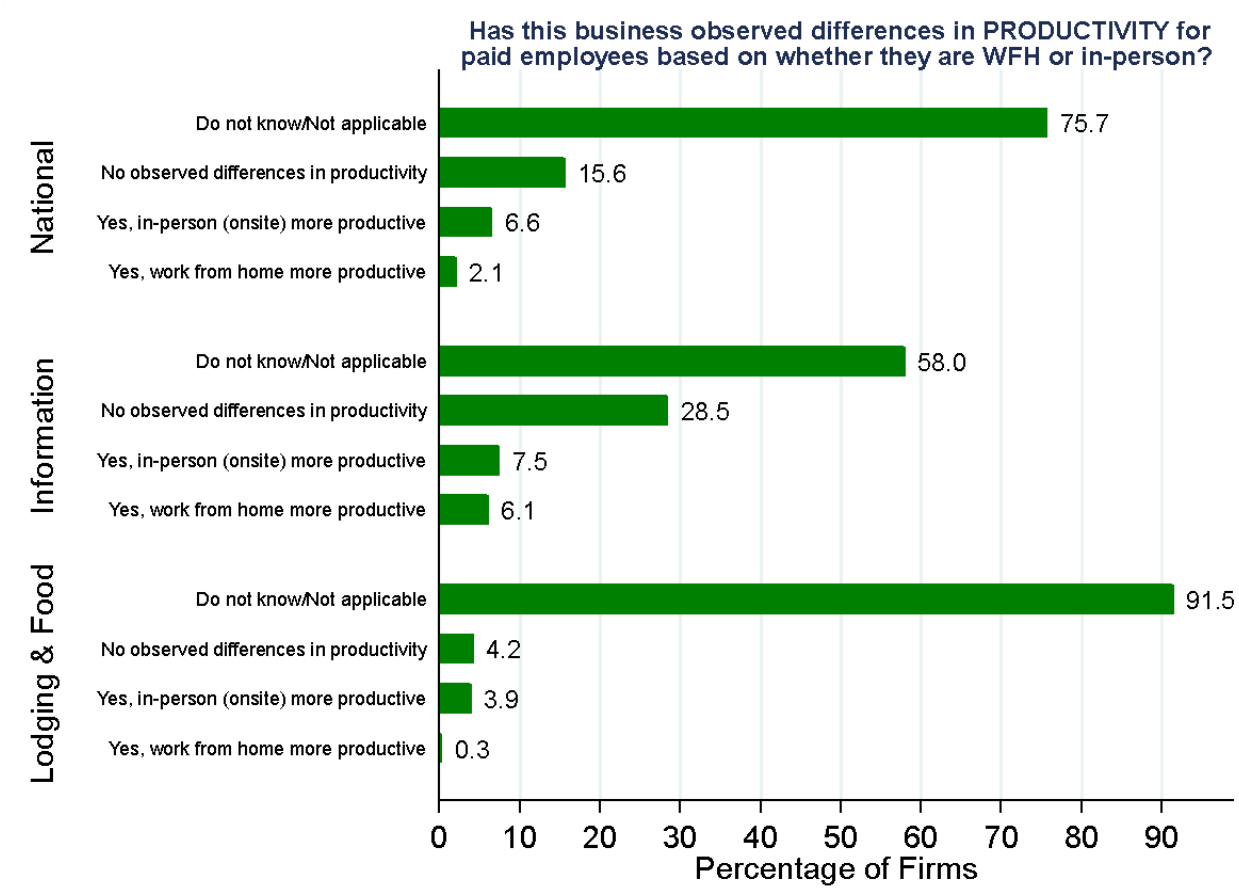
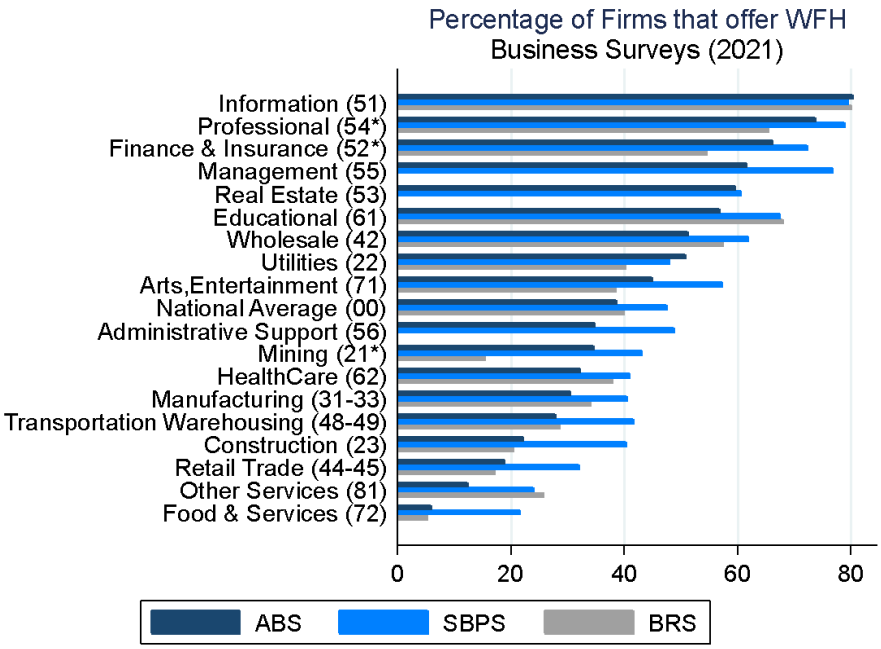


Figure 16: Extensive and Intensive Margins from other Business Surveys

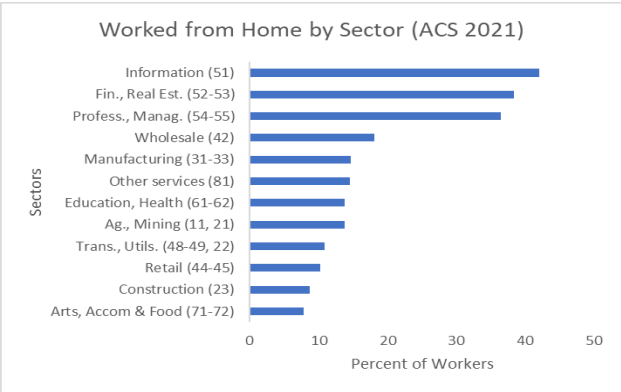
A.



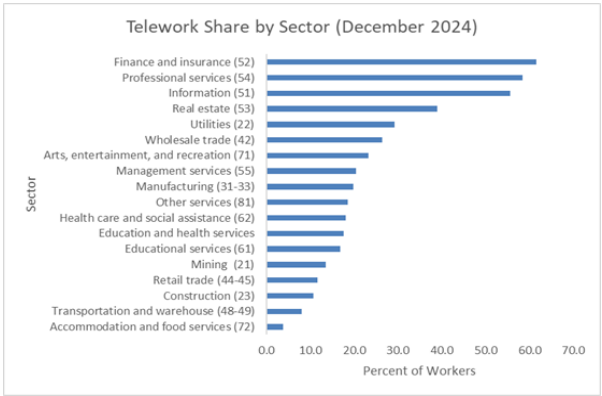
Note: Differences across bars may not be statistically significant. Figure is for expositional purposes.

Figure 17: Extensive Margin by Sector from Demographics/Worker Surveys

A: ACS



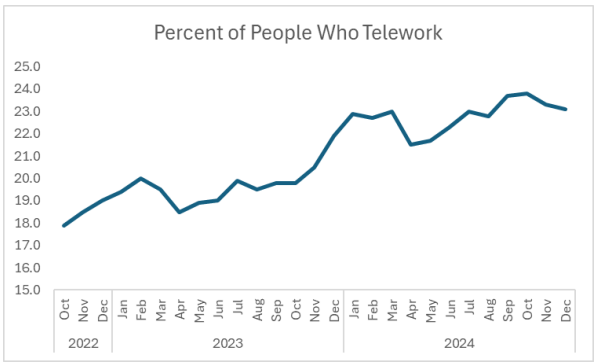
B: CPS



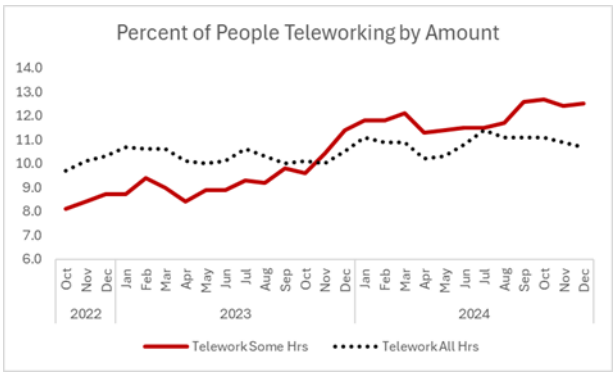
Note: Differences across bars may not be statistically significant. Figures are for expositional purposes.

Figure 18: Extensive and Intensive Margins of Telework (CPS)

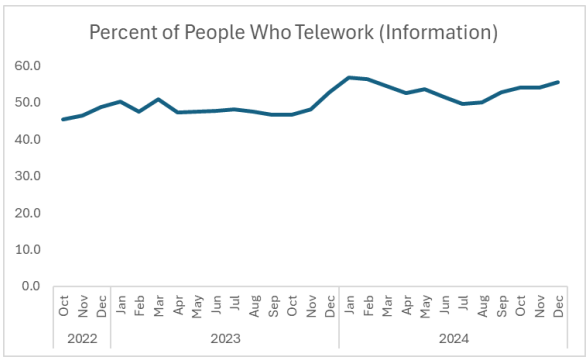
A: Extensive Margin



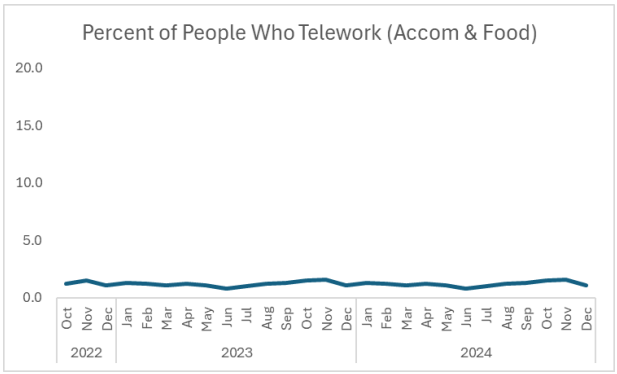
B: Intensive Margin



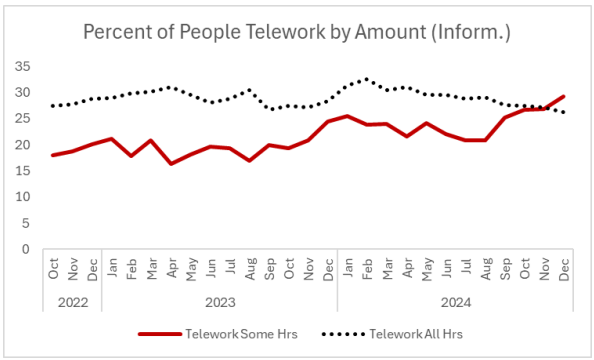
C: Extensive Margin, Information



D: Extensive Margin, Accommodation and Food



E: Intensive Margin, Information



F: Intensive Margin, Accommodation and Food

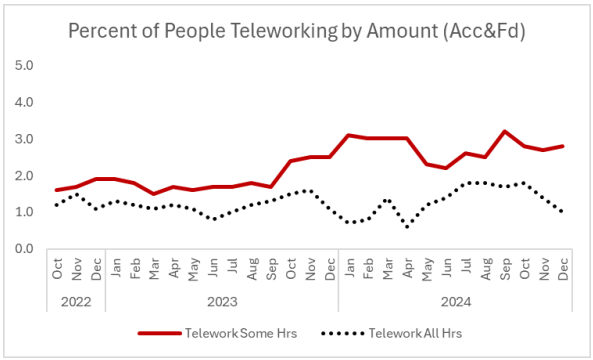
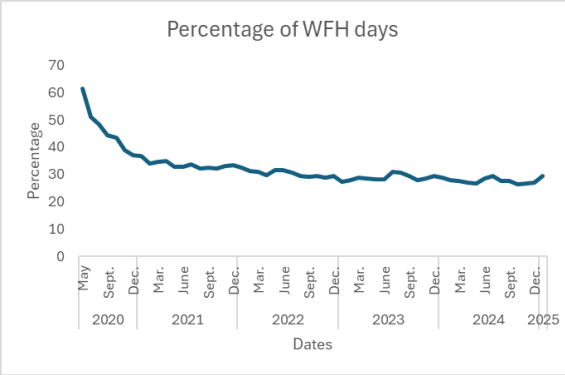
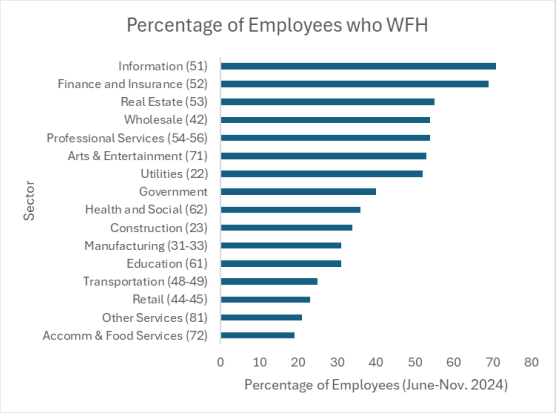


Figure 19: Extensive and Intensive, SWAA

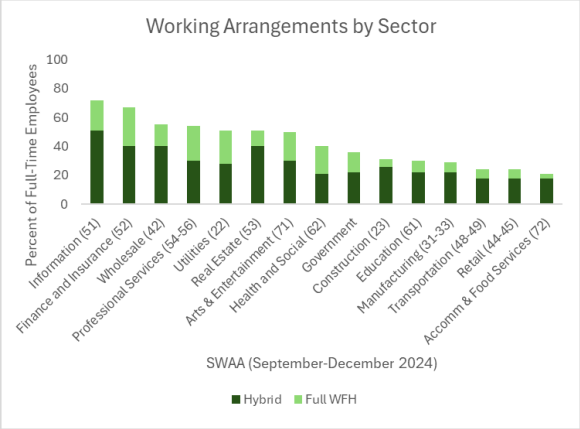
A. Extensive Trend



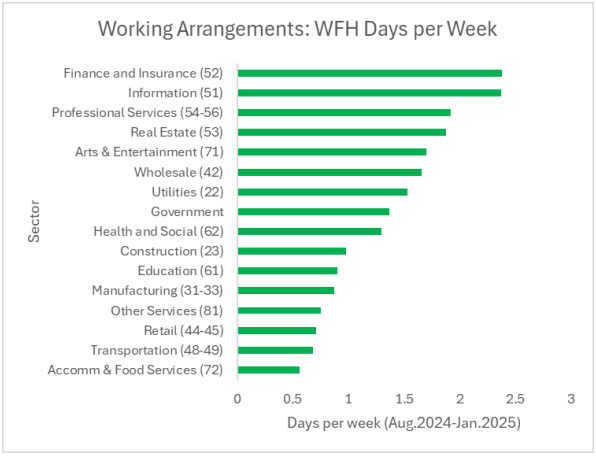
B. Extensive Sectoral



C: Intensive (hybrid vs. full WFH)



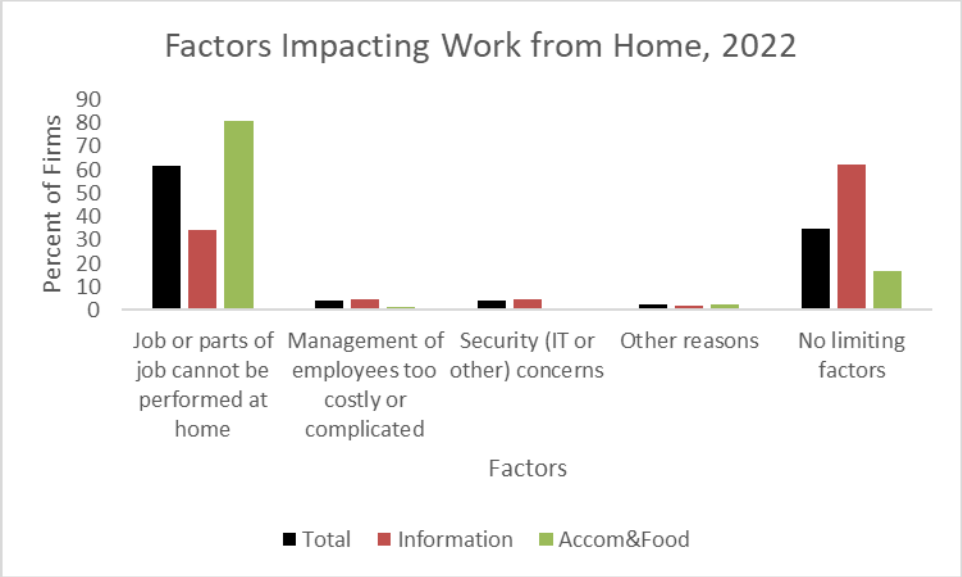
D. Intensive (days per week)



Source: Barrero, Jose Maria, Nicholas Bloom, and Steven J. Davis, 2021. "Why working from home will stick," National Bureau of Economic Research Working Paper 28731.

Note: Differences across bars may not be statistically significant. Figures are for expositional purposes.

Figure 20: Factors Affecting Work from Home, ABS



Appendix A: WFH Question on the BTOS

One WFH question appears over the entire BTOS sample year 3 (V3) collection: the question concerning the extensive margin (Question 6). The other ten WFH questions appear only as a supplement in collection from November 2024 to January 2025.

6. Between MM DD - MM DD, did this business have any paid employees who worked from home for at least one workday? *A workday is 6 or more hours.*
   - Yes
   - No

27. Approximately what percentage of this business's paid employees currently work from home any of their workdays? *A workday is 6 or more hours. Total must equal 100% of paid employees. Estimates are acceptable.*

    _____ % never work from home

    _____ % work from home occasionally

    _____ % work from home 1 day per week

    _____ % work from home 2 days per week

    _____ % work from home 3 days per week

    _____ % work from home 4 days per week

    _____ % work from home 5 or more days per week

    ____

    100% paid employees

28. Five years ago (in 2019), approximately what percentage of this business's paid employees worked from home any of their workdays? *A workday is 6 or more hours. Total must equal 100% of paid employees. Estimates are acceptable.*

    ____% never worked from home

    ____% occasionally worked from home

    ____% worked from home 1 day per week

    ____% worked from home 2 days per week

    ____% worked from home 3 days per week

    ____% worked from home 4 days per week

    ____% worked from home 5 or more days per week

    ____

    100% paid employees

    - Do not know/Not applicable

29. Looking forward to five years from now (in 2029), approximately what percentage of this business's paid employees do you think will work from home any of their workdays? *A workday is 6 or more hours. Total must equal 100% of paid employees. Estimates are acceptable.*

____% will never work from home

____% will occasionally work from home

____% will work from home 1 day per week

____% will work from home 2 days per week

____% will work from home 3 days per week

____% will work from home 4 days per week

____% will work from home 5 or more days per week

____
100% paid employees

- Do not know/Not applicable

30. Does this business pay its fully remote employees based partly on the cost of living where they live (locality pay)?
    - Yes
    - No
    - Do not know/ Not applicable

31. What factors limit the ability of this business's paid employees to work from home? *Select all that apply.*
    - Parts or all of the job cannot be performed from home
    - Management of employees working from home too costly/complicated
    - Efficiency/productivity concerns
    - Challenges around mentoring/learning or teamwork/socialization
    - Legal/regulatory/tax reasons
    - Security concerns (IT or other)
    - Other *(please describe* _____*)*
    - No factors limit work from home

32. Does this business have a work from home policy with any minimum in-person (onsite) requirements?
    - Yes
    - No

33. How does this business track whether paid employees meet the minimum in-person (onsite) requirements? *Select all that apply.*
    - Badge swipe or sign-in sheet
    - Attendance at in-person meetings
    - Manager checks
    - Other (*please describe*_____)
    - This business does not track whether in-person (onsite) requirements are met

34. How does this business monitor the activity of paid employees working from home? *Select all that apply.*
    - Computer activity
    - Attendance/participation in online meetings
    - Specific measures of output (for example, number of customers served or calls answered, sales, units produced, etc.)
    - Other *(please describe _____)*
    - This business does not monitor paid employees working from home

35. How does this business monitor the activity of paid employees working in-person (onsite)? *Select all that apply.*
    - Arrival/departure times
    - Computer activity
    - Attendance/participation in meetings
    - Specific measures of output (for example, number of customers served or calls answered, sales, units produced, etc.)
    - Other *(please describe _____)*
    - This business does not monitor paid employees working in-person (onsite)

36. Has this business observed differences in productivity for paid employees based on whether they are working from home or in-person (onsite)?
    - Yes, work from home more productive
    - Yes, in-person (onsite) more productive
    - No observed differences in productivity
    - Do not know/Not applicable

Appendix B: Methodology for Estimating the Average Intensity of WFH Using Public Tabulations of Responses to Questions 27, 28, 29

Tabulated responses to the intensity questions are located here: BTOS WFH Q27–Q29. In the file, each cell represents the percentage of businesses that gave a particular answer. For example, cell K8 in the sheet titled "National Response Estimates" indicates that 12.1% of businesses reported that 100% of their employees WFH five days a week. Cell F8 indicates that 77.8% of businesses reported 0% of their employees WFH five days a week.

To calculate the average number of WFH days per week at the national level:

1. We calculate the midpoint of the ranges in the top row, which refer to the share of firm-level employment that firms report in response to the intensity questions. The ranges for those employment share responses are [0, 1–24%, 25–49%, 50–74%, 75–99%, 100%], so their respective midpoints are [0%, 12.5%, 37%, 62%, 87%, 100%].
2. We multiply each midpoint by the percentage of businesses in that range and sum across the ranges in each row (i.e., across columns F to K by row). The result yields an approximation of the firm-level share of employment that "never works from home", "works from home occasionally," "works from home 1 day per week," and so on. These employment shares may not add up to exactly 100% due to our assumption that all firms with responses in a given range report the midpoint value.
3. We multiply the average share of employment with a given WFH arrangement by the corresponding number of WFH days per week. We assume that is 0 days per week for employees who "never" WFH, 0.25 (or once every four weeks) for those who WFH "occasionally," and 1, 2, 3, 4, or 5 days per week for the remaining cases.
4. Finally, we sum all the six values obtained in step 3 to obtain an estimate of the average number of WFH days per week for BTOS respondents' employees.

The equation below shows the details of our calculation:

$$AverageWFHIntensity = \sum_{WFHdays \in \{0,0.25,1,2,3,4,5\}} WFHdays \cdot \%Employment_{WFHdays}$$

$$\%Employment_{WFHdays} = \sum_{i \in \{0,1-24\%,25-49\%,50-74\%,75-99\%,100\%\}} RangeMidpoint_i \cdot \%Business_{WFHdays,i}$$

Note: When businesses responded "WFH occasionally," we assume those workers WFH 0.25 days per week, or about once a month.

Appendix C: Other Surveys Used in this Paper

C1. Annual Business Survey (ABS)

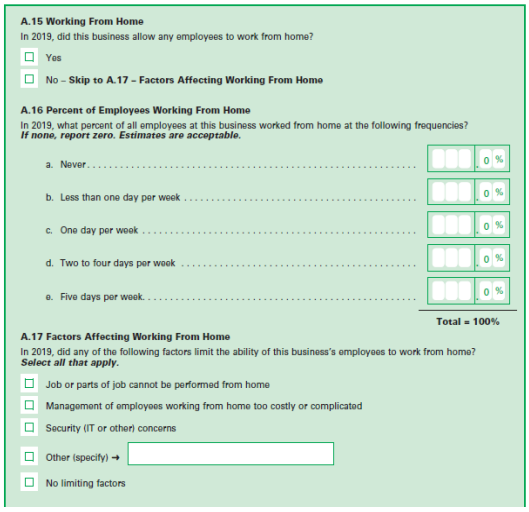
Source: Annual Business Survey (ABS) Program

The ABS is firm-level survey covering the private, non-agricultural economy. The sample size of the ABS varies from 300,000 firms in most years to 800,000 firms in Economic Census years (years ending in '2' or '7'). The ABS represents a partnership between Census Bureau and National Center for Science and Engineering Statistics and covers many of topics. For this reason, it tends to be more qualitative, asking questions that can be answered through checkbox responses. The ABS is denoted by its collection year rather than its reference year.

With the start of the covid pandemic (ABS2020, reference year 2019), three questions were added concerning work from home. The first question "In {reference year}, did this business allow any employees to work from home?" has Yes/No checkbox responses. Those who respond Yes, are asked the second question: the percent of employees in each of five categories of WFH frequency. The categories are: "Never", "Less than One Day", "One Day", "Two to Four Days per Week", and "Five Days per Week." The third question is asked of all firms and ask respondents to select all that apply for factors impacting WFH at the firm. In the interests of maintaining continuity and comparability across time, the three questions have been retained in their original form in every ABS since with one exception: the last category of responses for the second question was changed from "Five days per week" to "Five or more days per week" after ABS 2020.

The results from the ABS are weighted representation of firms that answered these questions. The program does not impute for non-response, and thus they are not representative of all firms. That is, they do not re-weight/adjust to account for the non-respondents to the Work from Home questions. Moreover, the sample covers only employer firms which is an important consideration since much of work from home is from the self-employed. Finally, due to the complexity of the ABS collection, there is a long lag between collection and publication of results.

ABS 2020 (reference year 2019)



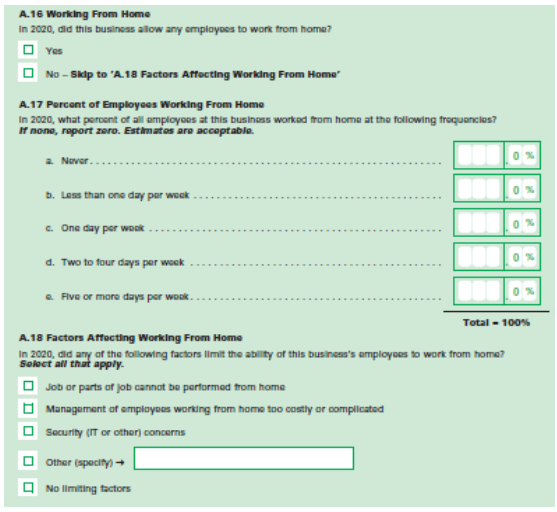
A.15 Working From Home
In 2019, did this business allow any employees to work from home?
☐ Yes
☐ No – **Skip to A.17 – Factors Affecting Working From Home**

A.16 Percent of Employees Working From Home
In 2019, what percent of all employees at this business worked from home at the following frequencies?
If none, report zero. Estimates are acceptable.

a. Never . . . . . 0 %
b. Less than one day per week . . . . . 0 %
c. One day per week . . . . . 0 %
d. Two to four days per week . . . . . 0 %
e. Five days per week . . . . . 0 %
Total = 100%

A.17 Factors Affecting Working From Home
In 2019, did any of the following factors limit the ability of this business's employees to work from home?
Select all that apply.
☐ Job or parts of job cannot be performed from home
☐ Management of employees working from home too costly or complicated
☐ Security (IT or other) concerns
☐ Other (specify) →
☐ No limiting factors

ABS 2021 (reference year 2020) – ABS 2024



A.16 Working From Home
In 2020, did this business allow any employees to work from home?
☐ Yes
☐ No – **Skip to 'A.18 Factors Affecting Working From Home'**

A.17 Percent of Employees Working From Home
In 2020, what percent of all employees at this business worked from home at the following frequencies?
If none, report zero. Estimates are acceptable.

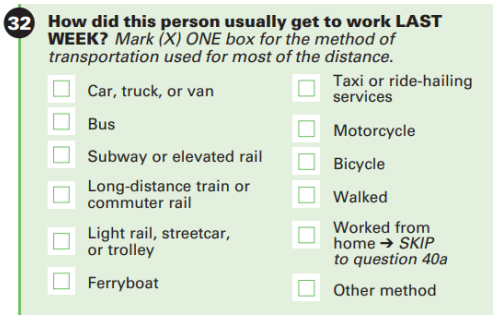
a. Never . . . . . 0 %
b. Less than one day per week . . . . . 0 %
c. One day per week . . . . . 0 %
d. Two to four days per week . . . . . 0 %
e. Five or more days per week . . . . . 0 %
Total = 100%

A.18 Factors Affecting Working From Home
In 2020, did any of the following factors limit the ability of this business's employees to work from home?
Select all that apply.
☐ Job or parts of job cannot be performed from home
☐ Management of employees working from home too costly or complicated
☐ Security (IT or other) concerns
☐ Other (specify) →
☐ No limiting factors

C2. American Community Survey (ACS)

Source: [The American Community Survey - Informational Copy (2024) (census.gov)]

Starting in 1960 and continuing through 2000, decennial long form included a commuting question on how did this person usually get to work last week with checkboxes include “worked at home”; with the transition to the American Community Survey, the commute question is asked of up to 5 people in the household (example ACS 2024).” In 2019, the response “Worked at home” switched to “Worked from home”.



32 **How did this person usually get to work LAST WEEK?** *Mark (X) ONE box for the method of transportation used for most of the distance.*

- ☐ Car, truck, or van
- ☐ Bus
- ☐ Subway or elevated rail
- ☐ Long-distance train or commuter rail
- ☐ Light rail, streetcar, or trolley
- ☐ Ferryboat
- ☐ Taxi or ride-hailing services
- ☐ Motorcycle
- ☐ Bicycle
- ☐ Walked
- ☐ Worked from home → *SKIP to question 40a*
- ☐ Other method

C3. Business Response Survey (BRS)

Source: [BRS Survey Questions: U.S. Bureau of Labor Statistics (bls.gov)]

BLS fielded the Business Response Survey (BRS) in 2020, 2021, and 2022. The framing of the questions was initially tied to the COVID-19 pandemic, but the questions became more general over time. Since our focus is also more general, we focus on the later BRS collections.

The BRS 2021 asked three questions about telework (did telework increase since the pandemic; whether it was expected to increase; and a question about intensity of telework). The survey also asked two related questions about changes in square footage of space since the start of the pandemic and expected changes in the square footage of space.

The BRS 2022 asks about the extensive and intensive margins of telework. One question asks: "Do any employees at this location CURRENTLY telework in any amount?" with yes/no responses. Another question asks: "In a typical week, what percent of employees CURRENTLY telework in the following amounts? Answers should total 100%" The categories to be filled in are: All the time (remote employee); Some of the time (some work hours or days via telework); and rarely or never (rare occasions of telework, or full-time on-site).

Example: BRS 2022 Questions about Telework

Telework is a work arrangement that allows an employee to work at home, or from another remote location, by using the internet or a computer linked to one's place of employment, as well as digital communications such as email and phone. When answering the telework questions, if an answer is zero, please enter '0' in the answer field.

1. Do any employees at this location CURRENTLY telework in any amount?
   - ○ Yes
   - ○ No --> Skip to question 3

2. In a typical week, what percent of employees CURRENTLY telework in the following amounts?
   Answers should total 100%

   [____] All the time (remote employee)
   [____] Some of the time (some work hours or days via telework)
   [____] Rarely or never (rare occasions of telework, or full-time on-site)

3. In the next 6 months, does this location expect the amount of time that employees are permitted to telework to...
   - ☐ increase.
   - ☐ decrease.
   - ☐ stay the same.

4. In February 2020, before the coronavirus pandemic began, did any employees at this location telework in any amount?
   - ☐ Yes
   - ☐ No
   - ☐ Don't know
   - ☐ Location not in business in February 2020

7. How many of these new employees hired in July 2022, will telework all the time (be remote employees)? [____]

8. For positions filled in July 2022, did this location do any of the following to attract more applicants?
   Select all that apply.
   - ☐ Expanded advertising
   - ☐ Started using recruiters/talent agencies
   - ☐ Increased starting pay
   - ☐ Offered hiring bonuses
   - ☐ Offered more hours (e.g., changed position from part-time to full-time)
   - ☐ Reduced qualifications (e.g., education or experience)
   - ☐ Expanded benefits
   - ☐ Expanded telework or remote work
   - ☐ None of the above

18. How many of these open positions are eligible for full time telework (remote work)? [____]

C4: Current Population Survey (CPS)

Source: [Telework (CPS): U.S. Bureau of Labor Statistics (bls.gov)]

Due to the pandemic, work at home questions were added to the basic monthly labor force questions starting in May 2020, these questions were revised in October 2022, then revised again in November 2023 to broaden the type of telework by dropping the pandemic framing and to focus only on two questions (extensive margin and intensive margin). In January 2024, the placement of these questions was moved to follow immediately after employment questions and are now a permanent collection on the monthly CPS.[30]

Monthly CPS

The CPS identifies employed people who either worked during the reference week or who had a job but did not work during the reference for reasons such as illness or vacation etc. Information about telework is collected from the employed people who were "at work" during the reference week ("where 'at work' describes the fact that people worked and does not indicate where they worked"). The questions are (1) At any time LAST WEEK, did you telework or work at home for pay? and (2) Last week, you worked {} hours. How many of these hours did you telework or work at home for pay? BLS publishes the percent of workers teleworking some hours and all hours (as shown in the example from December 2024 below) as well as providing more detail on the number of hours. We focus on the categories some hours and all hours in this paper.

Introduction. I now have some questions related to how the COVID-19 pandemic affected where people work.

Beginning in December 2023, the introduction was changed to:

Introduction. I now have some questions related to where people work.

(Asked about all people who worked last week)

Q1. At any time LAST WEEK, did you telework or work at home for pay?

- Yes
- No (go to Q3)

(Asked about all people who teleworked or worked at home last week)

Q2. Last week, you worked [fill: person's total hours worked last week] hours [fill for multiple jobholders: total, at all jobs]. How many of these hours did you telework or work at home for pay?

- _____ hours

Table 1. Persons at work by telework status and selected characteristics, December 2024

[Numbers in thousands]

Characteristic	Total persons at work[1]	Persons who teleworked or worked at home for pay			Persons who did not telework or work at home for pay	Percent distribution				
		Total	Teleworked some hours[2]	Teleworked all hours		Total persons at work[1]	Persons who teleworked or worked at home for pay			Persons who did not telework or work at home for pay
							Total	Teleworked some hours[2]	Teleworked all hours	
Age and sex										
Total, 16 years and over	156,732	36,216	19,519	16,697	120,516	100.0	23.1	12.5	10.7	76.9

[30] See [Telework (CPS): U.S. Bureau of Labor Statistics (bls.gov)] and Dey et al. (2021).

Periodic Supplements

In addition to the monthly CPS collection on labor market statistics, the CPS also hosts regularly occurring and periodic supplements (the ASEC is an example of the former, and the Contingent Worker Survey is an example of the latter). Prior to the pandemic, there had been five collections of work at home as supplements on the May CPS (1985, 1991, 1997, 2001, 2004).[31] More recently, BLS conducted the "Work Schedule" Supplement in September 2024.[32] The supplement asks about a dozen questions related to work at home.

Many of the supplement questions are relevant only at the worker level, for example, asking the types of work done while at home (work that substitutes for work at a worksite, work that complements work at a worksite, or both) and whether a hybrid work schedule is such that modes of work are divided across days or within days (that is, does the worker have days where they both work at home and at the worksite).

Some of the questions that are directly relevant for our consideration concern factors for why a worker may choose not to work at home. The question is copied in below.

S15 (ReasonNotHome)

Universe:

Employed people who do not work at home
S13 = 2, D, or R

Question:

What is the MAIN reason (you/NAME) (do/does) not work at home? **(Choose one.)**

Response options & paths:

1. Job can't be done from home
2. Not interested/personal preference
3. Child care or family conflicts
4. No equipment to work remotely/no space at home
5. More productive at work, better connection with coworkers
6. Loss of opportunity, income, or promotion; manager doesn't support
7. Some other reason ***GO TO S15S***

[Blind] (D) Don't Know
[Blind] (R) Refused

All other than 7 ***GO TO S15CHK***

[31] See Horvath (1986), Demming (1994), and Noonan and Glass (2012). The supplements are not strictly comparable over time as noted in the press releases. There were no work from home supplements from 2005-2021, see Supplemental Surveys (census.gov).

[32] See Polivka, Allard, and Sok (forthcoming) for an excellent, detailed discussion of the development and deployment of this content. From Polivka et al. (2024), page 11: "BLS survey methodologists supplemented their findings with insights from an online assessment of questions from another survey, the Census Bureau's Household Pulse Survey." See also Federal Register :: Information Collection Activities; Comment Request.

C5. Household Pulse Survey

Source: [Phase 4.0 Household Pulse Survey (census.gov)]

The Household Pulse Survey (HPS) is a biweekly/monthly electronic survey of households started during the pandemic and ended in September 2024 (when it was replaced by the Household Trends and Outlook Pulse Survey). The content on the HPS was developed by the Census Bureau in partnership with stakeholders (including the Bureau of Transportation Statistics). As the pandemic and post-pandemic situations evolved, the questions on the HPS changed to remain relevant. For example, in 2020, the HPS reported results for "some adult in household substituted some or all of their typical in-person work for telework because of the coronavirus pandemic." Starting in late 2022, the HPS fielded two questions about working from home. The first concerns any of people in the household and is copied in below (from the January 9, 2024 version of HPS), given the detailed response categories, this can capture "all WFH", "no WFH", and hybrid work schedules. The second question concerns the respondent for households where someone in the household teleworked in the last 7 days (copied in below).

SPN5_DAYSTW In the **last 7 days**, have any of the people in your household teleworked or worked from home?

- ○ Yes, for 1-2 days
- ○ Yes, for 3-4 days
- ○ Yes, for 5 or more days
- ○ No

SPN5_DAYSTW_2 In the **last 7 days**, have you teleworked or worked from home?

- ○ Yes, for 1-2 days
- ○ Yes, for 3-4 days
- ○ Yes, for 5 or more days
- ○ No

Buckman et al. (2025) note the more relevant concept for their paper (and ours) is the household question since the respondent question is conditioned on two things: respondent worked for pay and someone in the household teleworked or worked from home in the last 7 days. In contrast, the household question does not include these conditions. Compare the red (household) and green (respondent) circles below. However, we need to keep in mind that this is a household response rather than an individual response.

Employment Table 4a. Anyone in Household Teleworked or Worked from Home in the Last 7 Days, by Select Characteristics: United States
Source: U.S. Census Bureau Household Pulse Survey, Cycle 05.
Note: These data are experimental. Users should take caution using estimates based on subpopulations of the data – sample sizes may be small and the standard errors may be large.**
Total Population 18 Years and Older

Select characteristics	Total	Anyone teleworked or worked from home in the last 7 days				
		Yes, for 1-2 days	Yes, for 3-4 days	Yes, for 5 or more days	No	Did not report
Total	256,311,560	21,204,022	14,122,792	35,825,915	174,390,327	10,768,504

Employment Table 4b. Respondent in Household Teleworked or Worked from Home in the Last 7 Days, by Select Characteristics: United States
Source: U.S. Census Bureau Household Pulse Survey, Cycle 05.
Note: These data are experimental. Users should take caution using estimates based on subpopulations of the data – sample sizes may be small and the standard errors may be large.**
Total Population 18 Years and Older in Households where the Respondent Worked for Pay and Someone in the Household Teleworked or Worked from Home in the Last 7 Days

Select characteristics	Total	Telework frequency of respondent in last 7 days				
		Yes, for 1-2 days	Yes, for 3-4 days	Yes, for 5 or more days	No	Did not report
Total	59,695,457	14,503,303	8,874,600	21,591,568	13,996,581	729,406

C6. Small Business Pulse Survey (SBPS) 2020-2022

Source: Small Business Pulse Survey Data (census.gov)

The Small Business Pulse Survey (SBPS) is a weekly experimental survey that the Census Bureau fielded from April 2020 to April 2022 in response to the COVID-19 pandemic (Buffington et al. 2021). Collection for the SBPS was all electronic and businesses were contacted through their email addresses. The SBPS target population was single location firms with 1-499 employees and more than one-thousand dollars in revenue. Each week, emails were sent out to 100,000 businesses asking them to participate in the survey, resulting in a response rate of about 25% (results are re-weighted to be nationally representative). [33]

Early in the SBPS collection (August 2020-January 2021, phases 2 and 3), a question about work from home included as a response that the businesses did not have WFH employees. The question was: "In the last week, did this business have a change in the total number of hours paid employees worked from home?" With three checkboxes about change (increase, decrease, no change) and "This business does not have paid employees who work from home." From this, we create a measure of businesses with WFH employees. The percent of businesses responding that they did not have WFH employees was relatively constant over time, ending at 52.4% (January 4-10, 2021) implying 47.6% of businesses had WFH employees. [34]

The SBPS collected changes in "the number of hours paid employees worked from home" using three different comparison periods. Early in the SBPS collection (August 2020-January 2021, phases 2 and 3), the current WFH was compared to the last week and only 10% of businesses had a change (about 50% of business did not have WFH employees and about 40% did not have a change in hours of WFH). Later in the SBPS collection (August 2021 to January 2022, phases 6 and 7), the comparison was to "what was normal before March 13, 2020" and about 25% of businesses had a change. In the last collection period (February 2022-April 2022, phase 8), the comparison is to "six months ago" and about 15% of businesses reported a change.

Finally, the SBPS collected information about factors impacting the operations of the business with one response regarding ability of employees to work from home.

WFH Extensive and Intensive Margins

Phases 2 and 3

In the last week, did this business have a change in the total number of hours paid employees worked from home?

- ○ Yes, increased
- ○ Yes, decreased
- ○ No change
- ○ This business does not have paid employees who work from home

Phase 6

[33] All results in this section are from the SBPS website: Small Business Pulse Survey Data (census.gov).

[34] However, since it could be that some of the 40.4% businesses responding no change did so because they did not have any paid WFH employees in both periods, so perhaps 46.8% should be thought of as an upper limit.

Q13. Comparing now to what was normal before March 13, 2020, how has the number of hours paid employees worked from home changed?

- Large increase in number of hours worked from home
- Moderate increase in number of hours worked from home
- Little or no change in number of hours worked from home
- Moderate decrease in number of hours worked from home
- Large decrease in number of hours worked from home

Phase 7

Q14. Comparing now to what was normal before March 13, 2020, how has the number of hours paid employees worked from home changed?

- Large increase in number of hours worked from home
- Moderate increase in number of hours worked from home
- Little or no change in number of hours worked from home
- Moderate decrease in number of hours worked from home
- Large decrease in number of hours worked from home

Phase 8

Q15. Comparing now to six months ago, how has the number of hours paid employees worked from home changed?

- Large increase in number of hours worked from home
- Moderate increase in number of hours worked from home
- Little or no change in number of hours worked from home
- Moderate decrease in number of hours worked from home
- Large decrease in number of hours worked from home

WFH as a Potential Constraint on Operating Capacity

(Collected in similar formats over Phases 2-5, example is from Phase 2.)

Phase 2

In the last week, was this business's operating capacity affected by any of the following?
Note: Operating capacity is the maximum amount of activity this business could conduct under realistic operating conditions.
Select all that apply:

- ○ Ability to re-hire furloughed or laid off employees and/or hire new employees
- ○ Availability of employees to work
- ○ Ability of employees to work from home
- ○ Physical distancing of employees
- ○ Physical distancing of customers or clients and/or limits on the number of concurrent customers or clients
- ○ Availability of Personal Protective Equipment (PPE) and/or related equipment or supplies
- ○ Availability of other supplies or inputs used to provide good or services
- ○ None of the above

C7. Survey of Working Arrangement and Attitudes (SWAA)

Source: [WFH February 2024 (wfhresearch.com)]

The SWAA is a monthly survey, starting in May 2020, of workers in the US who report work-related earnings over a threshold (currently $10,000 for the prior year). Survey responses have increased over time and are currently about 10,000 responses. The SWAA research team designs the survey questions and uses commercial survey providers to field the survey via the internet (who share a link to the survey instrument with respondents).

The survey content varies "modestly" across survey waves and includes about 50 questions. A complete listing of the questions is available at: [Questionnaire-Repository-5-September-2024.pdf (wfhresearch.com)]. For our purposes it is important to note that the survey collects information on the industry of the worker and questions about working from home. The WFH examples from the February 2024 SWAA shown below cover the following topics: intensive margin, locality pay, expectations, productivity, and return to office policies.

A. Intensive Margin

4. You have indicated that you worked last week. How many ***full paid working days*** *did you* ***work from home*** last week?

Q_wfh_days | Multiple choice | Required | Vertical | Single-select

If this answer is greater than the previous answer, error reads:
"The number of total days working from home this week cannot exceed the total number of days you said you worked this week (in the previous question)."

a) **None**, all my paid working days were on business premises [TAG: 0]
b) **1 full paid day** working from home [TAG: 1]
c) **2 full paid days** working from home [TAG: 2]
d) **3 full paid days** working from home [TAG: 3]
e) **4 full paid days** working from home [TAG: 4]
f) **5+ full paid days** working from home [TAG: 5]

207. For each day ***last week***, did you ***work a full day (6 or more hours)***, and if so ***where?***

Matrix | Required | Group by: Row | Single-select | Randomize cols

Day of the week	Did not work 6 or more hours	Worked ***from home***	Worked at ***employer or client site***
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

	Did not work 6 or more hours	Worked ***from home***	Worked at ***employer or client site***

B. Locality Pay

486. As a fully remote employee, does your pay depend on where you live?

Multiple choice | Required | Vertical | Single-select | Randomize

a) Yes - by location, for example pay varies by US city
b) No - fully remote employees are paid the same across the US

C. Expectations

464. ***Looking one year ahead,*** how often ***is your employer planning*** for you to work full days at home?

Multiple choice | Required | Vertical | Single-select

a) Never
b) About once or twice per month
c) 1 day per week [TAG: weekly_wfh]
d) 2 days per week [TAG: weekly_wfh]
e) 3 days per week [TAG: weekly_wfh]
f) 4 days per week [TAG: weekly_wfh]
g) 5+ days per week [TAG: weekly_wfh]
h) My employer has not discussed this matter with me or announced a policy about it
i) I have no employer

D. Productivity

Worked from home

show block if Q6 selected choice is "Yes"

Set `random_efficiency_question` to select one of the efficiency questions 50/50

[Q144 logic: Show 50% of time]

144. How does your efficiency working from home compare to your efficiency working on business premises?

`Q_wfh_efficiency1` | Multiple choice | Required | Vertical | Single-select

a) Better -- I am **more** efficient at home than working on business premises
b) About the same -- I'm equally efficient in both places
c) Worse -- I am **less** efficient at home than working on business premises

[Q336 logic: Show 50% of time]

336. How does your efficiency working from home compare to your efficiency working on business premises?

`Q_wfh_efficiency2` | Multiple choice | Required | Vertical | Single-select

a) Worse -- I am **less** efficient at home than working on business premises
b) About the same -- I'm equally efficient in both places
c) Better -- I am **more** efficient at home than working on business premises

[Q145 logic: Show if "Better" selected in Q_wfh_efficiency1 or Q_wfh_efficiency2]

145. How much ***more efficient*** are you working from home than on business premises?

Multiple choice | Required | Vertical | Single-select

a) Under 5% more efficient
b) 5% to 10% more efficient
c) 10% to 15% more efficient
d) 15% to 25% more efficient
e) 25% to 35% more efficient
f) Over 35% more efficient

[Q146 logic: Show if "Worse" selected in Q_wfh_efficiency1 or Q_wfh_efficiency2]

146. How much ***less efficient*** are you working from home than on business premises?

Multiple choice | Required | Vertical | Single-select

a) Under 5% less efficient
b) 5% to 10% less efficient
c) 10% to 15% less efficient
d) 15% to 25% less efficient
e) 25% to 35% less efficient
f) Over 35% less efficient

Show if "Better" selected in Q_wfh_efficiency1 or Q_wfh_efficiency2

35. Is ***time saved by not commuting*** part of your ***extra efficiency when working from home?***

Multiple choice | Required | Vertical | Single-select | Randomize

a) Yes
b) No

[Q36 logic: Show if Q35 selected choice is "Yes"]

36. How much of your ***extra efficiency when working from home*** is due to the ***time you save by not commuting?***

[Please pick a number between 0 and 100%, where 0 means none of your extra efficiency is due to time saved from your commute, and 100 means all of your extra efficiency is due to time saved from your commute.]

Slider | Required | Min: 0 | Max: 100

None , 0% ———•——— All, 100%

E. Return to Office Policies

RTO policy questions

show block if Q5 selected choice is any of "I am a wage and salary employee, and my main job accounts for most of my earnings", "I am a wage and salary employee who also earns a lot of extra income from side jobs"

523. How many distinct ***Return to Office Policies*** has your employer announced since fall 2020?

Multiple choice | Required | Vertical | Single-select

a) None
b) One
c) Two
d) Three
e) Four
f) Five or more

524. Roughly what ***percentage of your co-workers comply*** with your employer's current ***Return to Office Policy?***

Number | Required | Min: 0 | Max: 100

_____ % comply with Return to Office Policy

525. What happens to ***employees who don't comply*** with your employer's current ***Return to Office Policy?*** Please select all that apply.

Multiple choice | Required | Vertical | Multi-select | Randomize

a) Nothing
b) Verbal reprimand
c) Negative performance review
d) Reduction in pay or bonus
e) Threat to terminate if it continues
f) Termination
g) Other [text input]
h) I don't know